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Transcript Exhibit(s)

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Date: November 24, 2009

Re: SolarCity / Determination
E-20690A-09-0346
Volumes I through VI, Concluded
October 14 through November 9, 2009

STATUS OF ORIGINAL EXHIBITS

FILED WITH DOCKET CONTROL

Arizona Public Service (APS Exhibits)

1

Residential Utility Consumer Office (RUCO Exhibits)

1 through 3

SolarCity (A Exhibits)

1 through 5, 8, 9

Staff (S Exhibits)

1 and 2

SunPower Corp. (SunPower Exhibits)

1 and 2

Tucson Electric Power (TEP Exhibits)

1 through 5

Western Resource Advocates (WRA Exhibits)

1

EXHIBITS NOT UTILIZED

SolarCity (A Exhibits)

7

LATE-FILED EXHIBITS

SolarCity (A Exhibits)

6 Not offered by design or oversight

SunPower Corp. (SunPower Exhibits)

3 and 4

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EXHIBIT
APS-1
ADMITTED

DIRECT TESTIMONY OF BARBARA D. LOCKWOOD

On Behalf of Arizona Public Service Company

Docket No. E-20690A-09-0346

September 30, 2009

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DIRECT TESTIMONY OF BARBARA D. LOCKWOOD
ON BEHALF OF ARIZONA PUBLIC SERVICE COMPANY
(Docket No. E-20690A-09-0346)

I. INTRODUCTION

Q. PLEASE STATE YOUR NAME AND BUSINESS ADDRESS.

A. My name is Barbara D. Lockwood. My business address is 400 North Fifth Street, Phoenix, Arizona 85004.

Q. BY WHOM ARE YOU EMPLOYED AND WHAT IS YOUR POSITION?

A. I am employed by Arizona Public Service Company ("APS" or "Company") as the Director of Renewable Energy. In that position, I am responsible for APS's renewable energy programs, including generation planning, customer programs and policy.

Q. WOULD YOU DISCUSS YOUR EDUCATIONAL BACKGROUND AND BUSINESS EXPERIENCE?

A. I hold a Bachelor of Science degree in Chemical Engineering from Clemson University and a Master of Science degree in Environmental Engineering from Georgia Institute of Technology. I am a registered professional chemical engineer in Arizona, and I began my career in the chemical industry at E.I. DuPont de Nemours ("DuPont") in various engineering and management roles. Subsequent to DuPont, I worked in the consulting field and managed diverse projects for national clients across the United States. I have been with APS since 1999. I currently serve on the Solar Advisory Board for the Department of Energy's National Renewable Energy Laboratory.

Q. WHAT IS THE PURPOSE OF YOUR TESTIMONY?

A. My testimony will address the Company's position on the issues raised by SolarCity regarding the service provided pursuant to the Solar Service Agreements ("SSA") it has entered into with the Scottsdale Unified School District (the "School District"); describe how the Company addresses SSA arrangements as a part of its Renewable Energy Standard ("RES") incentive program; and address the safety and reliability implications related to SSAs, as well as any associated resource planning issues.

II. SUMMARY

Q. WOULD YOU PLEASE SUMMARIZE YOUR TESTIMONY?

A. Yes. Solar service providers, such as SolarCity, play an important role in the development and deployment of renewable distributed energy systems, and in advancing consumer acceptance of these systems. Accordingly, providers like SolarCity are critical players in advancing both the Arizona Corporation Commission's ("Commission") overall goals for renewable generation, as well as APS's specific distributed energy goals and requirements.

APS does not object to SolarCity's SSA arrangements as they are outlined in the School District contracts that have been filed in this Docket. These SSA arrangements apply to a single customer premises. The distributed energy system is serving one customer—in this case, a school. APS believes it could be reasonable to construe the SSA as primarily a financing mechanism between SolarCity and the single customer having the system installed at its premises. This could be contrasted with a situation where a generation service provider (renewable or otherwise) seeks to provide electricity from a generation resource to multiple sites or multiple customers—circumstances that would likely result in that provider being considered a public service corporation ("PSC").

Under the terms of the SSA, which identifies SolarCity as a third-party provider of solar services, the School District will be able to take advantage of the Company's renewable incentive program if the project meets all other applicable requirements under APS's Distributed Energy Administration Plan ("DEAP"). In fact, most projects such as this will need to utilize those incentives to be commercially viable.

Additionally, it is important that SolarCity and other solar providers do not adversely impact the reliability of the APS distribution system and the safety of the Company's employees and customers. Thus, they will need to follow the Commission's Interconnection Rules approved in Decision No. 69674. Similarly, one of the primary reasons the Company engages in resource planning is to provide reliable service to its customers. As distributed energy becomes more prevalent, it will be important for APS to be informed of the expansion plans of solar providers so the Company may plan, design and build a cost-effective reliable system to serve our customers. APS recommends that the Commission consider periodic solar provider reporting requirements to facilitate this planning process.

III. SOLARCITY APPLICATION

Q. WHAT IS APS'S POSITION REGARDING THIS DOCKET?

A. APS recognizes the need for solar facility installers, such as SolarCity, to increase the likelihood that electric utilities meet the RES requirements for distributed generation. In addition, APS has observed that non-residential customers have a growing interest in a distributed energy model where a third party installs, owns, and operates renewable systems. While APS recognizes that solar providers, such as SolarCity, are essential for the implementation of the distributed energy

requirements of the RES Rules, the Company acknowledges that parties in this Docket have raised important legal questions that will require a determination from the Commission.

APS believes that similar to an individual's right to drill a well on one's property, an electric customer has a right to install or lease renewable energy facilities on their premise to offset the amount of energy they need to procure from the electric company. Additionally, it appears to APS from the contractual terms of the SolarCity SSA provided in this Docket that it is the customer, not SolarCity, that owns the electricity which is produced on their premises. Therefore, APS does not object to SolarCity's SSA arrangements, because SolarCity has structured its SSA arrangements as a "one-customer one-rooftop" model. Should SolarCity change its business model so that it provides electricity to multiple customers from a single facility, such as a master-planned community with a central solar facility providing power to multiple residences, or a shopping center with a central solar facility that sells the solar electricity to multiple commercial tenants, it is my understanding that SolarCity would be considered a PSC under the Arizona Constitution.

Q. ARE YOU FAMILIAR WITH THE SSA BETWEEN SOLARCITY AND THE SCHOOL DISTRICT PROVIDED IN THIS DOCKET?

A. I have reviewed the SSA for Desert Mountain High School. That high school is located in APS's service territory and is, therefore, of particular interest to APS.

Q. UNDER THE TERMS OF THAT SSA, DO YOU BELIEVE THAT SOLARCITY IS FURNISHING ELECTRICITY TO THE SCHOOL DISTRICT?

A. From a practical perspective, it is apparent that electricity will be generated by a system that SolarCity will own, and that the electricity will be consumed by the

school. However, it appears that the SSA is primarily a financing vehicle for the School District. In addition, the SSA states that the School District owns the electricity when it is generated. The SSA's contractual terms agreed to by the parties state "that [School District] will take title to all electric energy that the System generates from the moment the System produces such energy and that such energy will be delivered to [School District] at the delivery point . . . and [School District] shall purchase all such electric energy as and when produced by the System."[1]

Q. BRIEFLY DESCRIBE HOW THE ONE-CUSTOMER ONE-ROOFTOP MODEL WORKS UNDER APS'S SERVICE SCHEDULE 4.

A. APS's Service Schedule 4 ("Schedule 4") details the requirements for a customer to use totalized metering of multiple service entrance sections at a single site. APS believes that the definitions and requirements for a "customer site" in Schedule 4 are reasonable for determining what loads can be served through the SSA model. Schedule 4 has been approved by the Commission, and is consistent with other Company practices and policies that pertain to a customer site. Therefore, Schedule 4 provides a transparent, well-established bright line for the permitted scope of service under SSAs. If an entity provides solar equipment and services through the SSA arrangement described above, the service should be limited to the following conditions:

1. The solar facilities must be located on the customer's premises and tied into the electric system on the load side of the utility's meter at the point of delivery (referred to as "behind the meter").

[1] Solar Services Agreement between Scottsdale Unified School District and SolarCity, dated June 25, 2009, Section 4(a).

2. The solar facilities must be used solely to serve the customer's load at their point of delivery. (The point of delivery for the customer's electrical service typically includes a service panel, a supply meter, and other electrical equipment necessary to interconnect with the customer's electrical system). The solar energy may not be used to serve the loads at other points of delivery, unless those points of delivery are "totalized" pursuant to Schedule 4, which allows individual meters at separate points of delivery to be combined for billing purposes under certain circumstances.
3. The solar facilities must be operated in parallel with the utility's power grid and comply with all interconnection requirements, and the customer must be served through a partial requirements rate schedule.

Q. IF A SOLAR PROVIDER EXPANDS ITS BUSINESS MODEL BEYOND THE ONE-CUSTOMER ONE-ROOFTOP MODEL, DOES APS BELIEVE THE SOLAR PROVIDER WOULD BE A PSC?

A. APS believes that if a solar provider provides renewable energy from a single installation to multiple customers, the solar provider is both furnishing electricity and is dedicating its facilities to the public use. It is my understanding that these characteristics would make such a provider a PSC.

IV. <u>APS RENEWABLE ENERGY STANDARD INCENTIVE PROGRAM</u>

Q. PLEASE DESCRIBE APS'S RES INCENTIVE PROGRAM AS IT RELATES TO SOLARCITY'S APPLICATION.

A. APS's DEAP, which was provided as part of the Company's Implementation Plan under the RES Rules,[2] does not preclude customers from entering into third party ownership arrangements. As a result, APS pays incentives to customers if the third-party arrangement meets all requirements otherwise applicable under the

[2] The Commission approved APS's 2008 Implementation Plan in Decision No. 70313 (April 28, 2008).

DEAP. The payment arrangements between the customer (School District) and the third party (SolarCity), or whether the customer "owns" the system are not considerations in paying customer incentives. The key component for payment of customer incentives is that the customer (School District) is the owner of the Renewable Energy Credits, which is the unit created to track the kilowatt hours derived from renewable energy resources and, in this specific instance, the distributed energy resource. The Company believes that this approach provides customers flexibility to acquiring distributed energy systems and facilities, and furthers APS's opportunity for compliance with the distributed energy requirements of the RES Rules.

Q. ON A TYPICAL CUSTOMER SOLAR ROOFTOP INSTALLATION, HOW MUCH OF THE COST IS COVERED BY THE RES INCENTIVE?

A. For a typical non-residential system under the Production Based Incentive ("PBI") program, APS's RES incentive covers up to 60 percent of the total installation cost, thus significantly reducing the overall cost of the system. Approximately 25 percent of the PBI projects that are currently in the various stages of our program would hit the 60 percent cap. (Including installed, reserved, and pending projects, there are currently approximately 100 projects.) If customers include project financing as part of the total project costs, that number will be slightly less. If they do not include project financing as part of the total project costs, that number will be slightly higher. For smaller non-residential systems that are eligible for an Up-front Incentive ("UFI"), APS's RES incentive caps at 50 percent of the total installation cost, up to $75,000. Desert Mountain High School, the subject of an

SSA in this docket, may qualify for UFIs of $2.25 per watt and a waiver of the $75,000 UFI cap, pursuant to a recent Commission decision.[3]

Q. HOW ARE CUSTOMERS' OVERALL ENERGY COSTS IMPACTED BY INSTALLING SOLAR SYSTEMS?

A. As a result of installing a solar system, some customers may experience a decrease in energy costs, and others may experience an increase. Although some customers may observe this increase in their near-term energy costs, one of the purposes of a solar system installation is to manage long-term energy costs.

Q. HOW MANY SSAs DOES APS ESTIMATE COULD BE EXECUTED BY APS CUSTOMERS BY 2015, 2020 AND 2025?

A. These numbers are very hard to predict with any degree of accuracy. In 2009, approximately 65% of the PBI projects are commercial systems owned by a third party. Assuming an average of 400 kilowatts per system, and an annual lifetime commitment cap of $100 million per year, there could be more than 300 SSAs by 2015, more than 550 SSAs by 2020, and more than 800 SSAs by 2025. This number could dramatically increase if third party owners offered SSAs to smaller UFI projects as well.

Q. WITHOUT THE AVAILABILITY OF APS'S INCENTIVE PROGRAM, WOULD THE NUMBER OF RENEWABLE INSTALLATIONS AND SSAs BE REDUCED?

A. Without the availability of APS's incentive program, we do not believe that SSAs would be a viable option for most customers. Therefore, it would dramatically reduce the number of installations and the number of SSAs.

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[3] Decision No. 71275 (Sept. 17, 2009).

V. SAFETY AND RELIABILITY

Q. ARE THERE SAFETY CONCERNS WITH SOLAR SYSTEMS CONNECTED TO THE UTILITY DISTRIBUTION SYSTEM?

A. The safety of the customer, utility worker and the overall general public must be considered when interconnecting with the utility's distribution system. With solar distributed generation, APS must be integrated into the interconnection and design process to assure that its delivery system is not compromised, or that undesirable conditions, such as unintentional islanding, do not occur. This will become more important as distributed energy becomes more widespread. APS currently implements extensive interconnection and inspection processes to assure safety of all distributed energy that is interconnected to the Company's electric system and follows the Commission's Interconnection Rules, which were approved in Decision No. 69674.

Q. ARE THERE RELIABILITY CONCERNS WITH SOLAR SYSTEMS CONNECTED TO THE UTILITY DISTRIBUTION SYSTEM?

A. To assure reliability, APS's electric system must be designed to meet the peak demand needs of customers whenever the power is required. Currently, solar distributed generation is not concentrated at a level that significantly impacts the Company's energy grid. However, because the amount of solar distributed generation necessary to comply with the RES Rules in the future is substantial, understanding the impacts to the reliability and stability of the system will become more critical. The intermittency of solar insolation generation (such as on cloudy days) will provide a challenge to the utility, because the utility must provide continuous reliable power to the electrical grid and to customers during these periods. APS continues to analyze and develop processes to monitor and manage distributed energy to assure reliability as this resource becomes more prevalent.

Q. ARE THERE ANY EXISTING SAFEGUARDS AGAINST SAFETY AND RELIABILITY ISSUES ASSOCIATED WITH SOLAR SYSTEMS?

A. In addition to compliance with the Commission's Interconnection Rules, there are several existing recommendations and standards, including the National Electric Code Article 690, UL 1741, and IEEE 154.

Q. DOES THE EXISTENCE OF AN SSA CHANGE THE DISTRIBUTION UTILITY'S RESPONSIBILITY TO PROVIDE RELIABLE SERVICE TO MEET ALL OF THE SSA CUSTOMER'S LOAD?

A. No. APS must continue to deliver reliable power to the customer when the solar system is not operating.

Q. DOES SOLARCITY HAVE ANY RESPONSIBILITY FOR THE SAFETY AND RELIABILITY OF THE OVERALL ELECTRIC SYSTEM?

A. SolarCity has responsibility as it relates to its installed solar systems. The regulated utility has responsibility for the safety and reliability of the energy delivery system and its interconnection. APS will continue to have overall electric service responsibility for our customers during system outages, times of limited solar availability and non-daylight periods.

Q. HOW CAN THESE ISSUES BE AVOIDED OR MITIGATED WHEN A CUSTOMER IS RECEIVING SERVICE THROUGH AN SSA?

A. SSA providers must comply with the Commission's Interconnection Rules and the design review, which is part of APS's interconnection process, in order to assure that safe and reliable conditions are maintained. The Company must approve the interconnection of the SolarCity facilities.

VI. INTEGRATED RESOURCE PLANNING

Q. PLEASE EXPLAIN THE COMPANY'S RESOURCE PLANNING PROCESS.

A. The overall purpose of the resource planning process is to identify a set of resources that meets the future electricity needs of APS's customers in a balanced and cost-effective manner, while also satisfying our customers' desire for reliable electric service, price stability, and environmental responsibility. The resource planning process involves extensive quantitative and qualitative analysis to determine future customer energy needs and assess the different resource options for fulfilling those needs. The end result of the resource planning process is a specific set of actions or steps that will provide for a robust set of resources to meet future customer needs. Some of these actions or steps will involve actual resource acquisition, while others might involve preliminary steps, such as issuing a Request for Proposal to evaluate demand response alternatives, or completing the initial permitting of a new baseload resource. Resource planning is a continuous process and is frequently referred to as a "learning process." An important aspect of resource planning is monitoring external market factors (*e.g.*, new technologies, commodity markets, local economic conditions, interest rates, and legislative proposals) for key changes that could impact APS's resource strategies.

Q. WHY IS IT IMPORTANT FOR THE COMPANY TO HAVE THE MOST ACCURATE FORECAST POSSIBLE OF FUTURE CUSTOMER ENERGY REQUIREMENTS?

A. The assessment of future customer energy requirements is one of the most critical parts of the resource planning process. APS's resource plan is developed based upon our forecast of customer energy requirements. The resulting resource plan serves as the basis for procuring the necessary resources to satisfy the projected customer needs, and these procurement decisions are often times very large financial commitments. (For example, a large concentrated solar power plant

involves a financial commitment of several billion dollars.) In the nearer term, APS's procurement of energy commodities (like natural gas) also relies upon the forecast of customer energy requirements. Therefore, because of the large financial commitments that rely upon the load forecast, it is very important to have the best possible information on conditions and activities within the service territory to develop the forecast of customer energy requirements.

Q. PLEASE EXPLAIN THE COMPANY'S DISTRIBUTION SYSTEM PLANNING PROCESS.

A. The Company does distribution system planning throughout the year. APS reviews all new loads as they become known, and if necessary, models to assess the effects the new load may have on the distribution system. After each system peak, APS analyzes the distribution feeders and substation transformers to determine if feeder reconfiguration is needed to serve loads within the planning guideline. APS develops feeder and transformer forecasts to determine system improvement work that will be required before the next system peak to serve loads, and to plan ahead for new load development.

Q. HOW DO DISTRIBUTED SOLAR SYSTEMS IMPACT DISTRIBUTION PLANNING?

A. APS models solar systems as generators on the distribution system and evaluates generation characteristics to the existing system so that lines and transformers are not overloaded and the appropriate protection schemes are in place.

Q. ASSUMING SOLARCITY'S APPLICATION IS ACCEPTED AND MORE AND MORE CUSTOMERS ARE SERVED UNDER SSAs, WHAT ARE THE POTENTIAL CHALLENGES TO APS IN PROVIDING RELIABLE AND COST EFFECTIVE ELECTRIC SERVICE TO ITS CUSTOMERS?

A. As discussed in a previous question concerning accurately forecasting customer energy requirements, APS needs to have the best possible information on

conditions and activities within the Company's service territory that could impact our forecast of customer energy requirements. This is important for providing the most cost efficient and reliable service to our customers. APS would certainly need to be informed if a SSA provider of distributed solar systems was planning a major increase in system deployment in the next couple of years. If APS were not advised of these plans, it could result in the needless over-procurement of both resources and energy commodities for our customers, which would clearly not be the most cost efficient way to serve their needs. For these reasons, APS recommends that the Commission consider periodic reporting requirements from solar providers to facilitate the utility's resource planning process.

Q. DO DISTRIBUTED SOLAR TECHNOLOGIES POSE ANY UNIQUE RESOURCE OR DISTRIBUTION PLANNING CHALLENGES?

A. APS expects that a large portion of the distributed renewable energy will come from rooftop solar photovoltaic ("PV") systems. The Company recognizes that while solar PV systems will provide a valuable energy source, they also have some unique characteristics that are important to consider for resource and distribution planning purposes. First, solar PV is an inflexible electric generation source that produces energy in a reasonably predictable and defined pattern throughout the course of the day. Absent the deployment of energy storage devices, the energy produced by solar PV systems cannot be shifted to better match customer energy consumption patterns, or to respond to unanticipated outages of other generation sources. Second, solar PV is an intermittent generation source. The energy production from solar PV systems will rise and fall in response to solar insolation and can be affected by passing clouds or monsoon storms. With respect to distribution planning, distribution facilities must be capable of serving the total load requirement customers will need, as well as the maximum amount customers

may deliver to the grid. For these reasons, APS must consider these unique characteristics in the resource and distribution planning processes so that the correct resources are in place to complement the solar PV systems and ensure that our customers continue to receive highly reliable electric service at all times.

Many of the challenges described above can be effectively mitigated by requiring the SSA providers to report on their activities on a periodic basis. This would allow APS to maintain a good understanding of the actual performance of the solar PV systems already deployed and to have a clearer picture of what to expect in the future in terms of numbers of new solar PV systems.

Q. DOES THAT CONCLUDE YOUR DIRECT TESTIMONY?

A. Yes.

EXHIBIT
RUCO-1
ADMITTED

BEFORE THE ARIZONA CORPORATION COMMISSIO

KRISTIN K. MAYES
CHAIRMAN
GARY PIERCE
COMMISSIONER
SANDRA D. KENNEDY
COMMISSIONER
PAUL NEWMAN
COMMISSIONER
BOB STUMP
COMMISSIONER

IN THE MATTER OF THE APPLICATION OF SOLARCITY FOR A DETERMINATION THAT WHEN IT PROVIDES SOLAR SERVICE TO ARIZONA SCHOOLS, GOVERNMENTS, AND NON-PROFIT ENTITIES IT IS NOT ACTING A S A PUBLIC SERVICE CORPORATION PURSUANT TO ART. 15, SECTION 2 OF THE ARIZONA CONSTITUTION.	Docket No. E-20690A-09-0346

NOTICE OF FILING

The Residential Utility Consumer Office ("RUCO") hereby provides notice of filing the Direct Testimony of Jodi A. Jerich, Director, in the above-referenced matter.

RESPECTFULLY SUBMITTED this 30th day of September, 2009.

Daniel W. Pozefsky
Chief Counsel

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Secretary to Daniel Pozefsky

SOLARCITY CORPORATION

DOCKET NO. E-20690A-09-0346

DIRECT TESTIMONY

OF

JODI A. JERICH, DIRECTOR

ON BEHALF OF

THE

RESIDENTIAL UTILITY CONSUMER OFFICE

SEPTEMBER 30, 2009

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3 INTRODUCTION..... 1

INTRODUCTION

Q. What is the purpose of your testimony?

A. The purpose of my testimony is to provide RUCO's position on whether solar installers such as SolarCity are subject to Commission regulation pursuant to the Arizona Constitution when they enter into "Solar Service Agreements" (SSAs) with their customers.

Q. What is needed in order to make a determination whether the Commission has jurisdiction over solar installers when they enter SSAs with schools, non-profits or governmental institutions to install distributed generation photovoltaic systems on their properties?

A. Over the last several years, Arizona has seen an increase in the generation and acquisition of renewable energy. While utilities have made large strides to break away from their carbon-based business models, such efforts have occurred largely at the insistence of this Commission. There is no doubt that this Commission wishes to see as much cost-effective renewable energy as possible in Arizona. And distributed generation photovoltaic installations such as those at issue in this docket certainly have a role in this effort.

At first blush, the analysis needed to make a determination of jurisdiction seems to be a simple reading of the Arizona Constitution. However, as with many aspects of utility regulation, the analysis revolves around an intricate weave of details. RUCO's analysis is highly fact specific. Changes in the facts could alter RUCO's position.

Q. In summary, what is RUCO's ultimate position on this question?

A. RUCO finds that the SSA agreement, **as described in SolarCity's Application**, does not result in Commission jurisdiction. Under RUCO's analysis, the central factors are that SolarCity does not own the electricity and does not sell the electricity to the school, non-profit or government institution. Therefore, SolarCity does not "furnish" the electricity as required by the Arizona Constitution. From the moment of generation, the electricity is owned by the customer on whose property the system is located. In order to avoid up front installation costs, the SSA allows the customer to finance the costs for the installation and maintenance of the system over a period of years. The installers have chosen to establish a repayment schedule over a period of years that is predicated upon the amount of electricity produced. In short, the SSA is a financing mechanism and not the provision of a commodity.

RUCO believes it is appropriate for the Commission to consider the number of installers doing business in Arizona. Since the consumer can choose from several different installers and can shop for the best deal, RUCO finds this to be a competitive market. Such a variety of vendors provides negotiating power to the consumer. It is in the best interests of the consumer to have as many choices as possible.

RUCO believes that the question of Commission jurisdiction should also consider public health and safety concerns. As discussed in greater detail in

this testimony, RUCO believes that the SSA financing arrangement does not impair the public's health and safety any more than if the installation were purchased outright. At present, the Commission does not regulate the purchase of solar installations by customers when purchased (instead of financed) from solar installers such as SolarCity and this application does not contemplate regulation of such transactions.

Finally, RUCO believes that the Commission should consider any impact Commission regulation may have on the Commission's goal to increase renewable energy in Arizona. As discussed below, RUCO believes that regulation may impede this goal. If the Commission finds it to have jurisdiction, it is RUCO's understanding that it will be the only state in the country to regulate distributed generation photovoltaic installers when they enter into SSAs with their customers.

In the alternative, if the Commission were to find that solar installers such as SolarCity do fit within the definition of a "public service corporation" then RUCO encourages the Commission to assert its jurisdiction with as light a hand as possible.

Q. What entities are regulated by the Commission?

A. Under the Arizona Constitution, public service corporations are regulated by the Commission. Article 15, Section 3 states:

> "The Corporation Commission shall have full power to, and shall, prescribe just and reasonable classifications to be used and just and reasonable rates and charges to be made and collected, by public service corporations within the State for service rendered therein, and make reasonable rules, regulations, and orders, by which such corporations shall be governed in the transacting of business within the State, and may prescribe the forms of contracts and the systems of keeping accounts to be used by such corporations in transacting such business, and make and enforce reasonable rules, regulations and orders for the convenience, comfort and safety and the preservation of the health of the employees and patrons of such corporations..."

Q. Does the Arizona Constitution define "public service corporation"?

A. Yes. Article 15, Section 2 defines "public service corporation" as "*all corporations other than municipal engaged in furnishing gas, oil, or electricity for light fuel or power ... shall be deemed public service corporations.*"

Q. Is there a general presumption that a business is exempt from Commission regulation?

A. Yes. "There is no presumption that a business activity is within regulation of corporation commission, and, on the contrary, presumption is that it is not." Arizona Corp. Commission v. Continental Sec. Guards (App. 1967), 5 Ariz. App. 318, 426, P. 2d 418 vacated 103 Ariz. 410, 443 P.2d 406.[1] Furthermore, there has been significant discussion whether this Application meets the eight (8) criteria for Commission regulation set forth in the *Serv-Yu* case (Natural Gas Serv. Co., v. Serv-Yu Coop., 70 Ariz. 235, 219 P.2d 324

[1] In this matter, the Arizona Supreme Court vacated the Court of Appeals ruling that found the Commission had jurisdiction.

(1950)). However, this testimony is not intended to provide a legal analysis of the matter. Instead, I discuss RUCO's analysis of the specific details of the application and discuss the public policy implications of jurisdiction.

Q. In this docket, are the photovoltaic systems that are to be installed on schools, government institutions and non-profits to be owned by these entities?

A. Not immediately. Instead, these customers will enter into long term "Solar Service Agreements" (SSAs) for the systems. At the end of the term, the customer has the option to purchase the system and obtain title to it. The details of the financing agreement can be found in SolarCity's Application.

Q. Is a sale transaction where a solar installation is purchased (rather than leased or financed) subject to Commission jurisdiction?

A. No. The Commission has never asserted jurisdiction when a customer purchases outright a solar installation from an installer and ***owns*** the installed photovoltaic installation that generates electricity on their property.

Q. So if the school, government institution or non-profit owns the solar installation there is no Commission jurisdiction but if the customer has the equipment installed pursuant to an SSA then there might be Commission jurisdiction?

A. That is what this docket is trying to figure out. Basically, the question is whether the financing instrument changes the nature of the electricity generated on the customer's rooftop.

Q. If the Commission should find that one of the "services" provided by the installer through an SSA is the furnishing of electricity, even if it is only one of several services provided by the SSA, would that change RUCO's analysis?

A. Absolutely. The language of the Arizona Constitution is plain, clear and concise. Corporations that furnish electricity are public service corporations and subject to Commission jurisdiction. The importance of the furnishing of electricity cannot be overshadowed by additional services. RUCO believes that if the installer furnishes the electricity, then that provision cannot be merely "incidental". Without the electricity, any other services provided by SolarCity would be meaningless.

Q. So if the Commission finds that the solar installer does furnish electricity through the SSA, could the Commission regulate these transactions?

A. Possibly. It is RUCO's understanding of case law that even if a corporation meets the literal and textual definition of a "public service corporation" then the Commission must consider whether the corporation's activities meet the eight (8) criteria of the Serv-Yu case.[2]

The purpose of government regulation is to prevent abuses that happen in a free and unfettered marketplace and to protect the health and safety of the public. If the Commission were to find it has jurisdiction, it could establish

[2] "Determining whether an entity is a public service corporation requires a two-step analysis. First, we consider whether an entity satisfies the literal and textual definition of a public service corporation under Article 15, Section 2, of the Arizona Constitution. Second, we evaluate whether the entity's business and activity are such as to make its rates, charges, and methods of operations a matter of public concern, by considering the eight factors articulated in [Serv-Yu]". Southwest Transmission Cooperative, Inc. v. ACC., 213 Ariz. 427, 430, 142 P. 3d 1240, 1243 (2007).

rules or guidelines by which any installer must abide. The Commission could establish a regulatory regime that curtails any envisioned market abuses and allows these installations to be set up the quickest and cheapest way possible. This could be considered a form of "light" regulation that achieves the purposes of government oversight without creating undue obstacles to the momentum to get as much green energy on rooftops as possible. However, even with "light" regulation, RUCO believes that ARS § 40-281 would require every solar installer that utilizes SSAs in Arizona to receive a Certificate of Convenience and Necessity before transacting business. All installations for every installer that utilizes SSA financing would have to stop until this requirement is met.

Q. Why does RUCO believe that the installer is not furnishing electricity?

A. RUCO believes that the installer is not "furnishing" electricity. They are furnishing the equipment that generates the electricity. RUCO does not see this as a legal loophole, but as a very real and legitimate distinction. SolarCity's Application clearly states that all electricity generated by the installation is owned by the customer. As noted by the Arizona Supreme Court, the word "furnish" connotes a transfer of possession. (See Williams v. Pipe Trades Industry Program of Arizona, 100 Ariz. 14, 20, 409 P. 2d 720, 724 (1966)). Since SolarCity never possesses the electricity, they are unable to transfer – or furnish – it to the customer. Therefore, the installer is not

furnishing the electricity and does not fall within the definition of "public service corporation" pursuant to the Arizona Constitution.

Q. So what is the "service" provided in a "Solar Service Agreement"?

A. The elements of an SSA are outlined in the Application. An SSA is unlike an outright purchase of a solar installation where the customer owns the system and is responsible for all maintenance and upkeep. Under an SSA, the installer provides certain services – such as maintaining the system. Another service provided by the installer is providing all up front costs and bearing the risk of timely payments from the customer throughout the term of the SSA. In RUCO's opinion, it is clear from the details of the Application that "furnishing electricity" is not one of the services provided under the Agreement. The customer enjoys the use of all the electricity generated by the system and owns the electricity. The solar installer has no interest or right in the electricity generated. If any generation is not consumed by the customer, the customer – not the solar installer – can sell its excess generation to the utility through a net metering agreement.

Q. Why have these customers chosen to enter into SSAs for these solar installations instead of simply purchasing them?

A. The American Recovery and Reinvestment Act (ARRA) significantly increased the federal tax incentives and stimulus funds available for the installation and generation of qualifying distributed generation facilities such as the solar installations in question in this docket. The tax incentive has

certainly had its intended effect – an unprecedented increase in demand for clean, green distributed generation energy!

However, public buildings such as schools and government institutions are not eligible to take advantage of these sizeable tax credits. However, through this particular financing mechanism, the solar installer – a private business like SolarCity – retains title to the installation and is eligible for the tax credit. Furthermore, these customers do not have to pay any up-front costs. When the installer passes along the savings produced by the tax credit to the school, government institution or non-profit, the installation now becomes economically feasible. Without the savings generated from the federal tax credit, many schools and government institutions would conclude that the DG system's up-front expenses would be cost prohibitive – particularly during this economic recession when budgets are being slashed. Even if the school board or governing body agrees that there are significant long term benefits of these installations and future monetary savings, without seeing an *immediate* cost savings in utility bills, many would be unable to justify the expense of the purchase during this economic recession and period of declining revenues.

In Track I, the Commission found that the Scottsdale Unified School District (SUSD) would realize savings beginning in the first year of operation and continuing throughout the 15-year period. Additionally, the Commission recognized that if SUSD did not see a demonstrated savings at any point

during the period, they would elect to terminate the Agreement. (Decision No 71277 at p. 6). SolarCity, in its Application, notes, "SSA financing is effectively the only way for schools, non-profit, and governmental entities to leverage the valuable tax incentives and Federal ARRA stimulus dollars for solar..." (Application at p. 4).

Q. Should it make a difference whether Commission jurisdiction is predicated on the type of financing arrangement selected in order to install a solar photovoltaic system on a rooftop?

A. Based on the facts known in this docket, no.

Q. Would Commission jurisdiction over SSAs serve to protect the public's health and safety?

A. The answer depends on whether the Commission finds that there are sufficient safeguards already in place. RUCO identifies two types of potential health and safety risks: economic harm and physical harm.

RUCO believes that there are safeguards and remedies already in law to address the public's risk of economic harm. Solar installers must comply with state law. The Arizona Consumer Fraud Act prohibits deceptive practices (See ARS §44-1522 et seq.). In addition to a private right of action under this Act, the consumer has the benefit of having the Attorney General bring a claim on his or her behalf and also seek monetary relief.

Regarding a risk of physical harm, RUCO has some concerns that have yet to be addressed. State law already establishes standards for the selling and installation of "solar energy devices". ARS §44-1762 requires at least a one or two year warranty for certain parts. An installer must meet standards established by the Registrar of Contractors and must be a licensed solar contractor under Title 32, chapter 10, article 4. The installation must comply with any consumer protection rating and safety standards adopted by the Arizona Department of Commerce.[3] However, a September 13, 2009 article in the Arizona Republic infers that the Registrar of Contractors may not have established such standards. Additional inquiry needs to be done. Furthermore, the article states that at least two cities, Mesa and Gilbert, have recently stopped requiring building permits for rooftop solar installations. The article did not report any situations of structural damage due to a solar installation. A copy of the article is attached as Exhibit A.

Q. Are there public health and safety concerns if the Commission finds it does not have jurisdiction over these SSAs?

A. The public's health and safety is of paramount concern to the Commission and to RUCO. RUCO believes the Registrar of Contractors Office ("ROC") and local municipalities are in the best position to establish and enforce standards to preserve the structural integrity of rooftops when solar

[3] RUCO does note that Subsection (F) of this statute exempts installations that are designed or installed by the final owner from these requirements. While it is expected that the school, government institution or non-profit will be the "final owner" and that title to the solar installation will transfer at the end of the six, ten or fifteen year period, it is at the option of that entity. RUCO would find comfort if this statute were amended to clarify that solar energy devices installed pursuant to SSAs are not exempt from the provisions of this statute.

installations are placed on them. To RUCO's knowledge, the Commission's Staff has no expertise or training to conduct such inspections.

With that said, RUCO is aware that the Commission does not regulate solar installers like SolarCity when they sell (as opposed to lease or finance) installations to customers. If the Commission were to find it has jurisdiction over solar installers when customers choose to finance the installations (but not when customers purchase them), the Commission's decision would result in oversight of some installations but not others. The level of scrutiny from the ROC and the cities is the same regardless of the type of financial transaction between SolarCity and the customer.

At this time, RUCO is unaware of any Arizona rooftop suffering structural damage due to an improperly installed solar installation. Furthermore, RUCO believes that a solar installer, such as Solar City, has an even greater incentive to ensure the safe installation and operation of rooftop photovoltaic installations when financed through a SSA. Apart from any moral or ethical concerns a solar installer may have, it has a financial interest in a proper installation. Since the installer is repaid based on the installation's electrical output, it has a monetary incentive to install the system in order to promote the greatest amount of generation. This is a motivation the installer does not have when it installs a system that is not financed through a SSA.

RUCO believes that there is no more concern over the public's health and safety if the solar installation is owned or whether it is financed by the customer.

Q. Well, isn't it a public good when excess electricity that is generated from these solar installations is sold to the utility and placed on the grid? Why doesn't that consideration trigger Commission jurisdiction in this docket?

A. The Commission has asserted its jurisdiction over this transaction through its net metering Rule R14-2-1811. Through this Rule, utilities must file tariffs which set forth the conditions and price of those transactions. In this situation, the customer is clearly furnishing the excess electricity that it owns to the utility for the public good. The relationship is between the customer and the utility. The solar installer plays no role and has no interest in this transaction. Therefore, the regulated activity is the furnishing of electricity from the customer to the utility.

The sale of excess electricity generated from a DG installation is a regulated transaction. The consumer is not able to negotiate terms, conditions and price with the utility for this transaction. The regulatory burden for compliance rests with the regulated utility, not the consumer.

Q. If the Commission does not have jurisdiction over solar installers when they enter into SSAs with customers, then how does the Commission have jurisdiction over APS and other currently-regulated utilities if or when they retain title to distributed generation equipment to their customers?

A. APS has filed an application with the Commission regarding a distributed generated pilot project in Flagstaff, Arizona. (Docket No. E-01345A-09-0227). The facts of that application are clearly distinguishable from those set forth in this docket. First, APS owns all electricity generated by the installations placed on the residential and non-residential properties in the Flagstaff pilot project. Second, APS is a regulated, monopoly utility that is acting within its service territory. Unlike solar installers like SolarCity, APS is a regulated utility that "furnishes" electricity to its customers. APS has an obligation to provide service to all consumers in its service territory – including those who participate in the pilot project. Solar installers have no service territories and have no corresponding obligation to furnish electricity. In fact, solar installers do not furnish electricity – they provide the equipment that generates the electricity as well as maintain that equipment.

Q. Would regulation of SSAs have a negative impact on the growth of distributed solar power?

A. Yes, according to the Solar Alliance. The Alliance's response to APS's data request D.R. 3.2 in Docket No. E-20633A-08-0513 states:

> RESPONSE: The Alliance predicts that if SSA providers were regulated as public utilities, even under a limited regulation program, it would have a negative and wide-spread effect on DG growth in the state. Due to difficulties associated with time delays, increased compliance costs,

> and financing difficulties many—perhaps a majority of—SSA projects would simply not move forward. Preferring less regulated business environments, SSA providers would likely not open up shop in Arizona and it is possible solar manufactures might also forgo operating in the state since many rely on selling panels locally to SSA providers.

In D.R. 3.1, the Alliance claims that "there is no state in the country that in any way regulates competitive third party solar developers using the SSA model." Copies of D.R. 3.1 and D.R. 3.2 are attached as Exhibit B.

RUCO notes that the testimony of Mr. Kevin Fox filed in this docket is consistent with the statements expressed in the Solar Alliance's responses to data requests. (Fox Direct at p.6). Furthermore, Mr. Fox notes that SSAs have become the primary transaction between solar installers and non-residential customers. He notes that in 2008, approximately **90%** of non-residential solar installations were done through SSAs. (Id at p.4). He also notes that SSAs have become increasingly appealing to residential customers. (Id).

Q. Based on the totality of circumstances, does RUCO believe that these facts trigger Commission jurisdiction?

A. Based on the facts in this docket, RUCO believes that SolarCity is not acting as a public service corporation when utilizing SSAs.

Q. Does this conclude your testimony?

A. Yes.

EXHIBIT A

The Solar Alliance's Responses to
Arizona Public Service Company's
Third Set of Data Requests
Docket No. E-20633A-08-0513

APS 3.1 The Solar Alliance Application states that "the growth of distributed solar power is hampered by uncertainty that the providers of SSAs are not subject to economic regulation by the Commission as public service corporations." Application at 3. Please explain how and to what degree the growth of distributed solar power is hampered.

RESPONSE: To the best of the Alliance's knowledge, there is no state in the country that in any way regulates, competitive third party solar developers using the SSA model. Regulation in any form would have significant impact on the business models of solar service providers. First, it would increase the cost of deploying solar electric systems. Commercial solar development is a highly competitive business that operates on very tight margins. Additional costs would most likely induce SSA providers to focus their business development in other states. Second, regulation would add time to the development process. The REST Rules were adopted November 14, 2006, some 2 and one-half years ago. Since that time, relatively little commercial solar has been developed in the state. Additional administrative processes would serve to slow down, rather than streamline, solar development. Third, any form of regulation might result in the loss of project financing for Arizona as a result of the uncertainty it creates. Indeed, uncertainty has been one of the principle reasons for the lack of commercial solar development. This uncertainty has been related to diverse factors including a proposed project that might have fulfilled multiple years of the non-residential distributed requirement, the lack of Commission-approved net metering standards, uncertainty as to which Corporation Commission candidates would be elected, and the potential for regulation of third party developers, among others. One by one, these uncertainties have been favorably resolved, but for this one.

The Solar Alliance's Responses to
Arizona Public Service Company's
Third Set of Data Requests
Docket No. E-20633A-08-0513

APS 3.2 What will be the impact on growth of distributed solar power if the Commission determines that Solar Alliance members that sell electricity as a component of their business are public service corporations subject to Commission jurisdiction?

RESPONSE: The Alliance predicts that if SSA providers were regulated as public utilities, even under a limited regulation program, it would have a negative and wide-spread effect on DG growth in the state. Due to difficulties associated with, time delays, increased compliance costs, and financing difficulties many—perhaps a majority of— SSA projects would simply not move forward. Preferring less regulated business environments, SSA providers would likely not open up shop in Arizona and it is possible solar manufactures might also forgo operating in the state since many rely on selling panels locally to SSA providers.

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EXHIBIT B

September 24, 2009 | 1:03 pm | 93°

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Deregulation of booming solar industry worries some

by Jim Walsh - Sept. 13, 2009 12:00 AM
The Arizona Republic

Fueled by government incentives, Arizona's solar industry is booming, but experts are questioning whether a recent trend toward deregulation may eventually compromise public safety.

Since Mesa and Gilbert waived a requirement for building permits, no consensus exists on whether consumers are getting a break on fees or whether they are risking long-term damage to their roofs from the weight of solar systems, or worse, seeing their roof sail off during a microburst.

"They're sitting on a ticking time bomb. Something is going to happen," said Robert Dumitrache of R&R Engineering in Surprise.

Dumitrache and others argue that a structural analysis of a roof is a cheap insurance policy for a homeowner hoping to avoid long-term problems.

"The last thing Phoenix needs is to promote a black eye for the solar industry," said Ray Schmidt, also of R&R Engineering.

But Rick Fowlkes, a Mesa consulting engineer, said, "I'm in agreement with Mesa and Gilbert: If it's a single home system it's probably not needed."

Those arguing for the review may be motivated by more than public safety, he said. "It's the structural engineer who wants more business."

Steve Hether, Mesa's director of development services, acknowledged it's possible the doomsday scenarios could occur but said such events are unlikely.

"There's always a risk, no matter what you do," Hether said. "You might have a roof that is under-designed, but what are the chances of that playing out?

"For the resources we have, is it something we need to get involved in? We said no."

While Mesa waived the building permit and the $370 fee, Scottsdale still requires the permit and often requests the structural analysis, said Mike Clack, chief development officer.

With such a wide disparity in rules, the Maricopa Association of Governments is hoping to arrive at a standardized approach to protect consumers while avoiding a heavy financial burden, he said.

A structural analysis can cost anywhere from $250 to $1,200, depending on who you ask.

Clack, chairman of MAG's building-standards committee, said he's looking for proof that drilling a screw into a truss to anchor a solar system, which goes against national building codes, won't damage roofs.

Ben Hershey, president of the Structural Building Components Association, said he's offered to perform tests in the association's Madison, Wis., lab, but the solar industry so far has not agreed to pay.

"I want to help them put more solar out. At the same time, we have to protect that house on a long-term basis," he said.

Concerned about the lack of municipal oversight, Salt River Project requires Mesa and Gilbert residents to sign waivers accepting responsibility before turning on the power.

Since SRP started requiring the waiver in May, 35 Mesa residents have signed them, along with seven Gilbert residents.

Property owners and installers vouch in the waiver that the solar systems have been installed properly and meet building codes, said Lori Singleton, manager of sustainability initiatives and technology.

"SRP does prefer that the city does inspections," she said.

After being contacted by SRP and Arizona Public Service Co., the Arizona Registrar of Contractors is planning to create a new license for solar installers to protect consumers, director Bill Mundell said.

Until that happens, Mundell said he plans to add more questions about solar to the electrical-license test that now covers solar installers.

The debate comes as the solar industry booms. American Solar Electric, one of the Valley's largest installers, projects it will install 700 to 900 residential systems in 2009, spokeswoman Krystal Book said.

Despite the added costs and delays, American Solar Electric does not support deregulation, she said.

"Having a building permit from a city is an additional assurance" for homeowners, she said. With no permit, "it opens the door for unlicensed contractors who don't have the checks and balances we have in place."

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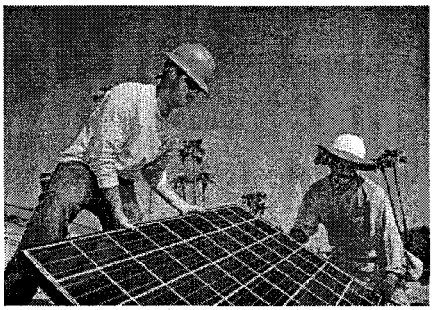

Mark Henle/The Arizona Republic

American Solar Electric employee Josh Barkey (left) and Ramon Vega install a panel on the roof of a Mesa house for a solar electricty system.

More on this topic

Solar-inspection debate

Pros

- Mesa stopped requiring the building permits two years ago and has received no complaints.

- Eliminating the permits saves consumers a $370 review

fee, plus the potential cost of a structural analysis by an engineer that could cost up to $1,200. The cost savings might encourage more people to go green.

• Mesa has not experienced a structural roof collapse in at least a decade.

• The vast majority of homes already have passed through the building-permit process.

Cons

• Some roofs have not been designed to carry an additional load. There's no way for the average consumer to know the load level without having an engineer perform a structural analysis.

• Any damage from too heavy a load would not show up for years and would likely accumulate over time. Cracks could develop in roofs, and solar panels could act like sails, pulling off roofs during storms.

• Drilling a hole into a truss to anchor a solar system violates nationally accepted building codes.

• Even if a structural analysis costs anywhere from $250 to $1,200, it's a very small percentage of a $30,000 job and amounts to an insurance policy for homeowners.

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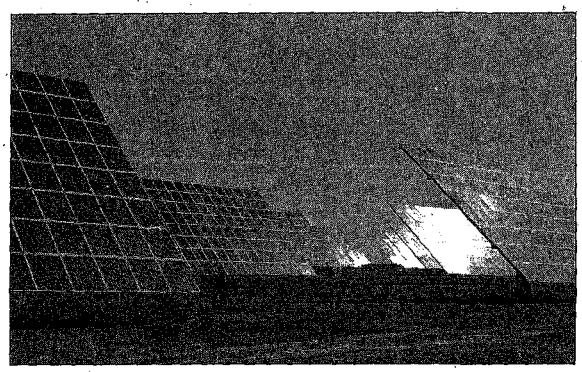
THE ISSUE: INVESTMENT IN THE SUN



BLOOMBERG NEWS

If we don't support innovation, Rep. Gabrielle Giffords warns, America will go from importing oil to importing solar panels.

SOLAR ROADMAP LIGHTS THE WAY

If you want to be sure of reaching a destination, you need a map. It's the same with an ambitious goal like ramping up solar energy in America.

Last Thursday, the U.S. House approved a bill to create a "Solar Technology Roadmap" that would provide much-needed focus and resources.

A committee, including representatives of the solar-power industry, would lay out the research-and-development needs for the next 15 years. The roadmap would be updated and revised regularly. The bill would authorize funding for R&D and demonstration projects, ramping up from $350 million in fiscal 2011 to $550 million in 2015.

For Arizona, solar power is a double economic opportunity: developing a solar industry and diversifying our power sources with a clean source of electricity. Rep. Gabrielle Giffords, a second-term Democrat who is a champion of solar power in southern Arizona, sponsored the bill, HR 3585.

Other countries have sped ahead of the United States in developing solar power, and China is making a major push. If we don't adopt better policies and support innovation, Giffords warns, America will go from importing foreign oil to importing solar panels.

This isn't an easy time to argue for spending more money. But the bill picked up bipartisan support for a reason.

Rep. Roscoe Bartlett, a Maryland Republican who describes himself as a fiscal conservative, a scientist and an engineer, argues that the bill would not use too much money. The funding level, he explains, "only begins to reverse 20 years of underinvestment in solar power."

The solar roadmap is modeled on a previous effort to develop semiconductors, which spurred two decades of technological advances. The bill still needs a sponsor in the Senate. It would be a real stretch for Sen. Jon Kyl or John McCain to back a bill that was opposed by Arizona's three Republicans in the House. But they should take a look.

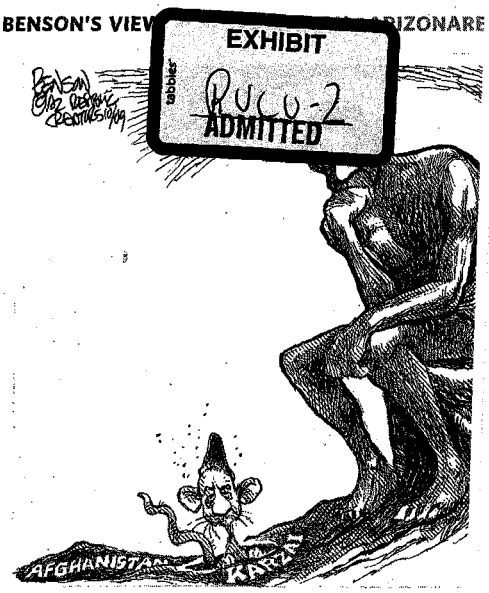
Keeping the clouds from solar innovation

Here's an innovative idea: A solar company installs and maintains panels on a school for free. The school then pays a low monthly fee for the electricity. It all pencils out because the solar company can collect renewable-energy tax credits, while tax-exempt organizations like schools cannot.

Schools benefit from lower, predictable electric bills. Arizona benefits from expanding its solar resources and industry.

But the Arizona Corporation Commission could strangle this innovation with regulation. The commission is deciding whether these solar companies should be treated as utilities. The answer is clear and logical: no.

BENSON'S VIEW ... **ARIZONA REP**



LETTERS TO TH

NATO's Afghan stance

Your headline blaring NATO support for a surge in Afghanistan implies a positive surprise ("NATO backs a U.S. surge strategy," Front Page, Saturday).

Do those countries pay for NATO? Yes, some. Do we pay for the rest? Yes.

Is NATO supplying the troops for the surge? Maybe some. Are we supplying the rest of the bodies? Yes.

Gee whiz! So NATO supports the U.S doing what the U.S. wants to do?

That's a surprise?

— **Douglas Russell**, *Scottsdale*

APS solar program really helps

I would like to respond to David Lewis who laments "why both SRP and APS have only minuscule solar efforts?" ("The real problem with our utilities," Letters, Saturday).

As an APS customer and a recent convert to using solar energy for my home, I can say the contribution APS is making in solar is significant. I recently leased a photovoltaic electricity generating system for my home. I paid zero dollars down, APS is paying an incentive of $3 per watt on my 5.1 DC kilowatt system and in return APS gets the use of my excess kilowatt hours of electricity every day and gives them back to me at night as needed.

I have agreed to this arrangement for 18 years. My lease payment is less than my average monthly APS bill has been in recent years. My monthly APS bill will be an insignificant amount. At a year-end settlement of my account, APS will purchase my surplus electricity at or near the wholesale kilowatt-hour price.

I am a retired locksmith who wanted to do something for my wallet and the planet. APS and a leasing company helped me stabilize my electricity costs and shrink my "carbon footprint" by several tons annually.

— **Michael Wright**, *Phoenix*

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OPEN MEETING AGENDAS

JUNE – OCTOBER, 2009

ARIZONA CORPORATION COMMISSION
AGENDA

Open Meeting Dates –Tuesday, June 23, 2009, 10:00 am
Wednesday, June 24, 2009, 10:00 am

Chairman's Consent Agenda

Note: The Chairman's Consent Agenda will be taken up at the beginning of the meeting on Tuesday, June 23, 2009. Any Commissioner may remove any item from this agenda before Commission action on this agenda. Any items so removed from this agenda will be transferred to the Regular Agenda, which will be taken up after the Commission has concluded action on the Chairman's Proposed Consent Agenda. Items removed from the Chairman's Proposed Consent Agenda will be taken up, in the order in which they appeared on this agenda, before the items listed on the Regular Agenda.

1. Baca Float Water Company (WS-01678A-07-0116) – Application for an Extension of its Existing Certificate of Convenience and Necessity for Water Service, Extension of Time Deadline Contained in Decision No. 69949

2. Extelcom, Inc. d/b/a/ Express Tel (T-02543A-07-0147) – Application for the Cancellation of its Certificate of Convenience and Necessity

3. Little Park Water Company, Inc. (W-02192A-07-0326) – Application for Approval of an Extension of its Certificate of Convenience and Necessity to Provide Water Service in Yavapai County, Arizona

4. The Links at Coyote Wash Utilities, L.L.C. (SW-04210A-06-0220) – Application for an Extension of its Certificate of Convenience and Necessity to Provide Sewer Service in Yuma County, Arizona, Extension of Time Deadline Contained in Decision No. 69209

5. Oak Creek Water Company No. 1 (W-01392A-09-0272) – Application for Expedited Approval of an Off-Site Facilities Hook-Up Fee Tariff

6. Phone1, Inc. (T-04297A-08-0584) – Application for the Cancellation of its Certificate of Convenience and Necessity

7. Primus Telecommunications, Inc. and Least Cost Routing, Inc. (T-03243A-07-0666 and T-03602A-07-0666) – In the Matter of Notification of *Pro Forma* Transfer of Control and Cancellation of the Certificate of Convenience and Necessity

8. SanTrac Technologies, Inc. (T-04126A-07-0476) – Application to Cancel its Certificate of Convenience and Necessity to Provide Telecommunications Services in Arizona

9. Sonoita Valley Water Co. (W-20435A-07-0649) – Application for an Emergency Rate Increase, Extension of Time Deadline Contained in Decision No. 70202

10. Total Holdings, Inc. d/b/a/ GTC Communications (T-20630A-08-0494) – Application for a Certificate of Convenience and Necessity to Provide Competitive Resold Long Distance Telecommunications Services

11. Valle Verde Water Company (W-01431A-07-0547) – Application for Implementation of an Emergency Surcharge and Request for Access to Water Infrastructure Finance Authority Funds, Extension of Time Deadline Contained in Decision No. 70098

12. Willow Valley Water Company, Inc. (W-01732A-05-0532) – Application for an Extension of its Certificate of Convenience and Necessity, Extension of Time Deadline Contained in Decision No. 68610

Open Meeting Dates –Tuesday, June 23, 2009, 10:00 am
Wednesday, June 24, 2009, 10:00 am

Regular Agenda

13. Walnut Creek Water Company, Inc. (W-02466A-08-0486) – Application for a Permanent Rate Increase

14. Ash Fork Development Association, Inc. dba Ash Fork Water Service (W-01004B-08-0508) – Application for Approval of a Rate Adjustment

15. Tucson Electric Power Company (E-01933A-07-0401) – Application for Approval of Additional Funding for its Compact Fluorescent Lamp Buydown Program

16. UNS Electric, Inc. (E-04204A-08-0341) – Application for Approval of Additional Funding for its Compact Fluorescent Lamp Buydown Program

17. UNS Electric, Inc. (E-04204A-06-0783) - Application for Approval to Revise DSM Surcharge Beginning June 1, 2009.

18. UNS Electric, Inc. (E-04204A-06-0783) – Application for Approval of Bill Estimation Methodologies Tariff.

19. Arizona Public Service Company (E-01345A-08-0426) – In the Matter of the Sale and Transition to Electrical District No. 3 of Certain Facilities in Pinal County Pursuant to A.R.S. §40-285(A) and to Delete Portions of its Certificate of Convenience and Necessity within Pinal County

20. Arizona Public Service Company (E-01345A-09-0012) – Application for Approval of a Net Metering Rate Schedule EPR-6

21. Little Park Water Company, Inc. (W-02192A-09-0143) – Application for Deviation From, and Thereafter Termination of, its Previously Approved Arsenic Impact Fee

22. Litchfield Park Service Company (SW-01428A-08-0442) – Application for a New Code of Practice Tariff

23. Level 3 Communications, LLC, Broadwing Communications, LLC and WilTel Communications, LLC (T-03654A-09-0174, T-04176A-09-0174 and T-03708A-09-0174) - Application for a Limited Waiver of the Public Utility Holding Companies and Affiliated Interest Rules (A.A.C.R14-2-801 *Et Seq.*) and Approval of Encumbrance of Assets

24. Southwest Gas Corporation (G-01551A-08-0619) – Application for Continuance and Modification of its Demand Side Management Consumer Products Program

25. Arizona-American Water Company (W-01303A-05-0280, WS-01303A-02-0867, WS-01303A-02-0869 and WS-01303A-02-0870) – Application for Authority to Implement its Arsenic Cost Recovery Mechanism Step-Two for its Aqua Fria Water District

26. Time Warner Cable Information Services (Arizona), LLC, dba Time Warner Cable (T-20449A-08-0044) – Application for Approval of a Certificate of Convenience and Necessity to Provide Resold and Facilities-Based Local Exchange Telecommunications Services and Resold and Facilities-Based Long Distance Telecommunications Services

ARIZONA CORPORATION COMMISSION
REVISED AGENDA

Open Meeting Dates –Tuesday, July 28, 2009, 10:00 am
Wednesday, July 29, 2009, 10:00 am

Chairman's Consent Agenda

Note: The Chairman's Consent Agenda will be taken up at the beginning of the meeting on Tuesday, July 28, 2009. Any Commissioner may remove any item from this agenda before Commission action on this agenda. Any items so removed from this agenda will be transferred to the Regular Agenda, which will be taken up after the Commission has concluded action on the Chairman's Proposed Consent Agenda. Items removed from the Chairman's Proposed Consent Agenda will be taken up, in the order in which they appeared on this agenda, before the items listed on the Regular Agenda.

1. Inetworks Group, Inc. (T-20639A-08-0579) – Application for a Certificate of Convenience and Necessity to provide Competitive Resold Local Exchange and Resold Long Distance Telecommunications Services.

2. Brian Beamer (T-02975A-08-0014) – Application for Approval of the Sale of Assets and/or Cancellation of the Certificate of Convenience and Necessity to Provide Customer-Owned Pay Telephone Service in the State of Arizona.

3. EMC Telecom Corporation (T-20615A-08-0429) – Application of EMC Telecom Corporation for a Certificate of Convenience and Necessity to Provide Competitive Resold Long Distance and Resold Local Exchange Telecommunications Services.

4. Empirita Water Company, LLC (W-03948A-06-0490) – Application for Extension of Time Deadline Contained in Decision No.'s 69399 and 70476.

5. Maskina Communications Inc. (T-04159A-09-0002) – Application for the Cancellation of its Certificate of Convenience and Necessity.

6. Oak Creek Utility Corporation (WS-02061A-04-0835; WS 02061A-04-0836) – Application for Extension of Time Deadline Contained in Decision No. 67986.

7. My Tel Co, Inc. (T-20486A-06-0709) – Application for a Certificate of Convenience and Necessity to Provide Competitive Resold Local Exchange and Resold Long Distance Telecommunications Services in Arizona.

8. Reliance Communications International (T-20611A-08-0405) – Application for a Certificate of Convenience and Necessity to provide Resold Long Distance Telecommunications Services.

9. Red Rock Utilities, LLC (WS-04245A-07-0363) – Application for Extension of Time Deadline Contained in Decision No. 70030.

10. Trico Electric Cooperative, Inc. and Tucson Electric Power Company (E-01461A-09-0312; E-01933A-09-0312) – Application for an Order Approving a Borderline Agreement.

Pulled 11. Tel West Communications, LLC (T-03592A-08-0414) - Application for Approval to Cancel their Certificate of Convenience and Necessity for Telecommunications Services.

ARIZONA CORPORATION COMMISSION
***REVISED* AGENDA**

Open Meeting Dates –Tuesday, August 25, 2009, 10:00 am
Wednesday, August 26, 2009, 10:00 am

Chairman's Consent Agenda

Note: The Chairman's Consent Agenda will be taken up after the Commission's consideration of Agenda Item 12 on the Regular Agenda for this Open Meeting. *Any Commissioner may remove any item from this agenda before Commission action on this agenda. Any items so removed from this agenda will be transferred to the Regular Agenda, which will be taken up after the Commission has concluded action on the Chairman's Proposed Consent Agenda. Items removed from the Chairman's Proposed Consent Agenda will be taken up, in the order in which they appeared on this agenda, before the items listed on the Regular Agenda.*

1. Access Point, Inc. (T-03446A-08-0055) – Application for Extension of Time Deadline Contained in Decision No. 71118

2. Curatel, LLC (T-20579A-08-0084) – Application for Extension of Time Deadline Contained in Decision No. 70983

3. Peerless Network of Arizona, LLC (T-20590A-08-0175) – Application for Extension of Time Deadline Contained in Decision No. 70976

4. Comcast Business Communications, LLC (T-03560A-09-0225) – Application for Cancellation of Certificate of Convenience and Necessity

5. Tel West Communications, LLC (T-03592A-08-0414; T-03592A-09-0246) – Application for Cancellation of Certificate of Convenience and Necessity

6. Talk America, Inc. DBA Cavalier Telephone and DBA Cavalier Business Communications (T-03342A-07-0612) – Application for Cancellation of Certificate of Convenience and Necessity

7. Sunesys, LLC (T-20456A-08-0452) – Application for Cancellation of Certificate of Convenience and Necessity

8. Radical Systems Solutions (T-20642A-08-0588) – Application for a Certificate of Convenience and Necessity to Provide Customer-Owned Pay Telephone Service in Arizona

9. Payphones Plus, Inc. (T-02960A-09-0229) – Application for Cancellation of Certificate of Convenience and Necessity to Provide Customer Owned Pay Telephone Services in Arizona

10. Global Water-Palo Verde Utilities Company and Global Water- Santa Cruz Water Company (SW-0357A-06-0545; W-03576A-06-0545) – Application for Extension of Time Deadline Contained in Decision No. 70381

11. Golden Corridor Water Company (W-20461A-07-0158) – Application for Extension of Time Deadline Contained in Decision No. 69724

Open Meeting Dates –Tuesday, August 25, 2009, 10:00 am
Wednesday, August 26, 2009, 10:00 am

Regular Agenda

12. Sulphur Springs Valley Electric Cooperative, Inc. (E-01575A-08-0328) Application for a Rate Increase. ***This matter is a continuation of the Commission's August 17, 2009 Special Open Meeting. The Commission plans to consider this agenda item at 10:00 a.m. on Tuesday, August 25, 2009.***

13. Mohawk Utility Company (W-02341A-06-0040) – Application for Extension of Certificate of Convenience and Necessity

14. Oak Creek Water Company No. 1 (W-01392A-09-0272) – Application for Tariff Filing to Implement an Off-Site Facilities Hook-Up Fee Tariff

15. Cellco Partnership DBA Verizon Wireless and Alltel Communications of the Southwest Limited Partnership (T-20598A-09-0262; T-03887A-09-0262; T-02428A-09-0262; T-03016A-09-0262; T-03346A-09-0262) - Application to Transfer Assets Pursuant to ARS §40-285; Application of AT&T Inc for a Limited Waiver of the Commission's Affiliated Interest Rules Pursuant to AAC R14-2-806, Notice of Intent by AT&T Inc. Pursuant to AAC R14-2-803.

16. Community Water Company of Green Valley (W-02304A-09-0153) – Application for Authority to Issue Debt Up to $2.81 Million

17. Tucson Electric Power Company (E-01933A-07-0401) – Application for Approval to Continue the On-Line Audit Component of its Education and Outreach Program

18. UNS Electric, Inc. (E-04204A-07-0365) – Application for Approval to Continue the On-Line Audit Component of its Education and Outreach Program

19. Tucson Electric Power Company (E-01933A-07-0402; E-01933A-05-0650) – Filing to Amend Decision No. 62103; Application for Extension of Waivers

20. Wilhoit Water Company (W-02065A-03-0490) – Application for Approval of the Transfer of Its Assets and Cancellation of a Portion of its Certificate of Convenience and Necessity

21. Tel Logic DBA Quality Telephone (T-04172A-03-0153) – Complaint Regarding Conduct of Business in Arizona

22. Arizona Public Service Company (E-01345A-09-0263) – Request for Authorization for Increase in Recovery Guarantee for Production Based Incentives for Distributed Renewable Generation Projects

23. Arizona Public Service Company (E-01345A-08-0614) – Application for Approval of Updated Green Power Rate Schedules GPS-1 and GPS-2 and a New Green Power Rate Schedule GPS-3

24. SolarCity Corporation (E-20690A-09-0346) – Application for a determination that when it provides solar service to Arizona schools, Governments, and non-profit entities it is not acting as a public service corporation pursuant to Art.15, Section 2 of the Arizona Constitution - Consideration of approval of special contract rates as preliminary relief.

25. Trico Electric Cooperative, Inc. (E-01461A-08-0430) Application for a rate increase.

ARIZONA CORPORATION COMMISSION
***SECOND REVISED* AGENDA**

Notes: Item 20 will not be taken before 10:00 a.m. on Wednesday, September 23, 2009

Open Meeting Dates –Tuesday, September 22, 2009, 10:00 am
Wednesday, September 23, 2009, 10:00 am

Chairman's Consent Agenda

Note: The Chairman's Consent Agenda will be taken up at the beginning of the meeting on Tuesday, September 22, 2009. Any Commissioner may remove any item from this agenda before Commission action on this agenda. Any items so removed from this agenda will be transferred to the Regular Agenda, which will be taken up after the Commission has concluded action on the Chairman's Proposed Consent Agenda. Items removed from the Chairman's Proposed Consent Agenda will be taken up, in the order in which they appeared on this agenda, before the items listed on the Regular Agenda.

1. Beals Pay Phones, LLC (T-03415A-08-0475) – Application for Approval of the Sale of Assets and/or Cancellation of the Certificate of Convenience and Necessity to Provide Customer-Owned Pay Telephone Service

2. Broadview Networks, Inc. (T-20565A-07-0651) – Application for a Certificate of Convenience and Necessity to Provide Resold Long Distance Telecommunications Services

3. Extenet Systems, Inc. (T-20597A-08-0320) – Application for Approval of a Certificate of Convenience and Necessity to Provide Private Line Point-to-Point Fiber Transport Service for Wireless Service Providers

4. Heath Communications, Inc. (T-03068A-08-0160) – Application for Approval of Sale of Assets and/or Cancellation of Certificate of Convenience and Necessity to Provide Customer-Owned Pay Telephone Service

5. Sacramento Utilities, LLC (SW-20576A-08-0067) – Application for a Certificate of Convenience and Necessity to Provide Wastewater Service, Amendment of Legal Description Contained in Decision 71119

6. Tierra Linda Homeowners Association, Inc. (W-04236A-04-0075) – Application for a Certificate of Convenience and Necessity to Provider Water Service, Extension of Time Deadline Contained in Decision 67104

ARIZONA CORPORATION COMMISSION
AGENDA

Open Meeting Dates –Tuesday, October 20, 2009, 10:00 am
Wednesday, October 21, 2009, 10:00 am

Chairman's Consent Agenda

Note: The Chairman's Consent Agenda will be taken up at the beginning of the meeting on Tuesday, October 20, 2009. Any Commissioner may remove any item from this agenda before Commission action on this agenda. Any items so removed from this agenda will be transferred to the Regular Agenda, which will be taken up after the Commission has concluded action on the Chairman's Proposed Consent Agenda. Items removed from the Chairman's Proposed Consent Agenda will be taken up, in the order in which they appeared on this agenda, before the items listed on the Regular Agenda.

1. AZMetro Communications (T-02944A-08-0368) – Application for the Approval of Sale of Assets And/Or Cancellation of the Certificate of Convenience and Necessity to Provide Customer Owned Pay Telephone Service

2. CVC CLEC, LLC (T-20646A-09-0005) – Application for Approval of a Certificate of Convenience and Necessity to Provide Resold Local Exchange and Facilities-Based Local Exchange Telecommunications Services

3. ICR Water Users Association (W-02824A-07-0388) – Application for Extension of Time Deadline Contained in Decision No. 70977

4. Phonetel Technologies, Inc. (T-03565A-09-0433) – Application for Approval of Sale of Assets And/Or Cancellation of the Certificate of Convenience and Necessity to Provide Customer Owned Pay Telephone Service

5. US LEC Communications, Inc. (T-04194A-07-0624) – Application for Approval to Relinquish its Certificate of Convenience and Necessity and for Waiver of Commission Rule R14-2-1107(B)

6. Valley Hope Association dba Chandler Valley Hope (T-02874A-09-0415) – Application for the Approval of the Sale of Assets And/Or Cancellation of the Certificate of Convenience and Necessity to Provide Customer Owned Pay Telephone Service

Solar City

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EXHIBIT
A-1
ADMITTED

Attorneys for Applicant SolarCity Corporation

BEFORE THE ARIZONA CORPORATION COMMISSION

KRISTIN K. MAYES CHAIRMAN	SANDRA D. KENNEDY COMMISSIONER	PAUL NEWMAN COMMISSIONER
GARY PIERCE COMMISSIONER	BOB STUMP COMMISSIONER	

IN THE MATTER OF THE APPLICATION OF SOLARCITY FOR A DETERMINATION THAT WHEN IT PROVIDES SOLAR SERVICE TO ARIZONA SCHOOLS, GOVERNMENTS, AND NON-PROFIT ENTITIES IT IS NOT ACTING AS A PUBLIC SERVICE CORPORATION PURSUANT TO ART. 15, SECTION 2 OF THE ARIZONA CONSTITUTION	**APPLICATION AND REQUEST FOR EXPEDITED RULING**

SolarCity Corporation ("**SolarCity**" or "**Applicant**") by and through undersigned counsel hereby submits this Application requesting that the Arizona Corporation Commission ("**Commission**") declare that when the Applicant enters into a Solar Services Agreement ("**SSA**") as described herein with schools, non-profit organizations and governmental entities, Applicant is not acting as a public service corporation ("**PSC**") as defined in Article 15, Section 2 of the Arizona Constitution. The Scottsdale Unified School District (The "**School District**") supports the Applicant in this request (*see* Letter from School District at **Exhibit "A"**). Applicant and the School District further request that the Commission expedite this Application and rule without a hearing because expedited review is necessary to allow Arizona to maximize its allocation of Federal stimulus funding under the American Reinvestment and Recovery Act

("**ARRA**") and to maximize available Federal tax incentives, one of which expires this year. This Application sets out the following; 1) an introduction to the Application; 2) a background of the Applicant and its relationship with School District; 3) the need for an expedited ruling given the time sensitive nature of this request as it relates to Federal stimulus dollars; 4) an analysis of the SSA at issue in this case; and 5) an analysis of the applicable legal and public policy standards which will demonstrate that the Applicant's request is consistent with the Arizona Constitution, case law, prior Commission decisions, and is in the best interest of the people of Arizona. ***Under these facts, the Commission must find that Applicant is not a Public Service Corporation.***

I. BACKGROUND AND REQEUST FOR EXPEDITED REVIEW

a. Introduction

In this case, the Commission is being asked to decide whether or not schools, the government, and other non-profit organizations will be able to utilize solar power to reduce their operating expenses during these particularly difficult economic times. Specifically, the Applicant has reached an agreement to install solar panels on the rooftops of two School District schools. This agreement will enable these schools to realize significant operating savings while avoiding up-front costs that would otherwise exceed $10 million. In addition to avoiding this prohibitive up-front expense, these agreements will save the schools millions of dollars in electricity costs. As a result, the School District can use these savings to advance its academic mission. Furthermore, with the availability of ARRA funding, and the overwhelming need of the schools to take every opportunity to allocate these funds for student advancement, the time is absolutely right for this decision. Indeed, this decision must come quickly, as some of the essential federal stimulus benefits and ARRA funds expire as quickly as the end of this year and the need for cost savings at the schools has never been greater.

b. Applicant SolarCity Background

SolarCity is a Delaware company headquartered in California, with 36 employees in Arizona. SolarCity is a national leader in solar power system design, financing, installation, monitoring and related services. The company's mission is to help millions of homeowners,

community organizations and businesses adopt solar power by lowering or eliminating the up-front costs. As a result, Americans will be protected from rising electricity costs and our environment will be protected from polluting power sources. SolarCity estimates that the thousands of solar systems it has installed to date will collectively offset more than 600 million pounds of greenhouse gas pollution.

c. Scottsdale School District RFP

The Scottsdale Unified School District issued a Request for Proposals ("**RFP**") from solar installers for the installation of solar systems at Coronado and Desert Mountain high schools. SolarCity proposed financing the project with a Solar Services Agreement ("**SSA**"). The School District determined that SolarCity's bid was the most advantageous to the District, and that other options were impractical because of the high up-front capital costs and inability to realize federal tax benefits. An SSA financing arrangement is the only way for the School District to adopt solar as it is the only arrangement for non-profits that utilizes federal tax incentives to enable reduction of costs (*see* detailed discussion below). SolarCity's SSA financing allows it to offer these two School District schools solar systems which are expected to save them combined ***$4.7 million*** over the next 15 years with ***zero*** up-front capital cost. This is as opposed to an approximately $10 million upfront installation cost. The effect of these reduced capital costs and significant tax benefits is such that ***there would be no solar on these schools without SolarCity's SSA financial proposal.***

The School District is excited to be able to immediately utilize solar energy and begin realizing immediate savings. The proposal from SolarCity will also provide the District with a long-term hedge against escalating utility rates on a significant portion of their demand, thus allowing the District to continue to lower its operating costs. In addition, as part of the RFP, SolarCity has agreed to provide an integrated educational component with the systems, which will allow students to learn about solar energy and to directly monitor their energy consumption/reduction and positive environmental impacts via kiosk computer screens, located in common areas of the schools. This is the very definition of a win-win situation for students, schools, taxpayers and the environment. However, as this filing will discuss, this cannot be accomplished without regulatory certainty from the Commission regarding this specific SSA.

d. Relation to Solar Alliance Filing

The Applicant is aware of the general Solar Alliance application regarding the regulatory status of solar service providers (Docket No. E-20633A-08-0513) and recognizes that many of the same legal concepts will apply to this Application. However, SolarCity was compelled to file this case-because of the imminent matter of statewide importance reflected by the Scottsdale RFP award and its associated timelines for Federal Stimulus and ARRA incentive eligibility. We believe that this case presents the Commission with a specific financing arrangement and concrete fact pattern, which will clearly demonstrate that the Applicant is not a PSC when it enters into an SSA with a school, non-profit, or governmental entity. We believe both matters are extremely important but the circumstances surrounding this Application require a specific examination and a swift resolution.

SSA financing is effectively the ***only*** way for schools, non-profit, and governmental entities to leverage the valuable tax incentives and Federal ARRA stimulus dollars for solar, which can reduce the cost of solar by half or more. Because of the utilization of the Federal ARRA stimulus dollars, an expeditious ruling (separate from the Solar Alliance case) is not only justified but also vital for the best interests of the State. Simply put, timely resolution of this matter will prevent Arizona from losing millions of Federal stimulus dollars that should be flowing to our most important institutions at a time when they are desperately needed.

e. Expedited Ruling—Imminent Matter of State-Wide Importance

There are several tax and incentive programs that are set to quickly expire making an immediate ruling and resolution of this issue essential. The Economic Stimulus Act of 2008 allows a 50% bonus depreciation to be taken on solar equipment if such equipment is installed on or before December 31, 2009. If a decision on this application is not rendered in enough time to allow installation of the panels on the schools before the end of the year, this opportunity will be lost. Given the sensitivity of construction around school children it should be noted that installation of these facilities could take at least 6 months as work can only take place during weekends and afterhours to assure the children's safety. This further demonstrates the need for

an expedited ruling on this matter as it is imperative that the system is operational by the end of the year to fully utilize bonus depreciation and ARRA stimulus funds.

Further, as part of the ARRA, Arizona has been allocated $10 million for State Building Energy Performance Contracting and $20 million for Energy Efficiency and Renewable Energy in Schools. Energy efficiency is mandated for government buildings (*see* A.R.S. § 34-451), however, these funds are barely enough to make a dent in schools' budgets or in the amount of solar installed without the added leverage of private investment.

As this Application will discuss, this private investment is only made possible for these entities through the use of the SSA financing arrangement. For example, $10 million would barely cover the costs of the systems contemplated for the two high schools in the Scottsdale RFP. However, SSA financing allows private investment to utilize the otherwise stranded tax incentives, (or the temporary Section 48 Grant-In-Lieu-Of-Taxes equivalent to be offered through the US Department of the Treasury,) thereby allowing-schools to go solar with zero up-front capital expenditures, while reserving ARRA funds for other vital facility improvements.

If the point of the stimulus funds is to leverage private investment and maximize the economic effect, then approval of SSA financing for schools, non-profits and governmental entities is the single most effective way to accomplish that goal. ***In short, swift approval of this Application would have more positive economic impact for the State than all other programs combined.*** SSA financing must be used to leverage private investment and maximize the benefit of the ARRA funds (*see* discussion regarding tax credit implications for non-profits below).

The ARRA also includes a provision that allows the tax credits for solar installations to be converted to Treasury grants (again, only available to for-profit entities). By significantly reducing the tax equity required for investment in any one project, this provision significantly broadens the pool of potential private investment in solar. However, to qualify for these payments, the installation must begin by December 31, 2010. Given a typical construction cycle, this tax equity alternative is a further factor driving towards quick resolution of the PSC status of SSA providers.

II. FACTS UPON WHICH THIS APPLICATION IS BASED – THE SSA

SolarCity has proposed utilizing an innovative financing tool known commonly as an SSA because of the disproportionate front-end cost associated with purchasing and installing a solar panel system and the inability of non-profits to capitalize on tax incentives for solar (*see* **Exhibit "B"** SolarCity's executed SSA with the School District). The SSA or other power purchase or solar-as-a-service arrangements are—the only feasible way for non-profit organizations and government entities without a federal tax burden to take advantage of the significant federal tax and depreciation incentives associated with solar technology. Without an SSA the federal solar tax credits cannot be realized because they do not apply to non-profit entities while the IRS rules require an SSA in order for a third-party financier to be able to utilize these credits (*see* **Exhibit "C"**, IRS Guidance and Solar Energy Industries Association Tax Manual).

The typical characteristics and structure of SolarCity's SSA for schools, non-profits, and governmental agencies are as follows:

- The Customer gives SolarCity access to its property to install the solar panel system;
- SolarCity provides the customer with the financing, design, installation, operation and maintenance of a solar panel system on the customer's property, the terms of which are described in the SSA;
- The customer pays nothing for the acquisition, installation, or maintenance of the solar panel system;
- The Customer becomes the owner of all electricity produced the moment the electricity is produced;
- SolarCity retains initial ownership and "use" of the system as defined in the Federal tax code, thus allowing them to capitalize on the available tax incentives which would otherwise be stranded;
- The Customer makes payments to SolarCity for the equipment and related maintenance thereof, and such payments are calculated in relation to the amount of electricity the system produces;

- SolarCity provides a buyout option to the customer for the entire solar panel system in years six (6), ten (10), and fifteen (15)—The amount of the buyout is reduced by the number of payments made by the Customer;
- While the electricity that the solar panel system produces results in a reduction of the customer's overall demand from the electric utility, the customer must remain connected to the utility grid; and
- SolarCity installs the system pursuant to all applicable codes and regulations and must meet the requirements for interconnection to the utility. All activity in this regard is on the customer's side of the meter.

The analysis below will show that the application of these facts in the context of SolarCity's proposed SSA with the Scottsdale Unified School District do not make SolarCity a PSC under the Arizona Constitution; and further, SSAs are the only viable option for schools, non-profits, and governmental entities to adopt solar and for Arizona to maximize Federal stimulus dollars under the Economic Stimulus Act and the ARRA.

III. SOLARCITY IS NOT A PUBLIC SERVICE CORPORATION WHEN IT ENTERS INTO SSA FINANCING WITH A SCHOOL, NON-PROFIT OR GOVERNMENTAL ENTITY

As examined in more detail below, the Courts look first to the text of the Arizona Constitution before examining the merits of governmental intervention on behalf of the ratepayer and the extent to which a given corporation is indispensible to a large enough number of people that it demands regulation. As you will see below, SolarCity is not acting as a PSC, and its actions do not need regulating when it is entering into SSAs with school, non-profit and governmental entities.

a. SolarCity Does Not Meet the Textual Definition of a Public Service Corporation Under Art. 15, § 2 of the Arizona Constitution

The Arizona Constitution defines a "public service corporation" as a corporation, other than municipal, "engaged in furnishing . . . electricity for light, fuel, or power . . . ." Art. 15, § 2. The SSA at issue in this Application makes it clear that SolarCity is in the business of furnishing equipment and ongoing maintenance thereof to the School District and not "electricity for light,

fuel, or power." In fact, the specific language of the SSA itself indicates that SolarCity actually never really owns the electricity that its solar equipment creates. The SSA states that, "...Purchaser will take title to all electric energy that the System generates from the moment the System produces such energy..." SSA, at Exhibit 7 ¶4(a) (*see* **Exhibit "B"**).

From the moment it is created the electricity is the sole legal possession of the School District which draws a clear distinction between this SSA and the factual situation at issue in *Southwest Transmission Cooperative, Inc. v. Arizona Corporation Commission*, 213 Ariz. 427, 142 P.3d 1240 (App. 2007) wherein the Court of Appeals found that Southwest Transmission Cooperative qualified as a PSC under the Arizona Constitution because as an electrical transmission company it possessed power while that power was being transferred from the generator to the distributor along its transmission lines. *Southwestern Transmission Cooperative,* 213 Ariz. at 431, 142 P.3d at 1244. Under the terms of this SSA SolarCity's role nearly is indistinguishable from a contractor who may design and build a gas generating power plant. Certainly, the contractor in this example is not a PSC merely because what he designed and constructed can be used to create electric power. The contractor never owns the power and therefore, never furnishes the power to anyone. The only difference in this situation is that because the cost of building, installing and maintaining the solar equipment is prohibitively expensive to the School District, the School District must finance the equipment that it then uses to make the power that it consumes. It simply cannot be the case that the mere fact that the School District cannot afford to pay SolarCity for all the equipment up front subjects the Agreement between SolarCity and the School District to regulation.

b. The SSA at Issue Does Not Require Government Intervention on Behalf of the Ratepayer

Even if the Commission for some reason finds that SolarCity meets the definition of a PSC under the Arizona Constitution the law still does not support regulating them under the circumstances presented herein. In *Southwest Transmission Cooperative,* the Court of Appeals held that while the Commission has broad authority to regulate public service corporations, the purpose of such regulations must be to "to preserve those services indispensible to the population and to ensure adequate service at fair rates *where the disparity in bargaining power between the service provider and the utility ratepayer is such that government intervention on behalf of the*

ratepayer is necessary." *Id.* at 432, 1245. (emphasis added.) The facts of this Application plainly demonstrate that governmental intervention on behalf of the School District is not needed to balance any disparity in bargaining power or to assure adequate service.

The mere fact that the School District was in a position to issue the RFP and to solicit competitive offers from various sources shows just how different this situation is from one that involves a public service corporation or common utility. In fact, the District received six qualifying offers for a system, each of which was in the form of SSA, PPA, or similar arrangements. This indicates that there is no monopolistic structure at play and the customer is in a position to negotiate price and search for the best deal which will result in a fair rate.

It is safe to say that the School District did not have the same opportunity when connecting to the electric grid and was faced with a situation where it only had one option for its electric utility provider. In such a situation the Commission and the Courts routinely and understandably have and found that the playing field is not equal and that the electric customer needs government intervention to assure fair rates where no alternatives exist.

The SSA at issue in this Application requires no government intervention to ensure fair rates and adequate service for several reasons:

1) The customer (the School District) solicited bids and had options prior to awarding the contract to SolarCity. This indicates that there is no monopolistic structure at play and the customer is in a position to negotiate price and search for the best deal which will result in a fair rate. The customer has the power;

2) SolarCity is not providing an essential service without which the customer (the School District) could not do business or exist. In this case, the School District will benefit from SolarCity's services but the School District does not *need* SolarCity's services as it would need the water and electricity that public service corporations commonly provide under Commission regulations. Obviously, this means that the School District will not be in a position where it has to have the service and therefore, is forced to pay for it no matter what it costs;

3) Because the School District's decision to enter into the SSA is purely voluntary it can be presumed that it will only enter into such an agreement if it provides a savings or financial

benefit to the School District. As a result it is a virtual certainty that the amount that SolarCity charges for its equipment and services will be equal to or less than the equivalent amount that the regulated PSC charges for directly providing energy to the School District. In other words, if the customer does not derive a benefit from the equipment and services then they are not going to enter into the SSA with SolarCity and the Commission therefore, can be assured that the amounts charged are fair and that government intervention on behalf of the School District is not necessary;

4) The customer will remain connected to the electrical grid and will continue to receive substantial amounts of electricity from its electrical provider. This is important because if for any reason the solar panels failed to operate for any period of time the electricity flow to the School District would be uninterrupted. For this reason, Commission regulation is not necessary to assure the adequacy of the service provided.

c. SolarCity Is Not a PSC Under the Eight (8) Criteria of *Natural Gas Serv. Co. v. Serv-Yu Coop* When it Enters into SSA Financing with a School, Non-Profit or Governmental Entity

The School District can utilize the equipment that SolarCity designs, installs and maintains to produce electricity for the School District's use; however, the fact that the equipment can create electricity is only incidental to the primary service that SolarCity is providing. In analyzing these questions the Arizona Supreme Court has articulated eight (8) factors to be considered in identifying those corporations "clothed with a public interest and subject to [the Commission's] regulation because they are indispensable to large segments of our population." *Natural Gas Serv. Co. v. Serv-Yu Coop.*, 70 Ariz. 235, 237-238, 219 P.2d 324, 325-326 (1950). Those eight factors are: 1) what the corporation actually does; 2) a dedication to public use; 3) the company's articles of incorporation, authorization, and purposes; 4) dealing with the service of a commodity in which the public has been generally held to have an interest; 5) monopolizing or intending to monopolize the territory with a public service commodity; 6) acceptance of substantially all requests for service; 7) service under contracts and reserving the right to discriminate is not always controlling; and 8) actual or potential competition with other corporations whose business is clothed with public interest. *Id.* After these eight factors are

reviewed it will be clear that SolarCity's agreement with the School District is not "clothed with a public interest" such that it must be "subject to regulation because they are indispensible to large segments of our population." *Id.*

i. Factor 1: SolarCity Will Not Provide an Indispensable Service to a Large Segment of the Population

The Arizona Supreme Court has held that "[a] corporation that serves such a substantial part of the public as to make its rates, charges, and methods of operation a matter of public concern, welfare, and interest subjects itself to regulation". *Serv-Yu Coop.*, 70 Ariz. at 238, 219 P.2d at 326. In contrast to this, SolarCity does not provide an indispensible service and limits SSA financing to a small segment of the population, on the basis of individually negotiated contracts.

In 2006, the Court of Appeals upheld the Commission's findings that Southwest Transmission Cooperative ("**SWTC**") was a public service corporation because it constituted a "critical link" in the chain of electricity generation, which was "integral in providing electricity to the public." *Southwest Transmission Coop.*, 213 Ariz. at 433, 142 P.3d at 1246; *see also,* Decision No. 66835, In the matter of the Application of Southwest Transmission Cooperative, Docket No. E-04100A-02-0321 (March 12, 2004). Unlike SWTC, SolarCity's bundle of services is not "integral to providing electricity to the public." The solar panel systems are placed on the private property of schools or other non-profit organizations that then own all of the electricity output that the system generates. However, the solar facility will not fulfill 100% of the customer's electricity needs, which will necessitate the customer remaining connected to the public utility grid in order to compensate for any electricity supply shortfalls. As such, SolarCity is not a "critical link" in the chain of electricity generation nor does it provide service to a large segment of the population. Rather, SolarCity provides an optional service to a limited customer base. It is clear that the SSA at issue in this Application satisfies the first factor of *Serv-Yu Coop* case.

ii. Factor 2: SolarCity Will Not Dedicate its Property to a Public Use

In applying this factor, the *Southwest Transmission Coop* Court found that, "whether a company has dedicated its property to public use is a question of intent shown by the circumstances of the individual case." Id. 213 Ariz. at 432, 142 P.3d at 1245. SolarCity has no intention of dedicating private property for a public use. On the contrary, the property that SolarCity provides is only dedicated to the individual school, non-profit organization or government entity on whose private property the solar panel system is located (in this case the School District), and to whose electrical load the system is coupled directly and behind the meter. The solar electricity generation and consumption takes place entirely on the customer's private property. Simply put: there is no property dedicated to a public use in an SSA financing arrangement for non-profits. It is clear that the SSA at issue in this Application satisfies the second factor of *Serv-Yu Coop* case.

iii. Factor 3: SolarCity's Articles of Incorporation Do Not Authorize it to Act as a Public Utility

The Arizona Supreme Court stated that "while the articles of incorporation authorizing the corporation to act as a public utility are not conclusive, the fact of such authorization may be considered in the determination of the ultimate question." *Serv-Yu*, 70 Ariz. at 238, 219 P.2d at 326. SolarCity's Certificate of Incorporation does not authorize, or even contemplate, acting in the capacity of a public utility (See **Exhibit "D"**). Rather SolarCity provides a unique financial solution which allows non-profit entities to leverage tax incentives to make solar adoption feasible. It is clear that the SSA at issue in this Application satisfies the third factor of *Serv-Yu Coop* case.

iv. Factor 4: SolarCity's SSA Financing of Solar Equipment for Schools, Non-profits and Governmental Entities is Not a Commodity Subject to the Public Interest, and is Not Subject to Regulation

In examining this factor the Supreme Court of Arizona declared that "State regulation of private property . . . is wholly dependent upon the dedication of private property to a public use with a public interest." *Nicholson*, 108 Ariz. at 320, 497 P.2d at 818. Under this specific set of

facts and subject to the SSA at issue in this Application there is simply no public interest present to justify any State regulation.

Also, regarding the limited scope of State regulation, the *Nicholson* Court stated,

> Such invasion of private right cannot be allowed by implication or strained construction. **It was never contemplated that the definition of public service corporations as defined by our constitution be so elastic as to fan out and include businesses in which the public might be incidentally interested**

Id., at 321, 497 P.2d at 819 (emphasis added). While the solar panel systems that SolarCity designs, finances, installs, and operates may be used by the schools to produce electricity, the SSA arrangement in the context of a non-profit entity is fundamentally a financing tool; the fact that a commodity is produced is merely incidental to the purpose of the SSA for a non-profit. This conclusion is supported when we examine why SSAs exist in the first place. The extremely high capital cost of installing solar means that solar panel systems are only financially feasible due to the tax incentives that exist for installing them. However, non-profit entities cannot take advantage of tax incentives and therefore, were previously unable to install solar systems. This is how the SSA came to be. This creative financing solution allows a third-party investor to benefit from the tax advantages while allowing the installation of solar at a non-profit entity. Other commercial and residential solar installations can be made financially feasible through a lease; however the tax-code makes this impossible for non-profits (*see* **Exhibit "C"**). Thus, in this particular Application, the SSA is at its core a financing tool and the fact that the solar panel systems produce a commodity is merely incidental to the arrangement and does not create a public interest.

The fact that the SolarCity SSA provides the non-profit customers with options to purchase the system at various times during the agreement is further evidenced in support of this Argument. This fact alone clearly shows that the SSA, as it relates to non-profits, is a financing mechanism and not the provision of a commodity in which the public has an interest requiring regulation. It is clear that the SSA at issue in this Application satisfies the fourth factor of *Serv-Yu Coop* case.

v. Factor 5: SolarCity Will Not be Asserting Any Monopoly Rights Over a Public Service Commodity

Analysis under this factor is quite simple as it is clear that the SSA in question applies to only one customer and in no way resembles an actual monopoly or anything that could be construed as a monopoly. SolarCity has no intention of asserting monopoly rights over electricity generation in the geographic locations of the private solar installations. Indeed, SolarCity's customers have the choice to contract with SolarCity (or another provider, or no provider) for its bundle of services, and will do so only if it is economically beneficial for them. Furthermore, the customers remain connected to the traditional utility grid because the electricity output from the system will not be sufficient to meet the customer's overall energy requirements. SolarCity will not be monopolizing any rights over a public service commodity. It is clear that the SSA at issue in this Application satisfies the fifth factor of *Serv-Yu Coop* case.

vi. Factors 6: SolarCity Does Not Accept all Requests and will Only Enter into SSAs with Non-Profit Organizations and Government Entities –Requests from other sectors of the General Public Will be Rejected

Similar to the Arizona Supreme Court holding in *Nicholson*, SolarCity's packages will not be "open to all." *Nicholson*, 180 Ariz. at 321-22, 497 P.2d at 819. SolarCity does not accept every request for service and not every entity will be a proper fit for SolarCity's bundle of services.. SolarCity will evaluate each potential customer on the basis of building and property orientation (for solar panel configuration purposes) and land use and zoning rights affecting the customer's private property. SolarCity will be required to evaluate each of their potential customers to ensure they meet a specific set of qualifying criteria, which some entities will not be able to meet. Because the SSA will only be available to a small distinct subset of potential customers, regulation is not appropriate. It is clear that the SSA at issue in this Application satisfies the sixth factor of *Serv-Yu Coop* case.

vii. Factors 7: SolarCity provides its equipment and services to schools, nonprofits and governmental entities through very specific SSA's

Solar City provides the services at issue in this Application through very detailed and specific agreements (the SSA in this case). The fact that individual contracts are required is a factor that weighs in favor of finding that the SSA in this instance does not require regulation. See, *Southwest Transmission Coop.*, 213 Ariz. at 433, 142 P.3d at 1246.

viii. Factor 8: SolarCity Will Only Serve Non-Profit Organizations and Government Agencies, and Will Not be Competing with Other Public Service Corporations

In *Southwest Transmission Coop*, the Court penalized SWTC because it was positioned to compete with other similarly situated utilities. The Court wrote, "because SWTC can contract to provide service to non-members in some circumstances, it appears that it is at least possible for SWTC to compete with these other companies." *Southwest Transmission Coop.*, 213 Ariz. at 432, P.3d at 1243. In contrast, SolarCity does not compete for customers with the other PSCs because they provide fundamentally different services. SolarCity does not propose to provide its customers with baseload electricity, and simply cannot provide many customers with any services, due to the site evaluation factors mentioned above. SolarCity will provide non-profits with SSA financing, allowing them to install and eventually purchase a solar system; the PSC still provides the customer with necessary electricity and always will. It is clear that the SSA at issue in this Application satisfies the eighth factor of *Serv-Yu Coop* case.

When the eight (8) factors outlined in *Serv-Yu Coop* are weighed against the circumstances presented in this Application it becomes clear that the SSA between the School District and SolarCity does not require the Commission's regulation. Specifically, SolarCity will not be providing an indispensible service to a large segment of the population; SolarCity will not dedicate its property to a public use; SolarCity's Articles of Incorporation do not authorize it to act as a public utility; SolarCity's SSA financing of solar panel systems for schools, non-profit organizations, and government entities is not a commodity, subject to the public interest;

SolarCity will not be asserting any monopoly rights over a public service commodity; SolarCity will not be accepting requests for service from the general public; SolarCity utilizes very specific and detailed contracts for service; and SolarCity will not be competing with other existing PSCs. For the foregoing reasons, SolarCity should not be classified as a PSC and, therefore, should not be subject to regulation by the Commission.

d. Neither the law nor public policy support regulation in this case.

The legal analysis provided above demonstrates that there is simply no legal requirement that the Commission regulate the SSA at issue in this Application. SolarCity does not meet the Constitutional definition of a PSC and none of the other legal tests or factors support regulating the company in this instance. Further, public policy certainly argues for the provision of equipment and services to schools, non-profits, and governmental entities that lower their operating costs and allow them to better execute their core functions. The case law and Commission holdings on this subject support a finding that the SSA at issue in this Application need not be regulated and the School District, or other schools, non-profits and government entities that would enter into an SSA with the same terms are free to save the money they so desperately need.

IV. CONCLUSION AND REQUEST FOR EXPEDITED RELIEF

The specific facts of this Application show that the SSA between SolarCity and the School District and any SSA involving the same terms as the SSA at issue herein do not cause SolarCity to meet the criteria of a PSC. Further, because a non-profit is not able to take advantage of the available tax incentives for solar, an SSA is the only feasible option for these entities to adopt solar. Because an analysis of the Arizona Constitution and *Serv-yu* factors show that SolarCity is not a PSC, it not necessary for the Commission to assert its jurisdiction and to regulate in this instance.

On the contrary, as discussed above, the public interest demands that the Commission *not* assert its jurisdiction when the SSA at issue in this Application is utilized for schools, non-profits and governmental entities, lest these entities (and ultimately taxpaying residents) lose out on millions of dollars of Federal stimulus dollars available only for a limited time under the ARRA

and the Economic Stimulus Act of 2008. Only with the Commission's quick blessing can schools and other non-profits rapidly adopt solar at which time ARRA and other stimulus funds (and significant private investment) can and will flow into the State; a multitude of jobs will be saved and created; and ultimately every single taxpayer of the State will benefit economically and environmentally.

For these reasons, the Applicant respectfully requests that the Commission expeditiously enter a ruling finding that SolarCity is not a PSC when it enters into SSAs with schools, non-profits, and governmental entities consistent with the facts presented in this Application.

RESPECTFULLY SUBMITTED this 2nd day of July, 2009.

Rose Law Group pc

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Court S. Rich
M. Ryan Hurley
6613 N. Scottsdale Road, Suite 200
Scottsdale, Arizona 85250
Direct: 480.505.3936
Fax: 480.505.3925
Attorneys for Applicant SolarCity Corp.

EXHIBIT A

Scottsdale Unified School District
Arizona's Most Excelling School District

Education Center
3811 North 44th Street
Phoenix, Arizona 85018-5420

Telephone: 480-484-6128
FAX: 480-484-6294
Web site: www.susd.org

June 25, 2009

Dear Chairman Mayes and Members of the Commission,

I am writing on behalf of the Scottsdale Unified School District #48 and specifically our recent award of an RFP for solar systems at two of our high schools (Coronado and Desert Mountain). As you may already know, after a great deal of analysis and comparison of different bids with our consultant, we awarded the RFP to provider SolarCity. Their bid stood out from the rest of the pack by offering our schools the greatest amount of savings with zero up-front capital expenditure via a form of financing known as a Solar Services Agreement ("SSA"). Unfortunately, however, unless the Commission approves the form of SSA financing contemplated by the SolarCity/SUSD RFP award, then we will be unable to install solar systems on our schools without a significant up front capital expense.

As you know, these are difficult times for our schools and specifically our budgets. The recent expiration Excess Utilities combined with State budget cuts for education are putting extraordinary strain on our operations and maintenance budget and will likely translate directly to undesired layoffs. The solar RFP was designed to help alleviate these budget constraints by providing the schools with immediate energy savings with no up-front costs. Installation of these systems would not only save us thousands over the next several years, but they will also allow us to hedge against long term energy costs and to fix those costs in our budget; thereby freeing up dollars for other vital operations.

Because this RFP award is so important to our fiscal health, we feel compelled to join SolarCity in its Application requesting that the Commission hold that SolarCity is not a Public Service Corporation when it provides SUSD with solar systems through an SSA. Simply put, without the Commission's blessing on this Application, we will be unable to adopt solar energy in the foreseeable future due to the prohibitively high up-front costs.

Finally, we also ask that the Commission rule expeditiously on this Application. Not only are the Federal Economic Stimulus dollars and available Federal tax incentives for solar, which are required to make solar energy for schools a reality expiring soon, but the State stimulus money for school improvements (School K-12 Grant Program and Energy Performance Contracting and Distributed Energy Leadership Program) which we had hoped to capture will expire at the end of 2009. We are very concerned we will be unable to take advantage of these programs. Expedited approval of this application is not only justified but necessary for the economic health of our schools. Thank you for your consideration on this important matter.

Sincerely,

David Peterson by pb

David J. Peterson
Assistant Superintendent for Operations

EXHIBIT B

SolarCity

Solar Services Agreement

This Solar Services Agreement (this "**Agreement**") is entered into by the parties listed below (each a "**Party**" and collectively the "**Parties**") as of the date signed by Seller below (the "**Effective Date**").

Purchaser:		**Seller:**	
Name and Address	**Scottsdale Unified School District** **Coronado High School** 2501 North 74th Street Scottsdale, AZ 85257 Attention: David Peterson	Name and Address	**SolarCity Corporation** 393 Vintage Park Drive, Suite 140 Foster City, CA 94404 Attention: Lease/License Administrator
Phone	(480)484-6139	Phone	(650) 638-1028
Fax	(480)484-6294	Fax	(650) 638-1029
E-mail	djpeterson@susd.org	E-mail	contractadministrator@solarcity.com
Purchaser (check one)	☑ owns the Facility ☐ leases the Facility		

This Agreement sets forth the terms and conditions of the finance, design installation, operation and maintenance of the turnkey solar panel system described in **Exhibit 2** (the "**System**") to be installed at the Purchaser's facility described in **Exhibit 3** (the "**Facility**").

The exhibits listed below are incorporated by reference and made part of this Agreement.

Exhibit 1	Finance Attachment
Exhibit 2	System Description
Exhibit 3	Purchaser's Facility
Exhibit 4	Delivery Point
Exhibit 5	License Area
Exhibit 6	Memorandum of License
Exhibit 7	General Terms and Conditions (*Revised May 27, 2009*)

Purchaser:

Signature: _____

Printed Name: David Peterson

Title: Assistant Superintendent

Date: 22 Jun 09

SolarCity Corporation

Signature: _____

Printed Name: Lyndon Rive

Title: CEO

Date: June 25, 2009.

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Exhibit 1
Finance Attachment

1. **Term:** Fifteen (15) years, beginning on the Commercial Operation Date.

2. **Additional Terms:** Up to Two (2) Additional Terms of Five (5) years each.

3. **Environmental Incentives and Environment Attributes Accrue to *Seller*.**

4. **Contract Price:**

Contract Year	$/kWh
1	$0.11
2	$0.11
3	$0.11
4	$0.11
5	$0.11
6	$0.11
7	$0.11
8	$0.11
9	$0.11
10	$0.11
11	$0.11
12	$0.11
13	$0.11
14	$0.11
15	$0.11

5. **Condition Satisfaction Date:** September 15, 2009

6. **Anticipated Commercial Operation Date:** October 1, 2009

7. **Outside Commercial Operation Date:** October 15, 2009

8. **Purchase Option Price:**

End of Contract Year	Option Price*:
6	$1,238,820.17
10	$1,166,521.33
15	$1,102,632.84

*** Higher of Fair Market Value of System or amount specified**

9. **Termination Value:**

Contract Year	Termination Value
1	$4,061,015.84
2	$2,312,809.17
3	$1,936,204.32
4	$1,618,134.38
5	$1,330,720.91
6	$1,029,289.83
7	$976,191.33
8	$955,441.30
9	$934,001.56
10	$911,835.90
11	$888,906.28
12	$865,172.78
13	$840,593.51
14	$815,124.46
15	$788,719.45

10. **Rebate Variance.** All prices in this Agreement are calculated based on a rebate of SRP $2.50/W. If the actual rebate is lower than calculated, prices will be adjusted pro-rata to reflect the actual rebate received, provided however that Buyer shall have the right to terminate this Agreement if it does not accept the pro-rata adjustment.

Exhibit 2

System Description

1. **System Location:** Coronado High School: 7501 East Virginia Avenue, Scottsdale, AZ 85257

2. **System Size (DC kW):** 399.6kW

3. **Expected First Year Energy Production:** 712,834

4. **Scope:** This is a 399.6kW, producing approx 1783 kWh's kW for a total of 712,834 in the first year. The installation is a roof mount on a flat roof.

5. **Expected Module(s):** First Solar FS-275 75watt thin film modules

6. **Expected Inverter(s):** SatCon PowerGate AE-100-60-PV (4)

7. **Expected Structure:** Roof mount using the best technology determined upon intense engineering site visits and recommendation from roofers, either penetrating or non-penetrating mounting hardware. The Seller shall be solely responsible for verifying the structural integrity of the Roof.

8. **Includes:** n/a

9. **Excludes:** n/a

Exhibit 3
Purchaser's Facility

A PARCEL OF LAND LOCATED IN THE STATE OF ARIZONA, COUNTY OF MARICOPA, WITH A SITUS ADDRESS OF 2501 N 74TH ST, SCOTTSDALE AZ 85257-1502 CURRENTLY OWNED BY SCOTTSDALE UNIFIED SCHOOL DISTRICT 48 HAVING A TAX ASSESSOR NUMBER OF 131-27-001 AND BEING THE SAME PROPERTY MORE FULLY DESCRIBED AS SE4 NW4 EX BEG AT NW COR TH N 89D 40' 30" E 35.74' S 45D 07' W 50.34' & N 0D 7' W 35.33' TO POB & EX S 33' & E40' RD WITH ARC OF 20' RAD IN SE & NE CORS TH/OF 37.83 AC .

Exhibit 4
Delivery Point

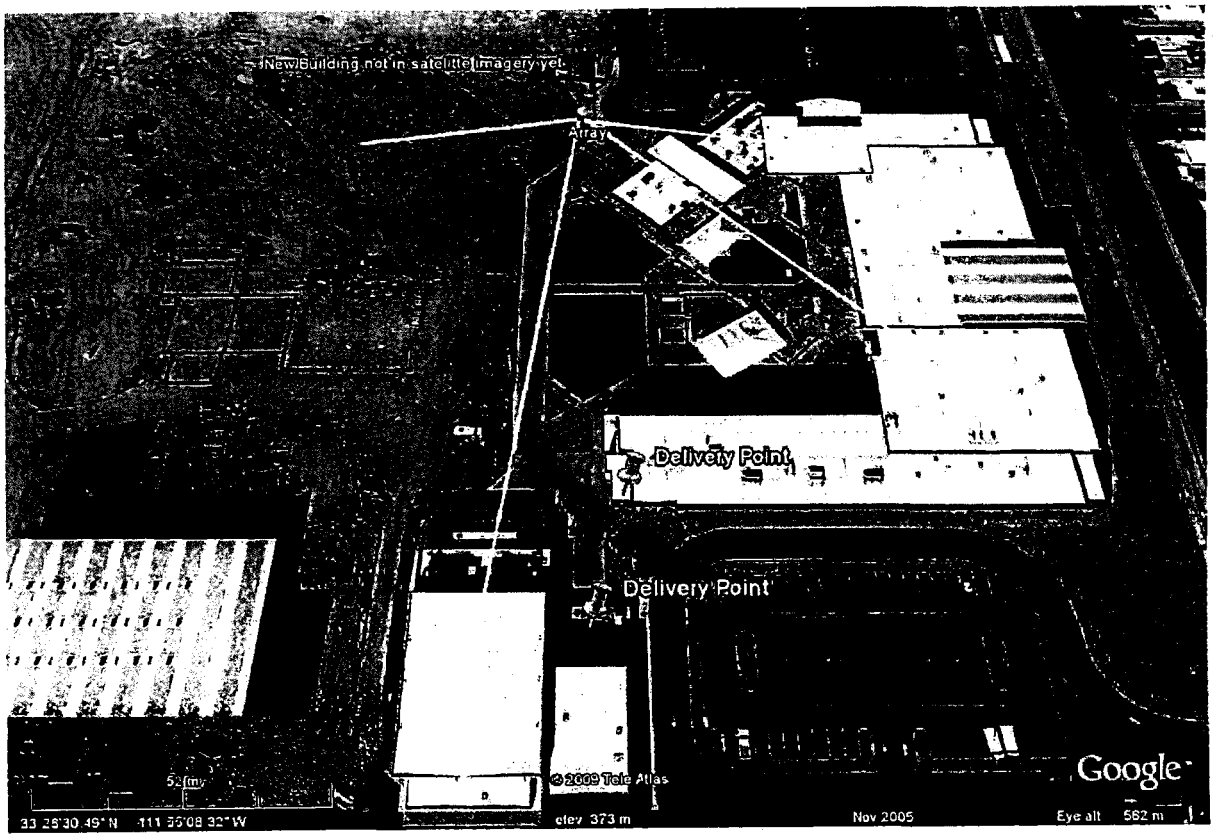

Exhibit 5
License Area

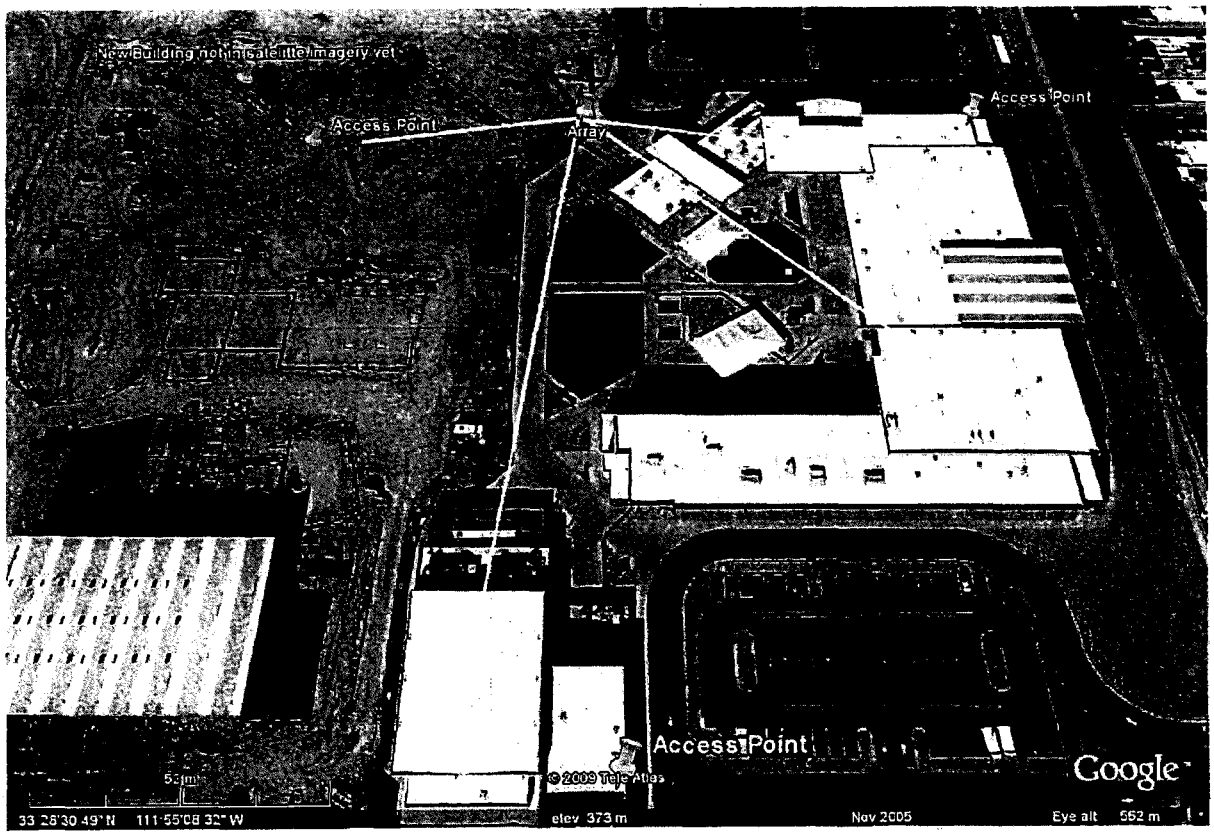

Exhibit 6
Memorandum of License

RECORDING REQUESTED BY AND WHEN	)
RECORDED RETURN TO:	)
SolarCity Corporation	)
393 Vintage Park Drive, Suite 140	)
Foster City, CA 94404	)
Attention: Lease/License Administrator	)
	)

(space above this line reserved for recorder's use)

MEMORANDUM OF LICENSE

THIS MEMORANDUM OF LICENSE is made and entered into this ___ day of June, 2009, by and between Coronado High School, whose address is 2501 North 74th Street, Scottsdale, AZ 85257 ("**Licensor**"), and SOLARCITY CORPORATION, whose address is 393 Vintage Park Drive, Suite 140, Foster City, CA 94404 ("**Licensee**").

A. Licensor is the owner of certain real property ("**Premises**"), located in the County of Maricopa, State of Arizona, described in Exhibit A attached to and incorporated herein by reference.

B. Licensor and Licensee have entered into a Solar Services Agreement dated as of June____, 2009 ("**Agreement**") under which Licensee finances, designs, develops and operates a photovoltaic electric generating system ("**System**") for Licensor. The Agreement is for a term of Fifteen (15) years, beginning June___, 2009 and ending on June_____, 2024, with an option to extend the Agreement for up to Two (2) extended terms of Five (5) years each. Pursuant to the Agreement, Licensor has granted Licensee an irrevocable, non-exclusive license ("**License**") over the Premises for the purposes and on the terms set forth in the Agreement.

Licensor and Licensee agree as follows:

1. Licensor hereby grants to Licensee the License over the Premises on and subject to the terms and conditions set forth in the Agreement which is incorporated herein by reference.

2. The term of the License begins on June__, 2009 and continues until one hundred and twenty (120) days after the termination of the Agreement.

3. This Memorandum of License shall not be deemed to modify, alter or amend in any way the provisions of the License or the Agreement. In the event of any conflict between the terms of the License and/or the Agreement and this Memorandum, the terms of the License and/or the Agreement, as applicable, shall control.

The undersigned have executed this Memorandum of License as of the date first written above.

LICENSOR

Scottsdale Unified School District #48

By: _____
Name: DAVID PETERSEN
Title: ASSISTANT SUPERINTENDENT

LICENSEE

SOLARCITY CORPORATION

By: _____
Name: Lyndon Rive
Title: CEO

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ACKNOWLEDGEMENT PAGE FOLLOWS]

STATE OF ARIZONA)
) ss.
COUNTY OF Maricopa)

On June 22, 2009, before me, Valerie Pleasant Notary Public, personally appeared David Peterson, who proved to me on the basis of satisfactory evidence to be the person(s) whose name(s) is/are subscribed to the within instrument and acknowledged to me that he/she/they executed the same in his/her/their authorized capacity(ies), and that by his/her/their signature(s) on the instrument the person(s), or the entity upon behalf of which the person(s) acted, executed the instrument.

I certify under PENALTY OF PERJURY under the laws of the State of Arizona that the foregoing paragraph is true and correct.

WITNESS my hand and official seal.

OFFICIAL SEAL
VALERIE A. PLEASANT
Notary Public - State of Arizona
MARICOPA COUNTY
My comm. expires October 31, 2010

Valerie A Pleasant
Signature of Notary Public

STATE OF ARIZONA)
) ss.
COUNTY OF _____)

On _____, before me, _____, Notary Public, personally appeared _____, who proved to me on the basis of satisfactory evidence to be the person(s) whose name(s) is/are subscribed to the within instrument and acknowledged to me that he/she/they executed the same in his/her/their authorized capacity(ies), and that by his/her/their signature(s) on the instrument the person(s), or the entity upon behalf of which the person(s) acted, executed the instrument.

I certify under PENALTY OF PERJURY under the laws of the State of Arizona that the foregoing paragraph is true and correct.

WITNESS my hand and official seal.

_____
Signature of Notary Public

Exhibit A
To Memorandum of License

Legal Description of Premises

That certain real property located in the County of Maricopa, State of Arizona, described as follows:

A PARCEL OF LAND LOCATED IN THE STATE OF ARIZONA, COUNTY OF MARICOPA, WITH A SITUS ADDRESS OF 2501 N 74TH ST, SCOTTSDALE AZ 85257-1502 CURRENTLY OWNED BY SCOTTSDALE UNIFIED SCHOOL DISTRICT 48 HAVING A TAX ASSESSOR NUMBER OF 131-27-001 AND BEING THE SAME PROPERTY MORE FULLY DESCRIBED AS SE4 NW4 EX BEG AT NW COR TH N 89D 40' 30" E 35.74' S 45D 07' W 50.34' & N 0D 7' W 35.33' TO POB & EX S 33' & E40' RD WITH ARC OF 20' RAD IN SE & NE CORS TH/OF 37.83 AC .

Exhibit 7

Solar Services Agreement General Terms and Conditions

Revised May 27, 2009

Purpose: The purpose of this Agreement is to set forth the terms and conditions by which SolarCity will provide the Purchaser with the financing, design, installation, operation and maintenance of a solar panel system at Purchaser's Facility.

1. **Definitions and Interpretation**: Unless otherwise defined or required by the context in which any term appears: (a) the singular includes the plural and vice versa; (b) the words "herein," "hereof" and "hereunder" refer to this Agreement as a whole and not to any particular section or subsection of this Agreement; (c) references to any agreement, document or instrument mean such agreement, document or instrument as amended, modified, supplemented or replaced from time to time; and (d) the words "include," "includes" and "including" mean include, includes and including "without limitation." The captions or headings in this Agreement are strictly for convenience and shall not be considered in interpreting this Agreement.

2. **Finance, Design, Development and Operation of Solar Panel System.** Seller shall provide for Buyer the financing, design, development and operation of the System during the Initial Term and any Additional Term (as defined in **Exhibit 1**, and collectively the "**Term**"). At the end of the sixth (6th) and tenth (10th) Contract Years and at the end of the Initial Term and each Additional Term, so long as Purchaser is not in default under this Agreement, Purchaser may purchase the System from Seller as set forth more fully in Section 16 of this Agreement.

3. **Term and Termination.**

   a. **Initial Term.** The initial term ("**Initial Term**") of this Agreement shall commence on the Commercial Operation Date (as defined below) and continue for the length of time specified in **Exhibit 1**, unless earlier terminated as provided for in this Agreement. The "**Commercial Operation Date**" is the date Seller gives Purchaser written notice that the System is mechanically complete and capable of providing electric energy to the Delivery Point. Upon Purchaser's request, Seller will give Purchaser copies of certificates of completion or similar documentation from Seller's contractor and the interconnection or similar agreement with the Utility. This Agreement is effective as of the Effective Date and Purchaser's failure to enable Seller to provide the electric energy by preventing it from installing the System or otherwise not performing shall not excuse Purchaser's obligations to make payments that otherwise would have been due under this Agreement.

   b. **Additional Terms.** If Purchaser has not exercised its option to purchase the System by the end of the Initial Term, either Party may give the other Party written notice of its desire to extend this Agreement on the terms and conditions set forth herein for the number and length of additional periods specified in **Exhibit 1** (each an "**Additional Term**"). Such notice shall be given, if at all, not more than one hundred twenty (120) and not less than sixty (60) days before the last day of the Initial Term or the then current Additional Term, as applicable. The Party receiving the notice requesting an Additional Term shall respond positively or negatively to that request in writing within thirty (30) days after receipt of the request. Failure to respond within such thirty (30) day period shall be deemed a rejection of the offer for an Additional Term. If both Parties agree to an Additional Term, the Additional Term shall begin immediately upon the conclusion of the then current term or Additional Term on the same terms and conditions as set forth in this Agreement. If the Party receiving the request for an Additional Term rejects or is deemed to reject the first Party's offer, this Agreement shall terminate at the end of the Initial Term (if the same has not been extended) or the then current Additional Term.

4. **Billing and Payment.**

   a. **Monthly Charges.** The Purchaser and Seller agree that Purchaser will take title to all electric energy that the System generates from the moment the System produces such energy and that such energy will be delivered to Purchaser at the delivery point identified on **Exhibit 4** (the "**Delivery Point**") and Purchaser shall purchase all such electric energy as and when produced by the System. Each month, Purchaser shall pay Seller for the benefit it receives under this Agreement. Purchaser agrees that it will make such monthly payments to Seller and that the such electricity monthly at the $/kWh rate shown in **Exhibit 1** (the "**Contract Price**") is a fair and reasonable price in light of the benefit that the Purchaser receives under this Agreement. The Parties agree that the benefit to Purchaser under this Agreement is best measured in relation to the electricity that the System produces and as such the monthly payment will be equal to the applicable $/kWh rate multiplied by the number of kWh of energy generated during

that applicable month, as measure by the System meter.. **Monthly Invoices.** Seller shall invoice Purchaser monthly. Such monthly invoices shall state (i) the amount of electric energy produced by the System and delivered to the Delivery Point, (ii) the rates applicable to, and charges incurred by, Purchaser under this Agreement and (iii) the total amount due from Purchaser.

b. **Utility Invoices.** Purchaser shall authorize the Utility to send to Seller duplicates of any bills sent to Purchaser. If Utility does not permit duplicate bills to be sent to Seller, Purchaser shall, promptly upon receipt of each bill, make a photocopy of each bill and mail the copy to Seller. Purchaser shall pay all charges assessed by the Utility to the Facility.

d. **Taxes.** Purchaser shall either pay or reimburse Seller for any and all taxes assessed on the generation, sale, delivery or consumption of electric energy produced by the System or the interconnection of the System to the Utility's electric distribution system, including property taxes on the System; provided, however, Purchaser will not be required to pay or reimburse Seller for any taxes during periods when Seller fails to deliver electric energy to Purchaser for reasons other than Force Majeure. For purposes of this Section 4(c), "**Taxes**" means any federal, state and local ad valorem, property, occupation, generation, privilege, sales, use, consumption, excise, transaction, and other taxes, regulatory fees, surcharges or other similar charges but shall not include any income taxes or similar taxes imposed on net revenues imposed on Seller due to the sale of energy under this Agreement, which shall be Seller's responsibility.

e. **Payment Terms.** All amounts due under this Agreement shall be due and payable net twenty (20) days from receipt of invoice. Any undisputed portion of the invoice amount not paid within the twenty (20) day period shall accrue interest at the annual rate of two and one-half percent (2.5%) over the Prime Rate (but not to exceed the maximum rate permitted by law).

5. **Environmental Attributes and Environmental Incentives.**

Unless otherwise specified on **Exhibit 1**, Seller is the owner of all Environmental Attributes and Environmental Incentives and is entitled to the benefit of all Tax Credits, and Purchaser's purchase of electricity under this Agreement does not include Environmental Attributes, Environmental Incentives or the right to Tax Credits or any other attributes of ownership and operation of the System, all of which shall be retained by Seller. Purchaser shall cooperate with Seller in obtaining, securing and transferring all Environmental Attributes and Environmental Incentives and the benefit of all Tax Credits, including by using the electric energy generated by the System in a manner necessary to qualify for such available Environmental Attributes, Environmental Incentives and Tax Credits. Purchaser shall not be obligated to incur any out–of–pocket costs or expenses in connection with such actions unless reimbursed by Seller. If any Environmental Incentives are paid directly to Purchaser, Purchaser shall immediately pay such amounts over to Seller. To avoid any conflicts with fair trade rules regarding claims of solar or renewable energy use, Purchaser, if engaged in commerce and/or trade, shall submit to Seller for approval any press releases regarding Purchaser's use of solar or renewable energy and shall not submit for publication any such releases without the written approval of Seller. Approval shall not be unreasonably withheld, and Seller's review and approval shall be made in a timely manner to permit Purchaser's timely publication.

"**Environmental Attributes**" means any and all credits, benefits, emissions reductions, offsets, and allowances, howsoever entitled, attributable to the System, the production of electrical energy from the System and its displacement of conventional energy generation, including (1) any avoided emissions of pollutants to the air, soil or water such as sulfur oxides (SOx), nitrogen oxides (NOx), carbon monoxide (CO) and other pollutants; (2) any avoided emissions of carbon dioxide (CO2), methane (CH4), nitrous oxide, hydrofluorocarbons, perfluorocarbons, sulfur hexafluoride and other greenhouse gases (GHGs) that have been determined by the United Nations Intergovernmental Panel on Climate Change, or otherwise by law, to contribute to the actual or potential threat of altering the Earth's climate by trapping heat in the atmosphere; and (3) the reporting rights related to these avoided emissions, such as Green Tag Reporting Rights and Renewable Energy Credits. Green Tag Reporting Rights are the right of a party to report the ownership of accumulated Green Tags in compliance with federal or state law, if applicable, and to a federal or state agency or any other party, and include Green Tag Reporting Rights accruing under Section 1605(b) of The Energy Policy Act of 1992 and any present or future federal, state, or local law, regulation or bill, and international or foreign emissions trading program. Environmental Attributes do not include Environmental Incentives and Tax Credits. Purchaser and Seller shall file all tax returns in a manner consistent with this Paragraph 5. Without limiting the generality of the foregoing, Environmental Attributes include carbon trading credits, renewable energy credits or certificates, emissions reduction credits, investment credits, emissions allowances, green tags, tradeable renewable credits and Green-e® products.

"**Environmental Incentives**" means any and credits, rebates, subsidies, payments or other incentives that relate to self–generation of electricity, the use of technology incorporated into the System, environmental benefits of using the System, or

other similar programs available from the Utility, any other regulated entity, the manufacturer of any part of the System or any Governmental Authority.

"Governmental Authority" means any national, state or local government (whether domestic or foreign), any political subdivision thereof or any other governmental, quasi-governmental, judicial, public or statutory instrumentality, authority, body, agency, bureau or entity (including the Federal Energy Regulatory Commission or the California Public Utilities Commission), or any arbitrator with authority to bind a party at law.

"Tax Credits" means any and all (i) investment tax credits, (ii) production tax credits and (iii) similar tax credits under federal, state or local law relating to the construction, ownership or production of energy from the System.

6. **Conditions to Obligations**.

a. **Conditions to Seller's Obligations**.

Seller's obligations under this Agreement are conditioned on the completion of the following conditions to Seller's reasonable satisfaction on or before the Condition Satisfaction Date:

i. Completion of a physical inspection of the Facility and the property upon which the Facility is located (the **"Premises"**) including, if applicable, geotechnical work, and real estate due diligence to confirm the suitability of the Facility and the Premises for the System;

ii. Approval of (i) this Agreement and (ii) the Construction Agreement (if any) for the System by Seller's Financing Parties. **"Construction Agreement"** as used in this subsection means an agreement between SolarCity and a subcontractor to install the System.

iii. Confirmation that Seller will obtain all applicable Environmental Incentives and Tax Credits;

iv. Receipt of all necessary zoning, land use and building permits; and

v. Execution of all necessary agreements with the Utility for interconnection of the System to the Utility's electric distribution system.

vi. Prior to Seller commencing construction and installation of the System, Purchaser shall give Seller proof of insurance for all insurance required to be maintained by Purchaser under this Agreement.

b. **Conditions to Purchaser's Obligations**.

i. Purchaser's obligations under this Agreement are conditioned on the occurrence of the Commercial Operation Date for the System on or before the Outside Commercial Operation Date (*See* **Exhibit 1**).

c. **Failure of Conditions.**

If any of the conditions listed in subsections a) or b) above are not satisfied by the applicable dates specified in those subsections, the Parties will attempt in good faith to negotiate new dates for the satisfaction of the failed conditions. If the parties are unable to negotiate new dates then the Party that has not failed to meet an obligation may terminate this Agreement upon ten (10) days written notice to the other Party without liability for costs or damages or triggering a default under this Agreement.

7. **Seller's Rights and Obligations**.

a. **Permits and Approvals**. Seller, with Purchaser's reasonable cooperation, shall use commercially reasonable efforts to obtain, at its sole cost and expense:

i. any zoning, land use and building permits required to construct, install and operate the System; and

ii. any agreements and approvals from the Utility necessary in order to interconnect the System to the Utility's electric distribution system.

Purchaser shall cooperate with Seller's reasonable requests to assist Seller in obtaining such agreements, permits and approvals.

b. **Standard System Repair and Maintenance.** Seller shall finance, design, develop, operate and install the System at the Facility. During the Term, Seller will operate and perform all routine and emergency repairs to and maintenance of the System at its sole cost and expense, except for any repairs or maintenance resulting from Purchaser's negligence, willful misconduct or breach of this Agreement or the Site Lease (if applicable). Seller shall not be responsible for any work done by others on any part of the System unless Seller authorizes that work in advance in writing. Seller shall not be responsible for any loss, damage, cost or expense arising out of or resulting from improper environmental controls or improper operation or maintenance of the System by anyone other than Seller or Seller's contractors. If the System requires repairs for which Seller is not responsible, Purchaser shall pay Seller for diagnosing and correcting the problem at Seller or Seller's contractors' then current standard rates. Seller shall provide Purchaser with reasonable notice prior to accessing the Facility to make standard repairs.

c. **Non-Standard System Repair and Maintenance.** If Seller incurs incremental costs to maintain the System due to conditions at the Facility or due to the inaccuracy of any information provided by Purchaser and relied upon by Seller, the pricing, schedule and other terms of this Agreement will be equitably adjusted to compensate for any work in excess of normally expected work required to be performed by Seller. In such event, the Parties will negotiate such equitable adjustment in good faith.

d. **Breakdown Notice.** Seller shall notify Purchaser within twenty-four (24) hours following Seller's discovery of (a) any material malfunction in the operation of the System or (b) an interruption in the supply of electrical energy from the System. Purchaser and Seller shall each designate personnel and establish procedures such that each Party may provide notice of such conditions requiring Seller's repair or alteration at all times, twenty-four (24) hours per day, including weekends and holidays. Purchaser shall notify Seller immediately upon the discovery of an emergency condition affecting the System.

e. **Suspension.** Notwithstanding anything to the contrary herein, Seller shall be entitled to suspend delivery of electricity from the System to the Delivery Point for the purpose of maintaining and repairing the System and such suspension of service shall not constitute a breach of this Agreement; provided, that Seller shall use commercially reasonable efforts to minimize any interruption in service to the Purchaser.

f. **Use of Contractors and Subcontractors.** Seller shall be permitted to use contractors and subcontractors to perform its obligations under this Agreement. However, Seller shall continue to be responsible for the quality of the work performed by its contractors and subcontractors. If a list of pre–approved contractors and subcontractors is desired, such list shall be scheduled on an appendix to **Exhibit 7**. All Contractors and subcontractors other than those that may be scheduled on an appendix to **Exhibit 7** shall be subject to Purchaser's prior written consent, not to be unreasonably withheld.

g. **Liens and Payment of Contractors and Suppliers.** Seller shall pay when due all valid charges from all contractors, subcontractors and suppliers supplying goods or services to Seller under this Agreement and shall keep the Facility free and clear of any liens related to such charges, except for those liens which Seller is permitted by law to place on the Facility following non-payment by Purchaser of amounts due under this Agreement. Seller shall indemnify Purchaser for all claims, losses, damages, liabilities and expenses resulting from any liens filed against the Facility or the Premises in connection with such charges; provided, however, that Seller shall have the right to contest any such lien, so long as it provides a statutory bond or other reasonable assurances of payment that either remove such lien from title to the Facility and the Premises or that assure that any adverse judgment with respect to such lien will be paid without affecting title to the Facility and the Premises.

h. **No Warranty.** NO WARRANTY OR REMEDY, WHETHER STATUTORY, WRITTEN, ORAL, EXPRESS OR IMPLIED, INCLUDING WITHOUT LIMITATION WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE, OR WARRANTIES ARISING FROM COURSE OF DEALING OR USAGE OF TRADE SHALL APPLY. The remedies set forth in this Agreement shall be Purchaser's sole and exclusive remedies for any claim or liability arising out of or in connection with this Agreement, whether arising in contract, tort (including negligence), strict liability or otherwise.

8. **Purchaser Rights and Obligations.**

a. **Facility Access Rights.** Purchaser grants to Seller and to Seller's agents, employees and contractors an irrevocable non-exclusive license running with the Premises (the "**License**") for access to, on, over, under and across the Premises as more particularly described in **Exhibit 5** (the "**License Area**") for the purposes of (a) installing,

constructing, operating, owning, maintaining, accessing, removing and replacing the System; (b) performing all of Seller's obligations and enforcing all of Seller's rights set forth in this Agreement; and (c) installing, using and maintaining electric lines and equipment, including inverters and meters, necessary to interconnect the System to Purchaser's electric system at the Facility and/or to the Utility's electric distribution system or that otherwise may from time to time be useful or necessary in connection with the construction, installation, operation, maintenance or repair of the System. Seller shall notify Purchaser prior to entering the Facility except in situations where there is imminent risk of damage to persons or property. The term of the License shall continue until the date that is one hundred and twenty (120) days following the date of expiration or termination of this Agreement (the "**License Term**"). During the License Term, Purchaser shall ensure that Seller's rights under the License and Seller's access to the License Area are preserved and protected and shall not interfere with or permit any third parties to interfere with such rights or access. The grant of the License shall survive termination of this agreement by either Party. Purchaser agrees that Seller may record a memorandum of license in substantially the same form attached hereto as **Exhibit 6** in the land records respecting the License.

b. **OSHA Compliance.** Purchaser shall ensure that all Occupational Safety and Health Act (OSHA) requirements and other similar applicable safety laws or codes are adhered to in its performance under this Agreement.

c. **Maintenance of Facility.** Purchaser shall, at its sole cost and expense, maintain Purchaser's Facility in good condition and repair. Purchaser will ensure that the Facility remains interconnected to the local utility grid at all times and will not permit cessation of electric service to the Facility from the local utility. Purchaser is fully responsible for the maintenance and repair of the Facility's electrical system and of all of Purchaser's equipment that utilizes the System's outputs. Purchaser shall properly maintain in full working order all of Purchaser's electric supply or generation equipment that Purchaser may shut down while utilizing the System. Purchaser shall promptly notify Seller of any matters of which it is aware pertaining to any damage to or loss of use of the System or that could reasonably be expected to adversely affect the System.

d. **No Alteration of Facility.** Purchaser shall not make any alterations or repairs to the Facility which may adversely affect the operation and maintenance of the System without Seller's prior written consent. If Purchaser wishes to make such alterations or repairs, Purchaser shall give prior written notice to Seller, setting forth the work to be undertaken (except for emergency repairs, for which notice may be given by telephone), and give Seller the opportunity to advise Purchaser in making such alterations or repairs in a manner that avoids damage to the System, but, notwithstanding any such advice, Purchaser shall be responsible for all damage to the System caused by Purchaser or its contractors. To the extent that temporary disconnection or removal of the System is necessary to perform such alterations or repairs, such work and any replacement of the System after completion of Purchaser's alterations and repairs, shall be done by Seller or its contractors at Purchaser's cost. All of Purchaser's alterations and repairs will be done in a good and workmanlike manner and in compliance with all applicable laws, codes and permits.

e. **Outages.** Purchaser shall be permitted to be off line for two (2) full twenty-four (24) hour days (each, a "**Scheduled Outage**") per calendar year during the Term, during which days Purchaser shall not be obligated to accept or pay for electricity from the System; provided, however, that Purchaser must notify Seller in writing of each such Scheduled Outage at least forty-eight (48) hours in advance of the commencement of a Scheduled Outage. In the event that Scheduled Outages exceed two (2) days per calendar year or there are unscheduled outages, in each case for a reason other than a Force Majeure event, Seller shall reasonably estimate the amount of electricity that would have been delivered to Purchaser during such excess Scheduled Outages or unscheduled outages and shall invoice Purchaser for such amount in accordance with Section 4. Purchaser may purchase electricity from any source during the Term of this Agreement.

f. **Liens.** Purchaser shall not directly or indirectly cause, create, incur, assume or allow to exist any mortgage, pledge, lien, charge, security interest, encumbrance or other claim of any nature on or with respect to the System or any interest therein. Purchaser shall immediately notify Seller in writing of the existence of any such mortgage, pledge, lien, charge, security interest, encumbrance or other claim, shall promptly cause the same to be discharged and released of record without cost to Seller, and shall indemnify Seller against all costs and expenses (including reasonable attorneys' fees) incurred in discharging and releasing any such mortgage, pledge, lien, charge, security interest, encumbrance or other claim.

g. **Security.** Purchaser shall be responsible for maintaining the physical security of the License Area and for any damage or vandalism to the System as a result of failure to maintain such security. Purchaser will not conduct activities on, in or about the License Area or the Facility that have a reasonable likelihood of causing damage, impairment or otherwise adversely affecting the System. Purchaser shall provide and take reasonable measures for security of the System, including commercially reasonable monitoring of the Facility's alarms.

h. **Insolation.** Purchaser understands that unobstructed access to sunlight ("**Insolation**") is essential to Seller's performance of its obligations and a material term of this Agreement. Purchaser shall not in any way cause and, where possible, shall not in any way permit any interference with the System's Insolation. If Purchaser becomes aware of any activity or condition that could diminish the Insolation of the System, Purchaser shall notify Seller immediately and shall cooperate with Seller in preserving the System's existing Insolation levels.

i. **Data Line.** Purchaser shall provide Seller a high speed internet data line during the Term to enable Seller to monitor and operate the System. If Purchaser fails to provide such high speed internet data line, or if such line ceases to function and is not repaired, Seller may reasonably estimate the amount of electric energy that was generated and invoice Purchaser for such amount in accordance with Section 4. Provided, however, that Purchaser shall have a reasonable period of time to review and contest such estimate.

j. **Breakdown Notice.** Purchaser shall notify Seller within twenty-four (24) hours following the discovery by it of (A) any material malfunction in the operation of the System; or (B) any occurrences that could reasonably be expected to adversely affect the System. Purchaser shall notify Seller immediately upon (A) an interruption in the supply of electrical energy from the System; or (B) the discovery of an emergency condition respecting the System. Purchaser and Seller shall each designate personnel and establish procedures such that each Party may provide notice of such conditions requiring Seller's repair or alteration at all times, twenty-four (24) hours per day, including weekends and holidays.

k. **Metering**. Electricity delivered to the Facility shall be measured by the SolarGuard monitoring system installed and maintained by Seller as part of the System.

9. **Change in Law.**

"**Change in Law**" means (i) the enactment, adoption, promulgation, modification or repeal after the Effective Date of any applicable law or regulation; (ii) the imposition of any material conditions on the issuance or renewal of any applicable permit after the Effective Date of this Agreement (notwithstanding the general requirements contained in any applicable Permit at the time of application or issue to comply with future laws, ordinances, codes, rules, regulations or similar legislation), or (iii) a change in any utility rate schedule or tariff approved by any Governmental Authority which in the case of any of (i), (ii) or (iii), establishes requirements affecting owning, supplying, constructing, installing, operating or maintaining the System, or other performance of the Seller's obligations hereunder and which has a material adverse effect on the cost to Seller of performing such obligations; provided, that a change in federal, state, county or any other tax law after the Effective Date of this Agreement shall not be a Change in Law pursuant to this Agreement.

If any Change in Law occurs that has a material adverse effect on the cost to Seller of performing its obligations under this Agreement, then the Parties shall, within thirty (30) days following receipt by Purchaser from Seller of notice of such Change in Law, meet and attempt in good faith to negotiate amendments to this Agreement as are reasonably necessary to preserve the economic value of this Agreement to both Parties. If the Parties are unable to agree upon such amendments within such thirty (30) day period, then Seller shall have the right to terminate this Agreement without further liability to either Party except with respect to payment of amounts accrued prior to termination.

10. **Relocation of System.**

If Purchaser ceases to conduct business operations at and/or vacates the Facility or is prevented from operating the System at the Facility prior to the expiration of the Term, Purchaser shall have the option to provide Seller with a mutually agreeable substitute premises located within the same Utility district as the terminated System or in a location with similar Utility rates and Insolation. Purchaser shall provide at least sixty (60) but not more than one hundred eighty (180) days prior written notice prior to the date that it wants to make this substitution. In connection with such substitution, Purchaser shall execute an amended agreement that shall have all of the same terms as this Agreement except for the (i) Effective Date; (ii) License, which will be amended to grant rights in the real property where the System relocated to; and (iii) Term, which will be the remainder of the Term of this Agreement and such amended agreement shall be deemed to be a continuation of this Agreement without termination. Purchaser shall also provide any new Purchaser, owner, lessor or mortgagee consents or releases required by Seller or Seller's Financing Parties in connection with the substitute facility. Purchaser shall pay all costs associated with relocation of the System, including all costs and expenses incurred by or on behalf of Seller in connection with removal of the System from the Facility and installation and testing of the System at the substitute facility and all applicable interconnection fees and expenses at the substitute facility, as well as costs of new title search and other out-of-pocket expenses connected to preserving and refiling the security interests of Seller's Financing Parties in the System. Seller shall remove the System from the vacated Facility prior to the termination of Purchaser's ownership, lease or other rights to use such Facility. Seller will not be required to restore the Facility to its prior condition but shall promptly pay Purchaser for any damage caused by Seller during removal of the System, but not for normal wear and tear. If the substitute

facility has inferior Insolation as compared to the original Facility, Seller shall have the right to make an adjustment to **Exhibit 1** such that Purchaser's payments to Seller are the same as if the System were located at the original Facility. If Purchaser is unable to provide such substitute Facility and to relocate the System as provided, any early termination will be treated as a default by Purchaser.

11. Removal of System at Expiration.

Upon the expiration or earlier termination of this Agreement (provided Purchaser does not exercise its purchase option), Seller shall, at its expense, remove all of its tangible property comprising the System from the Facility on a mutually convenient date but in no event later than ninety (90) days after the expiration of the Term. The Facility shall be returned to its original condition, except for System mounting pads or other support structures, which may be left in place, and ordinary wear and tear. In no case shall Seller's removal of the System affect the integrity of Purchaser's roof, which shall be as leak proof as it was prior to removal of the System. Seller shall leave the Facility in neat and clean order. If Seller fails to remove or commence substantial efforts to remove the System by such agreed upon date, Purchaser shall have the right, at its option, to remove the System to a public warehouse and restore the Facility to its original condition (other than System mounting pads or other support structures and ordinary wear and tear) at Seller's cost. Purchaser shall provide sufficient space for the temporary storage and staging of tools, materials and equipment and for the parking of construction crew vehicles and temporary construction trailers and facilities reasonably necessary during System removal.

12. Intentionally Deleted.

13. Default, Remedies and Damages.

a. **Default.** Any Party that fails to perform its responsibilities as listed below or experiences any of the circumstances listed below shall be deemed a **"Defaulting Party"** and each event of default shall be a **"Default Event"**:

(1) failure of a Party to pay any amount due and payable under this Agreement, other than an amount that is subject to a good faith dispute, within ten (10) days following receipt of written notice from the other Party (the **"Non-Defaulting Party"**) of such failure to pay (**"Payment Default"**);

(2) failure of a Party to substantially perform any other material obligation under this Agreement within thirty (30) days following receipt of written notice from the Non-Defaulting Party demanding such cure; provided, that such thirty (30) day cure period shall be extended (but not beyond ninety (90) days) if and to the extent reasonably necessary to cure the Default Event, if (i) the Defaulting Party initiates such cure with the thirty (30) day period and continues such cure to completion and (ii) there is no material adverse affect on the Non-Defaulting Party resulting from the failure to cure the Default Event;

(3) if any representation or warranty of a Party proves at any time to have been incorrect in any material respect when made and is material to the transactions contemplated hereby, if the effect of such incorrectness is not cured within thirty (30) days following receipt of written notice from the Non-Defaulting Party demanding such cure;

(4) Purchaser loses its rights to occupy and enjoy the Premises; or

(5) a Party, or its guarantor, becomes insolvent or is a party to a bankruptcy, reorganization, insolvency, liquidation, receivership, dissolution, winding-up or relief of debtors, or any general assignment for the benefit of creditors or other similar arrangement or any event occurs or proceedings are taken in any jurisdiction with respect to the Party which has a similar effect.

(6) Purchaser prevents Seller from installing the System or otherwise failing to perform in a way that prevents the delivery of electric energy from the System. (Such Default Event shall not excuse Purchaser's obligations to make payments that otherwise would have been due under this Agreement.)

b. **Remedies.**

(1) Remedies for Payment Default. If a Payment Default occurs, the Non-Defaulting Party may suspend performance of its obligations under this Agreement. Further, the Non-Defaulting Party may pursue any remedy under this Agreement, at law or in equity, including an action for damages

and termination of this Agreement, upon five (5) days prior written notice to the Defaulting Party following the Payment Default.

(2) Remedies for Other Defaults. On the occurrence of a Default Event other than a Payment Default, the Non-Defaulting Party may pursue any remedy under this Agreement, at law or in equity, including an action for damages and termination of this Agreement or suspension of performance of its obligations under this Agreement, upon five (5) days prior written notice to the Defaulting Party following the occurrence of the Default Event. Nothing herein shall limit either Party's right to collect damages upon the occurrence of a breach or a default by the other Party that does not become a Default Event.

(3) Damages Upon Termination by Default. Upon a termination of this Agreement by the Non-Defaulting Party as a result of a Default Event by the Defaulting Party, the Defaulting Party shall pay a Termination Payment to the Non-Defaulting Party determined as follows (the "**Termination Payment**"):

A. Purchaser. If Purchaser is the Defaulting Party and Seller terminates this Agreement, the Termination Payment to Seller shall be equal to the sum of (i) the termination value set forth in **Exhibit 1** (the "**Termination Value**") for such Contract Year, (ii) removal costs as provided in Section 13(b)(3)(C) and (iii) any and all other amounts previously accrued under this Agreement and then owed by Purchaser to Seller. The Parties agree that actual damages to Seller in the event this Agreement terminates prior to the expiration of the Term as the result of an Default Event by Purchaser would be difficult to ascertain, and the applicable Termination Value set forth in **Exhibit 1** is a reasonable approximation of the damages suffered by Seller as a result of early termination of this Agreement. The Termination Payment shall not be less than zero.

B. Seller. If Seller is the Defaulting Party and Purchaser terminates this Agreement, the Termination Payment to Purchaser shall be equal to the sum of (i) the present value (using a discount rate of 9.5%) of the excess, if any, of the reasonably expected cost of electric energy from the Utility over the Contract Price for the reasonably expected production of the Facility for the remainder of the Initial Term or the then current Additional Term, as applicable; (ii) all costs reasonably incurred by Purchaser in re-converting its electric supply to service from the Utility; (iii) any removal costs incurred by Purchaser, and (iv) any and all other amounts previously accrued under this Agreement and then owed by Seller to Purchaser. The Termination Payment shall not be less than zero.

C. Obligations Following Termination. If a Non-Defaulting Party terminates this Agreement pursuant to this Section 13(b)(3)(C), then following such termination, Seller shall, at the sole cost and expense of the Defaulting Party, remove the equipment (except for mounting pads and support structures) constituting the System. The Non-Defaulting Party shall take all commercially reasonable efforts to mitigate its damages as the result of a Default Event.

14. Representations and Warranties.

a. General Representations and Warranties. Each Party represents and warrants to the other the following:

(1) Such Party is duly organized, validly existing and in good standing under the laws of the jurisdiction of its formation; the execution, delivery and performance by such Party of this Agreement have been duly authorized by all necessary corporate, partnership or limited liability company action, as applicable, and do not and shall not violate any law; and this Agreement is valid obligation of such Party, enforceable against such Party in accordance with its terms (except as may be limited by applicable bankruptcy, insolvency, reorganization, moratorium and other similar laws now or hereafter in effect relating to creditors' rights generally).

(2) Such Party has obtained all licenses, authorizations, consents and approvals required by any Governmental Authority or other third party and necessary for such Party to own its assets, carry on its business and to execute and deliver this Agreement; and such Party is in compliance with all laws that relate to this Agreement in all material respects.

b. **Purchaser's Representations and Warranties.** Purchaser represents and warrants to Seller the following:

(1) License. Purchaser has the full right, power and authority to grant the License contained in Section 8(a). Such grant of the License does not violate any law, ordinance, rule or other governmental restriction applicable to Purchaser or the Facility and is not inconsistent with and will not result in a breach or default under any agreement by which Purchaser is bound or that affects the Facility.

(2) Other Agreements. Neither the execution and delivery of this Agreement by Purchaser nor the performance by Purchaser of any of its obligations under this Agreement conflicts with or will result in a breach or default under any agreement or obligation to which Purchaser is a party or by which Purchaser or the Facility is bound.

(3) Accuracy of Information. All information provided by Purchaser to Seller, as it pertains to the Facility's physical configuration, Purchaser's planned use of the Facility, and Purchaser's estimated electricity requirements, is accurate in all material respects.

(4) Purchaser Status. Purchaser is not a public utility or a public utility holding company and is not subject to regulation as a public utility or a public utility holding company.

(5) No Pool Use. No electricity generated by the System will be used to heat a swimming pool.

15. **System Damage and Insurance.**

a. **System Damage.**

(1) Seller's Obligations. If the **System** is damaged or destroyed other than by Purchaser's negligence or willful misconduct, Seller shall promptly repair and restore the System to its pre-existing condition; provided, however, that if more than fifty percent (50%) of the System is destroyed during the last five (5) years of the Initial Term or during any Additional Term, Seller shall not be required to restore the System, but may instead terminate this Agreement, unless Purchaser agrees (i) to pay for the cost of such restoration of the System or (ii) to purchase the System "AS-IS" at the greater of (A) then current fair market value of the System and (B) the sum of the amounts described in Section 13.b(3)A)(i) (using the date of purchase to determine the appropriate Contract Year) and Section 13.b(3)A)(iii).

(2) Purchaser's Obligations. If the **Facility** is damaged or destroyed by casualty of any kind or any other occurrence other than Seller's negligence or willful misconduct, such that the operation of the System and/or Purchaser's ability to accept the electric energy produced by the System are materially impaired or prevented, Purchaser shall promptly repair and restore the Facility to its pre-existing condition; provided, however, that if more than 50% of the Facility is destroyed during the last five years of the Initial Term or during any Additional Term, Purchaser may elect either (i) to restore the Facility or (ii) to pay the Termination Value set forth in **Exhibit 1** and all other costs previously accrued but unpaid under this Agreement and thereupon terminate this Agreement.

b. **Insurance Coverage.** At all times during the Term, Seller and Purchaser shall maintain the following insurance:

i. Seller's Insurance. Seller shall maintain (i) comprehensive general liability insurance with coverage of at least $1,000,000 per occurrence and $2,000,000 annual aggregate, (ii) employer's liability insurance with coverage of at least $1,000,000 and (iii) worker's compensation insurance as required by law.

ii. Purchaser's Insurance. Purchaser shall maintain (i) "all risk" property insurance on the System for the full replacement cost thereof and name Seller as a loss payee, (ii) comprehensive general liability insurance with coverage of at least $1,000,000 per occurrence and $2,000,000 annual aggregate, (iii) employer's liability insurance with coverage of at least $1,000,000 and (iv) worker's compensation insurance as required by law.

c. **Policy Provisions.** All insurance policies provided hereunder shall (i) contain a provision whereby the insurer agrees to give the party not providing the insurance thirty (30) days (ten (10) days in the event of non-payment of

premiums) written notice before the insurance is cancelled, terminated or materially altered, (ii) be written on an occurrence basis, (iii) with respect to the casualty insurance policies, name Seller as loss payee thereunder, (iv) with respect to the liability insurance policies, include the other Party as an additional insured as its interest may appear, (iv) include waivers of subrogation, (v) provide for primary coverage without right of contribution from any insurance of the other Party, and (vi) be maintained with companies either rated no less than A- as to Policy Holder's Rating in the current edition of Best's Insurance Guide or otherwise reasonably acceptable to the other party.

d. **Certificates.** Within thirty (30) days after execution of this Agreement and upon the other Party's request and annually thereafter, each Party shall deliver the other Party certificates of insurance evidencing the above required coverage.

e. **Deductibles.** Unless and to the extent that a claim is covered by an indemnity set forth in this Agreement, each Party shall be responsible for the payment of its own deductibles.

16. **Ownership; Option to Purchase.**

a. **Ownership of System.** Throughout the Term, Seller shall be the legal and beneficial owner of the System at all times, including all Environmental Attributes, and the System shall remain the personal property of Seller and shall not attach to or be deemed a part of, or fixture to, the Facility or the Premises. Each of the Seller and Purchaser agree that the Seller is the tax owner of the System and all tax filings and reports will be filed in a manner consistent with this Agreement. The System shall at all times retain the legal status of personal property as defined under Article 9 of the Uniform Commercial Code. Purchaser covenants that it will use commercially reasonable efforts to place all parties having an interest in or a mortgage, pledge, lien, charge, security interest, encumbrance or other claim of any nature on the Facility or the Premises on notice of the ownership of the System and the legal status or classification of the System as personal property. If there is any mortgage or fixture filing against the Premises which could reasonably be construed as prospectively attaching to the System as a fixture of the Premises, Purchaser shall provide a disclaimer or release from such lienholder. If Purchaser is the fee owner of the Premises, Purchaser consents to the filing of a disclaimer of the System as a fixture of the Premises in the office where real estate records are customarily filed in the jurisdiction where the Facility is located and Seller shall provide such disclaimer to Purchaser to file. If Purchaser is not the fee owner, Purchaser will obtain such consent from such owner. Purchaser agrees to deliver to Seller a non-disturbance agreement in a form reasonably acceptable to Seller from the owner of the Facility (if the Facility is leased by Purchaser), any mortgagee with a lien on the Premises, and other Persons holding a similar interest in the Premises.

b. **Option to Purchase.** At the end of the sixth (6th) and tenth (10th) Contract Years and at the end of the Initial Term and each Additional Term, so long as Purchaser is not in default under this Agreement, Purchaser may purchase the System from Seller on any such date for a purchase price equal to (i) with respect to an option exercised at the end of the sixth (6th) or tenth (10th) Contract Years or at the end of the Initial Term, the greater of (A) the amount set forth at such time in the Purchase Option Price schedule in **Exhibit 1**, and (B) the Fair Market Value of the System, and (ii) with respect to an option exercised at the end of an Additional Term, the Fair Market Value of the System. The "**Fair Market Value**" of the System shall be determined by mutual agreement of Purchaser and Seller; provided, however, if Purchaser and Seller cannot agree to a Fair Market Value within thirty (30) days after Purchaser has exercised its option, the Parties shall select a nationally recognized independent appraiser with experience and expertise in the solar photovoltaic industry to determine the Fair Market Value of the System. Such appraiser shall act reasonably and in good faith to determine the Fair Market Value of the System on an installed basis and shall set forth such determination in a written opinion delivered to the Parties. The valuation made by the appraiser shall be binding upon the Parties in the absence of fraud or manifest error. The costs of the appraisal shall be borne by the Parties equally. Purchaser must provide a notification to Seller of its intent to purchase at least ninety (90) days and not more than one hundred eighty (180) days prior to the end of the applicable Contract Year or the Initial Term or Additional Term, as applicable, and the purchase shall be complete prior to the end of the applicable Contract Year or the Initial Term or Additional Term, as applicable. Upon purchase of the System, Purchaser will assume complete responsibility for the operation and maintenance of the System and liability for the performance of the System, and Seller shall have no further liabilities or obligations hereunder.

17. **Indemnification and Limitations of Liability.**

a. **General.** Each Party (the "**Indemnifying Party**") shall defend, indemnify and hold harmless the other Party and the directors, officers, shareholders, partners, members, agents and employees of such other Party, and the respective affiliates of each thereof (collectively, the "**Indemnified Parties**"), from and against all loss, damage, expense, liability and other claims, including court costs and reasonable attorneys' fees (collectively, "**Liabilities**") resulting

from any third party actions relating to the breach of any representation or warranty set forth in Section 14 and from injury to or death of persons, and damage to or loss of property to the extent caused by or arising out of the negligent acts or omissions of, or the willful misconduct of, the Indemnifying Party (or its contractors, agents or employees) in connection with this Agreement; provided, however, that nothing herein shall require the Indemnifying Party to indemnify the Indemnified Party for any Liabilities to the extent caused by or arising out of the negligent acts or omissions of, or the willful misconduct of, the Indemnified Party. This Section 17(a) however, shall not apply to liability arising from any form of hazardous substances or other environmental contamination, such matters being addressed exclusively by Section 17(c).

b. **Notice and Participation in Third Party Claims**. The Indemnified Party shall give the Indemnifying Party written notice with respect to any Liability asserted by a third party (a "**Claim**"), as soon as possible upon the receipt of information of any possible Claim or of the commencement of such Claim. The Indemnifying Party may assume the defense of any Claim, at its sole cost and expense, with counsel designated by the Indemnifying Party and reasonably satisfactory to the Indemnified Party. The Indemnified Party may, however, select separate counsel if both Parties are defendants in the Claim and such defense or other form of participation is not reasonably available to the Indemnifying Party. The Indemnifying Party shall pay the reasonable attorneys' fees incurred by such separate counsel until such time as the need for separate counsel expires. The Indemnified Party may also, at the sole cost and expense of the Indemnifying Party, assume the defense of any Claim if the Indemnifying Party fails to assume the defense of the Claim within a reasonable time. Neither Party shall settle any Claim covered by this Section 17(b) unless it has obtained the prior written consent of the other Party, which consent shall not be unreasonably withheld or delayed. The Indemnifying Party shall have no liability under this Section 17(b) for any Claim for which such notice is not provided if that the failure to give notice prejudices the Indemnifying Party.

c. **Environmental Indemnification**. Seller shall indemnify, defend and hold harmless all of Purchaser's Indemnified Parties from and against all Liabilities arising out of or relating to the existence at, on, above, below or near the License Area of any Hazardous Substance (as defined in Section 17(c)(i)) to the extent deposited, spilled, released or otherwise caused by Seller or any of its contractors or agents. Purchaser shall indemnify, defend and hold harmless all of Seller's Indemnified Parties from and against all Liabilities arising out of or relating to the existence at, on, above, below or near the Premises of any Hazardous Substance, except to the extent deposited, spilled, released or otherwise caused by Seller or any of its contractors or agents. Each Party shall promptly notify the other Party if it becomes aware of any deposit, spill or release of any Hazardous Substance on or about the License Area or the Premises generally.

i. "**Hazardous Substance**" means any chemical, waste or other substance (a) which now or hereafter becomes defined as or included in the definition of "hazardous substances," "hazardous wastes," "hazardous materials," "extremely hazardous wastes," "restricted hazardous wastes," "toxic substances," "toxic pollutants," "pollution," "pollutants," "regulated substances," or words of similar import under any laws pertaining to the environment, health, safety or welfare, (b) which is declared to be hazardous, toxic, or polluting by any Governmental Authority, (c) exposure to which is now or hereafter prohibited, limited or regulated by any Governmental Authority, (d) the storage, use, handling, disposal or release of which is restricted or regulated by any Governmental Authority, or (e) for which remediation or cleanup is required by any Governmental Authority.

d. **Limitations on Liability**.

i. No Consequential Damages. Neither Party nor its directors, officers, shareholders, partners, members, agents and employees subcontractors or suppliers shall be liable for any indirect, special, incidental, exemplary, or consequential loss or damage of any nature arising out of their performance or non-performance hereunder even if advised of such.

ii. Actual Damages. Seller's aggregate liability under this Agreement arising out of or in connection with the performance or non-performance of this Agreement shall not exceed the *lesser* of (A) the total payments made by Purchaser under this Agreement as of the date that the events that first gave rise to such liability occurred; and (B) the total of the prior twelve (12) monthly payments preceding the date that the events that first gave rise to such liability occurred. The provisions of this Section (17)(d)(ii) shall apply whether such liability arises in contract, tort (including negligence), strict liability or otherwise. Any action against Seller must be brought within one (1) year after the cause of action accrues.

18. Force Majeure.

a. **"Force Majeure"** means any event or circumstances beyond the reasonable control of and without the fault or negligence of the Party claiming Force Majeure. It shall include, without limitation, failure or interruption of the production, delivery or acceptance of electricity due to: an act of god; war (declared or undeclared); sabotage; riot; insurrection; civil unrest or disturbance; military or guerilla action; terrorism; economic sanction or embargo; civil strike, work stoppage, slow-down, or lock-out; explosion; fire; earthquake; abnormal weather condition or actions of the elements; hurricane; flood; lightning; wind; drought; the binding order of any Governmental Authority (provided that such order has been resisted in good faith by all reasonable legal means); the failure to act on the part of any Governmental Authority (provided that such action has been timely requested and diligently pursued); unavailability of electricity from the utility grid, equipment, supplies or products (but not to the extent that any such availability of any of the foregoing results from the failure of the Party claiming Force Majeure to have exercised reasonable diligence); and failure of equipment not utilized by or under the control of the Party claiming Force Majeure.

b. Except as otherwise expressly provided to the contrary in this Agreement, if either Party is rendered wholly or partly unable to timely perform its obligations under this Agreement because of a Force Majeure event, that Party shall be excused from the performance affected by the Force Majeure event (but only to the extent so affected) and the time for performing such excused obligations shall be extended as reasonably necessary; provided, that: (i) the Party affected by such Force Majeure event, as soon as reasonably practicable after obtaining knowledge of the occurrence of the claimed Force Majeure event, gives the other Party prompt oral notice, followed by a written notice reasonably describing the event; (ii) the suspension of or extension of time for performance is of no greater scope and of no longer duration than is required by the Force Majeure event; and (iii) the Party affected by such Force Majeure event uses all reasonable efforts to mitigate or remedy its inability to perform as soon as reasonably possible. Seller shall not be liable for any damage to the System or the Facility resulting from a Force Majeure event. The Term shall be extended day for day for each day performance is suspended due to a Force Majeure event.

c. Notwithstanding anything herein to the contrary, the obligation to make any payment due under this Agreement shall not be excused by a Force Majeure event.

d. If a Force Majeure event continues for a period of one hundred (180) days or more within a twelve (12) month period and prevents a material part of the performance by a Party hereunder, the Party not claiming the Force Majeure shall have the right to terminate this Agreement without fault or further liability to either Party (except for amounts accrued but unpaid).

19. **Assignment and Financing**.

a. **Assignment**. This Agreement may not be assigned in whole or in part by either Party without the prior written consent of the other Party, which consent shall not be unreasonably withheld or delayed. Notwithstanding the foregoing, Seller may, without the prior written consent of Purchaser, (i) assign, mortgage, pledge or otherwise collaterally assign its interests in this Agreement to any Financing Party, (ii) directly or indirectly assign this Agreement to an affiliate of Seller, (iii) assign this Agreement to any entity through which Seller is obtaining financing or capital for the System and (iv) assign this Agreement to any person succeeding to all or substantially all of the assets of Seller (provided that Seller shall be released from liability hereunder as a result of any of the foregoing permitted assignments only upon assumption of Seller's obligations hereunder by the assignee). Purchaser's consent to any other assignment shall not be unreasonably withheld if Purchaser has been provided with reasonable proof that the proposed assignee (x) has comparable experience in operating and maintaining photovoltaic solar systems comparable to the System and providing services comparable to those contemplated by this Agreement and (y) has the financial capability to maintain the System and provide the services contemplated by this Agreement in the manner required by this Agreement. This Agreement shall be binding on and inure to the benefit of the successors and permitted assignees.

b. **Financing**. The Parties acknowledge that Seller may obtain construction and long-term financing or other credit support from lenders or third parties (**"Financing Parties"**) in connection with the installation, construction, ownership, operation and maintenance of the System. Both Parties agree in good faith to consider and to negotiate changes or additions to this Agreement that may be reasonably requested by the Financing Parties; provided, that such changes do not alter the fundamental economic terms of this Agreement. The Parties also agree that Seller may assign this Agreement to the Financing Parties as collateral, and in connection with any such assignment, Purchaser agrees to execute a consent to assignment in customary form and reasonably acceptable to the Financing Parties.

20. **Confidentiality and Publicity.**

a. **Confidentiality.** If either Party provides confidential information, including business plans, strategies, financial information, proprietary, patented, licensed, copyrighted or trademarked information, and/or technical information regarding the design, operation and maintenance of the System or of Purchaser's business ("Confidential Information") to the other or, if in the course of performing under this Agreement or negotiating this Agreement a Party learns Confidential Information regarding the facilities or plans of the other, the receiving Party shall (a) protect the Confidential Information from disclosure to third parties with the same degree of care accorded its own confidential and proprietary information, and (b) refrain from using such Confidential Information, except in the negotiation and performance of this Agreement. Notwithstanding the above, a Party may provide such Confidential Information to its, officers, directors, members, managers, employees, agents, contractors and consultants (collectively, "Representatives"), and affiliates, lenders, and potential assignees of this Agreement (provided and on condition that such potential assignees be bound by a written agreement or legal obligation restricting use and disclosure of Confidential Information), in each case whose access is reasonably necessary to the negotiation and performance of this Agreement. Each such recipient of Confidential Information shall be informed by the Party disclosing Confidential Information of its confidential nature and shall be directed to treat such information confidentially and shall agree to abide by these provisions. In any event, each Party shall be liable (with respect to the other Party) for any breach of this provision by any entity to whom that Party improperly discloses Confidential Information. The terms of this Agreement (but not its execution or existence) shall be considered Confidential Information for purposes of this Section 20(a), except as set forth in Section 20(b). All Confidential Information shall remain the property of the disclosing Party and shall be returned to the disclosing Party or destroyed after the receiving Party's need for it has expired or upon the request of the disclosing Party. Each Party agrees that the disclosing Party would be irreparably injured by a breach of this Section 20(a) by the receiving Party or its Representatives or other person to whom the receiving Party discloses Confidential Information of the disclosing Party and that the disclosing Party may be entitled to equitable relief, including injunctive relief and specific performance, in the event of a breach of the provision of this Section 20(a). To the fullest extent permitted by applicable law, such remedies shall not be deemed to be the exclusive remedies for a breach of this Section 20(a), but shall be in addition to all other remedies available at law or in equity.

b. **Permitted Disclosures.** Notwithstanding any other provision in this Agreement, neither Party shall be required to hold confidential any information that (i) becomes publicly available other than through the receiving Party, (ii) is required to be disclosed to a Governmental Authority under applicable law or pursuant to a validly issued subpoena (but a receiving Party subject to any such requirement shall promptly notify the disclosing Party of such requirement to the extent permitted by applicable law), (iii) is independently developed by the receiving Party or (iv) becomes available to the receiving Party without restriction from a third party under no obligation of confidentiality. If disclosure of information is required by a Governmental Authority, the disclosing Party shall, to the extent permitted by applicable law, notify the other Party of such required disclosure promptly upon becoming aware of such required disclosure and shall cooperate with the other Party in efforts to limit the disclosure to the maximum extent permitted by law.

21. **Goodwill and Publicity.** Neither Party shall use any name, trade name, service mark or trademark of the other Party in any promotional or advertising material without the prior written consent of such other Party. The Parties shall coordinate and cooperate with each other when making public announcements related to the execution and existence of this Agreement, and each Party shall have the right to promptly review, comment upon and approve any publicity materials, press releases or other public statements by the other Party that refer to, or that describe any aspect of, this Agreement. Neither Party shall make any press release regarding or public announcement or the specific terms of this Agreement (except for filings or other statements or releases as may be required by applicable law) without the specific prior written consent of the other Party. Without limiting the generality of the foregoing, all public statements must accurately reflect the rights and obligations of the Parties under this Agreement, including the ownership of Environmental Attributes and Environmental Incentives and any related reporting rights.

22. **General Provisions**

a. **Choice of Law.** Arizona law shall govern this Agreement without giving effect to conflict of laws principles.

b. **Arbitration and Attorneys' Fees.** Any dispute arising from or relating to this Agreement shall be arbitrated in Phoenix, Arizona. The arbitration shall be administered by the AAA in accordance with its Comprehensive Arbitration Rules and Procedures, and judgment on any award may be entered in any court of competent jurisdiction. If the Parties agree, a mediator may be consulted prior to arbitration. The prevailing party in any dispute arising out of this Agreement shall be entitled to reasonable attorneys' fees and costs.

c. **Notices**. All notices under this Agreement shall be in writing and shall be by personal delivery, facsimile transmission, electronic mail, overnight courier, or regular, certified, or registered mail, return receipt requested, and deemed received upon personal delivery, acknowledgment of receipt of electronic transmission, the promised delivery date after deposit with overnight courier, or five (5) days after deposit in the mail. Notices shall be sent to the person identified in this Agreement at the addresses set forth in this Agreement or such other address as either party may specify in writing. Each party shall deem a document faxed to it as an original document.

d. **Survival**. Provisions of this Agreement that should reasonably be considered to survive termination of this Agreement shall survive. For the avoidance of doubt, surviving provisions shall include, without limitation, Section 4 (Representations and Warranties), Section 7(h) (No Warranty), Section 15(b) (Insurance), Section 17 (Indemnification), Section 20 (Confidentiality and Publicity), Section 22(a) (Choice of Law), Section 22 (b) (Arbitration and Attorneys' Fees), Section 22(c) (Notices), Section 22 (g) (Comparative Negligence), Section 22(h) (Non-Dedication of Facilities), Section 22(j) (Service Contract), Section 22(k) (No Partnership) Section 22(l) (Full Agreement, Modification, Invalidity, Counterparts, Captions) and Section 22(n) (No Third Party Beneficiaries).

e. **Further Assurances**. Each of the Parties hereto agree to provide such information, execute and deliver any instruments and documents and to take such other actions as may be necessary or reasonably requested by the other Party which are not inconsistent with the provisions of this Agreement and which do not involve the assumptions of obligations other than those provided for in this Agreement, to give full effect to this Agreement and to carry out the intent of this Agreement.

f. **Right of Waiver**. Each Party, in its sole discretion, shall have the right to waive, defer or reduce any of the requirements to which the other Party is subject under this Agreement at any time; provided, however that neither Party shall be deemed to have waived, deferred or reduced any such requirements unless such action is in writing and signed by the waiving Party. No waiver will be implied by any usage of trade, course of dealing or course of performance. A Party's exercise of any rights hereunder shall apply only to such requirements and on such occasions as such Party may specify and shall in no event relieve the other Party of any requirements or other obligations not so specified. No failure of either Party to enforce any term of this Agreement will be deemed to be a waiver. No exercise of any right or remedy under this Agreement by Purchaser or Seller shall constitute a waiver of any other right or remedy contained or provided by law. Any delay or failure of a Party to exercise, or any partial exercise of, its rights and remedies under this Agreement shall not operate to limit or otherwise affect such rights or remedies. Any waiver of performance under this Agreement shall be limited to the specific performance waived and shall not, unless otherwise expressly stated in writing, constitute a continuous waiver or a waiver of future performance.

g. **Comparative Negligence**. It is the intent of the Parties that where negligence is determined to have been joint, contributory or concurrent, each Party shall bear the proportionate cost of any Liability.

h. **Non-Dedication of Facilities**. Nothing herein shall be construed as the dedication by either Party of its facilities or equipment to the public or any part thereof. Neither Party shall knowingly take any action that would subject the other Party, or other Party's facilities or equipment, to the jurisdiction of any Governmental Authority as a public utility or similar entity. Neither Party shall assert in any proceeding before a court or regulatory body that the other Party is a public utility by virtue of such other Party's performance under this agreement. If Seller is reasonably likely to become subject to regulation as a public utility, then the Parties shall use all reasonable efforts to restructure their relationship under this Agreement in a manner that preserves their relative economic interests while ensuring that Seller does not become subject to any such regulation. If the Parties are unable to agree upon such restructuring, Seller shall have the right to terminate this Agreement without further liability, and Seller shall remove the System in accordance with Section 11 of this Agreement.

i. **Estoppel**. Either Party hereto, without charge, at any time and from time to time, within five (5) business days after receipt of a written request by the other party hereto, shall deliver a written instrument, duly executed, certifying to such requesting party, or any other person specified by such requesting Party: (i) that this Agreement is unmodified and in full force and effect, or if there has been any modification, that the same is in full force and effect as so modified, and identifying any such modification; (ii) whether or not to the knowledge of any such party there are then existing any offsets or defenses in favor of such party against enforcement of any of the terms, covenants and conditions of this Agreement and, if so, specifying the same and also whether or not to the knowledge of such party the other party has observed and performed all of the terms, covenants and conditions on its part to be observed and performed, and if not, specifying the same; and (iii) such other information as may be reasonably requested by the requesting Party. Any written instrument given hereunder may be relied upon by the recipient of such instrument, except to the extent the recipient has actual knowledge of facts contained in the certificate.

j. **Service Contract**. The Parties intend this Agreement to be a "service contract" within the meaning of Section 7701(e)(3) of the Internal Revenue Code of 1986. Purchaser will not take the position on any tax return or in any other filings that is inconsistent with this section of the Code. .

k. **No Partnership**. No provision of this Agreement shall be construed or represented as creating a partnership, trust, joint venture, fiduciary or any similar relationship between the Parties. No Party is authorized to act on behalf of the other Party, and neither shall be considered the agent of the other.

l. **Full Agreement, Modification, Invalidity, Counterparts, Captions**. This Agreement, together with any Exhibits, completely and exclusively states the agreement of the parties regarding its subject matter and supersedes all prior proposals, agreements, or other communications between the parties, oral or written, regarding its subject matter. This Agreement may be modified only by a writing signed by both Parties. If any provision of this Agreement is found unenforceable or invalid, such unenforceability or invalidity shall not render this Agreement unenforceable or invalid as a whole. In such event, such provision shall be changed and interpreted so as to best accomplish the objectives of such unenforceable or invalid provision within the limits of applicable law. This Agreement may be executed in any number of separate counterparts and each counterpart shall be considered an original and together shall comprise the same Agreement. The captions or headings in this Agreement are strictly for convenience and shall not be considered in interpreting this Agreement.

m. **Forward Contract**. The transaction contemplated under this Agreement constitutes a "forward contract" within the meaning of the United States Bankruptcy Code, and the Parties further acknowledge and agree that each Party is a "forward contract merchant" within the meaning of the Untied States Bankruptcy Code.

n. **No Third Party Beneficiaries**. Except as otherwise expressly provided herein, this Agreement and all rights hereunder are intended for the sole benefit of the Parties hereto and shall not imply or create any rights on the part of, or obligations to, any other Person.

End of Document

EXHIBIT C

2008

Department of the Treasury
Internal Revenue Service

Instructions for Form 3468

Investment Credit

Section references are to the Internal Revenue Code unless otherwise noted.

General Instructions

What's New

The Housing and Economic Recovery Act of 2008 allows the rehabilitation credit to offset the alternative minimum tax for periods after 2007.

The Tax Extenders and Alternative Minimum Tax Relief Act of 2008 increased the rehabilitation credit for certain properties damaged or destroyed as a result of the severe storms, tornados, or flooding in the Midwestern disaster area.

The Energy Improvement and Extension Act of 2008:
- Added three new energy properties eligible for the energy credit for property placed in service after October 3, 2008.
- Increased the qualified fuel cell limit from $500 per half kilowatt capacity to $1,500 per half kilowatt capacity.
- Allow the energy credit to offset the alternative minimum tax for tax years beginning after October 3, 2008.

The American Recovery and Reinvestment Act of 2009:
- Added a new investment credit for qualifying advanced energy project credit for periods after February 17, 2009.
- Repealed the credit limitation for qualified small wind energy property for periods after December 31, 2008.
- Provides an election to treat qualified facilities as energy property for facilities placed in service after December 31, 2008.

Purpose of Form

Use Form 3468 to claim the investment credit. The investment credit consists of the rehabilitation, energy, qualifying advanced coal project, qualifying gasification project, and qualifying advanced energy project credits.

Investment Credit Property

Investment credit property is any depreciable or amortizable property that qualifies for the rehabilitation credit, energy credit, qualifying advanced coal project credit, qualifying gasification project credit, or qualifying advanced energy project credit.

You cannot claim a credit for property that is:
- Used mainly outside the United States (except for property described in section 168(g)(4));
- Used by a governmental unit or foreign person or entity (except for a qualified rehabilitated building leased to that unit, person, or entity; and property used under a lease with a term of less than 6 months);
- Used by a tax-exempt organization (other than a section 521 farmers' cooperative) unless the property is used mainly in an unrelated trade or business or is a qualified rehabilitated building leased by the organization;
- Used for lodging or in the furnishing of lodging (see section 50(b)(2) for exceptions); or
- Certain MACRS business property to the extent it has been expensed under section 179 of the Internal Revenue Code.

Qualified Progress Expenditures

Qualified progress expenditures are those expenditures made before the property is placed in service and for which the taxpayer has made an election to treat the expenditures as progress expenditures. Qualified progress expenditure property is any property that is being constructed by or for the taxpayer and which (a) has a normal construction period of two years or more, and (b) it is reasonable to believe that the property will be new investment credit property in the hands of the taxpayer when it is placed in service. The placed in service requirement does not apply to qualified progress expenditures.

Qualified progress expenditures for:
- Self-constructed property means the amount that is properly chargeable (during the tax year) to capital account with respect to that property; or
- Non-self-constructed property means the lesser of: (a) the amount paid (during the tax year) to another person for the construction of the property, or (b) the amount that represents the proportion of the overall cost to the taxpayer of the construction by the other person which is properly attributable to that portion of the construction which is completed during the tax year.

For more information on qualified progress expenditures, see section 46(d) (as in effect on November 4, 1990). For details on qualified progress expenditures for the rehabilitation credit, see section 47(d).

At-Risk Limit for Individuals and Closely Held Corporations

The cost or basis of property for investment credit purposes may be limited if you borrowed against the property and are protected against loss, or if you borrowed money from a person who is related or who has other than a creditor interest in the business activity. The cost or basis must be reduced by the amount of this "nonqualified nonrecourse" financing related to the property as of the close of the tax year in which the property is placed in service. If, at the close of a tax year following the year property was placed in service, the nonqualified nonrecourse financing for any property has increased or decreased, then the credit base for the property changes accordingly. The changes may result in an increased credit or a recapture of the credit in the year of the change. See sections 49 and 465 for details.

Recapture of Credit

You may have to refigure the investment credit and recapture all or a portion of it if:
- You dispose of investment credit property before the end of 5 full years after the property was placed in service (recapture period);
- You change the use of the property before the end of the recapture period so that it no longer qualifies as investment credit property;
- The business use of the property decreases before the end of the recapture period so that it no longer qualifies (in whole or in part) as investment credit property;
- Any building to which section 47(d) applies will no longer be a qualified rehabilitated building when placed in service;
- Any property to which section 48(b) applies will no longer qualify as investment credit property when placed in service;
- Before the end of the recapture period, your proportionate interest is reduced by more than one-third in an S corporation, partnership (other than an electing large partnership), estate, or trust that allocated the cost or basis of property to you for which you claimed a credit;
- You return leased property (on which you claimed a credit) to the lessor before the end of the recapture period;

SEIA Solar Energy Industries Association®

Guide to **Federal Tax Incentives for Solar Energy**

Version 3.0
Released May 21, 2009

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Do not distribute this document in printed or electronic form.

Version Guide

The US tax code is a perpetually moving target, and future rulings and code adjustments by the IRS, the courts or Congress may alter the interpretation of the law. We endeavor to ensure that this document is up to date at the time of printing; make sure that you have the latest copy.

1.0 – Released January 27, 2006

Initial interpretation of the code is based on legislative language and intent, and existing precedent, especially for the commercial tax credit. Includes existing tax forms as a guide only.

1.1 – Released March 10, 2006

- Includes improved explanation of acquisition vs. construction for solar equipment.
- Incorporates new state taxation office interpretation of commercial solar installations under the Hawaii state tax credit.
- Includes new discussion of model homes.
- Typographical correction in Commercial Tax Credit Section 11, Example # 3
- We do not anticipate that the IRS will issue specific regulations on the solar tax credits in the near term. SEIA will monitor this situation closely and will offer an updated version of this guide with current and valid IRS forms if the IRS does develop rules for implementing the solar tax credit.

1.2 – Released May 26, 2006

- Reflects new legislative changes to the Hawaii state tax credit.
- Reflects new information on utility eligibility for credits.

2.0 – Released October 21, 2008

- Reflects first comprehensive update of the original guide.
- Broadens focus beyond tax credits also to cover depreciation.
- Adds new sections about how tax benefits are "monetized" by developers who cannot use them.
- Reflects changes to the tax code as a result of the "Emergency Economic Stabilization Act" in October 2008.

3.0 – Released May 21, 2009

- Reflects changes to the tax code made by the "American Recovery and Reinvestment Act" in February 2009.
- Adds new sections on depreciation, Treasury grants in lieu of tax credits, tax credit bonds, federal loan guarantees, a new investment tax credit for manufacturing facilities and answers to a list of frequently-asked questions.

This manual has been prepared by Chadbourne & Parke LLP and is brought to you by the members of the Solar Energy Industries Association (SEIA). If you are not a member of SEIA, we hope you will join at http://www.seia.org/cs/membership.

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SEIA Solar Energy Industries Association®

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May 21, 2009

To the Solar Energy Industry and Users:

This is an exciting time for the solar energy industry in the United States. In October 2008, Congress passed, and the President signed, legislation that extended the 30-percent federal solar tax credits for eight more years. In February 2009, Congress took steps in an economic stimulus bill to increase the supply of capital flowing into the renewable energy sector. The U.S. is poised to become the global leader in solar energy, and the solar energy industry is projected to create more than 440,000 jobs and unleash more than $325 billion in investment by 2016.

Several improvements to the solar tax credits were made in the "Emergency Economic Stabilization Act" in October 2008: the $2,000 cap for tax credits on residential solar electric installations was eliminated, creating a true 30-percent residential tax credit (effective for property placed in service after December 31, 2008) The prohibition against utilities benefiting from the tax credit was removed and alternative minimum tax (AMT) filers, both businesses and individuals, are now allowed to take the credit.

The "American Recovery and Reinvestment Act (ARRA)" in February 2009 made several enhancements to the existing incentives and embraced several new policies designed to support solar energy and other renewable energy technologies. These changes will help address the solar financing challenges caused by the weak credit and tax equity markets. The stimulus bill authorized the U.S. Department of Energy to guarantee repayment of loans to build new renewable energy projects, manufacturing facilities that make components for such projects and transmission lines. A project must start construction by September 2011 to potentially qualify for loan guarantees. The stimulus also directed the U.S. Treasury to pay the cash equivalent of the investment tax credit to owners of renewable energy projects that are completed in 2009 or 2010 or that start construction in those years and are completed by 2016. The stimulus bill provided a new 30% tax credit for building manufacturing facilities that make products like solar panels for the new green economy. It authorized a series of new tax credit bonds that can be issued to build

renewable energy projects and manufacturing facilities. The lender must pay taxes on the interest it receives, but it receives tax credits from the federal government that offset most or all of the income taxes that would otherwise have to be paid on the interest. The bill also eliminated a rule that the investment tax credit was subject to reduction to the extent a project benefited from tax-exempt financing or subsidized energy financing.

To reflect these significant changes, SEIA and Chadbourne & Parke LLP revised the SEIA Solar Tax Manual in May 2009. We expect further agency guidance for new ARRA Provisions this summer and plan to update this guide to reflect that guidance.

This major revision of SEIA's Solar Tax Manual will serve as an important resource as you begin your research into how to take full advantage of federal solar incentives. This is only a starting point. This guide should not be your only resource as you conduct your research. It is vital that you contact a local tax attorney for legal counsel.

Sincerely,

Rhone Resch
President

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Executive Summary

The U.S. government encourages investment in new solar equipment by offering tax credits, tax deductions and grants. Homeowners installing solar equipment potentially qualify for a tax credit. Businesses potentially qualify for both a tax credit or the cash equivalent and the ability to deduct most of the equipment cost on an accelerated basis over five years. For businesses, the subsidies are worth roughly 56% to 58% of the cost of the equipment. For homeowners, the subsidy is worth 30%.

The **SEIA Guide to Federal Tax Incentives for Solar Energy** provides detailed information about how the incentives for both commercial and residential applications may be claimed. Key considerations in calculating the value of federal incentives for a solar project include:

- What types of solar equipment are "eligible property" for each of the incentives;
- Amount of the incentives;
- Conditions for a system to meet the definition of "placed in service," which is important because the tax subsidies are claimed in the year that equipment goes into service;
- Project timing issues arising because the tax credits, although long-term, are still not permanent;
- The ownership structure of the project; and
- The effect of rebates, state tax credits and other subsidies on the federal tax benefits.

There may be tradeoffs for developers who take advantage of tax-exempt financing or other forms of government help that fall under the heading "subsidized energy financing." Use of these may lead to a reduction in the federal tax subsidies for the project. There is no longer any reduction in tax credits or cash grants for spending on a project after 2008. However, use of tax-exempt financing will adversely affect the depreciation that can be claimed on a commercial project.

Most project developers are not in a position to use the tax subsidies and must enter into transactions to "monetize" the tax subsidies, or convert them into cash that can be used to help pay the project cost. There are many misconceptions in the market about who is an appropriate counterparty for such a monetization transaction. For example, passive loss and at-risk rules in the U.S. tax code make it hard for individuals or smaller corporations to use the tax subsidies. They are not an appropriate counterparty.

Care must be exercised when entering into transactions with schools, municipal utilities, some electric cooperatives, government agencies, charities and other tax-exempt organizations. Solar equipment cannot be leased to such entities and still claim the full tax subsidies. However, a developer can sign a power contract to supply electricity to such an entity. Care should be taken to make sure that what looks in form like a power contract is in fact one in substance.

The IRS has rules for treating some arrangements as leases even though they are documented to look like power contracts.

Commercial projects that qualify for a tax credit will have the option during 2009 and 2010 — and in some cases after 2010 — to forego the tax credit and receive the cash value from the U.S. Treasury instead. This option to trade in tax credits for cash is a temporary measure meant to help keep renewable energy development on track during 2009 and 2010 when the economy is expected to remain weak.

This manual is organized in seven sections. The first section covers general project issues, as well as issues that are unique to the commercial credit. The second section covers issues specific to the residential credit. However, it is recommended that readers who intend only to take the residential credit still read through the first section on the commercial credit.

At the end of these first two sections, the guide provides workbook examples for calculating the value of the commercial and residential tax credits under different project conditions.

The remaining sections address tax credit bonds, new loan guarantees that may be available for commercial solar projects through the U.S. Department of Energy, a tax credit that encourages construction of new factories to make solar panels, inverters and other components for renewable energy projects, state tax considerations and frequently-asked questions.

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Section 1.
Commercial Solar Tax Benefits in Detail

The commercial solar tax credit is in section 48(a) (energy credit) of the U.S. tax code.

The commercial solar credit is 30% of the "basis" that a company has invested in "eligible property" that is "placed in service" during the period 2006 through 2016. The commercial credit will drop to 10% of the basis for property put into service after December 31, 2016, and the residential credit will drop to zero for property put into service after that date, unless the deadline is extended again by Congress. A tax credit is a dollar-for-dollar reduction of the income taxes that the person claiming the credit would otherwise have to pay the federal government.

Determining what constitutes "eligible property," when it is "placed in service," and what is the "basis" in the property are among the keys to calculating the value of the commercial solar tax credit. Each of these items, along with additional special considerations, are discussed in detail in the following paragraphs.

The same solar equipment that qualifies for the commercial tax credit can usually be depreciated over five years on an accelerated basis, meaning the cost of the equipment can be deducted and the deductions are front loaded. When a 30% tax credit is claimed, only 85% of the equipment cost is subject to depreciation. The depreciable basis must be reduced by one half of the solar tax credit. The special depreciation allowance for solar equipment is in section 168(e)(3)(B)(vi)(I) of the US tax code.

Solar equipment placed in service in 2008 and 2009 qualifies for a "depreciation bonus." The owner can deduct half its depreciable "basis" in the equipment immediately. Since only 85% of the basis in equipment on which the 30% tax credit has been claimed can be recovered through depreciation, the depreciation bonus allows 42.5% of the equipment cost -- half of 85% -- to be deducted immediately. The other half is depreciated over five years. (See section 1.6.3.)

The owner of any commercial solar project placed in service in 2009 or 2010 -- or that starts construction during 2009 or 2010 and is completed by 2016 -- has the option to forego the tax credit and receive a check for the cash value from the US Treasury. The owner would qualify for the same depreciation as if the owner claimed the tax credit. (See section 1.5.)

1.1 Eligible Property

1.1.1 Types of Eligible Property

The commercial solar credit may be claimed for spending on two types of equipment including spending on installation costs, like labor.

1. "[E]quipment which uses solar energy to generate electricity, to heat or cool (or provide hot water for use in) a structure, or to provide solar process heat, excepting property used to generate energy for the purposes of heating a swimming pool," and

2. "[E]quipment which uses solar energy to illuminate the inside of a structure using fiber-optic distributed sunlight."

1.1.1 (a) Photovoltaics and Concentrating Solar Power Plants

All equipment associated with a photovoltaic or concentrating solar power system is eligible property for the credit. The key word is "equipment." If the system includes a building, a credit could not be claimed on the cost of the building. Roofs are sometimes replaced when photovoltaic panels are installed on top of a building. The tax credit cannot normally be claimed on the cost of the roof. Structures that hold up photovoltaic panels -- for example, over a parking lot -- may or may not be eligible equipment. They are normally considered part of the solar system on which the tax credit can be claimed as long as the solar array is designed primarily with electricity generation in mind and any other use, like providing shelter, is merely incidental. IRS regulations explain that eligible equipment includes storage devices, power conditioning equipment and transfer equipment. However, where batteries or other storage devices are used, the credit can only be claimed on such devices that store solar-generated electricity and not electricity drawn from the grid.

The commercial solar credit can only be claimed on the equipment in a solar power plant up to the transmission stage. Thus, no credit can be claimed on a radial line or substation to move the electricity from the power plant to the grid. The statute suggests that no credit can be claimed at all if any electricity from the solar equipment is used to heat a swimming pool.

1.1.1 (b) Solar Heating and Cooling Systems

The commercial credit can be claimed on equipment that is part of a solar heating or cooling system, but only if at least 75% of the energy used to run the system comes from the sun. If the energy source is at least 75% sunlight and also relies upon an additional

fuel source, then there must be an allocation based on the mix of energy in the year the system is first put into service. (The relevant year is the tax year of the company claiming the credit.) For example, if 10% other energy is used in the year the system is first put into service, then the solar tax credit can be calculated on 90% of the cost. However, a dip in the solar energy use below 90% in any of the next four years would lead to the IRS recapturing part of the tax credit claimed. (See section 1.10 for more on recapture.) The opposite is not true: an *increase* in the amount of solar energy used in a later year will not allow the company to claim an additional tax credit.

1.1.1 (c) Solar Lighting

All equipment associated with fiber-optic solar lighting systems qualifies, but only if put into service during the period 2006 through 2016. Solar tube-type systems do not qualify.

1.1.1 (d) Passive Solar Systems

Passive solar systems do not qualify. IRS regulations define passive solar systems as ones that use "conductive, convective, or radiant energy transfer." The IRS gives as examples of such systems: greenhouses, solariums, roof ponds, glazing, and mass or water Trombe walls. In systems that include both eligible property and passive solar equipment, the credit can only be claimed on the portion of total spending associated with the eligible property.

1.1.2 Age of Eligible Property

The equipment must be new to qualify for a commercial solar tax credit. The tax credit can only be claimed by the first person to use the equipment. A company that buys a refurbished solar installation may be able to treat it as new if the vendor has put enough money into upgrading it. The Internal Revenue Service applies an "80-20 test" to determine whether equipment has been so extensively modified that it is essentially a different piece of equipment. The test is A + B, where A is the value of the used parts retained from the original equipment and B is the cost of the improvements. If B is more than 80% of the total A + B, then the equipment will be considered brand new. The improvements include labor to install the equipment.

1.1.3 Use of Eligible Property

Equipment must be used in the United States to qualify for a commercial solar tax credit. In addition, commercial solar tax credits cannot be claimed on equipment that is "used" by someone who is not subject to U.S. income taxes.

Thus, "use" of the equipment by a school, municipal utility, government agency, charity or other

tax-exempt organization (unless the equipment is used in a taxable side business) or in some cases by an electric cooperative will rule out a credit on the equipment. This means that solar equipment cannot be leased to such an entity. A lessee "uses" the equipment it is leasing. However, a lease with a term of less than six months does not count as a "use." The credit is calculated in the year equipment is first put into service. Ineligible use of the equipment at any time during the first five years would cause part of the tax credit claimed to be recaptured. (See section 1.10.)

The key when dealing with such an entity is to sign a contract merely to sell it electricity. Someone who merely buys electricity from solar equipment owned by someone else is not considered to "use" the equipment. Care should be taken to make sure the contract is not characterized by the IRS as a lease of the solar equipment in substance even though it looks in form like a power contract. (See sections 1.8.4 and 1.8.5 for more details and consult a tax attorney for project specific applications.)

Electric utilities were not able to claim the tax credit on solar equipment that they own or lease and that was put into service before February 14, 2008. The credit could not be claimed before then on any solar equipment used to generate electricity that is sold at rates that are regulated on a rate-of-return basis. Congress removed the restriction in October 2008 and made the credit retroactive to the previous February.

1.1.4 Original Equipment Manufacturer and Integrated Equipment

A billboard or highway warning sign does not qualify for the credit, even if powered by sunlight, but the cost of a distinct device that generates electricity from sunlight to illuminate the sign would qualify. Similarly, a livestock pump would not qualify, but a PV attachment designed to drive the pump would; a careful and conservative allocation of cost between solar and non-solar equipment must be made.

The credit belongs to the customer who places the equipment in service, not to the manufacturer or integrator of the final device. The credit is claimed by the owner of the equipment after the equipment is placed in service. Except in rare cases, a manufacturer or vendor holding equipment out for sale does not place it in service.

1.2 Placed in Service

1.2.1 General Requirements

Equipment is considered "placed in service" once it has been fully installed and delivered to the owner and is capable of being used by the owner for its intended purpose. Ordinarily, four things must have happened for this to be true:

- The equipment must have been delivered and physical construction or installation on site must have been completed, although contractor personnel can remain at the site to handle minor tasks like fixing punch list items.
- The taxpayer must have taken legal title and control over the equipment.
- The taxpayer must have the licenses and permits needed to operate it. Thus, for example, in states where a building owner is not allowed legally to turn on a solar system until the local utility has inspected the system and declared it safe for use, the system is not normally in service until a letter has been received from the local utility authorizing "parallel operation" with the grid.
- Pre-operational tests must have demonstrated that the equipment can serve its intended function. ("Pre-operational" means before the equipment is put to use.) Other testing to determine whether the equipment can operate at the design capacity and to identify and eliminate defects can occur after the equipment is already operating.

Equipment bought off the shelf is usually assumed to be in workable condition. Solar equipment sold in a ready–to–use state (e.g., solar-powered warning devices, pumps, etc.,) as opposed to that which is constructed on site (as with a typical solar rooftop system) is ordinarily considered to be placed in service immediately upon purchase and installation.

1.2.2 New Businesses

The "placed in service" requirement is different for a taxpayer entering a new business than for a taxpayer already in that business. In the case of someone going into a new business, the courts have held that he or she must actually have put the equipment to use - it is not enough merely to show it was capable of operating.[1]

1. See, e.g., Piggly Wiggly Southern, Inc. v. Commissioner, 84 TC 739 (1985) (refrigerators installed in new stores not in service until the stores opened to customers); General Counsel Memorandum 37449 (March 6, 1978) (taxpayer already in the trade or business does not have to use equipment before it is deemed in service, unlike taxpayers entering a new business).

1.2.3 Power Plants

Utility-scale power projects that will sell electricity via the grid must have been synchronized with the grid before they are considered in service. They must be able to deliver their electricity to market.

1.2.4 "Daily Operation" as a Condition for Meeting the Requirement

The IRS takes the position that equipment must be in "daily operation" to be considered in service.[2] This is a more conservative view of the law than held by many tax lawyers. In a technical advice memorandum in 1993, the IRS said a power plant "is considered in daily operation when it is routinely operating to supply power to the transmission grid for sale to customers." [3] (A "technical advice memorandum" is a ruling by the IRS national office to settle a dispute between a taxpayer and an IRS agent on audit.)

If a solar system is considered part of an "integrated facility," then the rest of the facility must also be working before any part of it is in service. An example is a factory where the solar equipment is the power source, but the factory is not in a position to turn out product until all three sections of the assembly line are fully functioning.

1.3 Tax Basis

A company's "basis" is the portion of its investment in eligible property upon which the commercial solar tax credit can be claimed. It is normally what the taxpayer paid for the equipment, including the cost of installation. Thus, for example, if equipment cost $100,000, the solar credit during the period 2006 through 2016 is 30% of the tax basis of $100,000, or $30,000.

Interest paid during construction of larger solar projects that take more than a year to build and cost more than $1 million is added to the basis of the equipment.
Interest paid on loans to acquire other solar equipment and any sales and use taxes paid are normally deducted when paid and do not add to the basis. However, an election can be made under section 266 of the tax code to fold them into the basis, in which case these expenditures would have to be deducted over time through depreciation, but they would also enter into calculation of the commercial solar tax credit.

2. See, e.g., Private Letter Ruling 9529019 (April 24, 1995) (landfill gas facility not in service for purposes of section 29 credits until it is in "daily operation"); PLR 9627022 (April 9, 1996) (same statement); PLR 9831006 (April 23, 1998) (same statement).
3. See Technical Advice Memorandum 9405006 (October 16, 1993)

1.4 Effect of Rebates, Buydowns, Grants and Other Incentives

State rebates, buydowns, grants or other incentives do not decrease the amount eligible for the commercial solar credit if the company is required to pay federal income tax on the incentive. The majority of incentives represent income on which federal income taxes are paid and, therefore, do not decrease the basis for the solar tax credit. However, there is a limited class of incentives that are not taxable; for these incentives, the tax basis must be reduced prior to calculating the credit.

The following table describes different types of incentives and their impact on the tax basis. If you are uncertain which category your particular rebate program falls under, we urge you to get in touch with the state or utility energy program contacts listed at www.dsireusa.org, or contact a tax attorney for project-specific clarification.

1.4.1 Incentives that Reduce the Tax Basis

Type of Incentive	Comment
Nontaxable Rebates from a State or Utility (Note: most rebates are taxable - see below.)	In rare cases, cash received from a state government does not have to be reported as taxable income. An example — outside the solar industry — is where a state reimburses a railroad for the cost of putting tracks on an overpass so as not to block traffic on a public highway. The railroad is no better off with the overpass than without. It has no income in the sense of an accession to wealth. It is rare to find such cases. Utilities in some states pay rebates to customers as an inducement to install solar equipment. A rebate from a utility should ordinarily be considered taxable, except if a rebate is paid by a utility to a customer as an inducement to take energy efficiency measures in connection with a dwelling unit (e.g., an apartment building). Such a rebate is exempted from tax under section 136 of the US tax code, and the basis must be reduced by the amount of the rebate. As a general rule, all money or value received in a business setting must be reported as income unless one can point to a specific section of the US tax code that excludes the amount from income.

1.4.2 Incentives that Do Not Reduce the Tax Basis

Type of Incentive	Comment
Taxable State or Nonprofit Grants, Rebates, or Buydowns	If you pay federal income tax on money received from a grant program, you need not reduce the tax basis of your system as long as the grant is reported as income. Most grants must be reported as taxable income. A company will enjoy a greater tax advantage by claiming a rebate or grant as taxable income.
Credits Against State and Local Income Tax	State and local income tax credits do not affect the tax basis.
Taxable Rebates or Credits Funded by a Utility	Rebates funded by a utility are generally treated as taxable income, and do not affect the tax basis in solar equipment. Two things used to reduce the tax basis for the credit before 2009. They were if the system cost is paid with help from tax-exempt financing or "subsidized energy financing." Tax-exempt financing involves bonds issued by a state or local government to borrow money for a public project or quasi-public use. The lenders who buy the bonds do not have to pay taxes on the interest they receive. "Subsidized energy financing" is a government program that provides subsidized financing for energy measures. An example is where a state makes direct loans to businesses at below-market rates to help them finance solar panels. The IRS ruled that it is not "subsidized energy financing" (see section 1.4.3) for an investor-owned utility to make rebates on electricity bills to homeowners who buy hot water heaters that use renewable energy in a case where the money the utility uses for the program comes solely from its own revenues. It does not matter that the utility was ordered by the state public service commission to conduct the program. A program is not "subsidized energy financing" unless it is a government program involving government funds.

Type of Incentive	Comment
Taxable Rebates or Credits Funded by a Utility (cont.)	Similarly, it is not subsidized energy financing for a federal utility like the Bonneville Power Administration or Tennessee Valley Authority to make loans at below-market interest rates to customers of utilities to whom BPA or the TVA supplies power. By law, the federal utility must cover its full costs through its own revenues. The "American Recovery and Reinvestment Act" in February 2009 eliminated the rule that use of tax-exempt or subsidized energy financing reduces the tax basis on which the tax credit is claimed. The change applies to spending on a project in 2009 or later. Therefore, if construction of a project started in 2008 but was completed later, the tax credit may not be claimed on the portion of the construction cost that accrued in 2008 and was paid with help from tax- exempt or subsidized energy financing. It may be claimed on the portion of the cost incurred in 2009. Use of tax-exempt financing will still cause the project to have to be depreciated more slowly. A solar project financed with tax-exempt debt must be depreciated on a straight-line basis largely over 12 years rather than on an accelerated basis largely over five years. Use of subsidized energy financing does not affect how a commercial project is depreciated.
State Performance–Based Incentives	Direct payments by a state to solar producers as an operating subsidy never caused a reduction in tax credit basis. Operating subsidies paid directly to a generator may be a grant, but they are not subsidized energy *financing*. (This assumes that the incentives do not have to be repaid.) The IRS has ruled on a number of occasions that the only financial assistance that caused a reduction in the tax credit is help paying the capital cost of the project. It is not subsidized energy financing to subsidize operating costs.[4] Subsidized energy financing was a problem before 2009. It is not a problem for project costs that are incurred on or after January 1, 2009.

4. See for example http://text.nyserda.org/programs/pdfs/taxcreditpaper.pdf

Type of Incentive	Comment
Renewable Energy Credit Sales or Requirements	Renewable energy credits or "RECs," "green tags," carbon allowances and other saleable environmental attributes awarded for using sunlight to generate electricity have no effect on the commercial solar credit.
Loan Guarantees	The IRS said in a private letter ruling that a loan guarantee from a federal or state agency or a utility is not "subsidized" energy financing, even if the guarantee looks in form like a direct loan by the government to the private party. The interest rate on the loan was the same rate that a bank would charge to lend with a federal guarantee.
Grants administered by non-governmental organizations and funded from non-governmental funding sources	The IRS ruled privately that production incentive payments delivered by a private charity out of funds contributed by a private utility company did not constitute "subsidized energy financing."[5] However, it suggested that the program might have been viewed as subsidized energy financing if a government agency administered the program, even if it was privately funded.[6]

1.4.3 Subsidized Loans and Financing

Generally, borrowing money does not adversely affect the basis that a taxpayer has in his or her solar equipment. It does not matter whether the money to pay for the equipment comes out of the pocket of the taxpayer or is borrowed; the basis on which the tax credit is calculated is what the taxpayer paid for the equipment. Two exceptions to this general rule are:

- For spending prior to January 1, 2009, basis had to be reduced to the extent subsidized borrowing in the form of "tax-exempt financing" or "subsidized energy financing" was used to pay the equipment cost; and
- at-risk limitations could come into play to limit the credit that can be claimed in situations where the taxpayer borrows to pay the equipment cost on a nonrecourse basis, meaning on terms where the lender has no claim against the borrower if he fails to repay the loan. The only recourse of the lender is to foreclose on the equipment. See section 1.4.4 for more detail.

5. Private Letter Ruling 200202048
6. Private Letter Ruling 8530004

The details follow.

1.4.3 (a) Calculation Method

When either tax-exempt financing or subsidized energy financing is used to pay equipment costs that were incurred before 2009, the tax basis in the equipment must be reduced. The basis reduction is calculated by putting the cost of the equipment in the denominator of a fraction. The numerator is the amount of subsidized or tax-exempt financing used to pay such costs. The fraction is the percentage reduction in the tax basis. (For example, a system put in service before 2009 and financed entirely with tax-exempt bonds would be ineligible for the commercial solar credit.)

1.4.3 (b) Tax-Exempt Financing

The IRS defines "tax-exempt financing" as borrowing through bonds issued by a state or local government to finance a public or quasi-public project. The holders of such bonds do not have to pay taxes on the interest they receive. This means a borrower benefiting from such bonds does not have to pay as high an interest rate as he would otherwise. Tax-exempt financing can usually be used only for schools, roads, hospitals and other public facilities. However, the US tax code makes 15 exceptions where such financing can be used for private projects that Congress felt create some public benefits (e.g. privately-owned sewage treatment plants or sports stadiums). Smaller projects may also qualify for financing using "small-issue" bonds.

1.4.3 (c) Subsidized Energy Financing

Financing The IRS defines this as "financing provided under a federal, state or local program a principal purpose of which is to provide subsidized financing for projects designed to conserve or produce energy." An example of such financing is where a state offers low-interest loans directly to help pay for renewable energy projects or where the state makes payments to a bank to buy down the interest rate on loans that the bank makes to finance such projects.

It is important to note that the "subsidized energy financing" is the <u>full financing extended under a government program</u>, not just the cost to the government of the subsidy. The IRS took this position in regulations under the residential energy credit that used to be on the statute books from 1977 to 1990.[7]

7. In the example given by the IRS, a bank lent $3,000 to a homeowner to install a solar hot water heater and the bank used $500 it received under a federal energy conservation program to reduce the principal amount of the loan the homeowner had to repay to $2,500. The amount of "subsidized energy financing" in this case was the full $3,000.

For example, if a commercial customer planning to build a $100,000 project borrows $80,000 and benefits from an interest rate subsidy on the loan funded out of a state energy program, then the basis eligible for the tax credit would be reduced by $80,000 and the credit would only apply to the remaining $20,000. No basis reduction is required for spending on a project after 2008.

1.4.3 (d) Tax-Exempt or Subsidized Energy Financing and Depreciation

Use of tax-exempt or subsidized energy financing will not reduce the depreciable basis of a project. However, if tax-exempt financing is used, the project will have to be depreciated more slowly -- largely over 12 years on a straight-line basis.

1.4.4 At-Risk Limitations on Financing

Certain taxpayers may not be able to claim the full cost of eligible property as tax basis immediately if they borrow on a nonrecourse basis to pay the cost. "Nonrecourse" means the taxpayer has no personal liability to repay the loan, and the lender looks mainly to the project being financed for repayment. The taxpayers subject to this rule are individuals (including individuals who own a project through a partnership or limited liability company treated as a partnership), S corporations and "closely-held" C corporations. A C corporation is "closely held" if five or fewer individuals own more than half the stock. (The rule does not apply to publicly-held companies. It also does not apply to a small developer that brings in an institutional investor as a partner.) Such taxpayers cannot include in the tax basis any portion of the eligible property cost paid with nonrecourse financing when calculating their commercial solar tax credit for the year a solar project is placed in service. For example, if a solar project cost $100,000, but $80,000 of the cost was paid with the help of a nonrecourse loan, then the tax credit initial basis is $20,000 of the cost.

There are two key exceptions to this rule requiring a basis reduction when nonrecourse financing is used. These exceptions should apply to most solar projects:

1. If the equipment financed through a nonrecourse loan would have qualified as "solar energy property" under section 46(c)(8)(F) of the tax code before that section was repealed in 1990, then the basis reduction is not required. (Solar equipment that qualifies today for the commercial solar tax credit would have qualified under that section, with the exception of solar hybrid lighting.[8]) However, this exception applies only if no more than 75% of the cost of the equipment is paid with nonrecourse debt and the nonrecourse debt is a level-payment loan, meaning that there is a straight-line amortization schedule for repayment of the loan. Level debt service payments are more interest than principal in early years and more principal than interest in later years.

8. Omnibus Budget Reconciliation Act of 1990 - H.R.5835 ENR

2. A basis reduction is also not required if the nonrecourse financing is "qualified commercial financing." The requirements of "qualified commercial financing" are:

   - The taxpayer must not acquire the solar equipment from a "related party."
   - The nonrecourse financing cannot be used to pay more than 80% of the cost.
   - The money must either be borrowed from a commercial lender or through a federal, state or local government program. A loan whose repayment is merely guaranteed by a federal, state or local government agency will still be considered to have been made under such a program. A commercial lender must be regularly engaged in the business of lending. The commercial lender cannot be related to the taxpayer or be the vendor who sold the equipment or be someone who receives a fee tied to the taxpayer's investment in the equipment.

The at-risk rules merely affect the timing of tax credits rather than the final amount. If part of the cost of the eligible property cannot be included in the first year's tax credit basis due to use of nonrecourse financing, then as the loan principal is later repaid, the taxpayer can claim a new credit calculated on the reduction in loan principal as the tax credit basis. Additional credits can be claimed in each year as the loan principal is repaid. No additional credits can be claimed on interest payments.

1.5 Cash Grants in Lieu of Tax Credits

Developers of new commercial solar projects placed in service in 2009 or 2010 have the option to take a cash payment from the U.S. Treasury for the same amount they would have been able to claim as a commercial tax credit. This option is also available for solar projects that start construction in 2009 or 2010 and are completed by 2016. The grants will be paid within 60 days after the project is placed in service or, if later, 60 days after the owner applies for the grant. The Treasury has no discretion whether to pay. Applications must be submitted by October 2011.

The option is only available on commercial projects -- not residential. Solar panels that are owned by a solar company and used by it to supply electricity to a homeowner under a power purchase agreement or that are leased by it to a homeowner are considered put to commercial use, assuming the contract with the homeowner is respected for tax purposes as a power contract or lease and is not recharacterized as an installment sale of the panels to the homeowner.

Any grant paid will be subject to recapture if the solar equipment is disposed of within five years. Only the "unvested" portion of the grant is recaptured. The grant vests at the rate of 20% a year.

Thus, if the solar equipment is sold after it has been in use for three years, then 40% of any cash grant paid will be recaptured. In this sense, the recapture rules are similar to what happens to the commercial tax credit. (See section 1.10 for more on recapture.)

Congress directed the Treasury to sort out whether the recapture rules for the grant are identical or whether they differ from the rules for the tax credit. The tax credit is also subject to recapture if equipment is owned by a partnership (including a limited liability company treated for tax purposes as a partnership) and a partner sells his interest or his share of partnership income is reduced by more than a third. It is unclear to what extent changes at the partner level will lead to recapture of cash grants. A grant may be spent by the partnership and never distributed to the partners, unlike commercial tax credits that are necessarily passed through to partners and claimed by them on their tax returns.

The Treasury will also have to decide when a project is considered to have started construction. It has five precedents from which to choose. Under these precedents, the earliest construction would be considered to start is when physical assembly of major components starts at a factory off site. The latest construction would be considered to start is when foundations start to be laid at the site (for example, in the case of a utility-scale solar project). Site clearance or engineering work would not count. A decision is not expected before July 2009.

Solar companies that are treated as partnerships for tax purposes and have raised money from private equity funds may be barred from receiving any cash grants. This is only a problem if the private equity fund invests directly and not through a US "blocker" corporation. Section 1603(g) of the "American Recovery and Reinvestment Act" prohibits the Treasury from paying any grant on a project owned by a "partnership or other pass-thru entity any partner (or other holder of an equity or profits interest) of which" is a federal, state or local government agency or instrumentality, a tax-exempt entity or an electric cooperative. Most private equity funds have state pension plans, university endowments and similar entities as investors. Congress may rewrite the prohibition to narrow it, but it would not do so before the summer or fall 2009. Also, be aware that if a blocker corporation is owned 50% or more by a tax-exempt entity, it may itself be considered a tax-exempt entity. The issue was still under discussion with the Treasury when this edition of the manual was completed and further guidance is expected.

1.6 Depreciation

1.6.1 Asset Breakdown

The owner of solar equipment can depreciate, or deduct, 85% of his or her tax basis in the same equipment on which the commercial tax credit can be claimed over five years. The deductions are claimed on a 200% declining-balance basis, meaning the deductions are front-loaded rather than taken in equal amounts each year over the period.

Any part of a solar project that is considered a building is depreciated over 39 years on a straight-line basis. Not all structures are buildings for tax purposes. A structure is usually only considered a building it if includes office or storage space or a control room.

Landscaping and other site improvements, like a parking lot, are depreciated over 15 years on a 150% declining-balance basis.

Transmission equipment used to transmit at 69 kV or higher voltage is depreciated over 15 years using 150%declining-balance depreciation. Other transmission and distribution equipment is depreciated over 20 years using 150% declining-balance depreciation. Utilities usually make owners of utility-scale solar projects reimburse them for the cost of any substation upgrades, grid improvements and other equipment required for interconnection that the utility will own. Some of the costs may be classified as "network upgrades" for regulatory purposes and the utility will collect the cost from the generator but then repay it later with interest or transmission credits. Any payments a generator makes for network upgrades are treated for tax purposes as a loan by the generator to the utility and the generator is not allowed to deduct them. The generator may also have to reimburse the utility for "direct intertie" costs that will not be repaid by the utility. The generator recovers any such payments on a straight-line basis over 20 years.

Property on an Indian reservation can be depreciated more rapidly. The part that would be depreciated over five years can be depreciated over three years instead. This only applies to equipment placed in service by December 2009 unless the deadline is extended by Congress. Depreciation must be taken more slowly to the extent tax-exempt financing is used to pay part of the equipment cost. It is also slower for assets used predominantly outside the United States and for any assets that are considered "tax-exempt use property." Examples of tax-exempt use property are solar panels leased to a tax-exempt entity or a project owned in a partnership between a private developer and a municipal utility. In the case of such a partnership, a fraction of the project is "tax-exempt use property." The fraction is the highest share of partnership income that the municipal utility will be allocated during the life of the partnership. Thus, if the municipal utility starts with a 10% share of income but this increases later to 50%, then 50% of the project will be "tax-exempt use property" from the start.

1.6.2 Basis Reduction

The owner of solar equipment on which an investment credit is claimed or on which a cash grant is paid by the Treasury can depreciate only 85% of the cost. The "basis" for depreciation must be reduced by half the amount of the investment credit or cash grant.

1.6.3 Depreciation Bonus

Solar equipment placed in service in 2008 or 2009 qualifies for a 50% "depreciation bonus,"

meaning that half the basis in the equipment can be deducted immediately. The remaining basis is deducted normally as depreciation. Thus, the bonus the first year on the part of a solar project that qualifies for an investment credit or cash grant is 42.5% of the equipment cost. The bonus can only be claimed on equipment that the owner was not committed to purchase before January 1, 2008. In larger solar projects, just because a contract was signed with someone before 2008 to build the project does not mean the owner was committed to the project when the contract was signed. In some cases, the owner is not considered committed until physical work started on the project at the site. Commitment to purchase depends on the facts of the individual case.

1.7 Project Timing Issues

1.7.1 Transition Issues for Some Projects

Projects that straddle a date when Congress changed the tax subsidies for solar equipment raise transition issues. There are potentially such issues with both tax credits and the Treasury cash grants.

The tax credit for commercial solar projects was increased from 10% to 30% in 2006 and it will drop back to 10% in 2017, unless Congress votes again to extend it. What happens when a solar energy system is installed partly in 2016, but not placed in service until 2017?
The answer is the taxpayer will probably qualify only for a 10% credit. However, it depends on whether the project is considered to be "self constructed" or "acquired" by the taxpayer.

1.7.1(a) Self-Constructed Projects

For the purposes of evaluating transition issues, a project is considered "self constructed" when:

- It is assembled and installed by the taxpayer, or
- "stick built" for a taxpayer by a construction contractor - at least in most cases where the taxpayer retains control over the design.

In cases where a project is considered self constructed, a 30% tax credit can only be claimed on the percentage of construction work done during the period 2006 through 2016. However, that assumes that the project will be completed in 2016. If work starts during 2016, but is not completed until 2017, then the taxpayer will get only a 10% credit unless he elects to claim credits on a "progress payments basis" or unless Congress extends the deadline to qualify for the 30% credit. (See section 7.2 under the commercial credit discussion for a discussion about progress expenditures.) It does not matter when

the construction contractor is actually paid. Thus, there is no advantage to paying the contractor is 2016 for work that will be done in 2017. Where work started in 2005 and finished in 2006, part of the cost of the project qualified for a 30% credit -- the part of the work completed during 2006. The portion of the project completed in 2005 qualified for a 10% credit.

1.7.1(b) Acquired Projects

A project is considered "acquired" when property ready for use is purchased ready for use without any associated construction or assembly delay.

If the taxpayer "acquires" the solar equipment rather than self constructs it, then a 30% credit can only be claimed if the property is both acquired and placed in service during the period 2006 through 2016. Thus, for example, if a taxpayer signs a contract to buy photovoltaic property in 2016, but it is not delivered or ready for use until 2017, then only a 10% energy credit can be claimed.

Treasury cash grants are paid on solar equipment that is placed in service in 2009 or 2010 or on which construction starts in 2009 or 2010 and is completed by 2016. It does not matter that the equipment was ordered or largely installed before 2009. The key is when it was placed in service.

1.7.2 Progress Expenditures

The commercial solar tax credit is ordinarily claimed in full in the year that eligible property is put into service. However, a taxpayer can elect to claim a commercial solar tax credit on his or her construction progress payments in situations where the eligible property is expected to take at least two years to build.

This could become relevant in cases where works starts on a project in 2016 when there is still a 30% commercial solar tax credit, but it will not be completed until after the credit has reverted to 10%. The 30% credit could be claimed on construction progress payments during 2016. Some developers of utility-scale solar projects that will take at least two years to construct and that are expected to get underway by 2010 also plan to take tax credits on construction progress payments and then pay back the amount of tax credits claimed and take a cash payment from the Treasury within 60 days after the project is placed in service. This would provide a time-value benefit.

The amount the taxpayer is considered to have paid toward construction in any year depends on a number of complicated rules.

The taxpayer must first determine whether a project is "self constructed" or "non-self constructed."

The progress expenditure rules use a much tighter definition of self construction than the transition rules do. That is, while most stick-built projects are considered self constructed for purposes of the transition rules, few projects are considered self constructed for progress payments purposes. To be self constructed for progress payments purposes, the taxpayer must expect to spend more than half the construction expenditures on wages for the taxpayer's own employees and on materials that they will install. This test is applied to each unit of property. A single project may consist of more than one unit. For example, each turbine, boiler and other large component at a power plant is probably considered a separate unit of property.

Spending on non-self-constructed property counts only when amounts are actually paid to a third party and, even then, one can only count the spending in a year "to the extent [it is] attributable to progress made in construction . . ." The IRS regulations say, "Progress will generally be measured in terms of the manufacturer's incurred cost, as a fraction of the anticipated cost . . . ."
More spending counts earlier in time as progress payments for self-constructed property. The rule for self-constructed property is that spending counts when the amount "accrues," meaning when the taxpayer is legally obligated to make the payment and the amount is known. However, spending on components comes under a special rule. It cannot be counted before the components are built at the factory (in the case of components that are specially designed for a project), or when they are delivered to the site (in the case of other components that would be "economically impractical to remove" after delivery), or when they are physically attached to the project (in the case of any remaining components).

1.8 Project Ownership Considerations

Subtleties associated with specific ownership structures that affect the commercial solar tax credit are discussed in the following paragraphs.

Commercial solar tax credits and depreciation are claimed by the owner of eligible property. Any owner that cannot use these tax incentives because he does not pay enough in taxes should explore one of several options:

- Take the cash value of the tax credit from the U.S. Treasury and finance the rest of the project with debt, perhaps with the help of a federal loan guarantee, to the extent the project will generate enough cash to cover the debt service. However, this will leave the project owner with "stranded" depreciation that he may not be able to use efficiently. The depreciation can be carried forward for up to 20 years and used when the project starts generating income. The depreciation will not have as great a time value as if the depreciation deductions could be used immediately.

- Do a "tax equity deal" to try to get value for the depreciation (and the tax credit if the developer chooses to claim it rather than take the cash value from the Treasury. Any tax equity deal might take one of four forms.

    - Sell the project to another company that can use the tax benefits and lease it back, thereby sharing indirectly in the tax subsidies in the form of reduced rent for use of the equipment.

    - Bring in an institutional equity investor that can use the tax benefits as a partner to own the project in a so-called "flip" partnership and allocate 99% of the tax subsidies to the institutional investor in exchange for the capital to build the project.

    - Do an "inverted pass-through lease" where the developer leases the project to a tax equity investor and elects to pass through the commercial tax credit or cash payment from the Treasury to the tax equity investor.

    - Let someone else own the project and just buy the electricity under a long-term contract.

1.8.1 Sale-Leasebacks

In a sale-leaseback, the developer sells the project to an institutional equity investor who can use the tax credits and depreciation on the project and then leases it back. The lessor claims the tax credits and depreciation. If the parties choose to receive cash from the Treasury in lieu of the tax credit, then the cash payment will go the lessor if the sale-leaseback occurs within three months after the project is originally placed in service. It will go the developer if the sale-leaseback occurs more than three months after the project is originally placed in service. The terms of the lease financing will be less generous if the payment goes to the developer.

The lease should not run longer than 80% of the expected life and value of the project. The developer can have one or more options to renew the lease, but the options should be at market rent determined at renewal. Any options to renew at a fixed rent count as part of the original lease term for purposes of testing whether the lease term is too long. The lease back must be to the same legal entity that placed the project in service.

In larger projects that take some time to construct and that are financed by borrowing the construction funds from a bank, the lessor commits at the start of construction to buy the project after construction is completed. The closing on the sale-leaseback must occur within three months after the project is put into service, or the lessor cannot claim any commercial solar tax

credits. (It would still be able to claim depreciation.) If cash will be paid by the Treasury in place of tax credits, the cash payment would have already been made to the developer and there would not be any recapture of the payment by the U.S. government. (See section 1.10.) The lessee will have a taxable gain on the sale if it charges the lessor more for the project than the lessor just paid to construct the project. However, the lessor must not pay more than the fair market value of the project. Commercial solar tax credits can only be claimed on new equipment. A special rule preserves the status of the equipment as new as long as it is sold and leased back within three months.

The lessor in a sale-leaseback can elect to leave the tax credit or Treasury cash payment with the lessee and claim only the tax depreciation on the project. The lessor must otherwise qualify for the tax credit. Thus, for example, the election cannot be made by a foreign lessor unless at least 50% of the gross rents are subject to U.S. income taxes.

A taxpayer must usually reduce his tax basis for depreciation by one half the solar tax credit. Thus, where a 30% credit is claimed, only 85% of the equipment cost can be depreciated. However, in a case where the project is sold and leased back and the lessor elects to leave the tax credit or Treasury cash grant with the lessee, then the lessor can claim depreciation on the full cost of the project without any basis reduction. However, the lessee would have to report half the credit it claims or cash grant it receives as taxable income over a five-year period.[9]

1.8.2 Partnership Flips

Another way for a developer to get value for tax subsidies it cannot use is to bring an institutional equity investor in as a partner to own the project and pay part of the capital cost. The project is owned by a partnership of the developer and the institutional investor. The partnership allocates 99% of the economic returns to the investor until the investor reaches a target internal rate of return, after which the investor's interest in the project drops as low as 4.95% and the developer's interest increases automatically to 95.5%. The developer has an option at that point to buy out the investor for the fair market value of its remaining 4.95% interest. In some transactions, cash is distributed 100% to the developer until the developer gets back any capital it has invested in the project. After that, cash follows other partnership items and is distributed 99% to the investor until the flip.

9. Most lessors are corporations. It is hard for an individual or other "non-corporate" lessor to claim commercial solar tax credits. Such a lessor can claim tax credits only in two situations. One is where he or she manufactured the equipment. The other is where the amount of business expense deductions the lessor can claim in the first 12 months in connection with the equipment is more than 15% of the rent he or she earns during the same period. An example of a business expense deduction is wages paid to employees. The lease would also have to have a term less than half the "class life" of the equipment. Thus, the lease in a solar project with a non-corporate lessor would have to be shorter than six years.

In a partnership, the investor must come into the deal before the solar project is placed in service (unlike a sale-leaseback where the investor has up to three months after the in-service date to invest).[10]

Even though the parties intend to allocate 99% of the tax benefits to the investor, the investor may not be able to absorb that much of the tax subsidy in fact due to partnership accounting rules. Anyone using a partnership flip structure should be careful to model the transaction, paying particular attention to the "capital account" and "outside basis" of the investor, as these determine its capacity to absorb tax benefits. They are a function partly of how much the investor invests in relation to the tax benefits.

Commercial solar tax credits must be shared among partners in the same ratio that they share in income for the year the project is placed in service.

It does not matter whether the partnership actually has any income that year. (Most solar projects show tax losses for the first three to four years.) However, care must be exercised when switching the ratio for sharing income before the partnership turns tax positive. For example, suppose there are two partners -- A and B -- who agree to allocate 99% of income to B for the first three years in order to get B 99% of the solar credits and then share everything 50-50 from year four onward. If the partnership has tax losses in each of the first three years, the IRS may argue on audit that the 99-1 sharing ratio for income that was used in year one to give the investor 99% of the solar tax credit is illusory. For that reason, it is important to hold the sharing ratio used in year one in place at least until a full year when the partnership has income.

The flip should not occur until at least five years after the project is put in service. Otherwise, part of the solar tax credit may be recaptured. The credit takes five years to vest fully. (See section 1.10 on credit recapture for a more detailed discussion.)

It is not clear whether a shift in partner sharing ratios will lead to recapture of any cash payment made to the partnership by the Treasury. Guidance is not expected from the Treasury until July 2009 at the earliest.

1.8.3 Inverted Pass-Through Leases

In an inverted lease, the developer owns the solar project, but leases it to an investor. The investor as lessee holds a power contract to sell the electricity to an off-taker. It takes in revenue from electricity sales and uses it to pay rent to the developer as lessor. The developer makes an election to allow the lessee to claim the commercial solar credit.

10. If the parties take a cash payment from the Treasury in place of the tax credit, then the sale-leaseback can be done more than three months after the project goes into service, but the cash payment would remain with the developer.

The developer keeps the tax depreciation and uses it to shelter the rents from income taxes. The investor as lessee claims the commercial tax credit and deductions for rent that may mirror the depreciation that it would have received as owner. It pays an additional amount as prepaid rent for the tax benefits.

The main attraction to the developer is it gets back the project at the end of the lease without having to pay anything for it. The lease might run as short as six or seven years. However, it is unclear how much continuing currency the structure will have after the economic stimulus bill in February 2009 given that the government is now monetizing tax credits. If it has continuing utility, it is because tax equity investors have been paying $1.21 per dollar of tax credit under the structure. The tax equity pays more than 100¢ on the dollar because it can deduct the amount it pays for the tax benefits as rent.

The structure can get very complicated. In some versions, the developer retains an interest as the managing member of the lessee and, instead of having the investor pay for the tax credits as prepaid rent, the developer makes a capital contribution to the lessee that the lessee contributes, in turn, to a lessor entity that is owned 51% by the developer and 49% by the lessee.
A lessor who elects to allow the investor as lessee to claim the commercial tax credit does not have to reduce its depreciable basis by half the credit. However, the investor must report half the credit as income spread ratably over five years.

1.8.4 Power Contracts

Another alternative for a company that cannot use the tax subsidies is simply to buy the electricity from the project under a long-term contract from someone else who owns the project and can use the tax subsidies. Some states have retail sale restrictions that bar anyone other than a regulated utility from supplying electricity at retail. It would be a good idea to limit the term of the power contract so that it does not run longer than 80% of the expected life and value of the project. The power purchaser can have options to renew the contract, but the electricity price should be reset to the current market level at time of renewal. The power purchaser can have an option to purchase the project at the end of term, but it would be best if the option were at market value determined at time of exercise rather than a fixed price.

1.8.5 Prepaid Service Contracts

In some larger solar projects, particularly where electricity is sold to a municipal utility or electric cooperative, a developer may suggest that the purchaser of the electricity prepay for a large share of the electricity to be delivered over the contract term. The prepayment can be used to help pay the project cost. It does not have to be reported immediately as taxable income by the developer,

provided the power contract is properly structured. The prepayment is reported as income over the period the electricity is delivered. The developer cannot report the income any more rapidly for book purposes.

The parties must be careful to ensure the prepayment is only for electricity and not for anything else like capacity or renewable energy credits. They should state in the contract that they intend it to be treated as a "service contract" within the meaning of section 7701(e)(3) of the U.S. tax code. The contract should be drafted to avoid four "foot faults." Transactions involving prepaid service contracts are complicated. Anyone planning to use the structure should get help from competent tax counsel.

The structure has two main attractions. One is that the developer raises part of the capital for the project. The prepayment is economically equivalent to soft debt that the developer repays over time by delivering electricity in kind. The attraction to a municipal utility or electric cooperative is that it is a way to come as close to ownership of a project as possible while still allowing the project to benefit from federal tax subsidies. The municipal utility or co-op is usually offered a discount on the electricity price by the developer in exchange for making the prepayment. It may raise the prepayment by issuing tax-exempt debt or borrowing on special terms through the Rural Utilities Service or other co-op lenders.

1.8.6 Regulated Utilities

Solar equipment owned or leased by a regulated utility did not qualify for commercial solar tax credits before February 14, 2008. Commercial credits could be claimed on "public utility property" before that date. A solar project is "public utility property" if the rates for the sale of electricity from the project are regulated on a rate-of-return basis. Congress dropped the restriction in October 2008 retroactively to the preceding February.

1.8.7 Model Homes

The commercial tax credit or Treasury cash payment can be claimed on solar equipment installed as part of a model home retained for a period by a homebuilder if the homebuilder can make the case that the home had been "placed in service" for tax purposes – the same test used to determine whether a homebuilder can depreciate the house. However, this is unlikely to be the optimal tax treatment. Practically, if the home was retained for fewer than five years, some portion of the credit or cash payment would not have vested with the homebuilder and would therefore be recaptured. (See section 1.10.)

1.8.8 Passive Loss and At-Risk Restrictions

It is hard for individuals, S corporations and closely-held C corporations to make full use of the solar credits and depreciation on commercial solar projects. For this reason, they are not usually appropriate investors for a developer to bring into a deal in the hope of bartering tax benefits the developer cannot to use to an investor in exchange for capital to build the project. A corporation is "closely held" if five or fewer individuals own more than half the stock.

Unless such an investor is involved personally in operating the project, he or she will be considered to have made a passive investment. The investor will end up only able to use the tax benefits as shelter against taxes on income from other passive solar investments, and possibly even just from the particular project.

The passive loss rules limit the ability of such an investor to use both tax credits and depreciation. "At-risk" rules are a second hurdle. The at-risk limits on the use of tax credits are different from the at-risk limits on the use of depreciation. The at-risk limits for tax credits were discussed earlier in section 1.4.4. The at-risk rules for depreciation limit such an investor to claiming an amount of depreciation equal to the amount the investor has at risk in the project -- basically the amount of equity he or she has invested plus any debt at the project level whose repayment has been guaranteed by the investor. Developers would do better to look for more widely-held corporations as investors, since they are not subject to either set of passive loss or at-risk restrictions.

1.9 Applying the Credit to Taxes

1.9.1 Alternative Minimum Tax and Floor

A corporation must calculate both its regular income taxes at a 35% rate and its "alternative minimum taxes" at a 20% rate but on a broader definition of taxable income and pay essentially whichever amount is greater. The commercial solar credit could not be used before 2009 to reduce a taxpayer's regular income taxes by more than 75%, or below the level the alternative minimum tax (AMT) kicked in.[11] Therefore, companies that paid the minimum tax were unable to use solar tax credits — at least in the year they paid the AMT. The credits could be carried to another tax year. These limits were limits not only on use of commercial solar tax credits, but also on most other "business credits." Thus, the commercial solar tax credits in combination with other business credits could not reduce a taxpayer's tax liability in a given year below the AMT floor. The law changed in October 2008. The solar credit can now be used to offset minimum taxes in tax years starting after October 3, 2008.

11. A corporation must pay, essentially, whichever amount is greater - its regular income taxes at a 35% rate, or its "alternative minimum taxes" at a 20% rate, but on a broader definition of taxable income.

Thus, for example, if a corporation has a tax year that ends on November 30, it would be able to use credits against minimum taxes for solar equipment placed in service on or after December 1, 2008. Most U.S. companies use a calendar tax year. They will benefit starting with solar equipment put into service in 2009. A tax credit earned in 2009 can be carried back to an earlier year and used against AMT liability in that year. However, the reverse is not also true: tax credits that went unused in 2008 because a company was on AMT cannot be used to reduce AMT in 2009.

1.9.2 Carryback and Carryforward of Tax Benefits

A commercial solar tax credit that a taxpayer cannot use can be carried back one year and forward 20 years. In general, a 30% credit cannot be carried back to a period when the credit was only 10%. However, the full 30% credit can be carried forward. If a taxpayer ends up carrying unused solar credits forward for 20 years and is still unable to use them, then the unused credit can be deducted in the year after the carryforward period ends. However, only half the credit can be deducted. The rest is lost.

Unused depreciation can be carried back two years and forward for 20 years. However, the economic stimulus bill allows small businesses to carry back any unused net operating loss in 2008 as far back as five years and get a refund of any taxes paid during that period. Unused depreciation deductions would be part of the company's net operating loss. (If the company uses a different tax year than the calendar year, then it can choose as its 2008 net operating loss to carry back either its loss in its tax year that ended in 2008 or the loss in its tax year that started in calendar year 2008.) A company would have to have gross receipts of $15 million or less in the loss year to take advantage of this provision.

1.10 Recapture of Credit Taken in Prior Years

1.10.1 General Recapture Rules

Although the credit is usually claimed in full in the year the solar project is put in service, commercial tax credits "vest" over five years at the rate of 20% a year. This means that if something happens to solar equipment in the four years after the equipment is put into service that would have prevented the taxpayer from claiming the credit had it happened at the start, then the "unvested" part of the credit will be recaptured (paid back to the IRS). For example, the unvested credit will be recaptured if the taxpayer sells the solar equipment or leases it for use by a government agency.

A taxpayer should take the potential for recapture into account when considering whether to sell solar equipment on which tax credits have been claimed before the recapture period has expired. The unvested portion of the credit will have to be reported as income in the year the recapture event occurs. The taxpayer can add back to his depreciable basis half the recapture income reported in the recapture year. The amount added back to the depreciable basis can be deducted over time as additional depreciation if the taxpayer continues to own the project. If the recapture event is a sale of the project, then the taxpayer will have less gain to report from the sale because of the upward tax basis adjustment. The taxpayer will also have a potential mismatch in tax rates. Recapture income is ordinary income. Gain from a sale in many cases will be capital gain. The combination of credit recapture and the upward basis adjustment has the effect of converting income from capital gain into ordinary income.

1.10.2 Recapture Rules for Nonrecourse Financed Projects

(Please note that these considerations apply only to projects not covered under the exemptions under section 1.4.4.)

Taxpayers covered by the at-risk rules should be careful not to increase the amount of nonrecourse debt secured by the project in a later year as that could lead to recapture of a commercial solar credit claimed earlier. Also, a credit will be recaptured to the extent that principal repayments fall short, at the end of any tax year, of the nonrecourse principal that would have had to be repaid by then under a level-payment loan. "Level payment" for this purpose means straight-line amortization of debt service over the term of the loan or, if shorter, the "class life" of the equipment. Most solar equipment has a class life of 12 years.

1.10.3 Recapture Rules for Partnerships

Partners face an added risk of recapture of the commercial credit.

For example, suppose there are two partners — A and B — who agree to allocate 99% of taxable income to B initially in order to allocate 99% of the solar tax credit to B. The project is placed in service in year one. B claims 99% of the credit in year one. Starting in year four, the allocations change to 50-50. B would suffer recapture of part of the solar tax credit when the sharing ratio shifts.

There will be recapture of a portion of B's unvested credits if B's share of taxable income during the next four years after the project is put in service drops to less than two thirds of his ratio in the first year. Thus, B's ratio could drop to 70% without any recapture, but a drop to 50% would trigger recapture of roughly half of B's unvested credits in year four when the shift occurs. Once B has suffered any recapture, then another shift will not cause any further recapture, unless the drop is to

less than one third of the share B had in taxable income in the year the project went into service.

1.10.4 Recapture of Treasury Cash Payments

Any cash payment made by the Treasury is expected to be subject to recapture in the same circumstances as the commercial solar credit, with one exception. It is unclear whether a sale of a partner interest or shift in the ratio in which partners share in partnership income will trigger recapture. The Treasury is not expected to issue guidance before July 2009.

1.11 Impact of Credits and Cash Grants on Depreciation Calculations

For the purpose of calculating depreciation on a commercial solar system, the tax basis for depreciation is a distinct value – separate from the tax credit basis. The depreciable basis that the taxpayer claims for the solar equipment must be reduced by 50% of the tax credit or Treasury cash grant. For example, if a 30% credit is claimed on a commercial solar energy system that cost $100,000, then the owner will have a depreciable basis in the equipment of $100,000 – (50% x $30,000) = $85,000. The depreciable basis is also used to calculate taxable gain or loss when the solar panel is later resold.

However, a corporation ignores the downward basis adjustment for purposes of calculating its "earnings and profits." Distributions by a corporation to its shareholders are dividends to the extent of the "earnings and profits" of the corporation. Earnings and profits are a form of net income. Thus, gross earnings are reduced by depreciation -- among other things -- to arrive at earnings and profits, but the depreciation subtracted in arriving at earnings and profits would be depreciation on the full basis of $100,000 in the example, notwithstanding the fact that a solar tax credit was claimed.

There is no basis adjustment where the owner of solar equipment leases it to someone else and elects to let to the lessee claim the solar tax credit. (See section 1.8.1 on sale-leasebacks.) However, the lessee must report taxable income equivalent to the basis adjustment. The income is spread over five years.

1.12 Claiming the Credit or Cash Grant and IRS Forms

Business energy credits are claimed by attaching a Form 3468 to one's tax return. This form is available from the IRS website at www.irs.gov. The Treasury is expected to explain soon how and where to apply for a cash payment in lieu of the tax credit.

1.13 Commercial Solar Tax Credit Examples

Example 1 – The Basic Commercial Credit

Company A pays $100,000, including on labor and equipment, to install a photovoltaic system on its corporate headquarters. The panels are purchased in 2008 and installed in 2009.

2009 Tax Basis		= $ 100,000
(The purchase and installation are both fully qualified under the credit.)		
2009 Tax Credit	$ 100,000 x 30%	= $ 30,000
(The full tax credit basis is multiplied by the 2008 tax credit.)		
Depreciable Basis	$ 100,000 - (30,000 x ½)	= $ 85,000
(The depreciable basis must be reduced by half to reflect the tax credit.)		

Example 2 – Commercial Credit Where Work Straddles Window Period

Company A acquires and pays for a pre-integrated, fully-designed and ready-to-run piece of solar equipment in 2016, but does not receive delivery until 2017. Assume the solar credit is not extended at a 30% rate by Congress.

2017 Tax Basis		= $ 100,000
(The purchase and installation are both fully qualified.)		
2017 Tax Credit	$ 100,000 x 10%	= $ 10,000
(The credit is claimed in the year equipment is placed in service.)		
Depreciable Basis	$ 100,000 - ($ 10,000 x ½)	= $ 95,000
(The depreciable basis must be reduced by half to reflect the tax credit.)		

Example 3 – Commercial Credit with Progress Payments

Company C hires a construction contractor to build a $10,000,000 multi-megawatt concentrating solar power facility. Forty percent of the construction work is completed in 2016, and the remaining 60% in 2017, at which time the project is put into use. Company C qualifies for a 30% credit on $4,000,000 and a 10% credit on $6,000,000. C has a tax basis of $9,100,000 in the project for depreciation purposes. This assumes that Congress does not extend the credit at a 30% rate and that the project has a long enough construction period to be able to claim credits on a progress payments basis.

2016 Tax Basis	$ 10,000,000 x 40%	= $ 4,000,000
2017 Tax Basis	$ 10,000,000 x 60%	= $ 6,000,000
(The project cost must be allocated between the two years it was under construction.)		
2016 Tax Credit	$ 4,000,000 x 30%	= $ 1,200,000
2017 Tax Credit	$ 6,000,000 x 10%	= $ 600,000
Total Credit		= $ 1,800,000
(The tax credits are claimed on a progress payments basis, and Company C must have a sufficient tax burden to realize the credits.)		
Depreciable Basis	$ 10,000,000 - ($ 1,800,000 x 1/2)	= $ 9,100,000
(The depreciable basis must be reduced by half the tax credits claimed.)		

Example 4 – Commercial Credit with Sale and Recapture

Company A pays $100,000, including labor and equipment, to install a photovoltaic system on its corporate headquarters. The panels are purchased in 2008 and installed in 2009. The system is sold in 2012 to Company B. Company A must recapture the unvested portion of the energy credit that it claimed in 2009. The unvested portion is 40%.

2009 Tax Basis		= $ 100,000
(The purchase and installation are both fully qualified under the credit.)		
2009 Tax Credit	$ 100,000 x 30%	= $ 30,000
(The full tax credit basis is multiplied by the credit.)		
Recapture Amount	$ 30,000 x 40%	= $ 12,000
(As in section 8.1, the credits "vest" over 5 years. The credits here have only vested in 2009, 20010, and 2011. Since two of the five years are missing, 40% of the credit is subject to recapture. Company A will have to report this "recapture income" as part of its ordinary income stemming from the sale to B.)		

EXHIBIT D

Exhibit A

Fifth Amended and Restated Certificate of Incorporation

Delaware

The First State

I, HARRIET SMITH WINDSOR, SECRETARY OF STATE OF THE STATE OF DELAWARE, DO HEREBY CERTIFY THE ATTACHED IS A TRUE AND CORRECT COPY OF THE RESTATED CERTIFICATE OF "SOLARCITY CORPORATION", FILED IN THIS OFFICE ON THE TWENTY-EIGHTH DAY OF OCTOBER, A.D. 2008, AT 12:23 O'CLOCK P.M.

A FILED COPY OF THIS CERTIFICATE HAS BEEN FORWARDED TO THE NEW CASTLE COUNTY RECORDER OF DEEDS.

Harriet Smith Windsor

Harriet Smith Windsor, Secretary of State

4178768 8100

AUTHENTICATION: 6935840

081071748

DATE: 10-28-08

You may verify this certificate online at corp.delaware.gov/authver.shtml

State of Delaware
Secretary of State
Division of Corporations
Delivered 12:29 PM 10/28/2008
FILED 12:23 PM 10/28/2008
SRV 081071748 - 4178768 FILE

FIFTH AMENDED AND RESTATED CERTIFICATE OF INCORPORATION

OF

SOLARCITY CORPORATION

The undersigned, Lyndon Rive, hereby certifies that:

1. He is the duly elected Chief Executive Officer and President of SolarCity Corporation, a Delaware corporation.

2. The Certificate of Incorporation of this corporation was originally filed with the Secretary of State of Delaware on June 21, 2006; an Amended and Restated Certificate of Incorporation was filed with the Secretary of State of Delaware on July 6, 2006; a Second Amended and Restated Certificate of Incorporation was filed with the Secretary of State of Delaware on April 9, 2007; a Third Amended and Restated Certificate of Incorporation was filed with the Secretary of State of Delaware on August 7, 2007; and a Fourth Amended and Restated Certificate of Incorporation was filed with the Secretary of State of Delaware on March 14, 2008.

3. The Certificate of Incorporation of this corporation shall be further amended and restated to read in full as follows:

ARTICLE I

The name of this corporation is SolarCity Corporation (the "Corporation").

ARTICLE II

The address of the Corporation's registered office in the State of Delaware is 2711 Centerville Road, Suite 400, Wilmington, County of New Castle, Delaware 19808. The name of its registered agent at such address is Corporation Service Company.

ARTICLE III

The purpose of the Corporation is to engage in any lawful act or activity for which corporations may be organized under the General Corporation Law of Delaware.

ARTICLE IV

(A) **Classes of Stock**. The Corporation is authorized to issue two classes of stock to be designated, respectively, "Common Stock" and "Preferred Stock." The total number of shares which the Corporation is authorized to issue is forty five million nine hundred seventy two thousand one hundred fifty one (45,972,151) shares, each with a par value of $0.0001 per share. Twenty eight million five hundred thousand (28,500,000) shares shall be Common Stock and seventeen million

four hundred seventy two thousand one hundred fifty one (17,472,151) shares shall be Preferred Stock.

(B) **Rights Preferences and Restrictions of Preferred Stock**. The Preferred Stock authorized by this Fifth Amended and Restated Certificate of Incorporation may be issued from time to time in one or more series. The first series of Preferred Stock is designated "Series A Preferred Stock" and consists of six million nineteen thousand six hundred twenty four (6,019,624) shares. The rights, preferences, privileges and restrictions granted to and imposed on the Series A Preferred Stock are as set forth below in this Article IV(B). The second series of Preferred Stock shall be designated "Series B Preferred Stock" and shall consist of two million five hundred and four thousand nine hundred and six (2,504,906) shares. The rights, preferences, privileges and restrictions granted to and imposed on Series B Preferred Stock are as set forth below in this Article IV(B). The third series of Preferred Stock shall be designated "Series C Preferred Stock" and shall consist of six million fifty seven thousand two hundred thirty one (6,057,231) shares. The rights, preferences, privileges and restrictions granted to and imposed on Series C Preferred Stock are as set forth below in this Article IV(B). The fourth series of Preferred Stock shall be designated "Series D Preferred Stock" and shall consist of two million eight hundred ninety thousand three hundred ninety (2,890,390) shares. The rights, preferences, privileges and restrictions granted to and imposed on Series D Preferred Stock are as set forth below in this Article IV(B).

1. **Dividend Provisions**. The holders of shares of Series A Preferred Stock, Series B Preferred Stock, Series C Preferred Stock and Series D Preferred Stock shall be entitled to receive dividends, on a pari passu basis, out of any assets legally available therefor, prior and in preference to any declaration or payment of any dividend (payable other than in Common Stock or other securities and rights convertible into or entitling the holder thereof to receive, directly or indirectly, additional shares of Common Stock of the Corporation) on the Common Stock of the Corporation, at the rate of $0.02 per share (as adjusted for stock splits, stock dividends, reclassification and the like) per annum on each outstanding share of Series A Preferred Stock, Series B Preferred Stock, Series C Preferred Stock or Series D Preferred Stock, payable when, as and if declared by the Board of Directors. Such dividends shall not be cumulative. The holders of Preferred Stock shall be entitled to participate pro rata in any dividends or other distributions paid on the Common Stock on an as-converted basis that exceeds the dividends or distributions paid on the Preferred Stock.

2. **Liquidation**.

(a) **Series D Liquidation Preference**. In the event of any liquidation, dissolution or winding up of the Corporation, either voluntary or involuntary, the holders of the Series D Preferred Stock shall be entitled to receive, prior and in preference to any distribution of any of the assets of the Corporation to the holders of the Series A Preferred Stock, Series B Preferred Stock, Series C Preferred Stock or Common Stock, by reason of their ownership thereof, an amount per share equal to the greater of (i) $10.4034 (as adjusted for stock splits, stock dividends, reclassification and the like) for each share of Series D Preferred Stock then held by them, plus declared but unpaid dividends or (ii) such amount per share as would have been payable had each such share been converted into Common Stock pursuant to Section 4 immediately prior to such liquidation, dissolution or winding up. If, upon the occurrence of such event, the assets and funds

thus distributed among the holders of the Series D Preferred Stock shall be insufficient to permit the payment to such holders of the full aforesaid preferential amounts, then the entire assets and funds of the Corporation legally available for distribution shall be distributed ratably among the holders of the Series D Preferred Stock in proportion to the preferential amount each such holder is otherwise entitled to receive.

(b) **Series A Preferred Stock, Series B Preferred Stock and Series C Preferred Stock Liquidation Preference**. After payment has been made to the holders of Series D Preferred Stock of the full amounts to which they are entitled pursuant to Section 2(a) above, the holders of Series A Preferred Stock, Series B Preferred Stock and Series C Preferred Stock shall be entitled to receive, prior and in preference to any distribution of any of the assets of the Corporation to the holders of Common Stock, by reason of their ownership thereof, an amount per share equal to $0.38 (as adjusted for stock splits, stock dividends, reclassification and the like) for each share of Series A Preferred Stock, an amount per share equal to $1.20 (as adjusted for stock splits, stock dividends, reclassification and the like) for each share of Series B Preferred Stock and an amount per share equal to $4.80 (as adjusted for stock splits, stock dividends, reclassification and the like) for each share of Series C Preferred Stock then held by them, plus declared but unpaid dividends. If, upon the occurrence of such event, the assets and funds thus distributed among the holders of the Series A Preferred Stock, Series B Preferred Stock and Series C Preferred Stock shall be insufficient to permit the payment to such holders of the full aforesaid preferential amounts, then the entire assets and funds of the Corporation legally available for distribution shall be distributed ratably among the holders of the Series A Preferred Stock, Series B Preferred Stock and Series C Preferred Stock in proportion to the preferential amount each such holder is otherwise entitled to receive.

(c) **Remaining Assets**. Upon the completion of the distributions required by Sections 2(a) and 2(b) above, if assets remain in the Corporation, such remaining assets shall be distributed ratably among the holders of the Common Stock in proportion to the number of shares held by each such holder.

(d) **Certain Acquisitions**.

(i) **Deemed Liquidation**. For purposes of this Section 2, a liquidation, dissolution, or winding up of the Corporation shall be deemed to occur if the Corporation shall sell, convey, or, otherwise dispose of all or substantially all of its property or business or merge with or into or consolidate with any other corporation, limited liability company or other entity or effect any other transaction or series of related transactions in which more than 50% of the voting power of the Corporation is disposed of, provided that this Section 2(d)(i) shall not apply to a merger effected exclusively for the purpose of changing the domicile of the Corporation, (ii) an equity financing in which the Corporation is the surviving corporation, or (iii) a transaction in which the stockholders of the Corporation immediately prior to the transaction own 50% or more of the voting power of the surviving corporation following the transaction.

(ii) **Valuation of Consideration**. In the event of a deemed liquidation as described in Section 2(d)(i) above, if the consideration received by the Corporation is other than cash, its value will be deemed its fair market value. Any securities shall be valued as follows:

(A) Securities not subject to investment letter or other similar restrictions on free marketability:

(1) If traded on a securities exchange, the value shall be deemed to be the average of the closing prices of the securities on such exchange over the thirty-day period ending three days prior to the closing of such transaction;

(2) If actively traded over-the-counter, the value shall be deemed to be the average of the closing bid or sale prices (whichever is applicable) over the thirty-day period ending three days prior to the closing of such transaction; and

(3) If there is no active public market, the value shall be the fair market value thereof, as mutually determined by the Board of Directors of the Corporation and the holders of at least sixty-six and two-thirds percent (66 2/3%) of the then outstanding shares of Preferred Stock, voting together as a single class on an as-converted basis.

(B) The method of valuation of securities subject to investment letter or other restrictions on free marketability (other than restrictions arising solely by virtue of a stockholder's status as an affiliate or former affiliate) shall be to make an appropriate discount from the market value determined as above in Section 2(d)(ii)(A) to reflect the approximate fair market value thereof, as mutually determined by the Board of Directors of the Corporation and the holders of at least sixty-six and two-thirds percent (66 2/3%) of the then outstanding shares of Preferred Stock, voting together as a single class on an as-converted basis.

(iii) **Notice of Transaction**. The Corporation shall give each holder of record of Preferred Stock written notice of such impending transaction not later than ten days prior to the stockholders' meeting called to approve such transaction, or ten days prior to the closing of such transaction, whichever is earlier, and shall also notify such holders in writing of the final approval of such transaction. The first of such notices shall describe the material terms and conditions of the impending transaction and the provisions of this Section 2, and the Corporation shall thereafter give such holders prompt notice of any material changes. The transaction shall in no event take place sooner than ten days after the Corporation has given the first notice provided for herein or sooner than ten days after the Corporation has given notice of any material changes provided for herein; provided, however, that such periods may be shortened upon the written consent of the holders of at least sixty-six and two-thirds percent (66 2/3%) of the then outstanding shares of Preferred Stock, voting together as a single class on an as-converted basis.

(iv) **Effect of Noncompliance**. In the event the requirements of this Section 2(d) are not complied with, the Corporation shall forthwith either cause the closing of the transaction to be postponed until such requirements have been complied with, or cancel such transaction, in which event the rights, preferences and privileges of the holders of the Preferred Stock shall revert to and be the same as such rights, preferences and privileges existing immediately prior to the date of the first notice referred to in Section 2(d)(iii) hereof.

3. **Redemption**.

(a) **Series D Redemption**. Shares of Series D Preferred Stock shall be redeemed by the Corporation out of funds lawfully available therefor at a price per share equal to the Series D Redemption Price (as defined below), within 60 days after receipt by the Corporation at any time on or after October 28, 2015, from the holders of at least 51% of the then outstanding shares of Series D Preferred Stock, of written notice requesting redemption of all shares of Series D Preferred Stock (the date of such payment being referred to as a "Series D Redemption Date") provided, however, that redemption shall be available if (and only if) the Corporation's financial statements prepared in accordance with Generally Accepted Accounting Principles (which financial statements shall be certified in writing by the Corporation's principal financial officer) reflect that the following conditions exist as of immediately prior to such redemption on the Series D Redemption Date: (i) the annual gross revenue of the Corporation exceeded $100 million for the most recent fiscal year; and (ii) the Corporation has no less than $15 million in available cash. On the Series D Redemption Date, the Corporation shall redeem all of the outstanding shares of Series D Preferred Stock owned by each holder. If the Corporation does not have sufficient funds legally available to redeem on any Series D Redemption Date all shares of Series D Preferred Stock and of any other class or series of stock to be redeemed on such Series D Redemption Date, the Corporation shall redeem a pro rata portion of each holder's redeemable shares of such stock out of funds legally available therefor, based on the respective amounts which would otherwise be payable in respect of the shares to be redeemed if the legally available funds were sufficient to redeem all such shares, and shall redeem the remaining shares to have been redeemed as soon as practicable after the Corporation has funds legally available therefor.

For purposes of this Section 3(a), "Series D Redemption Price" shall mean the greater of (i) $10.4034 plus all declared and unpaid dividends payable to the holders of Series D Preferred Stock and (ii) the fair market value of such share of Series D Preferred Stock, such valuation to be determined by an independent appraisal, exclusive of liquidity or minority ownership discounts, performed by an independent third party appraiser mutually agreeable to the holders of a majority of the outstanding shares of Series D Preferred Stock and the Board of Directors of the Corporation.

(b) **Series C Redemption**. Shares of Series C Preferred Stock shall be redeemed by the Corporation out of funds lawfully available therefor at a price equal to $4.80 per share, plus all declared but unpaid dividends thereon (the "Series C Redemption Price" and together with the Series D Redemption Price, the "Redemption Price"), within 60 days after receipt by the Corporation at any time on or after October 28, 2015, from the holders of at least 51% of the then outstanding shares of Series C Preferred Stock, of written notice requesting redemption of all shares of Series C Preferred Stock (the date of such payment being referred to as a "Series C Redemption Date" and together with the Series D Redemption Date, the "Redemption Date") provided, however, that redemption shall be available if (and only if) the Corporation's financial statements prepared in accordance with Generally Accepted Accounting Principles (which financial statements shall be certified in writing by the Corporation's principal financial officer) reflect that the following conditions exist as of immediately prior to such redemption on the Series C Redemption Date: (i) the annual gross revenue of the Corporation exceeded $100 million for the most recent fiscal year; and (ii) the Corporation has no less than $15 million in available cash. On the Series C Redemption Date, the Corporation shall redeem all of the outstanding shares of Series C Preferred Stock owned

by each holder. If the Corporation does not have sufficient funds legally available to redeem on any Series C Redemption Date all shares of Series C Preferred Stock and of any other class or series of stock to be redeemed on such Series C Redemption Date, the Corporation shall redeem a pro rata portion of each holder's redeemable shares of such stock out of funds legally available therefor, based on the respective amounts which would otherwise be payable in respect of the shares to be redeemed if the legally available funds were sufficient to redeem all such shares, and shall redeem the remaining shares to have been redeemed as soon as practicable after the Corporation has funds legally available therefor.

(c) **Redemption Notice**. Written notice of the mandatory redemption (the "Redemption Notice") shall be mailed, postage prepaid, to each holder of record of Series C Preferred Stock or Series D Preferred Stock, as applicable, at its post office address last shown on the records of the Corporation, or given by electronic communication in compliance with the provisions of the General Corporation Law, not less than 40 days prior to each Redemption Date. Each Redemption Notice shall state:

(i) the number of shares of Series C Preferred Stock or Series D Preferred Stock, as applicable, held by the holder that the Corporation shall redeem on the Redemption Date specified in the Redemption Notice;

(ii) the Redemption Date and the Redemption Price;

(iii) the date upon which the holder's right to convert such shares terminates (as determined in accordance with Section 4(a)); and

(iv) that the holder is to surrender to the Corporation, in the manner and at the place designated, his, her or its certificate or certificates representing the shares of Series C Preferred Stock or Series D Preferred Stock, as applicable, to be redeemed.

If the Corporation receives, on or prior to the 20th day after the date of delivery of the Redemption Notice to a holder of Series C Preferred Stock or Series D Preferred Stock, as applicable, written notice from such holder that such holder elects to be excluded from the redemption provided in this Section 3, then the shares of Series C Preferred Stock or Series D Preferred Stock, as applicable, registered on the books of the Corporation in the name of such holder at the time of the Corporation's receipt of such notice shall thereafter be "Excluded Shares."

(d) **Surrender of Certificates; Payment**. On or before the applicable Redemption Date, each holder of shares of Series C Preferred Stock or Series D Preferred Stock, as applicable, to be redeemed on such Redemption Date (other than Excluded Shares), unless such holder has exercised his, her or its right to convert such shares as provided in Section 4 hereof, shall surrender the certificate or certificates representing such shares to the Corporation, in the manner and at the place designated in the Redemption Notice, and thereupon the Redemption Price for such shares shall be payable to the order of the person whose name appears on such certificate or certificates as the owner thereof, and each surrendered certificate shall be canceled and retired. In the event less than all of the shares of Series C Preferred Stock or Series D Preferred Stock, as applicable, represented by a certificate are redeemed, a new certificate representing the unredeemed

shares of Series C Preferred Stock or Series D Preferred Stock, as applicable, shall promptly be issued to such holder.

(e) **Rights Subsequent to Redemption**. If the Redemption Notice shall have been duly given, and if on the applicable Redemption Date the Redemption Price payable upon redemption of the shares of Series C Preferred Stock or Series D Preferred Stock, as applicable, to be redeemed on such Redemption Date is paid or tendered for payment or deposited with an independent payment agent so as to be available therefor, then notwithstanding that the certificates evidencing any of the shares of Series C Preferred Stock or Series D Preferred Stock, as applicable, so called for redemption shall not have been surrendered, dividends with respect to such shares of Preferred Stock shall cease to accrue after such Redemption Date and all rights with respect to such shares shall forthwith after the Redemption Date terminate, except only the right of the holders to receive the Redemption Price without interest upon surrender of their certificate or certificates therefor.

(f) **Redeemed or Otherwise Acquired Shares**. Any shares of Preferred Stock which are redeemed or otherwise acquired by the Corporation or any of its subsidiaries shall be automatically and immediately canceled and shall not be reissued, sold or transferred. Neither the Corporation nor any of its subsidiaries may exercise any voting or other rights granted to the holders of Series C Preferred Stock or Series D Preferred Stock, as applicable, following redemption.

4. **Conversion**. The holders of the Preferred Stock shall have conversion rights as follows (the "Conversion Rights"):

(a) **Right to Convert**.

(i) Subject to Section 4(c), each share of Series D Preferred Stock shall be convertible, at the option of the holder thereof, at any time after the date of issuance of such share, at the office of the Corporation or any transfer agent for such stock, into such number of fully paid and nonassessable shares of Common Stock as is determined by dividing $10.4034 by the Conversion Price (as defined below) applicable to such share, determined as hereafter provided, in effect on the date the certificate is surrendered for conversion. The initial Conversion Price per share of Series D Preferred Stock shall be $10.4034. Such initial Conversion Price shall be subject to adjustment as set forth in Section 4(d).

(ii) Subject to Section 4(c), each share of Series C Preferred Stock shall be convertible, at the option of the holder thereof, at any time after the date of issuance of such share, at the office of the Corporation or any transfer agent for such stock, into such number of fully paid and nonassessable shares of Common Stock as is determined by dividing $4.80 by the Conversion Price applicable to such share, determined as hereinafter provided, in effect on the date the certificate is surrendered for conversion. The initial Conversion Price per share of Series C Preferred Stock shall be $4.80. Such initial Conversion Price shall be subject to adjustment as set forth in Section 4(d).

(iii) Subject to Section 4(c), each share of Series B Preferred Stock shall be convertible, at the option of the holder thereof, at any time after the date of issuance of such

share, at the office of the Corporation or any transfer agent for such stock, into such number of fully paid and nonassessable shares of Common Stock as is determined by dividing $1.20 by the Conversion Price applicable to such share, determined as hereinafter provided, in effect on the date the certificate is surrendered for conversion. The initial Conversion Price per share of Series B Preferred Stock shall be $1.20. Such initial Conversion Price shall be subject to adjustment as set forth in Section 4(d).

(iv) Subject to Section 4(c), each share of Series A Preferred Stock shall be convertible, at the option of the holder thereof, at any time after the date of issuance of such share, at the office of the Corporation or any transfer agent for such stock, into such number of fully paid and nonassessable shares of Common Stock as is determined by dividing $0.38 by the Conversion Price applicable to such share, determined as hereinafter provided, in effect on the date the certificate is surrendered for conversion. The initial Conversion Price per share of Series A Preferred Stock shall be $0.38. Such initial Conversion Price shall be subject to adjustment as set forth in Section 4(d).

(v) "Conversion Price" shall mean, as of the date of the filing of this Fifth Amended and Restated Certificate of Incorporation, $0.38 per share for the Series A Preferred Stock, $1.20 per share for the Series B Preferred Stock, $4.80 per share for the Series C Preferred Stock and $10.4034 per share for the Series D Preferred Stock, in each case, subject to adjustment as set forth in Section 4(d).

(b) **Automatic Conversion.**

(i) **Automatic Conversion of Series D Preferred Stock.** Each share of Series D Preferred Stock shall automatically be converted into shares of Common Stock at the Conversion Price at the time in effect for such share immediately upon the earlier of (i) except as provided below in Section 4(c), the Corporation's sale of its Common Stock in a firm commitment underwritten public offering pursuant to a registration statement under the Securities Act of 1933, as amended (the "Securities Act"), in which (A) the pre-public offering market capitalization of the Corporation is at least $250,000,000 (as determined by multiplying all capital stock of the Corporation on a fully diluted basis prior to the public offering by the price per share at which the shares are sold to the public in the public offering) and (B) which results in aggregate cash proceeds to the Corporation of not less than $50,000,000 (net of underwriting discounts and commissions) or (ii) the date specified by written consent or agreement of the holders of a majority of the then outstanding shares of Series D Preferred Stock.

(ii) **Automatic Conversion of Series A Preferred Stock, Series B Preferred Stock and Series C Preferred Stock.** Each share of Series A Preferred Stock, Series B Preferred Stock and Series C Preferred Stock shall automatically be converted into shares of Common Stock at the Conversion Price at the time in effect for such share immediately upon the earlier of (i) except as provided below in Section 4(c), the Corporation's sale of its Common Stock in a firm commitment underwritten public offering pursuant to a registration statement under the Securities Act, in which (A) the pre-public offering market capitalization of the Corporation is at least $250,000,000 (as determined by multiplying all capital stock of the Corporation on a fully diluted basis prior to the public offering by the price per share at which the shares are sold to the

public in the public offering) and (B) which results in aggregate cash proceeds to the Corporation of not less than $50,000,000 (net of underwriting discounts and commissions) or (ii) the date specified by written consent or agreement of the holders of a majority of the then outstanding shares of Series A Preferred Stock, Series B Preferred Stock and Series C Preferred Stock, voting together as a single class on an as-converted basis.

(c) **Mechanics of Conversion**. Before any holder of Preferred Stock shall be entitled to convert the same into shares of Common Stock, he shall surrender the certificate or certificates therefor, duly endorsed, at the office of the Corporation or of any transfer agent for such series of Preferred Stock, and shall give written notice to the Corporation at its principal corporate office, of the election to convert the same and shall state therein the name or names in which the certificate or certificates for shares of Common Stock are to be issued. The Corporation shall, as soon as practicable thereafter, issue and deliver at such office to such holder of Preferred Stock, or to the nominee or nominees of such holder, a certificate or certificates for the number of shares of Common Stock to which such holder shall be entitled as aforesaid. Such conversion shall be deemed to have been made immediately prior to the close of business on the date of such surrender of the shares of such series of Preferred Stock to be converted, and the person or persons entitled to receive the shares of Common Stock issuable upon such conversion shall be treated for all purposes as the record holder or holders of such shares of Common Stock as of such date. If the conversion is in connection with an underwritten offering of securities registered pursuant to the Securities Act, the conversion may, at the option of any holder tendering such Preferred Stock for conversion, be conditioned upon the closing with the underwriters of the sale of securities pursuant to such offering, in which event the person(s) entitled to receive Common Stock upon conversion of such Preferred Stock shall not be deemed to have converted such Preferred Stock until immediately prior to the closing of such sale of securities.

(d) **Conversion Price Adjustments of Preferred Stock for Certain Dilutive Issuances, Splits and Combinations**. The Conversion Price of the Preferred Stock shall be subject to adjustment from time to time as follows:

(i) **Issuance of Additional Stock below Purchase Price**. If the Corporation shall issue, after the date of the filing of this Fifth Amended and Restated Certificate of Incorporation (the "Purchase Date" with respect to such series), any Additional Stock (as defined below) without consideration or for a consideration per share less than the Conversion Price for such series in effect immediately prior to the issuance of such Additional Stock, the Conversion Price for such series in effect immediately prior to each such issuance shall automatically be adjusted as set forth in this Section 4(d)(i), unless otherwise provided in this Section 4(d)(i).

(A) **Adjustment Formula**. Whenever the Conversion Price is adjusted pursuant to this Section (4)(d)(i), the new Conversion Price shall be determined by multiplying the Conversion Price then in effect by a fraction, (x) the numerator of which shall be the number of shares of Outstanding Common (as defined below) plus the number of shares of Common Stock that the aggregate consideration received by the Corporation for the total number of shares of Additional Stock so issued (or deemed to be issued) would purchase at such Conversion Price; and (y) the denominator of which shall be the number of shares of Outstanding Common plus the number of shares of Additional Stock so issued (or deemed to be issued). As used herein, the term

"Outstanding Common" shall mean all shares of Common Stock outstanding immediately prior to any such issuance of Additional Stock (treating for this purpose as outstanding (1) all shares of Common Stock issuable upon exercise of any options to purchase or rights to subscribe for Common Stock outstanding immediately prior to such issuance, (2) all shares of Common Stock issuable upon conversion or exercise of any securities (including, without limitation, evidences of indebtedness) by their terms convertible into or exchangeable for Common Stock outstanding immediately prior to such issuance and (3) all shares of Common Stock issuable upon conversion or exercise of any convertible or exchangeable securities issuable upon conversion or exercise of any options to purchase or rights to subscribe for such convertible or exchangeable securities outstanding immediately prior to such issuance).

(B) **Definition of "Additional Stock"**. For purposes of this Section 4(d)(i), "Additional Stock" shall mean any shares of Common Stock issued (or deemed to have been issued pursuant to Section 4(d)(i)(E)) by the Corporation after the Purchase Date other than:

(1) Common Stock issued pursuant to a transaction described in Section 4(d)(ii) hereof;

(2) Shares of Common Stock issuable or issued to employees, consultants or directors of the Corporation directly or pursuant to a stock option plan or restricted stock plan approved by the Board of Directors of the Corporation;

(3) Shares of Common Stock or Preferred Stock issuable upon exercise of options, warrants, notes or other rights to acquire securities of the Corporation outstanding as of the date of this Fifth Amended and Restated Certificate of Incorporation;

(4) Shares of Common Stock issuable or issued to financial institutions, lessors or other lenders in connection with commercial credit arrangements, equipment financings, bridge financings, commercial property lease transactions, or similar transactions, the terms of which have been approved by the Board of Directors;

(5) Up to 2,403,051 shares of Common Stock (as adjusted for stock splits, stock dividends, reclassification and the like) issuable or issued in strategic partnership transactions or other transactions the terms of which have been approved by the Board of Directors;

(6) Shares of Common Stock issued or issuable upon conversion of the Preferred Stock; and

(7) Shares of Common Stock issued or issuable in a public offering prior to or in connection with which all outstanding shares of Preferred Stock will be converted to Common Stock.

(C) **No Fractional Adjustments**. No adjustment of the Conversion Price for the Preferred Stock shall be made in an amount less than one cent per share,

provided that any adjustments which are not required to be made by reason of this sentence shall be carried forward and shall be either taken into account in any subsequent adjustment made prior to three years from the date of the event giving rise to the adjustment being carried forward, or shall be made at the end of three years from the date of the event giving rise to the adjustment being carried forward.

(D) **Determination of Consideration**. In the case of the issuance of Common Stock for cash, the consideration shall be deemed to be the amount of cash paid therefor before deducting any reasonable discounts, commissions or other expenses allowed, paid or incurred by the Corporation for any underwriting or otherwise in connection with the issuance and sale thereof. In the case of the issuance of the Common Stock for a consideration in whole or in part other than cash, the consideration other than cash shall be deemed to be the fair value thereof (exclusive of liquidity or minority discounts in the case of securities) as determined in good faith by the Board of Directors irrespective of any accounting treatment.

(E) **Deemed Issuances of Common Stock**. In the case of the issuance (whether before, on or after the Purchase Date) of options to purchase or rights to subscribe for Common Stock, securities (including, without limitation, evidences of indebtedness) by their terms convertible into or exchangeable for Common Stock or options to purchase or rights to subscribe for such convertible or exchangeable securities, the following provisions shall apply for all purposes of this Section 4(d)(i):

(1) The aggregate maximum number of shares of Common Stock deliverable upon exercise (assuming the satisfaction of any conditions to exercisability, including without limitation, the passage of time, but without taking into account potential antidilution adjustments) of such options to purchase or rights to subscribe for Common Stock shall be deemed to have been issued at the time such options or rights were issued and for a consideration equal to the consideration (determined in the manner provided in Section 4(d)(i)(D)), if any, received by the Corporation upon the issuance of such options or rights plus the minimum exercise price provided in such options or rights (without taking into account potential antidilution adjustments) for the Common Stock covered thereby.

(2) The aggregate maximum number of shares of Common Stock deliverable upon conversion of or in exchange (assuming the satisfaction of any conditions to convertibility or exchangeability, including, without limitation, the passage of time, but without taking into account potential antidilution adjustments) for any such convertible or exchangeable securities or upon the exercise of options to purchase or rights to subscribe for such convertible or exchangeable securities and subsequent conversion or exchange thereof shall be deemed to have been issued at the time such securities were issued or such options or rights were issued and for a consideration equal to the consideration, if any, received by the Corporation for any such securities and related options or rights (excluding any cash received on account of accrued interest or accrued dividends), plus the minimum additional consideration, if any, to be received by the Corporation (without taking into account potential antidilution adjustments) upon the conversion or exchange of such securities or the exercise of any related options or rights (the consideration in each case to be determined in the manner provided in Section 4(d)(i)(D)).

(3) In the event of any change in the number of shares of Common Stock deliverable or in the consideration payable to the Corporation upon exercise of such options or rights or upon conversion of or in exchange for such convertible or exchangeable securities, including, but not limited to, a change resulting from the antidilution provisions thereof, the Conversion Price of the Preferred Stock, to the extent in any way affected by or computed using such options, rights or securities, shall be recomputed to reflect such change, but no further adjustment shall be made for the actual issuance of Common Stock or any payment of such consideration upon the exercise of any such options or rights or the conversion or exchange of such securities.

(4) Upon the expiration of any such options or rights, the termination of any such rights to convert or exchange or the expiration of any options or rights related to such convertible or exchangeable securities, the Conversion Price of the Preferred Stock, to the extent in any way affected by or computed using such options, rights or securities or options or rights related to such securities, shall be recomputed to reflect the issuance of only the number of shares of Common Stock (and convertible or exchangeable securities which remain in effect) actually issued upon the exercise of such options or rights, upon the conversion or exchange of such securities or upon the exercise of the options or rights related to such securities.

(5) The number of shares of Common Stock deemed issued and the consideration deemed paid therefor pursuant to Sections 4(d)(i)(E)(1) and 4(d)(i)(E)(2) shall be appropriately adjusted to reflect any change, termination or expiration of the type described in either Section 4(d)(i)(E)(3) or 4(d)(i)(E)(4).

(F) **No Increased Conversion Price**. Notwithstanding any other provisions of this Section (4)(d)(i), except to the limited extent provided for in Sections 4(d)(i)(E)(3) and 4(d)(i)(E)(4), no adjustment of the Conversion Price pursuant to this Section 4(d)(i) shall have the effect of increasing the Conversion Price above the Conversion Price in effect immediately prior to such adjustment.

(ii) **Stock Splits and Dividends**. In the event the Corporation should at any time or from time to time after the Purchase Date fix a record date for the effectuation of a split or subdivision of the outstanding shares of Common Stock or the determination of holders of Common Stock entitled to receive a dividend or other distribution payable in additional shares of Common Stock or other securities or rights convertible into, or entitling the holder thereof to receive directly or indirectly, additional shares of Common Stock (hereinafter referred to as "Common Stock Equivalents") without payment of any consideration by such holder for the additional shares of Common Stock or the Common Stock Equivalents (including the additional shares of Common Stock issuable upon conversion or exercise thereof), then, as of such record date (or the date of such dividend distribution, split or subdivision if no record date is fixed), the Conversion Price of the Preferred Stock shall be appropriately decreased so that the number of shares of Common Stock issuable on conversion of each share of such series shall be increased in proportion to such increase of the aggregate of shares of Common Stock outstanding and those issuable with respect to such Common Stock Equivalents with the number of shares issuable with respect to Common Stock Equivalents determined from time to time in the manner provided for deemed issuances in Section 4(d)(i)(E).

(iii) **Reverse Stock Splits**. If the number of shares of Common Stock outstanding at any time after the Purchase Date is decreased by a combination of the outstanding shares of Common Stock, then, following the record date of such combination, the Conversion Price for the Preferred Stock shall be appropriately increased so that the number of shares of Common Stock issuable on conversion of each share of such series shall be decreased in proportion to such decrease in outstanding shares.

(e) **Other Distributions**. In the event the Corporation shall declare a distribution payable in securities of other persons, evidences of indebtedness issued by the Corporation or other persons, assets (excluding cash dividends) or options or rights not referred to in Section 4(d)(ii), then, in each such case for the purpose of this Section 4(e), the holders of Preferred Stock shall be entitled to a proportionate share of any such distribution as though they were the holders of the number of shares of Common Stock of the Corporation into which their shares of Preferred Stock are convertible as of the record date fixed for the determination of the holders of Common Stock of the Corporation entitled to receive such distribution.

(f) **Recapitalization**. If at any time or from time to time there shall be a recapitalization of the Common Stock (other than a subdivision, combination or merger or sale of assets transaction provided for elsewhere in this Section 4 or Section 2) provision shall be made so that the holders of the Preferred Stock shall thereafter be entitled to receive upon conversion of such Preferred Stock the number of shares of stock or other securities or property of the Corporation or otherwise, to which a holder of Common Stock deliverable upon conversion would have been entitled on such recapitalization. In any such case, appropriate adjustment shall be made in the application of the provisions of this Section 4 with respect to the rights of the holders of such Preferred Stock after the recapitalization to the end that the provisions of this Section 4 (including adjustment of the Conversion Price then in effect and the number of shares purchasable upon conversion of such Preferred Stock) shall be applicable after that event and be as nearly equivalent as practicable.

(g) **No Impairment**. The Corporation will not, by amendment of this Fifth Amended and Restated Certificate of Incorporation or through any reorganization, recapitalization, transfer of assets, consolidation, merger, dissolution, issue or sale of securities or any other voluntary action, avoid or seek to avoid the observance or performance of any of the terms to be observed or performed hereunder by the Corporation, but will at all times in good faith assist in the carrying out of all the provisions of this Section 4 and in the taking of all such action as may be necessary or appropriate in order to protect the Conversion Rights of the holders of Preferred Stock against impairment. This provision will not restrict the Corporation's right to amend this Fifth Amended and Restated Certificate of Incorporation with the requisite stockholder consent and in compliance with applicable law.

(h) **No Fractional Shares and Certificate as to Adjustments**.

(i) No fractional shares shall be issued upon the conversion of any share or shares of the Preferred Stock, and the number of shares of Common Stock to be issued shall be rounded down to the nearest whole share. The number of shares issuable upon such conversion shall be determined on the basis of the total number of shares of Preferred Stock the holder is at the

time converting into Common Stock and the number of shares of Common Stock issuable upon such aggregate conversion.

(ii) Upon the occurrence of each adjustment or readjustment of the Conversion Price of Preferred Stock pursuant to this Section 4, the Corporation, at its expense, shall promptly compute such adjustment or readjustment in accordance with the terms hereof and prepare and furnish to each holder of such Preferred Stock a certificate setting forth such adjustment or readjustment and showing in detail the facts upon which such adjustment or readjustment is based. The Corporation shall, upon the written request at any time of any holder of Preferred Stock, furnish or cause to be furnished to such holder a like certificate setting forth (A) such adjustment and readjustment, (B) the Conversion Price for the Preferred Stock at the time in effect, and (C) the number of shares of Common Stock and the amount, if any, of other property which at the time would be received upon the conversion of a share of the Preferred Stock.

(i) **Notices of Record Date**. In the event of any taking by the Corporation of a record of the holders of any class of securities for the purpose of determining the holders thereof who are entitled to receive any dividend (other than a cash dividend) or other distribution, any right to subscribe for, purchase or otherwise acquire any shares of stock of any class or any other securities or property, or to receive any other right, the Corporation shall mail to each holder of Preferred Stock, at least ten days prior to the date specified therein, a notice specifying the date on which any such record is to be taken for the purpose of such dividend, distribution or right, and the amount and character of such dividend, distribution or right.

(j) **Reservation of Stock Issuable Upon Conversion**. The Corporation shall at all times reserve and keep available out of its authorized but unissued shares of Common Stock, solely for the purpose of effecting the conversion of the shares of the Preferred Stock, such number of its shares of Common Stock as shall from time to time be sufficient to effect the conversion of all outstanding shares of such series of Preferred Stock; and if at any time the number of authorized but unissued shares of Common Stock shall not be sufficient to effect the conversion of all then outstanding shares of such series of Preferred Stock, in addition to such other remedies as shall be available to the holder of such Preferred Stock, the Corporation will take such corporate action as may, in the opinion of its counsel, be necessary to increase its authorized but unissued shares of Common Stock to such number of shares as shall be sufficient for such purposes, including, without limitation, engaging in best efforts to obtain the requisite stockholder approval of any necessary amendment to this Fifth Amended and Restated Certificate of Incorporation.

(k) **Waiver of Adjustment of Conversion Price**. Notwithstanding anything herein to the contrary, any downward adjustment of the Conversion Price of any series of Preferred Stock may be waived, either prospectively or retroactively and either generally or in a particular instance, with the prior written consent of the holders of at least a majority of the then outstanding shares of such series. Any such waiver shall bind all future holders of shares of such series of Preferred Stock.

(l) **Notices**. Any notice required by the provisions of this Section 4 to be given to the holders of shares of Preferred Stock shall be deemed given if deposited in the United

States mail, postage prepaid, and addressed to each holder of record at his address appearing on the books of the Corporation.

5. **Voting Rights**.

(a) Except as otherwise expressly provided herein or by law, the holder of each share of Preferred Stock shall have the right to one vote for each share of Common Stock into which such Preferred Stock could then be converted, and with respect to such vote, such holder shall have full voting rights and powers equal to the voting rights and powers of the holders of Common Stock, and shall be entitled, notwithstanding any provision hereof, to notice of any stockholders' meeting in accordance with the bylaws of the Corporation, and shall be entitled to vote, together with holders of Common Stock, with respect to any question upon which holders of Common Stock have the right to vote. Fractional votes shall not, however, be permitted and any fractional voting rights available on an as-converted basis (after aggregating all shares into which shares of Preferred Stock held by each holder could be converted) shall be rounded to the nearest whole number (with one-half being rounded upward). Except as otherwise expressly provided herein or as required by law, the holders of Preferred Stock and the holders of Common Stock shall vote together and not as separate classes.

(b) The Board of Directors shall consist of nine members by vote as described in this paragraph. So long as at least 3,070,008 shares of the Series A Preferred Stock remain issued and outstanding (as adjusted for stock splits, stock dividends, reclassification and the like), the holders of the Series A Preferred Stock, voting as a separate class, shall be entitled to elect up to two members of the Board of Directors (the "Series A Preferred Directors") at each meeting or pursuant to each consent of the Corporation's stockholders for the election of directors and to remove from office such director(s) and to fill any vacancy caused by the resignation, death or removal of such director. So long as at least 1,277,502 shares of the Series B Preferred Stock remain issued and outstanding (as adjusted for stock splits, stock dividends, reclassification and the like), the holders of the Series B Preferred Stock, voting as a separate class, shall be entitled to elect up to one member of the Board of Directors (the "Series B Preferred Director") at each meeting or pursuant to each consent of the Corporation's stockholders for the election of directors and to remove from office such director(s) and to fill any vacancy caused by the resignation, death or removal of such director. So long as at least 2,229,871 shares of the Series C Preferred Stock remain issued and outstanding (as adjusted for stock splits, stock dividends, reclassification and the like), the holders of the Series C Preferred Stock, voting as a separate class, shall be entitled to elect up to two members of the Board of Directors (the "Series C Preferred Directors") at each meeting or pursuant to each consent of the Corporation's stockholders for the election of directors and to remove from office such director(s) and to fill any vacancy caused by the resignation, death or removal of such director. So long as at least 1,474,099 shares of the Series D Preferred Stock remain issued and outstanding (as adjusted for stock splits, stock dividends, reclassification and the like) (the "Series D Share Limitation"), the holders of the Series D Preferred Stock, voting as a separate class, shall be entitled to elect up to one member of the Board of Directors (the "Series D Preferred Director") at each meeting or pursuant to each consent of the Corporation's stockholders for the election of directors and to remove from office such director(s) and to fill any vacancy caused by the resignation, death or removal of such director (provided, however, that the Series D Share Limitation shall not apply during any period of time in which the Corporation is then in default of its

obligation to redeem the full number of shares of Series D Preferred Stock required to be redeemed pursuant to the terms of Section 3 hereof). The holders of the Common Stock, voting as a separate class, shall be entitled to elect two members of the Board of Directors at each meeting or pursuant to each consent of the Corporation's stockholders for the election of directors and to remove from office such director(s) and to fill any vacancy caused by the resignation, death or removal of such director. The holders of the Common Stock and Preferred Stock, voting together as a single class on an as-converted basis, shall be entitled to elect one member of the Board of Directors at each meeting or pursuant to each consent of the Corporation's stockholders for the election of directors and to remove from office such director and to fill any vacancy caused by the resignation, death or removal of such director. If at any time the issued and outstanding shares of a series of Preferred Stock, considered separately as a class, falls below the threshold specified for such series in this Section 5(b), then a majority of the remaining issued and outstanding Preferred Stock, voting together as a single class on an as-converted basis, shall be entitled to elect the members of the Board of Directors otherwise designated for such series in this Section 5(b), unless the remaining issued and outstanding shares of Preferred Stock considered together as a single class amount to fewer than 8,051,480 shares in the aggregate (as adjusted for stock splits, stock dividends, reclassification and the like), in which case a majority of the remaining issued and outstanding Preferred Stock and Common Stock, voting together as a single class on an as-converted basis, shall be entitled to elect the members of the Board of Directors otherwise designated for such series in this Section 5(b).

6. **Protective Provisions**. So long as at least 5,500,000 shares of Preferred Stock remain issued and outstanding (as adjusted for stock splits, stock dividends, reclassification and the like), the Corporation shall not without first obtaining the approval (by vote or written consent, as provided by law) of the holders of at least sixty-six and two-thirds percent (66 2/3%) of the then outstanding shares of Preferred Stock, voting together as a single class on an as-converted basis:

(a) effect a transaction described in Section 2(d)(i) above;

(b) alter or change the rights, preferences or privileges of the shares of any series of Preferred Stock so as to affect adversely the shares of such series, including without limitation, by amendment, modification or repeal of any provision of this Fifth Amended and Restated Certificate of Incorporation or the Bylaws of the Corporation or by merger, consolidation, reclassification or otherwise;

(c) increase or decrease (other than by redemption or conversion) the total number of authorized shares of Preferred Stock;

(d) authorize or issue, or obligate itself to issue, any other equity security, including any other security convertible into or exercisable for any equity security, having a preference over, or being on a parity with, the Preferred Stock with respect to voting, redemption, dividends, conversion, anti-dilution rights, registration rights or upon liquidation;

(e) redeem, purchase or otherwise acquire (or pay into or set funds aside for a sinking fund for such purpose) any share or shares of Preferred Stock or Common Stock other

than in accordance with Section 3 hereof; provided, however, that this restriction shall not apply to the repurchase of shares of Common Stock from employees, officers, directors, consultants or other persons performing services for the Corporation or any subsidiary pursuant to agreements under which the Corporation has the option to repurchase such shares at no greater than cost upon the occurrence of certain events, such as the termination of employment, or through the exercise of any right of first refusal;

(f) increase or decrease the total number of authorized members of the Board of Directors;

(g) dismiss, suspend, replace or demote the Corporation's Chief Executive Officer or Chief Operating Officer;

(h) declare or pay any dividend on Common Stock; or

(i) amend this Section 6.

7. **Status of Converted Stock**. In the event any shares of Preferred Stock shall be converted pursuant to Section 4 hereof, the shares so converted shall be cancelled and shall not be issuable by the Corporation. This Fifth Amended and Restated Certificate of Incorporation of the Corporation shall be appropriately amended to effect the corresponding reduction in the Corporation's authorized capital stock.

(C) **Common Stock**.

1. **Dividend Rights**. Subject to the prior rights of holders of all classes of stock at the time outstanding having prior rights as to dividends, the holders of the Common Stock shall be entitled to receive, when and as declared by the Board of Directors, out of any assets of the Corporation legally available therefor, such dividends as may be declared from time to time by the Board of Directors.

2. **Liquidation Rights**. Upon the liquidation, dissolution or winding up of the Corporation, the assets of the Corporation shall be distributed as provided in Section 2 of Article IV(B).

3. **Redemption**. The Common Stock is not redeemable.

4. **Voting Rights**. The holder of each share of Common Stock shall have the right to one vote, and shall be entitled to notice of any stockholders' meeting in accordance with the Bylaws of the Corporation, and shall be entitled to vote upon such matters and in such manner as may be provided by law.

ARTICLE V

The Board of Directors of the Corporation is expressly authorized to make, alter or repeal Bylaws of the Corporation.

ARTICLE VI

Elections of directors need not be by written ballot unless otherwise provided in the Bylaws of the Corporation.

ARTICLE VII

(A) To the fullest extent permitted by the Delaware General Corporation Law, as the same exists or as may hereafter be amended, a director of the Corporation shall not be personally liable to the Corporation or its stockholders for monetary damages for breach of fiduciary duty as a director.

(B) The Corporation shall indemnify to the fullest extent permitted by law any person made or threatened to be made a party to an action or proceeding, whether criminal, civil, administrative or investigative, by reason of the fact that he, his testator or intestate is or was a director or officer of the Corporation or any predecessor of the Corporation, or serves or served at any other enterprise as a director or officer at the request of the Corporation or any predecessor to the Corporation.

(C) Neither any amendment nor repeal of this Article VII, nor the adoption of any provision of the Corporation's Certificate of Incorporation inconsistent with this Article VII, shall eliminate or reduce the effect of this Article VII in respect of any matter occurring, or any action or proceeding accruing or arising or that, but for this Article VII, would accrue or arise, prior to such amendment, repeal or adoption of an inconsistent provision.

ARTICLE VIII

The Corporation renounces any interest or expectancy of the Corporation in, or in being offered an opportunity to participate in, any Excluded Opportunity. An "Excluded Opportunity" is any matter, transaction or interest that is presented to, or acquired, created or developed by, or which otherwise comes into the possession of (i) the Series D Preferred Director or (ii) First Solar, Inc. or any affiliate, partner, member, director, stockholder, employee or agent of First Solar, Inc. (collectively, "Covered Persons"), unless such matter, transaction or interest is presented to, or acquired, created or developed by, or otherwise comes into the possession of, a Covered Person expressly and solely in such Covered Person's capacity as a director of the Corporation.

* * *

The foregoing Fifth Amended and Restated Certificate of Incorporation has been duly adopted by this corporation's Board of Directors and stockholders is accordance with the applicable provisions of Sections 223, 242 and 245 of the General Corporation Law of the State of Delaware.

Executed at Foster City, California, on October 28, 2008.

/s/ Lyndon Rive
Lyndon Rive, Chief Executive Officer &
President

Exhibit B

Second Amended and Restated Bylaws

Exhibit C

Form of Indemnification Agreement

Jordan R. Rose AZ Bar No.: 017452
Court S. Rich AZ Bar No. 021290
M. Ryan Hurley AZ Bar No. 024620
Rose Law Group pc
6613 N. Scottsdale Road, Suite 200
Scottsdale, Arizona 85250
Direct: (480) 240-5585
Fax: (480) 505-3925

RECEIVED

2009 JUL 16 P 4: 40

AZ CORP COMMISSION
DOCKET CONTROL

EXHIBIT
A-2
ADMITTED

Attorneys for Applicant SolarCity Corporation

BEFORE THE ARIZONA CORPORATION COMMISSION

KRISTIN K. MAYES CHAIRMAN	SANDRA D. KENNEDY COMMISSIONER	PAUL NEWMAN COMMISSIONER
GARY PIERCE COMMISSIONER	BOB STUMP COMMISSIONER	

IN THE MATTER OF THE APPLICATION OF SOLARCITY FOR A DETERMINATION THAT WHEN IT PROVIDES SOLAR SERVICE TO ARIZONA SCHOOLS, GOVERNMENTS, AND NON-PROFIT ENTITIES IT IS NOT ACTING AS A PUBLIC SERVICE CORPORATION PURSUANT TO ART. 15, SECTION 2 OF THE ARIZONA CONSTITUTION	**DOCKET NO. E-20690A-09-0346** **NOTICE OF FILING SUPPLEMENTAL EXHIBIT**

Applicant, SolarCity, by and through its undersigned counsel, hereby submits this additional Exhibit to its 7/2/09 Application in the above referenced Docket. The document should have been included with Exhibit B of the Application and is hereby submitted per Staff's request.

RESPECTFULLY SUBMITTED this 16th day of July, 2009.

Rose Law Group pc

Jordan R. Rose
Court S. Rich
M. Ryan Hurley
6613 N. Scottsdale Road, Suite 200
Scottsdale, Arizona 85250
Direct: 480.505-3936
Fax: 480.505.3925
Attorneys for Applicant SolarCity Corp.

SolarCity

Solar Services Agreement

This Solar Services Agreement (this "**Agreement**") is entered into by the parties listed below (each a "**Party**" and collectively the "**Parties**") as of the date signed by Seller below (the "**Effective Date**").

Purchaser:		**Seller:**	
Name and Address	**Scottsdale Unified School District #48** **Desert Mountain High School** 12575 East Via Linda Scottsdale, AZ 85259 Attention: David Peterson	Name and Address	**SolarCity Corporation** 393 Vintage Park Drive, Suite 140 Foster City, CA 94404 Attention: Lease/License Administrator
Phone	(480)484-6139	Phone	(650) 638-1028
Fax	(480)484-6294	Fax	(650) 638-1029
E-mail	djpeterson@susd.org	E-mail	contractadministrator@solarcity.com
Purchaser (check one)	☑ owns the Facility ☐ leases the Facility		

This Agreement sets forth the terms and conditions of the finance, design installation, operation and maintenance of the turnkey solar panel system described in **Exhibit 2** (the "**System**") to be installed at the Purchaser's facility described in **Exhibit 3** (the "**Facility**").

The exhibits listed below are incorporated by reference and made part of this Agreement.

Exhibit 1	Finance Attachment
Exhibit 2	System Description
Exhibit 3	Purchaser's Facility
Exhibit 4	Delivery Point
Exhibit 5	License Area
Exhibit 6	Memorandum of License
Exhibit 7	General Terms and Conditions (*Revised May 27, 2009*)

Purchaser:

Signature: _____

Printed Name: David Peterson

Title: Assistant Superintendent

Date: 22 JUN 09

SolarCity Corporation

Signature: _____

Printed Name: Lyndon Rive

Title: CEO

Date: June 25, 2009.

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STATE OF ARIZONA)
) ss.
COUNTY OF Maricopa)

On June 22, 2009, before me, Valerie Pleasant, Notary Public, personally appeared David Peterson who proved to me on the basis of satisfactory evidence to be the person(s) whose name(s) is/are subscribed to the within instrument and acknowledged to me that he/she/they executed the same in his/her/their authorized capacity(ies), and that by his/her/their signature(s) on the instrument the person(s), or the entity upon behalf of which the person(s) acted, executed the instrument.

I certify under PENALTY OF PERJURY under the laws of the State of Arizona that the foregoing paragraph is true and correct.

OFFICIAL SEAL
VALERIE A. PLEASANT
Notary Public - State of Arizona
MARICOPA COUNTY
My comm. expires October 31, 2010

WITNESS my hand and official seal.

Valerie A Pleasant
Signature of Notary Public

STATE OF ARIZONA)
) ss.
COUNTY OF _____)

On _____, before me, _____, Notary Public, personally appeared _____, who proved to me on the basis of satisfactory evidence to be the person(s) whose name(s) is/are subscribed to the within instrument and acknowledged to me that he/she/they executed the same in his/her/their authorized capacity(ies), and that by his/her/their signature(s) on the instrument the person(s), or the entity upon behalf of which the person(s) acted, executed the instrument.

I certify under PENALTY OF PERJURY under the laws of the State of Arizona that the foregoing paragraph is true and correct.

WITNESS my hand and official seal.

_____
Signature of Notary Public

Exhibit 1
Finance Attachment

1. **Term:** Fifteen (15) years, beginning on the Commercial Operation Date.

2. **Additional Terms:** Up to Two (2) Additional Terms of Five (5) years each.

3. **Environmental Incentives and Environment Attributes Accrue to *Seller*.**

4. **Contract Price:**

Contract Year	$/kWh
1	$0.11
2	$0.11
3	$0.11
4	$0.11
5	$0.11
6	$0.11
7	$0.11
8	$0.11
9	$0.11
10	$0.11
11	$0.11
12	$0.11
13	$0.11
14	$0.11
15	$0.11

5. **Condition Satisfaction Date:** September 15, 2009

6. **Anticipated Commercial Operation Date:** October 1, 2009

7. **Outside Commercial Operation Date:** October 15, 2009

8. **Purchase Option Price**

End of Contract Year	Option Price*:
6	$5,394,103.61
10	$4,378,629.02
15	$2,663,572.40

*** Higher of Fair Market Value of System or amount specified**

9. **Termination Value:**

Contract Year	Termination Value
1	$10,786,914.43
2	$8,702,865.27
3	$7,625,052.73
4	$6,681,855.85
5	$5,805,582.80
6	$4,887,952.15
7	$4,562,326.71
8	$4,306,563.02
9	$4,040,430.55
10	$3,763,398.75
11	$3,474,910.63
12	$3,174,381.40
13	$2,861,197.07
14	$2,534,713.05
15	$2,194,252.55

10. **Rebate Variance.** All prices in this Agreement are calculated based on a rebate of APS ($0.187/kWh for 15 years). If the actual rebate is lower than calculated, prices will be adjusted pro-rata to reflect the actual rebate received, provided, however that Buyer shall have the right to terminate this Agreement if it does not accept the pro-rata adjustment.

Exhibit 2

System Description

1. **System Location:** Desert Mountain High School: 12575 East Via Linda, Scottsdale, AZ 85259

2. **System Size (DC kW):** 968 kW

3. **Expected First Year Energy Production:** 1,737,495 kWh

4. **Scope:** This is a 968kW, producing approx 1795 kWh's per kW for a total of 1,737,470 in the first year. The installation is a roof mount on a flat roof.

5. **Expected Module(s):** FS-275 First Solar 75 watts

6. **Expected Inverter(s):** SatCon Powergate Plus PVS-500 (2)

7. **Expected Structure:** Roof mount using the best technology determined upon intense engineering site visits and recommendation from roofers, either penetrating or non-penetrating mounting hardware. The Seller shall be solely responsible for verifying the structural integrity of the Roof.

8. **Includes:** n/a

9. **Excludes:** n/a

Exhibit 3
Purchaser's Facility

A parcel of land located in the state of Arizona, County of Maricopa, with a situs address of 12575 East Via Linda Scottsdale, AZ 85259 currently owned by Scottsdale Unified School District 48 having a tax assessor number of 217-40-040A and being the same property more fully described as McDowell acres No.2 MCR 78-8 lots 41 Thru 80 EX N 15F of lots 41 thru 48 & EX W 5F of lots 41,45,57,72,73 & also all RDS abands P/D 90-512295 EX Com E4 COR sec S55F W 40F to POB S 20F S 235F W 15.5 F N 235F, newly ALG 20F, RAD CUR CONC SWLY thru C/A 89D56M E To POB & EX RD P/F 95-0432231 & Also EX any PT RD LY WI/IN P/F 99-803597 and described in document number 803597 dated 06/07/1999 and recorded 08/25/1999.

Exhibit 4
Delivery Point

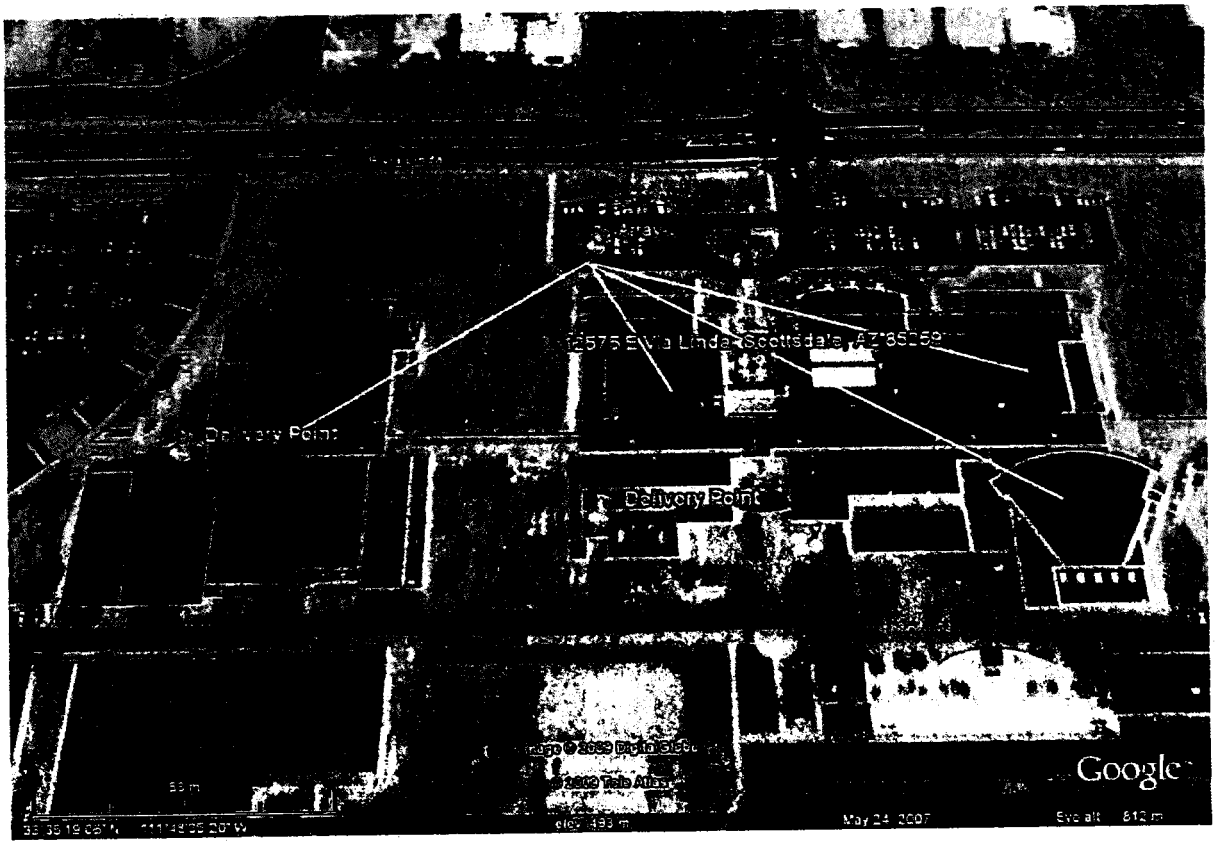

Exhibit 5
License Area

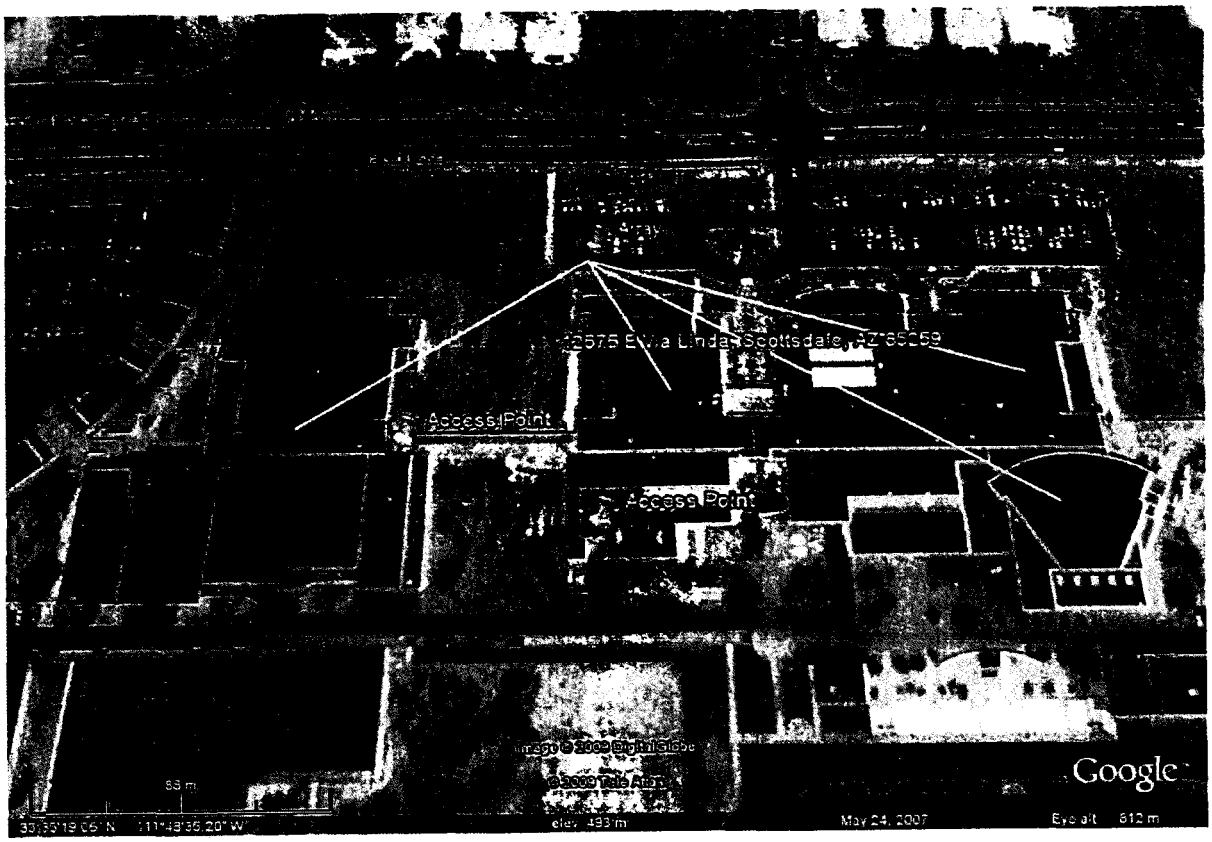

Exhibit 6
Memorandum of License

RECORDING REQUESTED BY AND WHEN	)
RECORDED RETURN TO:	)
SolarCity Corporation	)
393 Vintage Park Drive, Suite 140	)
Foster City, CA 94404	)
Attention: Lease/License Administrator	)
	)

(space above this line reserved for recorder's use)

MEMORANDUM OF LICENSE

THIS MEMORANDUM OF LICENSE is made and entered into this ___ day of June, 2009, by and between Desert Mountain High School, whose address is 12575 East Via Linda, AZ 85259(**"Licensor"**), and SOLARCITY CORPORATION, whose address is 393 Vintage Park Drive, Suite 140, Foster City, CA 94404 (**"Licensee"**).

A. Licensor is the owner of certain real property (**"Premises"**), located in the County of Maricopa, State of Arizona, described in Exhibit A attached to and incorporated herein by reference.

B. Licensor and Licensee have entered into a Solar Services Agreement dated as of June___, 2009 (**"Agreement"**) under which Licensee finances, designs, develops and operates a photovoltaic electric generating system (**"System"**) for Licensor. The Agreement is for a term of Fifteen (15) years, beginning June ____, 2009 and ending on June_____, 2024, with an option to extend the Agreement for up to Two (2) extended terms of Five (5) years each. Pursuant to the Agreement, Licensor has granted Licensee an irrevocable, non-exclusive license (**"License"**) over the Premises for the purposes and on the terms set forth in the Agreement.

Licensor and Licensee agree as follows:

1. Licensor hereby grants to Licensee the License over the Premises on and subject to the terms and conditions set forth in the Agreement which is incorporated herein by reference.

2. The term of the License begins on June___, 2009 and continues until one hundred and twenty (120) days after the termination of the Agreement.

3. This Memorandum of License shall not be deemed to modify, alter or amend in any way the provisions of the License or the Agreement. In the event of any conflict between the terms of the License and/or the Agreement and this Memorandum, the terms of the License and/or the Agreement, as applicable, shall control.

The undersigned have executed this Memorandum of License as of the date first written above.

LICENSOR	**LICENSEE**
Scottsdale Unified School District #48	SOLARCITY CORPORATION
By: _____	By: _____
Name: DAVID PETERSON	Name: Lyndon Rive
Title: ASSISTANT SUPERINTENDENT	Title: CEO

[REMAINDER OF PAGE INTENTIONALLY LEFT BLANK
ACKNOWLEDGEMENT PAGE FOLLOWS]

Exhibit A
To Memorandum of License

Legal Description of Premises

That certain real property located in the County of Maricopa, State of Arizona, described as follows:

A parcel of land located in the state of Arizona, County of Maricopa, with a situs address of 12575 East Via Linda Scottsdale, AZ 85259 currently owned by Scottsdale Unified School District 48 having a tax assessor number of 217-40-040A and being the same property more fully described as McDowell acres No.2 MCR 78-8 lots 41 Thru 80 EX N 15F of lots 41 thru 48 & EX W 5F of lots 41,45,57,72,73 & also all RDS abands P/D 90-512295 EX Com E4 COR sec S55F W 40F to POB S 20F S 235F W 15.5 F N 235F, newly ALG 20F, RAD CUR CONC SWLY thru C/A 89D56M E To POB & EX RD P/F 95-0432231 & Also EX any PT RD LY WI/IN P/F 99-803597 and described in document number 803597 dated 06/07/1999 and recorded 08/25/1999.

Exhibit 7

Solar Services Agreement General Terms and Conditions

Revised May 27, 2009

Purpose: The purpose of this Agreement is to set forth the terms and conditions by which SolarCity will provide the Purchaser with the financing, design, installation, operation and maintenance of a solar panel system at Purchaser's Facility.

1. **Definitions and Interpretation**: Unless otherwise defined or required by the context in which any term appears: (a) the singular includes the plural and vice versa; (b) the words "herein," "hereof" and "hereunder" refer to this Agreement as a whole and not to any particular section or subsection of this Agreement; (c) references to any agreement, document or instrument mean such agreement, document or instrument as amended, modified, supplemented or replaced from time to time; and (d) the words "include," "includes" and "including" mean include, includes and including "without limitation." The captions or headings in this Agreement are strictly for convenience and shall not be considered in interpreting this Agreement.

2. **Finance, Design, Development and Operation of Solar Panel System**. Seller shall provide for Buyer the financing, design, development and operation of the System during the Initial Term and any Additional Term (as defined in **Exhibit 1**, and collectively the "**Term**"). At the end of the sixth (6th) and tenth (10th) Contract Years and at the end of the Initial Term and each Additional Term, so long as Purchaser is not in default under this Agreement, Purchaser may purchase the System from Seller as set forth more fully in Section 16 of this Agreement.

3. **Term and Termination**.

   a. **Initial Term**. The initial term ("**Initial Term**") of this Agreement shall commence on the Commercial Operation Date (as defined below) and continue for the length of time specified in **Exhibit 1**, unless earlier terminated as provided for in this Agreement. The "**Commercial Operation Date**" is the date Seller gives Purchaser written notice that the System is mechanically complete and capable of providing electric energy to the Delivery Point. Upon Purchaser's request, Seller will give Purchaser copies of certificates of completion or similar documentation from Seller's contractor and the interconnection or similar agreement with the Utility. This Agreement is effective as of the Effective Date and Purchaser's failure to enable Seller to provide the electric energy by preventing it from installing the System or otherwise not performing shall not excuse Purchaser's obligations to make payments that otherwise would have been due under this Agreement.

   b. **Additional Terms**. If Purchaser has not exercised its option to purchase the System by the end of the Initial Term, either Party may give the other Party written notice of its desire to extend this Agreement on the terms and conditions set forth herein for the number and length of additional periods specified in **Exhibit 1** (each an "**Additional Term**"). Such notice shall be given, if at all, not more than one hundred twenty (120) and not less than sixty (60) days before the last day of the Initial Term or the then current Additional Term, as applicable. The Party receiving the notice requesting an Additional Term shall respond positively or negatively to that request in writing within thirty (30) days after receipt of the request. Failure to respond within such thirty (30) day period shall be deemed a rejection of the offer for an Additional Term. If both Parties agree to an Additional Term, the Additional Term shall begin immediately upon the conclusion of the then current term or Additional Term on the same terms and conditions as set forth in this Agreement. If the Party receiving the request for an Additional Term rejects or is deemed to reject the first Party's offer, this Agreement shall terminate at the end of the Initial Term (if the same has not been extended) or the then current Additional Term.

4. **Billing and Payment**.

   a. **Monthly Charges**. The Purchaser and Seller agree that Purchaser will take title to all electric energy that the System generates from the moment the System produces such energy and that such energy will be delivered to Purchaser at the delivery point identified on **Exhibit 4** (the "**Delivery Point**"). Purchaser shall purchase all such electric energy as and when produced by the System. Each month, Purchaser shall pay Seller for the benefit it receives under this Agreement. Purchaser agrees that it will make such monthly payments to Seller and that the rate shown in **Exhibit 1** (the "**Contract Price**") is a is a fair and reasonable price in light of the benefit that the Purchaser receives under this Agreement. The Parties agree that the benefit to Purchaser under this Agreement is best measured in relation to the electricity that the System produces and as such the monthly payment will be equal to the applicable $/kWh rate multiplied by the number of kWh of energy generated during the applicable month, as measured by the System meter.

b. **Monthly Invoices.** Seller shall invoice Purchaser monthly. Such monthly invoices shall state (i) the amount of electric energy produced by the System and delivered to the Delivery Point, (ii) the rates applicable to, and charges incurred by, Purchaser under this Agreement and (iii) the total amount due from Purchaser.

c. **Utility Invoices.** Purchaser shall authorize the Utility to send to Seller duplicates of any bills sent to Purchaser. If Utility does not permit duplicate bills to be sent to Seller, Purchaser shall, promptly upon receipt of each bill, make a photocopy of each bill and mail the copy to Seller. Purchaser shall pay all charges assessed by the Utility to the Facility.

e. **Taxes.** Purchaser shall either pay or reimburse Seller for any and all taxes assessed on the generation, sale, delivery or consumption of electric energy produced by the System or the interconnection of the System to the Utility's electric distribution system, including property taxes on the System; provided, however, Purchaser will not be required to pay or reimburse Seller for any taxes during periods when Seller fails to deliver electric energy to Purchaser for reasons other than Force Majeure. For purposes of this Section 4(c), "**Taxes**" means any federal, state and local ad valorem, property, occupation, generation, privilege, sales, use, consumption, excise, transaction, and other taxes, regulatory fees, surcharges or other similar charges but shall not include any income taxes or similar taxes imposed on net revenues imposed on Seller due to the sale of energy under this Agreement, which shall be Seller's responsibility.

f. **Payment Terms.** All amounts due under this Agreement shall be due and payable net twenty (20) days from receipt of invoice. Any undisputed portion of the invoice amount not paid within the twenty (20) day period shall accrue interest at the annual rate of two and one-half percent (2.5%) over the Prime Rate (but not to exceed the maximum rate permitted by law).

5. **Environmental Attributes and Environmental Incentives.**

Unless otherwise specified on **Exhibit 1**, Seller is the owner of all Environmental Attributes and Environmental Incentives and is entitled to the benefit of all Tax Credits, and Purchaser's purchase of electricity under this Agreement does not include Environmental Attributes, Environmental Incentives or the right to Tax Credits or any other attributes of ownership and operation of the System, all of which shall be retained by Seller. Purchaser shall cooperate with Seller in obtaining, securing and transferring all Environmental Attributes and Environmental Incentives and the benefit of all Tax Credits, including by using the electric energy generated by the System in a manner necessary to qualify for such available Environmental Attributes, Environmental Incentives and Tax Credits. Purchaser shall not be obligated to incur any out–of–pocket costs or expenses in connection with such actions unless reimbursed by Seller. If any Environmental Incentives are paid directly to Purchaser, Purchaser shall immediately pay such amounts over to Seller. To avoid any conflicts with fair trade rules regarding claims of solar or renewable energy use, Purchaser, if engaged in commerce and/or trade, shall submit to Seller for approval any press releases regarding Purchaser's use of solar or renewable energy and shall not submit for publication any such releases without the written approval of Seller. Approval shall not be unreasonably withheld, and Seller's review and approval shall be made in a timely manner to permit Purchaser's timely publication.

"**Environmental Attributes**" means any and all credits, benefits, emissions reductions, offsets, and allowances, howsoever entitled, attributable to the System, the production of electrical energy from the System and its displacement of conventional energy generation, including (1) any avoided emissions of pollutants to the air, soil or water such as sulfur oxides (SOx), nitrogen oxides (NOx), carbon monoxide (CO) and other pollutants; (2) any avoided emissions of carbon dioxide (CO2), methane (CH4), nitrous oxide, hydrofluorocarbons, perfluorocarbons, sulfur hexafluoride and other greenhouse gases (GHGs) that have been determined by the United Nations Intergovernmental Panel on Climate Change, or otherwise by law, to contribute to the actual or potential threat of altering the Earth's climate by trapping heat in the atmosphere; and (3) the reporting rights related to these avoided emissions, such as Green Tag Reporting Rights and Renewable Energy Credits. Green Tag Reporting Rights are the right of a party to report the ownership of accumulated Green Tags in compliance with federal or state law, if applicable, and to a federal or state agency or any other party, and include Green Tag Reporting Rights accruing under Section 1605(b) of The Energy Policy Act of 1992 and any present or future federal, state, or local law, regulation or bill, and international or foreign emissions trading program. Environmental Attributes do not include Environmental Incentives and Tax Credits. Purchaser and Seller shall file all tax returns in a manner consistent with this Paragraph 5. Without limiting the generality of the foregoing, Environmental Attributes include carbon trading credits, renewable energy credits or certificates, emissions reduction credits, investment credits, emissions allowances, green tags, tradeable renewable credits and Green-e® products.

"**Environmental Incentives**" means any and credits, rebates, subsidies, payments or other incentives that relate to self–generation of electricity, the use of technology incorporated into the System, environmental benefits of using the System, or other similar programs available from the Utility, any other regulated entity, the manufacturer of any part of the System or any Governmental Authority.

"Governmental Authority" means any national, state or local government (whether domestic or foreign), any political subdivision thereof or any other governmental, quasi-governmental, judicial, public or statutory instrumentality, authority, body, agency, bureau or entity (including the Federal Energy Regulatory Commission or the California Public Utilities Commission), or any arbitrator with authority to bind a party at law.

"Tax Credits" means any and all (i) investment tax credits, (ii) production tax credits and (iii) similar tax credits under federal, state or local law relating to the construction, ownership or production of energy from the System.

6. **Conditions to Obligations**.

a. **Conditions to Seller's Obligations**.

Seller's obligations under this Agreement are conditioned on the completion of the following conditions to Seller's reasonable satisfaction on or before the Condition Satisfaction Date:

i. Completion of a physical inspection of the Facility and the property upon which the Facility is located (the **"Premises"**) including, if applicable, geotechnical work, and real estate due diligence to confirm the suitability of the Facility and the Premises for the System;

ii. Approval of (i) this Agreement and (ii) the Construction Agreement (if any) for the System by Seller's Financing Parties. **"Construction Agreement"** as used in this subsection means an agreement between SolarCity and a subcontractor to install the System.

iii. Confirmation that Seller will obtain all applicable Environmental Incentives and Tax Credits;

iv. Receipt of all necessary zoning, land use and building permits; and

v. Execution of all necessary agreements with the Utility for interconnection of the System to the Utility's electric distribution system.

vi. Prior to Seller commencing construction and installation of the System, Purchaser shall give Seller proof of insurance for all insurance required to be maintained by Purchaser under this Agreement.

b. **Conditions to Purchaser's Obligations**.

i. Purchaser's obligations under this Agreement are conditioned on the occurrence of the Commercial Operation Date for the System on or before the Outside Commercial Operation Date (*See* **Exhibit 1**).

c. **Failure of Conditions**.

If any of the conditions listed in subsections a) or b) above are not satisfied by the applicable dates specified in those subsections, the Parties will attempt in good faith to negotiate new dates for the satisfaction of the failed conditions. If the parties are unable to negotiate new dates then the Party that has not failed to meet an obligation may terminate this Agreement upon ten (10) days written notice to the other Party without liability for costs or damages or triggering a default under this Agreement.

7. **Seller's Rights and Obligations**.

a. **Permits and Approvals**. Seller, with Purchaser's reasonable cooperation, shall use commercially reasonable efforts to obtain, at its sole cost and expense:

i. any zoning, land use and building permits required to construct, install and operate the System; and

ii. any agreements and approvals from the Utility necessary in order to interconnect the System to the Utility's electric distribution system.

Purchaser shall cooperate with Seller's reasonable requests to assist Seller in obtaining such agreements, permits and approvals.

b. **Standard System Repair and Maintenance.** Seller shall finance, design, develop, operate and install the System at the Facility. During the Term, Seller will operate and perform all routine and emergency repairs to and maintenance of the System at its sole cost and expense, except for any repairs or maintenance resulting from Purchaser's negligence, willful misconduct or breach of this Agreement or the Site Lease (if applicable). Seller shall not be responsible for any work done by others on any part of the System unless Seller authorizes that work in advance in writing. Seller shall not be responsible for any loss, damage, cost or expense arising out of or resulting from improper environmental controls or improper operation or maintenance of the System by anyone other than Seller or Seller's contractors. If the System requires repairs for which Seller is not responsible, Purchaser shall pay Seller for diagnosing and correcting the problem at Seller or Seller's contractors' then current standard rates. Seller shall provide Purchaser with reasonable notice prior to accessing the Facility to make standard repairs.

c. **Non-Standard System Repair and Maintenance.** If Seller incurs incremental costs to maintain the System due to conditions at the Facility or due to the inaccuracy of any information provided by Purchaser and relied upon by Seller, the pricing, schedule and other terms of this Agreement will be equitably adjusted to compensate for any work in excess of normally expected work required to be performed by Seller. In such event, the Parties will negotiate such equitable adjustment in good faith.

d. **Breakdown Notice.** Seller shall notify Purchaser within twenty-four (24) hours following Seller's discovery of (a) any material malfunction in the operation of the System or (b) an interruption in the supply of electrical energy from the System. Purchaser and Seller shall each designate personnel and establish procedures such that each Party may provide notice of such conditions requiring Seller's repair or alteration at all times, twenty-four (24) hours per day, including weekends and holidays. Purchaser shall notify Seller immediately upon the discovery of an emergency condition affecting the System.

e. **Suspension.** Notwithstanding anything to the contrary herein, Seller shall be entitled to suspend delivery of electricity from the System to the Delivery Point for the purpose of maintaining and repairing the System and such suspension of service shall not constitute a breach of this Agreement; provided, that Seller shall use commercially reasonable efforts to minimize any interruption in service to the Purchaser.

f. **Use of Contractors and Subcontractors.** Seller shall be permitted to use contractors and subcontractors to perform its obligations under this Agreement. However, Seller shall continue to be responsible for the quality of the work performed by its contractors and subcontractors. If a list of pre–approved contractors and subcontractors is desired, such list shall be scheduled on an appendix to **Exhibit 7**. All Contractors and subcontractors other than those that may be scheduled on an appendix to **Exhibit 7** shall be subject to Purchaser's prior written consent, not to be unreasonably withheld.

g. **Liens and Payment of Contractors and Suppliers.** Seller shall pay when due all valid charges from all contractors, subcontractors and suppliers supplying goods or services to Seller under this Agreement and shall keep the Facility free and clear of any liens related to such charges, except for those liens which Seller is permitted by law to place on the Facility following non-payment by Purchaser of amounts due under this Agreement. Seller shall indemnify Purchaser for all claims, losses, damages, liabilities and expenses resulting from any liens filed against the Facility or the Premises in connection with such charges; provided, however, that Seller shall have the right to contest any such lien, so long as it provides a statutory bond or other reasonable assurances of payment that either remove such lien from title to the Facility and the Premises or that assure that any adverse judgment with respect to such lien will be paid without affecting title to the Facility and the Premises.

h. **No Warranty.** NO WARRANTY OR REMEDY, WHETHER STATUTORY, WRITTEN, ORAL, EXPRESS OR IMPLIED, INCLUDING WITHOUT LIMITATION WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE, OR WARRANTIES ARISING FROM COURSE OF DEALING OR USAGE OF TRADE SHALL APPLY. The remedies set forth in this Agreement shall be Purchaser's sole and exclusive remedies for any claim or liability arising out of or in connection with this Agreement, whether arising in contract, tort (including negligence), strict liability or otherwise.

8. **Purchaser Rights and Obligations.**

a. **Facility Access Rights.** Purchaser grants to Seller and to Seller's agents, employees and contractors an irrevocable non-exclusive license running with the Premises (the "**License**") for access to, on, over, under and across the Premises as more particularly described in **Exhibit 5** (the "**License Area**") for the purposes of (a) installing, constructing, operating, owning, maintaining, accessing, removing and replacing the System; (b) performing all of Seller's obligations and enforcing all of Seller's rights set forth in this Agreement; and (c) installing, using and maintaining electric lines and equipment, including inverters and meters, necessary to interconnect the System to

Purchaser's electric system at the Facility and/or to the Utility's electric distribution system or that otherwise may from time to time be useful or necessary in connection with the construction, installation, operation, maintenance or repair of the System. Seller shall notify Purchaser prior to entering the Facility except in situations where there is imminent risk of damage to persons or property. The term of the License shall continue until the date that is one hundred and twenty (120) days following the date of expiration or termination of this Agreement (the "**License Term**"). During the License Term, Purchaser shall ensure that Seller's rights under the License and Seller's access to the License Area are preserved and protected and shall not interfere with or permit any third parties to interfere with such rights or access. The grant of the License shall survive termination of this agreement by either Party. Purchaser agrees that Seller may record a memorandum of license in substantially the same form attached hereto as **Exhibit 6** in the land records respecting the License.

b. **OSHA Compliance**. Purchaser shall ensure that all Occupational Safety and Health Act (OSHA) requirements and other similar applicable safety laws or codes are adhered to in its performance under this Agreement.

c. **Maintenance of Facility**. Purchaser shall, at its sole cost and expense, maintain Purchaser's Facility in good condition and repair. Purchaser will ensure that the Facility remains interconnected to the local utility grid at all times and will not permit cessation of electric service to the Facility from the local utility. Purchaser is fully responsible for the maintenance and repair of the Facility's electrical system and of all of Purchaser's equipment that utilizes the System's outputs. Purchaser shall properly maintain in full working order all of Purchaser's electric supply or generation equipment that Purchaser may shut down while utilizing the System. Purchaser shall promptly notify Seller of any matters of which it is aware pertaining to any damage to or loss of use of the System or that could reasonably be expected to adversely affect the System.

d. **No Alteration of Facility**. Purchaser shall not make any alterations or repairs to the Facility which may adversely affect the operation and maintenance of the System without Seller's prior written consent. If Purchaser wishes to make such alterations or repairs, Purchaser shall give prior written notice to Seller, setting forth the work to be undertaken (except for emergency repairs, for which notice may be given by telephone), and give Seller the opportunity to advise Purchaser in making such alterations or repairs in a manner that avoids damage to the System, but, notwithstanding any such advice, Purchaser shall be responsible for all damage to the System caused by Purchaser or its contractors. To the extent that temporary disconnection or removal of the System is necessary to perform such alterations or repairs, such work and any replacement of the System after completion of Purchaser's alterations and repairs, shall be done by Seller or its contractors at Purchaser's cost. All of Purchaser's alterations and repairs will be done in a good and workmanlike manner and in compliance with all applicable laws, codes and permits.

e. **Outages**. Purchaser shall be permitted to be off line for two (2) full twenty-four (24) hour days (each, a "**Scheduled Outage**") per calendar year during the Term, during which days Purchaser shall not be obligated to accept or pay for electricity from the System; provided, however, that Purchaser must notify Seller in writing of each such Scheduled Outage at least forty-eight (48) hours in advance of the commencement of a Scheduled Outage. In the event that Scheduled Outages exceed two (2) days per calendar year or there are unscheduled outages, in each case for a reason other than a Force Majeure event, Seller shall reasonably estimate the amount of electricity that would have been delivered to Purchaser during such excess Scheduled Outages or unscheduled outages and shall invoice Purchaser for such amount in accordance with Section 4. Purchaser may purchase electricity from any source during the Term of this Agreement.

f. **Liens**. Purchaser shall not directly or indirectly cause, create, incur, assume or allow to exist any mortgage, pledge, lien, charge, security interest, encumbrance or other claim of any nature on or with respect to the System or any interest therein. Purchaser shall immediately notify Seller in writing of the existence of any such mortgage, pledge, lien, charge, security interest, encumbrance or other claim, shall promptly cause the same to be discharged and released of record without cost to Seller, and shall indemnify Seller against all costs and expenses (including reasonable attorneys' fees) incurred in discharging and releasing any such mortgage, pledge, lien, charge, security interest, encumbrance or other claim.

g. **Security**. Purchaser shall be responsible for maintaining the physical security of the License Area and for any damage or vandalism to the System as a result of failure to maintain such security. Purchaser will not conduct activities on, in or about the License Area or the Facility that have a reasonable likelihood of causing damage, impairment or otherwise adversely affecting the System. Purchaser shall provide and take reasonable measures for security of the System, including commercially reasonable monitoring of the Facility's alarms.

h. **Insolation**. Purchaser understands that unobstructed access to sunlight ("**Insolation**") is essential to Seller's performance of its obligations and a material term of this Agreement. Purchaser shall not in any way cause and,

where possible, shall not in any way permit any interference with the System's Insolation. If Purchaser becomes aware of any activity or condition that could diminish the Insolation of the System, Purchaser shall notify Seller immediately and shall cooperate with Seller in preserving the System's existing Insolation levels.

i. **Data Line**. Purchaser shall provide Seller a high speed internet data line during the Term to enable Seller to monitor and operate the System. If Purchaser fails to provide such high speed internet data line, or if such line ceases to function and is not repaired, Seller may reasonably estimate the amount of electric energy that was generated and invoice Purchaser for such amount in accordance with Section 4. Provided, however, that Purchaser shall have a reasonable period of time to review and contest such estimate.

j. **Breakdown Notice**. Purchaser shall notify Seller within twenty-four (24) hours following the discovery by it of (A) any material malfunction in the operation of the System; or (B) any occurrences that could reasonably be expected to adversely affect the System. Purchaser shall notify Seller immediately upon (A) an interruption in the supply of electrical energy from the System; or (B) the discovery of an emergency condition respecting the System. Purchaser and Seller shall each designate personnel and establish procedures such that each Party may provide notice of such conditions requiring Seller's repair or alteration at all times, twenty-four (24) hours per day, including weekends and holidays.

k. **Metering**. Electricity delivered to the Facility shall be measured by the SolarGuard monitoring system installed and maintained by Seller as part of the System.

9. **Change in Law**.

"Change in Law" means (i) the enactment, adoption, promulgation, modification or repeal after the Effective Date of any applicable law or regulation; (ii) the imposition of any material conditions on the issuance or renewal of any applicable permit after the Effective Date of this Agreement (notwithstanding the general requirements contained in any applicable Permit at the time of application or issue to comply with future laws, ordinances, codes, rules, regulations or similar legislation), or (iii) a change in any utility rate schedule or tariff approved by any Governmental Authority which in the case of any of (i), (ii) or (iii), establishes requirements affecting owning, supplying, constructing, installing, operating or maintaining the System, or other performance of the Seller's obligations hereunder and which has a material adverse effect on the cost to Seller of performing such obligations; provided, that a change in federal, state, county or any other tax law after the Effective Date of this Agreement shall not be a Change in Law pursuant to this Agreement.

If any Change in Law occurs that has a material adverse effect on the cost to Seller of performing its obligations under this Agreement, then the Parties shall, within thirty (30) days following receipt by Purchaser from Seller of notice of such Change in Law, meet and attempt in good faith to negotiate amendments to this Agreement as are reasonably necessary to preserve the economic value of this Agreement to both Parties. If the Parties are unable to agree upon such amendments within such thirty (30) day period, then Seller shall have the right to terminate this Agreement without further liability to either Party except with respect to payment of amounts accrued prior to termination.

10. **Relocation of System**.

If Purchaser ceases to conduct business operations at and/or vacates the Facility or is prevented from operating the System at the Facility prior to the expiration of the Term, Purchaser shall have the option to provide Seller with a mutually agreeable substitute premises located within the same Utility district as the terminated System or in a location with similar Utility rates and Insolation. Purchaser shall provide at least sixty (60) but not more than one hundred eighty (180) days prior written notice prior to the date that it wants to make this substitution. In connection with such substitution, Purchaser shall execute an amended agreement that shall have all of the same terms as this Agreement except for the (i) Effective Date; (ii) License, which will be amended to grant rights in the real property where the System relocated to; and (iii) Term, which will be the remainder of the Term of this Agreement and such amended agreement shall be deemed to be a continuation of this Agreement without termination. Purchaser shall also provide any new Purchaser, owner, lessor or mortgagee consents or releases required by Seller or Seller's Financing Parties in connection with the substitute facility. Purchaser shall pay all costs associated with relocation of the System, including all costs and expenses incurred by or on behalf of Seller in connection with removal of the System from the Facility and installation and testing of the System at the substitute facility and all applicable interconnection fees and expenses at the substitute facility, as well as costs of new title search and other out-of-pocket expenses connected to preserving and refiling the security interests of Seller's Financing Parties in the System. Seller shall remove the System from the vacated Facility prior to the termination of Purchaser's ownership, lease or other rights to use such Facility. Seller will not be required to restore the Facility to its prior condition but shall promptly pay Purchaser for any damage caused by Seller during removal of the System, but not for normal wear and tear. If the substitute facility has inferior Insolation as compared to the original Facility, Seller shall have the right to make an adjustment to **Exhibit 1** such that Purchaser's payments to Seller are the same as if the System were located at the original Facility. If

Purchaser is unable to provide such substitute Facility and to relocate the System as provided, any early termination will be treated as a default by Purchaser.

11. Removal of System at Expiration.

Upon the expiration or earlier termination of this Agreement (provided Purchaser does not exercise its purchase option), Seller shall, at its expense, remove all of its tangible property comprising the System from the Facility on a mutually convenient date but in no event later than ninety (90) days after the expiration of the Term. The Facility shall be returned to its original condition, except for System mounting pads or other support structures, which may be left in place, and ordinary wear and tear. In no case shall Seller's removal of the System affect the integrity of Purchaser's roof, which shall be as leak proof as it was prior to removal of the System. Seller shall leave the Facility in neat and clean order. If Seller fails to remove or commence substantial efforts to remove the System by such agreed upon date, Purchaser shall have the right, at its option, to remove the System to a public warehouse and restore the Facility to its original condition (other than System mounting pads or other support structures and ordinary wear and tear) at Seller's cost. Purchaser shall provide sufficient space for the temporary storage and staging of tools, materials and equipment and for the parking of construction crew vehicles and temporary construction trailers and facilities reasonably necessary during System removal.

12. Intentionally Deleted.

13. Default, Remedies and Damages.

a. **Default.** Any Party that fails to perform its responsibilities as listed below or experiences any of the circumstances listed below shall be deemed a "**Defaulting Party**" and each event of default shall be a "**Default Event**":

(1) failure of a Party to pay any amount due and payable under this Agreement, other than an amount that is subject to a good faith dispute, within ten (10) days following receipt of written notice from the other Party (the "**Non-Defaulting Party**") of such failure to pay ("**Payment Default**");

(2) failure of a Party to substantially perform any other material obligation under this Agreement within thirty (30) days following receipt of written notice from the Non-Defaulting Party demanding such cure; provided, that such thirty (30) day cure period shall be extended (but not beyond ninety (90) days) if and to the extent reasonably necessary to cure the Default Event, if (i) the Defaulting Party initiates such cure with the thirty (30) day period and continues such cure to completion and (ii) there is no material adverse affect on the Non-Defaulting Party resulting from the failure to cure the Default Event;

(3) if any representation or warranty of a Party proves at any time to have been incorrect in any material respect when made and is material to the transactions contemplated hereby, if the effect of such incorrectness is not cured within thirty (30) days following receipt of written notice from the Non-Defaulting Party demanding such cure;

(4) Purchaser loses its rights to occupy and enjoy the Premises; or

(5) a Party, or its guarantor, becomes insolvent or is a party to a bankruptcy, reorganization, insolvency, liquidation, receivership, dissolution, winding-up or relief of debtors, or any general assignment for the benefit of creditors or other similar arrangement or any event occurs or proceedings are taken in any jurisdiction with respect to the Party which has a similar effect.

(6) Purchaser prevents Seller from installing the System or otherwise failing to perform in a way that prevents the delivery of electric energy from the System. (Such Default Event shall not excuse Purchaser's obligations to make payments that otherwise would have been due under this Agreement.)

b. **Remedies.**

(1) Remedies for Payment Default. If a Payment Default occurs, the Non-Defaulting Party may suspend performance of its obligations under this Agreement. Further, the Non-Defaulting Party may pursue any remedy under this Agreement, at law or in equity, including an action for damages and termination of this Agreement, upon five (5) days prior written notice to the Defaulting Party following the Payment Default.

(2) Remedies for Other Defaults. On the occurrence of a Default Event other than a Payment Default, the Non-Defaulting Party may pursue any remedy under this Agreement, at law or in equity, including an action for damages and termination of this Agreement or suspension of performance of its obligations under this Agreement, upon five (5) days prior written notice to the Defaulting Party following the occurrence of the Default Event. Nothing herein shall limit either Party's right to collect damages upon the occurrence of a breach or a default by the other Party that does not become a Default Event.

(3) Damages Upon Termination by Default. Upon a termination of this Agreement by the Non-Defaulting Party as a result of a Default Event by the Defaulting Party, the Defaulting Party shall pay a Termination Payment to the Non-Defaulting Party determined as follows (the "**Termination Payment**"):

A. Purchaser. If Purchaser is the Defaulting Party and Seller terminates this Agreement, the Termination Payment to Seller shall be equal to the sum of (i) the termination value set forth in **Exhibit 1** (the "**Termination Value**") for such Contract Year, (ii) removal costs as provided in Section 13(b)(3)(C) and (iii) any and all other amounts previously accrued under this Agreement and then owed by Purchaser to Seller. The Parties agree that actual damages to Seller in the event this Agreement terminates prior to the expiration of the Term as the result of an Default Event by Purchaser would be difficult to ascertain, and the applicable Termination Value set forth in **Exhibit 1** is a reasonable approximation of the damages suffered by Seller as a result of early termination of this Agreement. The Termination Payment shall not be less than zero.

B. Seller. If Seller is the Defaulting Party and Purchaser terminates this Agreement, the Termination Payment to Purchaser shall be equal to the sum of (i) the present value (using a discount rate of 9.5%) of the excess, if any, of the reasonably expected cost of electric energy from the Utility over the Contract Price for the reasonably expected production of the Facility for the remainder of the Initial Term or the then current Additional Term, as applicable; (ii) all costs reasonably incurred by Purchaser in re-converting its electric supply to service from the Utility; (iii) any removal costs incurred by Purchaser, and (iv) any and all other amounts previously accrued under this Agreement and then owed by Seller to Purchaser. The Termination Payment shall not be less than zero.

C. Obligations Following Termination. If a Non-Defaulting Party terminates this Agreement pursuant to this Section 13(b)(3)(C), then following such termination, Seller shall, at the sole cost and expense of the Defaulting Party, remove the equipment (except for mounting pads and support structures) constituting the System. The Non-Defaulting Party shall take all commercially reasonable efforts to mitigate its damages as the result of a Default Event.

14. Representations and Warranties.

a. General Representations and Warranties. Each Party represents and warrants to the other the following:

(1) Such Party is duly organized, validly existing and in good standing under the laws of the jurisdiction of its formation; the execution, delivery and performance by such Party of this Agreement have been duly authorized by all necessary corporate, partnership or limited liability company action, as applicable, and do not and shall not violate any law; and this Agreement is valid obligation of such Party, enforceable against such Party in accordance with its terms (except as may be limited by applicable bankruptcy, insolvency, reorganization, moratorium and other similar laws now or hereafter in effect relating to creditors' rights generally).

(2) Such Party has obtained all licenses, authorizations, consents and approvals required by any Governmental Authority or other third party and necessary for such Party to own its assets, carry on its business and to execute and deliver this Agreement; and such Party is in compliance with all laws that relate to this Agreement in all material respects.

b. Purchaser's Representations and Warranties. Purchaser represents and warrants to Seller the following:

(1) License. Purchaser has the full right, power and authority to grant the License contained in Section 8(a). Such grant of the License does not violate any law, ordinance, rule or other governmental restriction applicable to Purchaser or the Facility and is not inconsistent with and will not result in a breach or default under any agreement by which Purchaser is bound or that affects the Facility.

(2) Other Agreements. Neither the execution and delivery of this Agreement by Purchaser nor the performance by Purchaser of any of its obligations under this Agreement conflicts with or will result in a breach or default under any agreement or obligation to which Purchaser is a party or by which Purchaser or the Facility is bound.

(3) Accuracy of Information. All information provided by Purchaser to Seller, as it pertains to the Facility's physical configuration, Purchaser's planned use of the Facility, and Purchaser's estimated electricity requirements, is accurate in all material respects.

(4) Purchaser Status. Purchaser is not a public utility or a public utility holding company and is not subject to regulation as a public utility or a public utility holding company.

(5) No Pool Use. No electricity generated by the System will be used to heat a swimming pool.

15. System Damage and Insurance.

a. System Damage.

(1) Seller's Obligations. If the **System** is damaged or destroyed other than by Purchaser's negligence or willful misconduct, Seller shall promptly repair and restore the System to its pre-existing condition; provided, however, that if more than fifty percent (50%) of the System is destroyed during the last five (5) years of the Initial Term or during any Additional Term, Seller shall not be required to restore the System, but may instead terminate this Agreement, unless Purchaser agrees (i) to pay for the cost of such restoration of the System or (ii) to purchase the System "AS-IS" at the greater of (A) then current fair market value of the System and (B) the sum of the amounts described in Section 13.b(3)A)(i) (using the date of purchase to determine the appropriate Contract Year) and Section 13.b(3)A)(iii).

(2) Purchaser's Obligations. If the **Facility** is damaged or destroyed by casualty of any kind or any other occurrence other than Seller's negligence or willful misconduct, such that the operation of the System and/or Purchaser's ability to accept the electric energy produced by the System are materially impaired or prevented, Purchaser shall promptly repair and restore the Facility to its pre-existing condition; provided, however, that if more than 50% of the Facility is destroyed during the last five years of the Initial Term or during any Additional Term, Purchaser may elect either (i) to restore the Facility or (ii) to pay the Termination Value set forth in **Exhibit 1** and all other costs previously accrued but unpaid under this Agreement and thereupon terminate this Agreement.

b. Insurance Coverage. At all times during the Term, Seller and Purchaser shall maintain the following insurance:

i. Seller's Insurance. Seller shall maintain (i) comprehensive general liability insurance with coverage of at least $1,000,000 per occurrence and $2,000,000 annual aggregate, (ii) employer's liability insurance with coverage of at least $1,000,000 and (iii) worker's compensation insurance as required by law.

ii. Purchaser's Insurance. Purchaser shall maintain (i) "all risk" property insurance on the System for the full replacement cost thereof and name Seller as a loss payee, (ii) comprehensive general liability insurance with coverage of at least $1,000,000 per occurrence and $2,000,000 annual aggregate, (iii) employer's liability insurance with coverage of at least $1,000,000 and (iv) worker's compensation insurance as required by law.

c. Policy Provisions. All insurance policies provided hereunder shall (i) contain a provision whereby the insurer agrees to give the party not providing the insurance thirty (30) days (ten (10) days in the event of non-payment of premiums) written notice before the insurance is cancelled, terminated or materially altered, (ii) be written on an occurrence basis, (iii) with respect to the casualty insurance policies, name Seller as loss payee thereunder, (iv) with

respect to the liability insurance policies, include the other Party as an additional insured as its interest may appear, (iv) include waivers of subrogation, (v) provide for primary coverage without right of contribution from any insurance of the other Party, and (vi) be maintained with companies either rated no less than A- as to Policy Holder's Rating in the current edition of Best's Insurance Guide or otherwise reasonably acceptable to the other party.

d. **Certificates**. Within thirty (30) days after execution of this Agreement and upon the other Party's request and annually thereafter, each Party shall deliver the other Party certificates of insurance evidencing the above required coverage.

e. **Deductibles**. Unless and to the extent that a claim is covered by an indemnity set forth in this Agreement, each Party shall be responsible for the payment of its own deductibles.

16. **Ownership; Option to Purchase**.

a. **Ownership of System**. Throughout the Term, Seller shall be the legal and beneficial owner of the System at all times, including all Environmental Attributes, and the System shall remain the personal property of Seller and shall not attach to or be deemed a part of, or fixture to, the Facility or the Premises. Each of the Seller and Purchaser agree that the Seller is the tax owner of the System and all tax filings and reports will be filed in a manner consistent with this Agreement. The System shall at all times retain the legal status of personal property as defined under Article 9 of the Uniform Commercial Code. Purchaser covenants that it will use commercially reasonable efforts to place all parties having an interest in or a mortgage, pledge, lien, charge, security interest, encumbrance or other claim of any nature on the Facility or the Premises on notice of the ownership of the System and the legal status or classification of the System as personal property. If there is any mortgage or fixture filing against the Premises which could reasonably be construed as prospectively attaching to the System as a fixture of the Premises, Purchaser shall provide a disclaimer or release from such lienholder. If Purchaser is the fee owner of the Premises, Purchaser consents to the filing of a disclaimer of the System as a fixture of the Premises in the office where real estate records are customarily filed in the jurisdiction where the Facility is located and Seller shall provide such disclaimer to Purchaser to file. If Purchaser is not the fee owner, Purchaser will obtain such consent from such owner. Purchaser agrees to deliver to Seller a non-disturbance agreement in a form reasonably acceptable to Seller from the owner of the Facility (if the Facility is leased by Purchaser), any mortgagee with a lien on the Premises, and other Persons holding a similar interest in the Premises.

b. **Option to Purchase**. At the end of the sixth (6th) and tenth (10th) Contract Years and at the end of the Initial Term and each Additional Term, so long as Purchaser is not in default under this Agreement, Purchaser may purchase the System from Seller on any such date for a purchase price equal to (i) with respect to an option exercised at the end of the sixth (6th) or tenth (10th) Contract Years or at the end of the Initial Term, the greater of (A) the amount set forth at such time in the Purchase Option Price schedule in **Exhibit 1**, and (B) the Fair Market Value of the System, and (ii) with respect to an option exercised at the end of an Additional Term, the Fair Market Value of the System. The "**Fair Market Value**" of the System shall be determined by mutual agreement of Purchaser and Seller; provided, however, if Purchaser and Seller cannot agree to a Fair Market Value within thirty (30) days after Purchaser has exercised its option, the Parties shall select a nationally recognized independent appraiser with experience and expertise in the solar photovoltaic industry to determine the Fair Market Value of the System. Such appraiser shall act reasonably and in good faith to determine the Fair Market Value of the System on an installed basis and shall set forth such determination in a written opinion delivered to the Parties. The valuation made by the appraiser shall be binding upon the Parties in the absence of fraud or manifest error. The costs of the appraisal shall be borne by the Parties equally. Purchaser must provide a notification to Seller of its intent to purchase at least ninety (90) days and not more than one hundred eighty (180) days prior to the end of the applicable Contract Year or the Initial Term or Additional Term, as applicable, and the purchase shall be complete prior to the end of the applicable Contract Year or the Initial Term or Additional Term, as applicable. Upon purchase of the System, Purchaser will assume complete responsibility for the operation and maintenance of the System and liability for the performance of the System, and Seller shall have no further liabilities or obligations hereunder.

17. **Indemnification and Limitations of Liability**.

a. **General**. Each Party (the "**Indemnifying Party**") shall defend, indemnify and hold harmless the other Party and the directors, officers, shareholders, partners, members, agents and employees of such other Party, and the respective affiliates of each thereof (collectively, the "**Indemnified Parties**"), from and against all loss, damage, expense, liability and other claims, including court costs and reasonable attorneys' fees (collectively, "**Liabilities**") resulting from any third party actions relating to the breach of any representation or warranty set forth in Section 14 and from injury to or death of persons, and damage to or loss of property to the extent caused by or arising out of the negligent

acts or omissions of, or the willful misconduct of, the Indemnifying Party (or its contractors, agents or employees) in connection with this Agreement; provided, however, that nothing herein shall require the Indemnifying Party to indemnify the Indemnified Party for any Liabilities to the extent caused by or arising out of the negligent acts or omissions of, or the willful misconduct of, the Indemnified Party. This Section 17(a) however, shall not apply to liability arising from any form of hazardous substances or other environmental contamination, such matters being addressed exclusively by Section 17(c).

b. **Notice and Participation in Third Party Claims**. The Indemnified Party shall give the Indemnifying Party written notice with respect to any Liability asserted by a third party (a "**Claim**"), as soon as possible upon the receipt of information of any possible Claim or of the commencement of such Claim. The Indemnifying Party may assume the defense of any Claim, at its sole cost and expense, with counsel designated by the Indemnifying Party and reasonably satisfactory to the Indemnified Party. The Indemnified Party may, however, select separate counsel if both Parties are defendants in the Claim and such defense or other form of participation is not reasonably available to the Indemnifying Party. The Indemnifying Party shall pay the reasonable attorneys' fees incurred by such separate counsel until such time as the need for separate counsel expires. The Indemnified Party may also, at the sole cost and expense of the Indemnifying Party, assume the defense of any Claim if the Indemnifying Party fails to assume the defense of the Claim within a reasonable time. Neither Party shall settle any Claim covered by this Section 17(b) unless it has obtained the prior written consent of the other Party, which consent shall not be unreasonably withheld or delayed. The Indemnifying Party shall have no liability under this Section 17(b) for any Claim for which such notice is not provided if that the failure to give notice prejudices the Indemnifying Party.

c. **Environmental Indemnification**. Seller shall indemnify, defend and hold harmless all of Purchaser's Indemnified Parties from and against all Liabilities arising out of or relating to the existence at, on, above, below or near the License Area of any Hazardous Substance (as defined in Section 17(c)(i)) to the extent deposited, spilled, released or otherwise caused by Seller or any of its contractors or agents. Purchaser shall indemnify, defend and hold harmless all of Seller's Indemnified Parties from and against all Liabilities arising out of or relating to the existence at, on, above, below or near the Premises of any Hazardous Substance, except to the extent deposited, spilled, released or otherwise caused by Seller or any of its contractors or agents. Each Party shall promptly notify the other Party if it becomes aware of any deposit, spill or release of any Hazardous Substance on or about the License Area or the Premises generally.

i. "**Hazardous Substance**" means any chemical, waste or other substance (a) which now or hereafter becomes defined as or included in the definition of "hazardous substances," "hazardous wastes," "hazardous materials," "extremely hazardous wastes," "restricted hazardous wastes," "toxic substances," "toxic pollutants," "pollution," "pollutants," "regulated substances," or words of similar import under any laws pertaining to the environment, health, safety or welfare, (b) which is declared to be hazardous, toxic, or polluting by any Governmental Authority, (c) exposure to which is now or hereafter prohibited, limited or regulated by any Governmental Authority, (d) the storage, use, handling, disposal or release of which is restricted or regulated by any Governmental Authority, or (e) for which remediation or cleanup is required by any Governmental Authority.

d. **Limitations on Liability**.

i. No Consequential Damages. Neither Party nor its directors, officers, shareholders, partners, members, agents and employees subcontractors or suppliers shall be liable for any indirect, special, incidental, exemplary, or consequential loss or damage of any nature arising out of their performance or non-performance hereunder even if advised of such.

ii. Actual Damages. Seller's aggregate liability under this Agreement arising out of or in connection with the performance or non-performance of this Agreement shall not exceed the *lesser* of (A) the total payments made by Purchaser under this Agreement as of the date that the events that first gave rise to such liability occurred; and (B) the total of the prior twelve (12) monthly payments preceding the date that the events that first gave rise to such liability occurred. The provisions of this Section (17)(d)(ii) shall apply whether such liability arises in contract, tort (including negligence), strict liability or otherwise. Any action against Seller must be brought within one (1) year after the cause of action accrues.

18. Force Majeure.

a. "**Force Majeure**" means any event or circumstances beyond the reasonable control of and without the fault or negligence of the Party claiming Force Majeure. It shall include, without limitation, failure or interruption of the production, delivery or acceptance of electricity due to: an act of god; war (declared or undeclared); sabotage; riot;

insurrection; civil unrest or disturbance; military or guerilla action; terrorism; economic sanction or embargo; civil strike, work stoppage, slow-down, or lock-out; explosion; fire; earthquake; abnormal weather condition or actions of the elements; hurricane; flood; lightning; wind; drought; the binding order of any Governmental Authority (provided that such order has been resisted in good faith by all reasonable legal means); the failure to act on the part of any Governmental Authority (provided that such action has been timely requested and diligently pursued); unavailability of electricity from the utility grid, equipment, supplies or products (but not to the extent that any such availability of any of the foregoing results from the failure of the Party claiming Force Majeure to have exercised reasonable diligence); and failure of equipment not utilized by or under the control of the Party claiming Force Majeure.

b. Except as otherwise expressly provided to the contrary in this Agreement, if either Party is rendered wholly or partly unable to timely perform its obligations under this Agreement because of a Force Majeure event, that Party shall be excused from the performance affected by the Force Majeure event (but only to the extent so affected) and the time for performing such excused obligations shall be extended as reasonably necessary; provided, that: (i) the Party affected by such Force Majeure event, as soon as reasonably practicable after obtaining knowledge of the occurrence of the claimed Force Majeure event, gives the other Party prompt oral notice, followed by a written notice reasonably describing the event; (ii) the suspension of or extension of time for performance is of no greater scope and of no longer duration than is required by the Force Majeure event; and (iii) the Party affected by such Force Majeure event uses all reasonable efforts to mitigate or remedy its inability to perform as soon as reasonably possible. Seller shall not be liable for any damage to the System or the Facility resulting from a Force Majeure event. The Term shall be extended day for day for each day performance is suspended due to a Force Majeure event.

c. Notwithstanding anything herein to the contrary, the obligation to make any payment due under this Agreement shall not be excused by a Force Majeure event.

d. If a Force Majeure event continues for a period of one hundred (180) days or more within a twelve (12) month period and prevents a material part of the performance by a Party hereunder, the Party not claiming the Force Majeure shall have the right to terminate this Agreement without fault or further liability to either Party (except for amounts accrued but unpaid).

19. Assignment and Financing.

a. **Assignment**. This Agreement may not be assigned in whole or in part by either Party without the prior written consent of the other Party, which consent shall not be unreasonably withheld or delayed. Notwithstanding the foregoing, Seller may, without the prior written consent of Purchaser, (i) assign, mortgage, pledge or otherwise collaterally assign its interests in this Agreement to any Financing Party, (ii) directly or indirectly assign this Agreement to an affiliate of Seller, (iii) assign this Agreement to any entity through which Seller is obtaining financing or capital for the System and (iv) assign this Agreement to any person succeeding to all or substantially all of the assets of Seller (provided that Seller shall be released from liability hereunder as a result of any of the foregoing permitted assignments only upon assumption of Seller's obligations hereunder by the assignee). Purchaser's consent to any other assignment shall not be unreasonably withheld if Purchaser has been provided with reasonable proof that the proposed assignee (x) has comparable experience in operating and maintaining photovoltaic solar systems comparable to the System and providing services comparable to those contemplated by this Agreement and (y) has the financial capability to maintain the System and provide the services contemplated by this Agreement in the manner required by this Agreement. This Agreement shall be binding on and inure to the benefit of the successors and permitted assignees.

b. **Financing**. The Parties acknowledge that Seller may obtain construction and long-term financing or other credit support from lenders or third parties (**"Financing Parties"**) in connection with the installation, construction, ownership, operation and maintenance of the System. Both Parties agree in good faith to consider and to negotiate changes or additions to this Agreement that may be reasonably requested by the Financing Parties; provided, that such changes do not alter the fundamental economic terms of this Agreement. The Parties also agree that Seller may assign this Agreement to the Financing Parties as collateral, and in connection with any such assignment, Purchaser agrees to execute a consent to assignment in customary form and reasonably acceptable to the Financing Parties.

20. **Confidentiality and Publicity.**

a. **Confidentiality.** If either Party provides confidential information, including business plans, strategies, financial information, proprietary, patented, licensed, copyrighted or trademarked information, and/or technical information regarding the design, operation and maintenance of the System or of Purchaser's business ("Confidential Information") to the other or, if in the course of performing under this Agreement or negotiating this Agreement a Party learns Confidential Information regarding the facilities or plans of the other, the receiving Party shall (a) protect the Confidential Information from disclosure to third parties with the same degree of care accorded its own confidential and proprietary information, and (b) refrain from using such Confidential Information, except in the negotiation and performance of this Agreement. Notwithstanding the above, a Party may provide such Confidential Information to its, officers, directors, members, managers, employees, agents, contractors and consultants (collectively, "Representatives"), and affiliates, lenders, and potential assignees of this Agreement (provided and on condition that such potential assignees be bound by a written agreement or legal obligation restricting use and disclosure of Confidential Information), in each case whose access is reasonably necessary to the negotiation and performance of this Agreement. Each such recipient of Confidential Information shall be informed by the Party disclosing Confidential Information of its confidential nature and shall be directed to treat such information confidentially and shall agree to abide by these provisions. In any event, each Party shall be liable (with respect to the other Party) for any breach of this provision by any entity to whom that Party improperly discloses Confidential Information. The terms of this Agreement (but not its execution or existence) shall be considered Confidential Information for purposes of this Section 20(a), except as set forth in Section 20(b). All Confidential Information shall remain the property of the disclosing Party and shall be returned to the disclosing Party or destroyed after the receiving Party's need for it has expired or upon the request of the disclosing Party. Each Party agrees that the disclosing Party would be irreparably injured by a breach of this Section 20(a) by the receiving Party or its Representatives or other person to whom the receiving Party discloses Confidential Information of the disclosing Party and that the disclosing Party may be entitled to equitable relief, including injunctive relief and specific performance, in the event of a breach of the provision of this Section 20(a). To the fullest extent permitted by applicable law, such remedies shall not be deemed to be the exclusive remedies for a breach of this Section 20(a), but shall be in addition to all other remedies available at law or in equity.

b. **Permitted Disclosures.** Notwithstanding any other provision in this Agreement, neither Party shall be required to hold confidential any information that (i) becomes publicly available other than through the receiving Party, (ii) is required to be disclosed to a Governmental Authority under applicable law or pursuant to a validly issued subpoena (but a receiving Party subject to any such requirement shall promptly notify the disclosing Party of such requirement to the extent permitted by applicable law), (iii) is independently developed by the receiving Party or (iv) becomes available to the receiving Party without restriction from a third party under no obligation of confidentiality. If disclosure of information is required by a Governmental Authority, the disclosing Party shall, to the extent permitted by applicable law, notify the other Party of such required disclosure promptly upon becoming aware of such required disclosure and shall cooperate with the other Party in efforts to limit the disclosure to the maximum extent permitted by law.

21. **Goodwill and Publicity.** Neither Party shall use any name, trade name, service mark or trademark of the other Party in any promotional or advertising material without the prior written consent of such other Party. The Parties shall coordinate and cooperate with each other when making public announcements related to the execution and existence of this Agreement, and each Party shall have the right to promptly review, comment upon and approve any publicity materials, press releases or other public statements by the other Party that refer to, or that describe any aspect of, this Agreement. Neither Party shall make any press release regarding or public announcement or the specific terms of this Agreement (except for filings or other statements or releases as may be required by applicable law) without the specific prior written consent of the other Party. Without limiting the generality of the foregoing, all public statements must accurately reflect the rights and obligations of the Parties under this Agreement, including the ownership of Environmental Attributes and Environmental Incentives and any related reporting rights.

22. **General Provisions**

a. **Choice of Law.** Arizona law shall govern this Agreement without giving effect to conflict of laws principles.

b. **Arbitration and Attorneys' Fees.** Any dispute arising from or relating to this Agreement shall be arbitrated in Phoenix, Arizona. The arbitration shall be administered by the AAA in accordance with its Comprehensive Arbitration Rules and Procedures, and judgment on any award may be entered in any court of competent jurisdiction. If the Parties agree, a mediator may be consulted prior to arbitration. The prevailing party in any dispute arising out of this Agreement shall be entitled to reasonable attorneys' fees and costs.

c. **Notices**. All notices under this Agreement shall be in writing and shall be by personal delivery, facsimile transmission, electronic mail, overnight courier, or regular, certified, or registered mail, return receipt requested, and deemed received upon personal delivery, acknowledgment of receipt of electronic transmission, the promised delivery date after deposit with overnight courier, or five (5) days after deposit in the mail. Notices shall be sent to the person identified in this Agreement at the addresses set forth in this Agreement or such other address as either party may specify in writing. Each party shall deem a document faxed to it as an original document.

d. **Survival**. Provisions of this Agreement that should reasonably be considered to survive termination of this Agreement shall survive. For the avoidance of doubt, surviving provisions shall include, without limitation, Section 4 (Representations and Warranties), Section 7(h) (No Warranty), Section 15(b) (Insurance), Section 17 (Indemnification), Section 20 (Confidentiality and Publicity), Section 22(a) (Choice of Law), Section 22 (b) (Arbitration and Attorneys' Fees), Section 22(c) (Notices), Section 22 (g) (Comparative Negligence), Section 22(h) (Non-Dedication of Facilities), Section 22(j) (Service Contract), Section 22(k) (No Partnership) Section 22(l) (Full Agreement, Modification, Invalidity, Counterparts, Captions) and Section 22(n) (No Third Party Beneficiaries).

e. **Further Assurances**. Each of the Parties hereto agree to provide such information, execute and deliver any instruments and documents and to take such other actions as may be necessary or reasonably requested by the other Party which are not inconsistent with the provisions of this Agreement and which do not involve the assumptions of obligations other than those provided for in this Agreement, to give full effect to this Agreement and to carry out the intent of this Agreement.

f. **Right of Waiver**. Each Party, in its sole discretion, shall have the right to waive, defer or reduce any of the requirements to which the other Party is subject under this Agreement at any time; provided, however that neither Party shall be deemed to have waived, deferred or reduced any such requirements unless such action is in writing and signed by the waiving Party. No waiver will be implied by any usage of trade, course of dealing or course of performance. A Party's exercise of any rights hereunder shall apply only to such requirements and on such occasions as such Party may specify and shall in no event relieve the other Party of any requirements or other obligations not so specified. No failure of either Party to enforce any term of this Agreement will be deemed to be a waiver. No exercise of any right or remedy under this Agreement by Purchaser or Seller shall constitute a waiver of any other right or remedy contained or provided by law. Any delay or failure of a Party to exercise, or any partial exercise of, its rights and remedies under this Agreement shall not operate to limit or otherwise affect such rights or remedies. Any waiver of performance under this Agreement shall be limited to the specific performance waived and shall not, unless otherwise expressly stated in writing, constitute a continuous waiver or a waiver of future performance.

g. **Comparative Negligence**. It is the intent of the Parties that where negligence is determined to have been joint, contributory or concurrent, each Party shall bear the proportionate cost of any Liability.

h. **Non-Dedication of Facilities**. Nothing herein shall be construed as the dedication by either Party of its facilities or equipment to the public or any part thereof. Neither Party shall knowingly take any action that would subject the other Party, or other Party's facilities or equipment, to the jurisdiction of any Governmental Authority as a public utility or similar entity. Neither Party shall assert in any proceeding before a court or regulatory body that the other Party is a public utility by virtue of such other Party's performance under this agreement. If Seller is reasonably likely to become subject to regulation as a public utility, then the Parties shall use all reasonable efforts to restructure their relationship under this Agreement in a manner that preserves their relative economic interests while ensuring that Seller does not become subject to any such regulation. If the Parties are unable to agree upon such restructuring, Seller shall have the right to terminate this Agreement without further liability, and Seller shall remove the System in accordance with Section 11 of this Agreement.

i. **Estoppel**. Either Party hereto, without charge, at any time and from time to time, within five (5) business days after receipt of a written request by the other party hereto, shall deliver a written instrument, duly executed, certifying to such requesting party, or any other person specified by such requesting Party: (i) that this Agreement is unmodified and in full force and effect, or if there has been any modification, that the same is in full force and effect as so modified, and identifying any such modification; (ii) whether or not to the knowledge of any such party there are then existing any offsets or defenses in favor of such party against enforcement of any of the terms, covenants and conditions of this Agreement and, if so, specifying the same and also whether or not to the knowledge of such party the other party has observed and performed all of the terms, covenants and conditions on its part to be observed and performed, and if not, specifying the same; and (iii) such other information as may be reasonably requested by the requesting Party. Any written instrument given hereunder may be relied upon by the recipient of such instrument, except to the extent the recipient has actual knowledge of facts contained in the certificate.

j. **Service Contract**. The Parties intend this Agreement to be a "service contract" within the meaning of Section 7701(e)(3) of the Internal Revenue Code of 1986. Purchaser will not take the position on any tax return or in any other filings that is inconsistent with this section of the Code. .

k. **No Partnership**. No provision of this Agreement shall be construed or represented as creating a partnership, trust, joint venture, fiduciary or any similar relationship between the Parties. No Party is authorized to act on behalf of the other Party, and neither shall be considered the agent of the other.

l. **Full Agreement, Modification, Invalidity, Counterparts, Captions**. This Agreement, together with any Exhibits, completely and exclusively states the agreement of the parties regarding its subject matter and supersedes all prior proposals, agreements, or other communications between the parties, oral or written, regarding its subject matter. This Agreement may be modified only by a writing signed by both Parties. If any provision of this Agreement is found unenforceable or invalid, such unenforceability or invalidity shall not render this Agreement unenforceable or invalid as a whole. In such event, such provision shall be changed and interpreted so as to best accomplish the objectives of such unenforceable or invalid provision within the limits of applicable law. This Agreement may be executed in any number of separate counterparts and each counterpart shall be considered an original and together shall comprise the same Agreement. The captions or headings in this Agreement are strictly for convenience and shall not be considered in interpreting this Agreement.

m. **Forward Contract**. The transaction contemplated under this Agreement constitutes a "forward contract" within the meaning of the United States Bankruptcy Code, and the Parties further acknowledge and agree that each Party is a "forward contract merchant" within the meaning of the Untied States Bankruptcy Code.

n. **No Third Party Beneficiaries**. Except as otherwise expressly provided herein, this Agreement and all rights hereunder are intended for the sole benefit of the Parties hereto and shall not imply or create any rights on the part of, or obligations to, any other Person.

End of Document

ORIGINAL

Jordan R. Rose AZ Bar No.: 017452
Court S. Rich AZ Bar No. 021290
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RECEIVED

2009 AUG -5 A 10: 24

AZ CORP COMMISSION
DOCKET CONTROL

EXHIBIT
A-3
ADMITTED

Attorneys for Applicant SolarCity Corporation

BEFORE THE ARIZONA CORPORATION COMMISSION

KRISTIN K. MAYES CHAIRMAN	SANDRA D. KENNEDY COMMISSIONER	PAUL NEWMAN COMMISSIONER
GARY PIERCE COMMISSIONER	BOB STUMP COMMISSIONER	

IN THE MATTER OF THE APPLICATION OF SOLARCITY FOR A DETERMINATION THAT WHEN IT PROVIDES SOLAR SERVICE TO ARIZONA SCHOOLS, GOVERNMENTS, AND NON-PROFIT ENTITIES IT IS NOT ACTING AS A PUBLIC SERVICE CORPORATION PURSUANT TO ART. 15, SECTION 2 OF THE ARIZONA CONSTITUTION	**DOCKET NO. E-20690A-09-0346** **NOTICE OF FILING AMENDED EXHIBIT**

Arizona Corporation Commission
DOCKETED
AUG - 5 2009
DOCKETED BY

Applicant, SolarCity, by and through its undersigned counsel, hereby submits the attached executed Addendums to the Solar Services Agreements between Applicant and the Scottsdale Unified School District that are the subject of the Application. These Addendums modify the Solar Services Agreement attached to the Application as Exhibit B and the Solar Services Agreement that the Applicant filed as a supplemental exhibit on July 16, 2009. These Addendums are intended to clarify the ownership of any Renewable Energy Credits (REC) and the Applicant will incorporate this provision into all future agreements with schools, non-profits and governmental entities.

RESPECTFULLY SUBMITTED this 5th day of August, 2009.

Rose Law Group pc

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Direct: 480.505-3936
Fax: 480.505.3925
Attorneys for Applicant SolarCity Corp.

SolarCity

First Amendment to Solar Services Agreement

Purchaser:		**Seller:**	
Name and Address	**Scottsdale Unified School District #48** Desert Mountain High School 12575 East Via Linda Scottsdale, AZ 85259 Attention: David Peterson	Name and Address	**SolarCity Corporation** 393 Vintage Park Drive, Suite 140 Foster City, CA 94404 Attention: Lease/License Administrator
Phone	(480) 484-6139	Phone	(650) 638-1028
Fax	(480) 484-6294	Fax	(650) 638-1029
E-mail	djpeterson@susd.org	E-mail	contractadministrator@solarcity.com
Purchaser (check one)	☑ owns the Facility ☐ leases the Facility		

The Solar Services Agreement dated June 25, 2009, between Purchaser and Seller is hereby amended, effective when executed by the parties below, as follows:

(1) Paragraph 3 of Exhibit 1, is hereby deleted in its entirety and is hereby amended and replaced with the following:

3. Notwithstanding anything to the contrary in the Solar Services Agreement (including, without limitation, Sections 5, 6(a), and 16(a) of the General Terms and Conditions), the Environmental Incentives and Environmental Attributes (but not the Tax Credits) accrue to Purchaser. Purchaser has, in turn, assigned payment of the Environmental Incentives to Seller.

If a conflict or inconsistency arises between the provisions of this First Amendment and the Solar Services Agreement, the provisions of this First Amendment shall prevail.

SOLARCITY CORPORATION

By: [signature]

Title: VP, GC & Secretary

Date: 31 July 09

SCOTTSDALE UNIFIED SCHOOL DISTRICT

By: DAVID PETERSON

Signature: [signature]

Date: 31 JUL 09

SolarCity

First Amendment to Solar Services Agreement

Purchaser:		**Seller:**	
Name and Address	**Scottsdale Unified School District** Coronado High School 2501 North 74th Street Scottsdale, AZ 85257 Attention: David Peterson	Name and Address	**SolarCity Corporation** 393 Vintage Park Drive, Suite 140 Foster City, CA 94404 Attention: Lease/License Administrator
Phone	(480) 484-6139	Phone	(650) 638-1028
Fax	(480) 484-6294	Fax	(650) 638-1029
E-mail	djpeterson@susd.org	E-mail	contractadministrator@solarcity.com
Purchaser (check one)	☑ owns the Facility ☐ leases the Facility		

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SOLARCITY CORPORATION

By: _____

Title: VP, G-C & Secretary

Date: 31 July 09

SCOTTSDALE UNIFIED SCHOOL DISTRICT

By: DAVID PETERSON

Signature: _____

Date: 31 JUL 09

ORIGINAL

OPEN MEETING AGENDA ITEM

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Court S. Rich AZ Bar No. 021290
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RECEIVED

2009 AUG 24 P 4: 29

AZ CORP COMMISSION
DOCKET CONTROL

EXHIBIT
A-4
ADMITTED

Attorneys for Applicant SolarCity Corporation

BEFORE THE ARIZONA CORPORATION COMMISSION

KRISTIN K. MAYES CHAIRMAN	SANDRA D. KENNEDY COMMISSIONER	PAUL NEWMAN COMMISSIONER
GARY PIERCE COMMISSIONER	BOB STUMP COMMISSIONER	

IN THE MATTER OF THE APPLICATION OF SOLARCITY FOR A DETERMINATION THAT WHEN IT PROVIDES SOLAR SERVICE TO ARIZONA SCHOOLS, GOVERNMENTS, AND NON-PROFIT ENTITIES IT IS NOT ACTING AS A PUBLIC SERVICE CORPORATION PURSUANT TO ART. 15, SECTION 2 OF THE ARIZONA CONSTITUTION	**DOCKET NO. E-20690A-09-0346** **NOTICE OF FILING OF APPLICANT, SOLARCITY'S PRE-FILED WITNESS TESTIMONY AND EXHIBITS**

SolarCity hereby gives notice that it is filing the direct testimony and exhibits of its witnesses Ben Tarbell, Lyndon Rive and David Peterson.

RESPECTFULLY SUBMITTED this 24th day of August, 2009.

Rose Law Group pc

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Attorneys for Applicant SolarCity Corp.

Arizona Corporation Commission
DOCKETED
AUG 24 2009
DOCKETED BY

Original and 13 copies filed this 14th day of August, 2009, with:

Docket Control
Arizona Corporation Commission
1200 W. Washington Street
Phoenix, Arizona 85007

Copies sent via electronic mail to:

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Attorneys for Applicant SolarCity Corporation

BEFORE THE ARIZONA CORPORATION COMMISSION

KRISTIN K. MAYES CHAIRMAN	SANDRA D. KENNEDY COMMISSIONER	PAUL NEWMAN COMMISSIONER
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IN THE MATTER OF THE APPLICATION OF SOLARCITY FOR A DETERMINATION THAT WHEN IT PROVIDES SOLAR SERVICE TO ARIZONA SCHOOLS, GOVERNMENTS, AND NON-PROFIT ENTITIES IT IS NOT ACTING AS A PUBLIC SERVICE CORPORATION PURSUANT TO ART. 15, SECTION 2 OF THE ARIZONA CONSTITUTION	)	**DOCKET NO. E-20690A-09-0346**

APPLICANT, SOLARCITY'S PRE-FILED WITNESS TESTIMONY AND EXHIBITS

PRE-FILED DIRECT TESTIMONY OF BEN TARBELL
ON BEHALF OF SOLARCITY

August 17, 2009

SolarCity ACC Application –Testimony of Ben Tarbell, Director of Products, SolarCity Corporation

1. **What is you name and occupation?**

Ben Tarbell, Director of Products for SolarCity

2. **Tell me about your educational background and relevant work experience?**

I am responsible for SolarCity's new product innovation, development, and deployment. Prior to joining SolarCity, I was responsible for product development at Miasolé, a thin-film solar manufacturing company in Silicon Valley. Before that I led the sustainable product design offering at IDEO in Palo Alto, and worked at the clean tech venture capital firm Nth Power in San Francisco. I have a BS in mechanical engineering from Cornell University, an MS in mechanical engineering design from Stanford University, and an MBA from Stanford University.

3. **Are you familiar with the installation of the rooftop solar facilities that SolarCity proposes to install in this matter?**

Yes.

4. **Explain the systems in detail; how do they work, what parts do they use and what do they look like? [See attached renderings of system layout Exhibit A]**

The photovoltaic solar power systems will be installed on the roofs of the existing school buildings at 12575 E. Via Linda and 2501 N 74th St in Scottsdale, AZ. Each system will consist of First Solar FS275 thin film solar modules and Satcon inverters. The solar modules will be secured to the roof using tilt up racking.

Once installed on the roof, the system generates electricity when sunlight illuminates the solar modules. The illuminated solar modules produce DC electricity and are wired together in series/parallel strings to produce the required voltage and current characteristics for the inverters. The inverters take DC electricity from the solar modules and convert it to AC electricity that matches the voltage and phase of the electricity grid. The AC output of the inverter interconnects through the main service panel of the building on the customer side of the meter.

5. **How large are the two solar facilities discussed in the Application and how much electricity do they create?**

Coronado High School:
Location: 2501 N 74th St, Scottsdale
System Size- 399.6kW
Panels- 5328 FS275 modules
Inverters- 2 Satcon 250kW
Orientation- S-SW
Tilt- 10 deg
Roof type- Membrane

Mounting method- Tilt-up racking
1st year production- 708,749 kWh
Annual usage- 4,114,444 kWh

Desert Mountain High School:
Location: 12575 E. Via Linda, Scottsdale
System Size- 967.9kW
Panels- 12,905 FS275 modules
Inverters- 2 Satcon PVS 500kW
Orientation- S
Tilt- 10 deg
Roof type- Membrane
Mounting method- Tilt-up racking
1st year production- 1,747,507 kWh
Annual usage- 7,483,600 kWh

6. **How much total electricity do each of the schools use on average and what is the maximum amount of their average daily power needs that the solar facilities are expected to provide?**

Coronado High School:
1st year production- 708,749 kWh
Annual usage- 4,114,444 kWh
The solar power system will produce up to a maximum of 48% of the average building energy load in July and a minimum of 20% in December

Desert Mountain High School:
1st year production- 1,747,507 kWh
Annual usage- 7,483,600 kWh
The solar power system will produce up to a maximum of 36% of the average building energy load in May and a minimum of 14% in November

7. **Are the facilities in this case of such a size that they can serve all the power the schools need?**

No. The production capacity for both systems is limited by roof area. We have utilized all available roof space in our proposed designs. Even with the most efficient commercially available solar modules, it would not be possible to produce enough electricity to serve all of the demands of the building load.

8. **Explain the relationship between the facilities on the roof and the grid?**

The AC output of the inverter interconnects through the main service panel of the building on the customer side of the meter. The inverters are UL 1741 certified to ensure that the system safely interconnects to the grid without risk of islanding if the grid voltage goes down. AC and DC disconnects are installed on both sides of the inverter to enable the system to be safely disconnected as needed for maintenance.

9. **What if every school or government building had a similar facility; what impact is this likely to have on the grid and the overall electrical demand in Arizona?**

Similar to other building improvements like efficiency upgrades that a building owner might choose to pursue to reduce their energy load, a PV system can reduce overall building load. Most schools do not have enough roof area to support a solar energy system large enough to offset a significant portion of the schools load. In aggregate, schools are not a significant portion of the total electricity demand on the grid. The impact of every school going solar would be small.

10. How specifically do the panels create electricity?

Solar cells are fabricated from a thin wafer or film of semiconductor material, such as silicon. The silicon wafer is treated (or doped) to form an electric field that is positive on one side and negative on the other side. Conductive electrodes are added to both surfaces of the wafer to form a cell. As sunlight illuminates the cell, photons in the light excite or knock loose electrons from the atoms in the semiconductor. Where the energy of the photon is enough to push the electron over the "band gap" in the semiconductor, an electrical potential is formed across the cell. When the electrodes of the cell are connected to a load, a current will flow creating DC electricity. Individual cells are connected electrically in series and parallel arrangements to enable a usable voltage and power range forming a solar module. Multiple modules are connected together in an array to supply the DC input to an inverter which converts the DC energy to AC electricity.

11. At what point is it possible to identify electricity that has been created in the facilities?

The energy created by the solar energy system is usable by the school as soon as it exits the inverter as AC electricity. The inverter output will metered separately from the building load.

12. What steps are taken to assure safety to the school and the grid?

Our systems meet or exceed the standards defined by: NFPA 70 – National Electric Code (2005 or 2008 version depending on jurisdiction acceptance), IEEE - Institute of Electrical and Electronics Engineers, IBC – International Building code, UBC – Uniform building code, Local Building Codes, UL – Underwriters Laboratories, NRCA – National Roofing Contractors Association. In addition, we have licensed Civil and Electrical Engineers on staff and many of our installers are certified by NABCEP – the North American Board or Certified Energy Practitioners.

PRE-FILED DIRECT TESTIMONY OF LYNDON RIVE
ON BEHALF OF SOLARCITY

August 20, 2009

SolarCity ACC Application –Testimony of Lyndon Rive, CEO, SolarCity Corporation

1. What is you name and occupation?
Lyndon Rive. I'm CEO of SolarCity.

2. Tell me about your background and relevant work experience?
I co-founded SolarCity in July 2006 with the goal of significantly reducing the cost of solar power and building a trusted national brand adopted by millions in its first full year of operation. Prior to SolarCity, I founded Everdream, an industry leader in software and services for large-scale distributed computer management. I then negotiated the company's partnership with Dell Computer, which acquired Everdream in 2007. I founded my first company at the age of 17 in South Africa.

3. What is the primary business function of SolarCity?
SolarCity is a full-service solar power company—providing design, financing, installation, and monitoring services. SolarCity has over 400 employees, serving more than 500 communities in three states in its first three years of existence.

4. Why are SolarCity systems beneficial to a customer?
SolarCity offers the customer the ability to finance and utilize a solar energy system in order to reduce long term electricity costs and to hedge against utility rate increases. Further, by implementing a SolarCity system, customers can reduce their carbon emissions by ensuring that a portion of their energy usage is met by onsite solar generation.

5. Can a SolarCity customer cancel its normal electric service?
No. SolarCity provides customers with grid-tied photovoltaic solar systems. The systems only produce a portion of the customer's overall electricity demand and do not produce electricity at night. Therefore the customer must remain connected to the utility grid for the majority of their electricity needs.

6. Does SolarCity compete against public service corporations?
No. SolarCity is not an electric utility/public service corporation. The systems that SolarCity finances and installs do not replace the customer's need for service from their traditional utility. SolarCity offers a completely different set of products and services than a traditional public service corporation.

7. Do you compete for customers with other solar providers and in particular how did you secure the schools at issue in this Application?
Yes. SolarCity is merely one of several solar installers/integrators and therefore must compete vigorously with other companies to win customers. The schools in this Application issued Requests For Proposals ("RFP") which allowed any number of companies to compete for their business based on the most qualified and lowest cost response.

8. What is the primary reason in your opinion that SolarCity won the Scottsdale RFP?
SolarCity was the most qualified provider that offered the lowest cost option. In particular, SolarCity was able to offer the Scottsdale District a solar system with zero up-front capital expenditures at a price that would save them significant amounts of money over the life of the system. SolarCity was able to offer these benefits by proposing a Solar Services Agreement.

9. Please explain how a Solar Services Agreement Works.
An SSA is a third party financing arrangement which allows SolarCity and a third-party investor to finance, install, own, operate and maintain a solar system for the benefit of and located on a customer's property with no up-front capital expenses to the customer. This is only possible because the SSA structure allows SolarCity and the investor to capitalize on the available federal tax incentives. The typical characteristics and structure of SolarCity's SSA for schools, non-profits, and governmental agencies are as follows:

- The Customer gives SolarCity access to its property to install the solar panel system;
- SolarCity provides the customer with the financing, design, installation, operation and maintenance of a solar panel system on the customer's property, the terms of which are described in the SSA;
- The customer pays has no upfront costs for the acquisition, installation, or maintenance of the solar panel system;
- The Customer becomes the owner of all electricity produced the moment the electricity is produced;
- SolarCity retains initial ownership and "use" of the system as defined in the Federal tax code, thus allowing them to capitalize on the available tax incentives which would otherwise be stranded;
- The Customer makes payments to SolarCity for the equipment and related maintenance thereof, and such payments are calculated in relation to the amount of electricity the system produces;
- SolarCity provides a buyout option to the customer for the entire solar panel system in years six (6), ten (10), and fifteen (15) ;
- While the electricity that the solar panel system produces results in a reduction of the customer's overall demand from the electric utility, the customer must remain connected to the utility grid; and
- SolarCity installs the system pursuant to all applicable codes and regulations and must meet the requirements for interconnection to the utility. All activity in this regard is on the customer's side of the meter.

10. What services does SolarCity furnish under anSSA?
SolarCity finances, designs, constructs, owns, operates and maintains the solar system for the benefit of the customer.

11. Why is an SSA necessary for non-profit customers?
In order for non-profit entities to be able to adopt solar systems they must reduce the extensive up-front costs for such equipment in order for the systems to be economically viable. Therefore these entities must find a way to capitalize on the available Federal tax benefits for solar systems. Without these benefits the systems are simply cost-prohibitive. Because non-profits are tax-

exempt, their solar systems must be owned and "used" by a third party entity in order to realize Federal tax incentives. The SSA financing structure was developed in part to specifically address this problem.

12. What are the available Federal tax incentives for solar systems and when do they expire?

- 30% Investment tax credit runs thru December 31st, 2016; it is then reduced to 10%
- 50% first year bonus depreciation is part of the American Recovery and Renewal Act of 2009 and it expires on December 31st, 2009
- Modified Accelerated Cost Recovery System ("MACRS") depreciation—currently not scheduled for expiration

13. Are these tax incentives available to non-profit customers?

As mentioned above, non-profit entities are tax exempt and thus cannot directly benefit from tax incentives. In order to make solar systems economically feasible they must find a way for a third party to benefit from these tax incentives and pass the savings on. The SSA financing structure accomplishes this goal.

14. Is there any other economical way for these entities to adopt solar systems? If not, why not?

No. The IRS rules make it very clear that an SSA is the only way for a non-profit to adopt solar while allowing a third party to capitalize on the available tax incentives. If a non-profit entity is the lessee or owner of a solar system then they are considered the "user" of the system, and the IRS will not allow tax credits to be taken for that system. However the IRS has stated that if the non-profit is simply paying a third party owner a fee based on the amount of power produced from the system (i.e. an SSA), then the third party owner will be considered the "user" and thus can take advantage of available tax benefits (See SEIA Tax Manual § 1.1.3, attached hereto as **Exhibit B**); (See also the IRS Code § 50 (b)(3) [(26 U.S.C. § 50(b)(3)], attached hereto as **Exhibit C**). The SSAs at issue in this Application were structured to comply with these requirements. The IRS will simply not allow a different structure where the end user is a non-profit entity.

15. What is the primary purpose of an SSA?

The primary purpose of an SSA is to provide financing for the adoption of a solar system with zero up-front capital costs by allowing a third party to capitalize on available Federal tax incentives that would otherwise be lost.

16. If the primary purpose of an SSA is financing, why is the pricing structured on a $/kWh basis?

The IRS has indicated that any other pricing structure runs the risk of being considered a lease or a purchase and therefore runs the risk of not qualifying for the tax incentives.

17. How is your SSA pricing determined?

SolarCity assesses all of the costs associated with building a project such as panels, inverters, design, labor, balance of system, permitting, regulatory, environmental, legal costs, and project finance. Then all of the associated benefits of the system are analyzed, which may include customer payments, rebates, tax credits, Renewable Energy Credits, host customer credit risk,

cost of capital, timing of payments, etc. All of this is considered to arrive at the final price, which as mentioned above is expressed in $/kWh to comply with IRS requirements.

18. Does the SSA contract provide options for the customer to purchase the system? If so, please explain these options.

Yes. The SSA allows the customer to purchase the system at years 6, 10 and at the end of the SSA term (year 15).

19. The SSA contains a table of "termination values"; please explain these and how they differ from the buy-out amounts

The termination values are what the customer pays if they breach the contract. These amounts allow SolarCity to be made whole if the customer does not live up to their end of the bargain. These amounts are completely different from the buy-out option amounts which can be exercised at the specified times if the customer is in good standing under the SSA.

20. Please explain how utility rebate incentives and Renewable Energy Credits are dealt with in the SolarCity SSA.

The SolarCity SSA contemplates that all RECs will be transferred by SolarCity (and/or the customer) to the host utility to allow them to comply with their renewable energy mandates. In exchange, the utility will pay SolarCity any applicable incentive rebate payments.

21. The SSA contains a provision entitled "rebate variance"; please explain how this provision operates.

This provision allows SolarCity to re-price the SSA if the utility rebate amount is lower than anticipated. For example the SSAs in this application anticipate a rebate of $.187/kwh which allows SolarCity to offer the SSA at $.11/kwh. If the actual rebate offered by the utility is lower, however, SolarCity must compensate for this difference by raising the price. Charts of how the prices are affected by various rebates are included as **Exhibit C** to this testimony. The rebate variance provision also allows the customer to cancel the SSA if the resulting price is unacceptable.

22. What provisions of the SSA are likely to change if used for other non-profit customers?

The only provisions likely to change would be related to system size, customer details, price, and payment terms.

23. Is everyone a suitable candidate for a SolarCity system or a SolarCity SSA? If not, why not?

No. A customer for an SSA could be unsuitable for a number or reasons:

- The potential site does not have sufficient roof or ground space to mount a system
- The potential site is not properly oriented to capture sunlight or is significantly shaded
- The potential site's zoning restrictions will not allow a system
- The site's existing infrastructure is inadequate
- The potential customer will not be able to realize sufficient energy savings to justify a system
- The customer's credit is not acceptable to SolarCity

24. Will investors currently finance SSAs in Arizona? If not, why not?

No, because it is uncertain whether SSA providers will be regulated as public service corporations in AZ. SolarCity's investors are unwilling to invest on systems based on the risks and potential costs of regulation.

25. What would be the likely effect of industry regulation in AZ on SolarCity and on the participation of 3rd party investors?

Regulation is likely to drive out numerous, if not all, solar providers from the State of Arizona. SolarCity's profits and its investor's returns would suffer causing them to look to other less expensive States for solar investment. The bottom line is that the customer, if they had any options left, would pay more and have far fewer providers to choose from. It would be devastating for the advancement of solar in the Arizona.

PRE-FILED DIRECT TESTIMONY OF DAVID PETERSON
ON BEHALF OF SOLARCITY

August 20, 2009

SolarCity ACC Application –Testimony of David Peterson, Assistant Superintendant for Operations, Scottsdale Unified School District

1. What is your name and occupation?
David Peterson, Assistant Superintendent for Operations

2. Tell me about your educational background and relevant work experience?
School Facilities and Finance for 15 years

3. What is the nature of the District's relationship with SolarCity?
They will supply and operate a solar p.v. system for the District

4. Why did the District decide to pursue solar energy?
Due to the lack of funding by our Legislature we can not afford utility rate increases, and this allows us to have a constant, competitive rate.

5. Please describe the process by which the District selected SolarCity.
The District did a request for proposal (RFP) and evaluated all respondents with a two-step process.

6. Did the District have other offers from competitors?
Approximately how many? Yes. There were five offerors.

7. What was the primary reason for selecting SolarCity and the SSA financing arrangement?
The SSA and no upfront costs were critical components in making an award.

8. Without an SSA would the District be as likely to adopt solar systems? If not, why not?
Without the SSA we could not do this.

9. If SSA financing is approved how many systems is the District likely to adopt in the next 5 years? What about without SSA financing?
We could install 10 systems in the next five years if the SSA is approved.

10. Does the District expect to realize significant savings from the systems at issue in this Application?
Yes the District expects to realize significant savings that will increase in direct proportion to the increase in our utility rates.

11. Could the District realize the same savings without SSA financing?

No. The prohibitive up-front costs of solar without an SSA would not allow the District to realize similar savings.

12. Did SolarCity adequately and accurately explain the SSA contract to the District? Is the District comfortable with the SSA provisions?

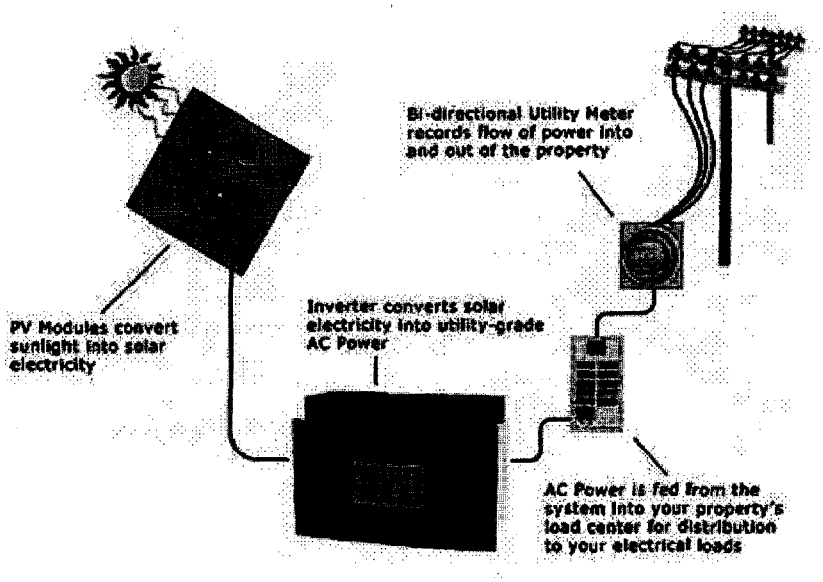
The District has had its Legal counsel review the SSA and we fully understand its provisions.

13. Does the District feel that the proposed SSA arrangement requires oversight from the Commission to protect the Districts interests?

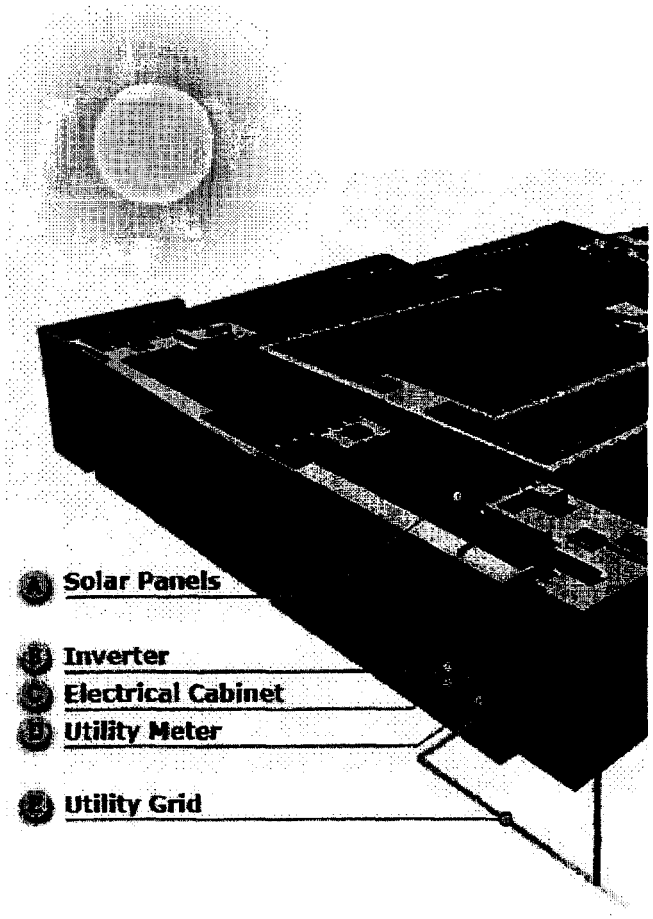
No. If we owned the system ourselves we would not be regulated. Our public interest is adequately protected by the RFP process and market competition. Regulation is likely against the public interest because it would increase costs and therefore decrease savings. Future responses would be limited due to regulation and prices quoted would be at a higher price due to the costs associated with regulation.

EXHIBIT A

Here is a drawing from the Solar Alliance data response:



And here is one from SolarCity's website:



Solar system components work together to power your business with clean energy from the sun.

Solar Panels

Solar panels are installed on your roof or adjacent structure. These panels are made up of photovoltaic (PV) cells, which convert sunlight into DC power.

Inverter

The DC power from the solar panels is sent to an inverter, where it is converted into AC power, or standard electrical current used to power your facility.

C Electrical Panel

AC power travels from the inverter to the electrical cabinet, often called a breaker box. This power is then available to service all of your electrical needs.

D Utility Meter

The utility meter continually measures your electrical supply; when your solar system produces more power than you need, the meter literally spins backwards, accumulating credits with the utility company that will offset your next bill.

Learn More about Utility Billing

E Utility Grid

Your business remains connected to the utility grid to supply you with electricity when you need more power than your system has produced, such as at night.

F SolarGuard® Solar Monitoring

SolarGuard allows you and SolarCity to continuously monitor solar energy production and make sure your system is running at optimal performance. If production levels dip below normal, SolarCity will alert you and help remedy the situation.

G PowerGuide™ Energy Monitoring

PowerGuide continually monitors your business' electricity usage. With a clear picture of your electricity patterns and recommendations from SolarCity, can better manage your energy consumption and reduce operating expense.

EXHIBIT B

SEIA Solar Energy Industries Association®

Guide to **Federal Tax Incentives for Solar Energy**

Version 3.0
Released May 21, 2009

This document is for the exclusive use of Solar Energy Industries Association (SEIA) members.

Do not distribute this document in printed or electronic form.

Version Guide

The US tax code is a perpetually moving target, and future rulings and code adjustments by the IRS, the courts or Congress may alter the interpretation of the law. We endeavor to ensure that this document is up to date at the time of printing; make sure that you have the latest copy.

1.0 – Released January 27, 2006

Initial interpretation of the code is based on legislative language and intent, and existing precedent, especially for the commercial tax credit. Includes existing tax forms as a guide only.

1.1 – Released March 10, 2006

- Includes improved explanation of acquisition vs. construction for solar equipment.
- Incorporates new state taxation office interpretation of commercial solar installations under the Hawaii state tax credit.
- Includes new discussion of model homes.
- Typographical correction in Commercial Tax Credit Section 11, Example # 3
- We do not anticipate that the IRS will issue specific regulations on the solar tax credits in the near term. SEIA will monitor this situation closely and will offer an updated version of this guide with current and valid IRS forms if the IRS does develop rules for implementing the solar tax credit.

1.2 – Released May 26, 2006

- Reflects new legislative changes to the Hawaii state tax credit.
- Reflects new information on utility eligibility for credits.

2.0 – Released October 21, 2008

- Reflects first comprehensive update of the original guide.
- Broadens focus beyond tax credits also to cover depreciation.
- Adds new sections about how tax benefits are "monetized" by developers who cannot use them.
- Reflects changes to the tax code as a result of the "Emergency Economic Stabilization Act" in October 2008.

3.0 – Released May 21, 2009

- Reflects changes to the tax code made by the "American Recovery and Reinvestment Act" in February 2009.
- Adds new sections on depreciation, Treasury grants in lieu of tax credits, tax credit bonds, federal loan guarantees, a new investment tax credit for manufacturing facilities and answers to a list of frequently-asked questions.

This manual has been prepared by Chadbourne & Parke LLP and is brought to you by the members of the Solar Energy Industries Association (SEIA). If you are not a member of SEIA, we hope you will join at http://www.seia.org/cs/membership.

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Please also note that, by providing this manual, neither SEIA nor Chadbourne & Parke is providing, or intending to provide, you or any other reader of this manual with legal advice or to establish an attorney-client relationship with you or any other reader of this manual. To the extent you have questions concerning any legal issues, you should consult a lawyer. Neither SEIA nor any member of SEIA nor Chadbourne & Parke shall be responsible for your use of this manual or for any damages resulting therefrom.

SEIA Solar Energy Industries Association®

805 15th Street, NW Suite 510
Washington, DC 20005
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May 21, 2009

To the Solar Energy Industry and Users:

This is an exciting time for the solar energy industry in the United States. In October 2008, Congress passed, and the President signed, legislation that extended the 30-percent federal solar tax credits for eight more years. In February 2009, Congress took steps in an economic stimulus bill to increase the supply of capital flowing into the renewable energy sector. The U.S. is poised to become the global leader in solar energy, and the solar energy industry is projected to create more than 440,000 jobs and unleash more than $325 billion in investment by 2016.

Several improvements to the solar tax credits were made in the "Emergency Economic Stabilization Act" in October 2008: the $2,000 cap for tax credits on residential solar electric installations was eliminated, creating a true 30-percent residential tax credit (effective for property placed in service after December 31, 2008) The prohibition against utilities benefiting from the tax credit was removed and alternative minimum tax (AMT) filers, both businesses and individuals, are now allowed to take the credit.

The "American Recovery and Reinvestment Act (ARRA)" in February 2009 made several enhancements to the existing incentives and embraced several new policies designed to support solar energy and other renewable energy technologies. These changes will help address the solar financing challenges caused by the weak credit and tax equity markets. The stimulus bill authorized the U.S. Department of Energy to guarantee repayment of loans to build new renewable energy projects, manufacturing facilities that make components for such projects and transmission lines. A project must start construction by September 2011 to potentially qualify for loan guarantees. The stimulus also directed the U.S. Treasury to pay the cash equivalent of the investment tax credit to owners of renewable energy projects that are completed in 2009 or 2010 or that start construction in those years and are completed by 2016. The stimulus bill provided a new 30% tax credit for building manufacturing facilities that make products like solar panels for the new green economy. It authorized a series of new tax credit bonds that can be issued to build

renewable energy projects and manufacturing facilities. The lender must pay taxes on the interest it receives, but it receives tax credits from the federal government that offset most or all of the income taxes that would otherwise have to be paid on the interest. The bill also eliminated a rule that the investment tax credit was subject to reduction to the extent a project benefited from tax-exempt financing or subsidized energy financing.

To reflect these significant changes, SEIA and Chadbourne & Parke LLP revised the SEIA Solar Tax Manual in May 2009. We expect further agency guidance for new ARRA Provisions this summer and plan to update this guide to reflect that guidance.

This major revision of SEIA's Solar Tax Manual will serve as an important resource as you begin your research into how to take full advantage of federal solar incentives. This is only a starting point. This guide should not be your only resource as you conduct your research. It is vital that you contact a local tax attorney for legal counsel.

Sincerely,

Rhone Resch
President

Roger Efird
Chairman

Les Nelson
Solar Thermal Division Chair

Jeff Wolfe
Photovoltaics Division Chair

Fred Morse
Utility-Scale Solar Power Division Chair

Laura Jones
Solar Advocates Division Chair

Executive Summary

The U.S. government encourages investment in new solar equipment by offering tax credits, tax deductions and grants. Homeowners installing solar equipment potentially qualify for a tax credit. Businesses potentially qualify for both a tax credit or the cash equivalent and the ability to deduct most of the equipment cost on an accelerated basis over five years. For businesses, the subsidies are worth roughly 56% to 58% of the cost of the equipment. For homeowners, the subsidy is worth 30%.

The SEIA Guide to Federal Tax Incentives for Solar Energy provides detailed information about how the incentives for both commercial and residential applications may be claimed. Key considerations in calculating the value of federal incentives for a solar project include:

- What types of solar equipment are "eligible property" for each of the incentives;
- Amount of the incentives;
- Conditions for a system to meet the definition of "placed in service," which is important because the tax subsidies are claimed in the year that equipment goes into service;
- Project timing issues arising because the tax credits, although long-term, are still not permanent;
- The ownership structure of the project; and
- The effect of rebates, state tax credits and other subsidies on the federal tax benefits.

There may be tradeoffs for developers who take advantage of tax-exempt financing or other forms of government help that fall under the heading "subsidized energy financing." Use of these may lead to a reduction in the federal tax subsidies for the project. There is no longer any reduction in tax credits or cash grants for spending on a project after 2008. However, use of tax-exempt financing will adversely affect the depreciation that can be claimed on a commercial project.

Most project developers are not in a position to use the tax subsidies and must enter into transactions to "monetize" the tax subsidies, or convert them into cash that can be used to help pay the project cost. There are many misconceptions in the market about who is an appropriate counterparty for such a monetization transaction. For example, passive loss and at-risk rules in the U.S. tax code make it hard for individuals or smaller corporations to use the tax subsidies. They are not an appropriate counterparty.

Care must be exercised when entering into transactions with schools, municipal utilities, some electric cooperatives, government agencies, charities and other tax-exempt organizations. Solar equipment cannot be leased to such entities and still claim the full tax subsidies. However, a developer can sign a power contract to supply electricity to such an entity. Care should be taken to make sure that what looks in form like a power contract is in fact one in substance.

The IRS has rules for treating some arrangements as leases even though they are documented to look like power contracts.

Commercial projects that qualify for a tax credit will have the option during 2009 and 2010 — and in some cases after 2010 — to forego the tax credit and receive the cash value from the U.S. Treasury instead. This option to trade in tax credits for cash is a temporary measure meant to help keep renewable energy development on track during 2009 and 2010 when the economy is expected to remain weak.

This manual is organized in seven sections. The first section covers general project issues, as well as issues that are unique to the commercial credit. The second section covers issues specific to the residential credit. However, it is recommended that readers who intend only to take the residential credit still read through the first section on the commercial credit.

At the end of these first two sections, the guide provides workbook examples for calculating the value of the commercial and residential tax credits under different project conditions.

The remaining sections address tax credit bonds, new loan guarantees that may be available for commercial solar projects through the U.S. Department of Energy, a tax credit that encourages construction of new factories to make solar panels, inverters and other components for renewable energy projects, state tax considerations and frequently-asked questions.

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SEIA Solar Energy Industries Association®

Section 1.
Commercial Solar Tax Benefits in Detail

The commercial solar tax credit is in section 48(a) (energy credit) of the U.S. tax code.

The commercial solar credit is 30% of the "basis" that a company has invested in "eligible property" that is "placed in service" during the period 2006 through 2016. The commercial credit will drop to 10% of the basis for property put into service after December 31, 2016, and the residential credit will drop to zero for property put into service after that date, unless the deadline is extended again by Congress. A tax credit is a dollar-for-dollar reduction of the income taxes that the person claiming the credit would otherwise have to pay the federal government.

Determining what constitutes "eligible property," when it is "placed in service," and what is the "basis" in the property are among the keys to calculating the value of the commercial solar tax credit. Each of these items, along with additional special considerations, are discussed in detail in the following paragraphs.

The same solar equipment that qualifies for the commercial tax credit can usually be depreciated over five years on an accelerated basis, meaning the cost of the equipment can be deducted and the deductions are front loaded. When a 30% tax credit is claimed, only 85% of the equipment cost is subject to depreciation. The depreciable basis must be reduced by one half of the solar tax credit. The special depreciation allowance for solar equipment is in section 168(e)(3)(B)(vi)(I) of the US tax code.

Solar equipment placed in service in 2008 and 2009 qualifies for a "depreciation bonus." The owner can deduct half its depreciable "basis" in the equipment immediately. Since only 85% of the basis in equipment on which the 30% tax credit has been claimed can be recovered through depreciation, the depreciation bonus allows 42.5% of the equipment cost -- half of 85% -- to be deducted immediately. The other half is depreciated over five years. (See section 1.6.3.)

The owner of any commercial solar project placed in service in 2009 or 2010 -- or that starts construction during 2009 or 2010 and is completed by 2016 -- has the option to forego the tax credit and receive a check for the cash value from the US Treasury. The owner would qualify for the same depreciation as if the owner claimed the tax credit. (See section 1.5.)

1.1 Eligible Property

1.1.1 Types of Eligible Property

The commercial solar credit may be claimed for spending on two types of equipment including spending on installation costs, like labor.

1. "[E]quipment which uses solar energy to generate electricity, to heat or cool (or provide hot water for use in) a structure, or to provide solar process heat, excepting property used to generate energy for the purposes of heating a swimming pool," and

2. "[E]quipment which uses solar energy to illuminate the inside of a structure using fiber-optic distributed sunlight."

1.1.1 (a) Photovoltaics and Concentrating Solar Power Plants

All equipment associated with a photovoltaic or concentrating solar power system is eligible property for the credit. The key word is "equipment." If the system includes a building, a credit could not be claimed on the cost of the building. Roofs are sometimes replaced when photovoltaic panels are installed on top of a building. The tax credit cannot normally be claimed on the cost of the roof. Structures that hold up photovoltaic panels -- for example, over a parking lot -- may or may not be eligible equipment. They are normally considered part of the solar system on which the tax credit can be claimed as long as the solar array is designed primarily with electricity generation in mind and any other use, like providing shelter, is merely incidental. IRS regulations explain that eligible equipment includes storage devices, power conditioning equipment and transfer equipment. However, where batteries or other storage devices are used, the credit can only be claimed on such devices that store solar-generated electricity and not electricity drawn from the grid.

The commercial solar credit can only be claimed on the equipment in a solar power plant up to the transmission stage. Thus, no credit can be claimed on a radial line or substation to move the electricity from the power plant to the grid. The statute suggests that no credit can be claimed at all if any electricity from the solar equipment is used to heat a swimming pool.

1.1.1 (b) Solar Heating and Cooling Systems

The commercial credit can be claimed on equipment that is part of a solar heating or cooling system, but only if at least 75% of the energy used to run the system comes from the sun. If the energy source is at least 75% sunlight and also relies upon an additional

fuel source, then there must be an allocation based on the mix of energy in the year the system is first put into service. (The relevant year is the tax year of the company claiming the credit.) For example, if 10% other energy is used in the year the system is first put into service, then the solar tax credit can be calculated on 90% of the cost. However, a dip in the solar energy use below 90% in any of the next four years would lead to the IRS recapturing part of the tax credit claimed. (See section 1.10 for more on recapture.) The opposite is not true: an increase in the amount of solar energy used in a later year will not allow the company to claim an additional tax credit.

1.1.1 (c) Solar Lighting

All equipment associated with fiber-optic solar lighting systems qualifies, but only if put into service during the period 2006 through 2016. Solar tube-type systems do not qualify.

1.1.1 (d) Passive Solar Systems

Passive solar systems do not qualify. IRS regulations define passive solar systems as ones that use "conductive, convective, or radiant energy transfer." The IRS gives as examples of such systems: greenhouses, solariums, roof ponds, glazing, and mass or water Trombe walls. In systems that include both eligible property and passive solar equipment, the credit can only be claimed on the portion of total spending associated with the eligible property.

1.1.2 Age of Eligible Property

The equipment must be new to qualify for a commercial solar tax credit. The tax credit can only be claimed by the first person to use the equipment. A company that buys a refurbished solar installation may be able to treat it as new if the vendor has put enough money into upgrading it. The Internal Revenue Service applies an "80-20 test" to determine whether equipment has been so extensively modified that it is essentially a different piece of equipment. The test is A + B, where A is the value of the used parts retained from the original equipment and B is the cost of the improvements. If B is more than 80% of the total A + B, then the equipment will be considered brand new. The improvements include labor to install the equipment.

1.1.3 Use of Eligible Property

Equipment must be used in the United States to qualify for a commercial solar tax credit. In addition, commercial solar tax credits cannot be claimed on equipment that is "used" by someone who is not subject to U.S. income taxes.

Thus, "use" of the equipment by a school, municipal utility, government agency, charity or other

tax-exempt organization (unless the equipment is used in a taxable side business) or in some cases by an electric cooperative will rule out a credit on the equipment. This means that solar equipment cannot be leased to such an entity. A lessee "uses" the equipment it is leasing. However, a lease with a term of less than six months does not count as a "use." The credit is calculated in the year equipment is first put into service. Ineligible use of the equipment at any time during the first five years would cause part of the tax credit claimed to be recaptured. (See section 1.10.)

The key when dealing with such an entity is to sign a contract merely to sell it electricity. Someone who merely buys electricity from solar equipment owned by someone else is not considered to "use" the equipment. Care should be taken to make sure the contract is not characterized by the IRS as a lease of the solar equipment in substance even though it looks in form like a power contract. (See sections 1.8.4 and 1.8.5 for more details and consult a tax attorney for project specific applications.)

Electric utilities were not able to claim the tax credit on solar equipment that they own or lease and that was put into service before February 14, 2008. The credit could not be claimed before then on any solar equipment used to generate electricity that is sold at rates that are regulated on a rate-of-return basis. Congress removed the restriction in October 2008 and made the credit retroactive to the previous February.

1.1.4 Original Equipment Manufacturer and Integrated Equipment

A billboard or highway warning sign does not qualify for the credit, even if powered by sunlight, but the cost of a distinct device that generates electricity from sunlight to illuminate the sign would qualify. Similarly, a livestock pump would not qualify, but a PV attachment designed to drive the pump would; a careful and conservative allocation of cost between solar and non-solar equipment must be made.

The credit belongs to the customer who places the equipment in service, not to the manufacturer or integrator of the final device. The credit is claimed by the owner of the equipment after the equipment is placed in service. Except in rare cases, a manufacturer or vendor holding equipment out for sale does not place it in service.

1.2 Placed in Service

1.2.1 General Requirements

Equipment is considered "placed in service" once it has been fully installed and delivered to the owner and is capable of being used by the owner for its intended purpose. Ordinarily, four things must have happened for this to be true:

- The equipment must have been delivered and physical construction or installation on site must have been completed, although contractor personnel can remain at the site to handle minor tasks like fixing punch list items.
- The taxpayer must have taken legal title and control over the equipment.
- The taxpayer must have the licenses and permits needed to operate it. Thus, for example, in states where a building owner is not allowed legally to turn on a solar system until the local utility has inspected the system and declared it safe for use, the system is not normally in service until a letter has been received from the local utility authorizing "parallel operation" with the grid.
- Pre-operational tests must have demonstrated that the equipment can serve its intended function. ("Pre-operational" means before the equipment is put to use.) Other testing to determine whether the equipment can operate at the design capacity and to identify and eliminate defects can occur after the equipment is already operating.

Equipment bought off the shelf is usually assumed to be in workable condition. Solar equipment sold in a ready–to–use state (e.g., solar-powered warning devices, pumps, etc.,) as opposed to that which is constructed on site (as with a typical solar rooftop system) is ordinarily considered to be placed in service immediately upon purchase and installation.

1.2.2 New Businesses

The "placed in service" requirement is different for a taxpayer entering a new business than for a taxpayer already in that business. In the case of someone going into a new business, the courts have held that he or she must actually have put the equipment to use - it is not enough merely to show it was capable of operating.[1]

1. See, e.g., Piggly Wiggly Southern, Inc. v. Commissioner, 84 TC 739 (1985) (refrigerators installed in new stores not in service until the stores opened to customers); General Counsel Memorandum 37449 (March 6, 1978) (taxpayer already in the trade or business does not have to use equipment before it is deemed in service, unlike taxpayers entering a new business).

1.2.3 Power Plants

Utility-scale power projects that will sell electricity via the grid must have been synchronized with the grid before they are considered in service. They must be able to deliver their electricity to market.

1.2.4 "Daily Operation" as a Condition for Meeting the Requirement

The IRS takes the position that equipment must be in "daily operation" to be considered in service.[2] This is a more conservative view of the law than held by many tax lawyers. In a technical advice memorandum in 1993, the IRS said a power plant "is considered in daily operation when it is routinely operating to supply power to the transmission grid for sale to customers."[3] (A "technical advice memorandum" is a ruling by the IRS national office to settle a dispute between a taxpayer and an IRS agent on audit.)

If a solar system is considered part of an "integrated facility," then the rest of the facility must also be working before any part of it is in service. An example is a factory where the solar equipment is the power source, but the factory is not in a position to turn out product until all three sections of the assembly line are fully functioning.

1.3 Tax Basis

A company's "basis" is the portion of its investment in eligible property upon which the commercial solar tax credit can be claimed. It is normally what the taxpayer paid for the equipment, including the cost of installation. Thus, for example, if equipment cost $100,000, the solar credit during the period 2006 through 2016 is 30% of the tax basis of $100,000, or $30,000.

Interest paid during construction of larger solar projects that take more than a year to build and cost more than $1 million is added to the basis of the equipment.
Interest paid on loans to acquire other solar equipment and any sales and use taxes paid are normally deducted when paid and do not add to the basis. However, an election can be made under section 266 of the tax code to fold them into the basis, in which case these expenditures would have to be deducted over time through depreciation, but they would also enter into calculation of the commercial solar tax credit.

2. See, e.g., Private Letter Ruling 9529019 (April 24, 1995) (landfill gas facility not in service for purposes of section 29 credits until it is in "daily operation"); PLR 9627022 (April 9, 1996) (same statement); PLR 9831006 (April 23, 1998) (same statement).
3. See Technical Advice Memorandum 9405006 (October 15, 1993)

1.4 Effect of Rebates, Buydowns, Grants and Other Incentives

State rebates, buydowns, grants or other incentives do not decrease the amount eligible for the commercial solar credit if the company is required to pay federal income tax on the incentive. The majority of incentives represent income on which federal income taxes are paid and, therefore, do not decrease the basis for the solar tax credit. However, there is a limited class of incentives that are not taxable; for these incentives, the tax basis must be reduced prior to calculating the credit.

The following table describes different types of incentives and their impact on the tax basis. If you are uncertain which category your particular rebate program falls under, we urge you to get in touch with the state or utility energy program contacts listed at www.dsireusa.org, or contact a tax attorney for project-specific clarification.

1.4.1 Incentives that Reduce the Tax Basis

Type of Incentive	Comment
Nontaxable Rebates from a State or Utility (Note: most rebates are taxable - see below.)	In rare cases, cash received from a state government does not have to be reported as taxable income. An example — outside the solar industry — is where a state reimburses a railroad for the cost of putting tracks on an overpass so as not to block traffic on a public highway. The railroad is no better off with the overpass than without. It has no income in the sense of an accession to wealth. It is rare to find such cases. Utilities in some states pay rebates to customers as an inducement to install solar equipment. A rebate from a utility should ordinarily be considered taxable, except if a rebate is paid by a utility to a customer as an inducement to take energy efficiency measures in connection with a dwelling unit (e.g., an apartment building). Such a rebate is exempted from tax under section 136 of the US tax code, and the basis must be reduced by the amount of the rebate. As a general rule, all money or value received in a business setting must be reported as income unless one can point to a specific section of the US tax code that excludes the amount from income.

1.4.2 Incentives that Do Not Reduce the Tax Basis

Type of Incentive	Comment
Taxable State or Nonprofit Grants, Rebates, or Buydowns	If you pay federal income tax on money received from a grant program, you need not reduce the tax basis of your system as long as the grant is reported as income. Most grants must be reported as taxable income. A company will enjoy a greater tax advantage by claiming a rebate or grant as taxable income.
Credits Against State and Local Income Tax	State and local income tax credits do not affect the tax basis.
Taxable Rebates or Credits Funded by a Utility	Rebates funded by a utility are generally treated as taxable income, and do not affect the tax basis in solar equipment. Two things used to reduce the tax basis for the credit before 2009. They were if the system cost is paid with help from tax-exempt financing or "subsidized energy financing." Tax-exempt financing involves bonds issued by a state or local government to borrow money for a public project or quasi-public use. The lenders who buy the bonds do not have to pay taxes on the interest they receive. "Subsidized energy financing" is a government program that provides subsidized financing for energy measures. An example is where a state makes direct loans to businesses at below-market rates to help them finance solar panels. The IRS ruled that it is not "subsidized energy financing" (see section 1.4.3) for an investor-owned utility to make rebates on electricity bills to homeowners who buy hot water heaters that use renewable energy in a case where the money the utility uses for the program comes solely from its own revenues. It does not matter that the utility was ordered by the state public service commission to conduct the program. A program is not "subsidized energy financing" unless it is a government program involving government funds.

Type of Incentive	Comment
Taxable Rebates or Credits Funded by a Utility (cont.)	Similarly, it is not subsidized energy financing for a federal utility like the Bonneville Power Administration or Tennessee Valley Authority to make loans at below-market interest rates to customers of utilities to whom BPA or the TVA supplies power. By law, the federal utility must cover its full costs through its own revenues. The "American Recovery and Reinvestment Act" in February 2009 eliminated the rule that use of tax-exempt or subsidized energy financing reduces the tax basis on which the tax credit is claimed. The change applies to spending on a project in 2009 or later. Therefore, if construction of a project started in 2008 but was completed later, the tax credit may not be claimed on the portion of the construction cost that accrued in 2008 and was paid with help from tax- exempt or subsidized energy financing. It may be claimed on the portion of the cost incurred in 2009. Use of tax-exempt financing will still cause the project to have to be depreciated more slowly. A solar project financed with tax-exempt debt must be depreciated on a straight-line basis largely over 12 years rather than on an accelerated basis largely over five years. Use of subsidized energy financing does not affect how a commercial project is depreciated.
State Performance–Based Incentives	Direct payments by a state to solar producers as an operating subsidy never caused a reduction in tax credit basis. Operating subsidies paid directly to a generator may be a grant, but they are not subsidized energy *financing*. (This assumes that the incentives do not have to be repaid.) The IRS has ruled on a number of occasions that the only financial assistance that caused a reduction in the tax credit is help paying the capital cost of the project. It is not subsidized energy financing to subsidize operating costs.[4] Subsidized energy financing was a problem before 2009. It is not a problem for project costs that are incurred on or after January 1, 2009.

4. See for example http://text.nyserda.org/programs/pdfs/taxcreditpaper.pdf

Type of Incentive	Comment
Renewable Energy Credit Sales or Requirements	Renewable energy credits or "RECs," "green tags," carbon allowances and other saleable environmental attributes awarded for using sunlight to generate electricity have no effect on the commercial solar credit.
Loan Guarantees	The IRS said in a private letter ruling that a loan guarantee from a federal or state agency or a utility is not "subsidized" energy financing, even if the guarantee looks in form like a direct loan by the government to the private party. The interest rate on the loan was the same rate that a bank would charge to lend with a federal guarantee.
Grants administered by non-governmental organizations and funded from non-governmental funding sources	The IRS ruled privately that production incentive payments delivered by a private charity out of funds contributed by a private utility company did not constitute "subsidized energy financing."[5] However, it suggested that the program might have been viewed as subsidized energy financing if a government agency administered the program, even if it was privately funded.[6]

1.4.3 Subsidized Loans and Financing

Generally, borrowing money does not adversely affect the basis that a taxpayer has in his or her solar equipment. It does not matter whether the money to pay for the equipment comes out of the pocket of the taxpayer or is borrowed; the basis on which the tax credit is calculated is what the taxpayer paid for the equipment. Two exceptions to this general rule are:

- For spending prior to January 1, 2009, basis had to be reduced to the extent subsidized borrowing in the form of "tax-exempt financing" or "subsidized energy financing" was used to pay the equipment cost; and
- at-risk limitations could come into play to limit the credit that can be claimed in situations where the taxpayer borrows to pay the equipment cost on a nonrecourse basis, meaning on terms where the lender has no claim against the borrower if he fails to repay the loan. The only recourse of the lender is to foreclose on the equipment. See section 1.4.4 for more detail.

5. Private Letter Ruling 200202048
6. Private Letter Ruling 8630004

The details follow.

1.4.3 (a) Calculation Method

When either tax-exempt financing or subsidized energy financing is used to pay equipment costs that were incurred before 2009, the tax basis in the equipment must be reduced. The basis reduction is calculated by putting the cost of the equipment in the denominator of a fraction. The numerator is the amount of subsidized or tax-exempt financing used to pay such costs. The fraction is the percentage reduction in the tax basis. (For example, a system put in service before 2009 and financed entirely with tax-exempt bonds would be ineligible for the commercial solar credit.)

1.4.3 (b) Tax-Exempt Financing

The IRS defines "tax-exempt financing" as borrowing through bonds issued by a state or local government to finance a public or quasi-public project. The holders of such bonds do not have to pay taxes on the interest they receive. This means a borrower benefiting from such bonds does not have to pay as high an interest rate as he would otherwise. Tax-exempt financing can usually be used only for schools, roads, hospitals and other public facilities. However, the US tax code makes 15 exceptions where such financing can be used for private projects that Congress felt create some public benefits (e.g. privately-owned sewage treatment plants or sports stadiums). Smaller projects may also qualify for financing using "small-issue" bonds.

1.4.3 (c) Subsidized Energy Financing

Financing The IRS defines this as "financing provided under a federal, state or local program a principal purpose of which is to provide subsidized financing for projects designed to conserve or produce energy." An example of such financing is where a state offers low-interest loans directly to help pay for renewable energy projects or where the state makes payments to a bank to buy down the interest rate on loans that the bank makes to finance such projects.

It is important to note that the "subsidized energy financing" is the <u>full financing extended under a government program</u>, not just the cost to the government of the subsidy. The IRS took this position in regulations under the residential energy credit that used to be on the statute books from 1977 to 1990.[7]

7. In the example given by the IRS, a bank lent $3,000 to a homeowner to install a solar hot water heater and the bank used $500 it received under a federal energy conservation program to reduce the principal amount of the loan the homeowner had to repay to $2,500. The amount of "subsidized energy financing" in this case was the full $3,000.

For example, if a commercial customer planning to build a $100,000 project borrows $80,000 and benefits from an interest rate subsidy on the loan funded out of a state energy program, then the basis eligible for the tax credit would be reduced by $80,000 and the credit would only apply to the remaining $20,000. No basis reduction is required for spending on a project after 2008.

1.4.3 (d) Tax-Exempt or Subsidized Energy Financing and Depreciation

Use of tax-exempt or subsidized energy financing will not reduce the depreciable basis of a project. However, if tax-exempt financing is used, the project will have to be depreciated more slowly -- largely over 12 years on a straight-line basis.

1.4.4 At-Risk Limitations on Financing

Certain taxpayers may not be able to claim the full cost of eligible property as tax basis immediately if they borrow on a nonrecourse basis to pay the cost. "Nonrecourse" means the taxpayer has no personal liability to repay the loan, and the lender looks mainly to the project being financed for repayment. The taxpayers subject to this rule are individuals (including individuals who own a project through a partnership or limited liability company treated as a partnership), S corporations and "closely-held" C corporations. A C corporation is "closely held" if five or fewer individuals own more than half the stock. (The rule does not apply to publicly-held companies. It also does not apply to a small developer that brings in an institutional investor as a partner.) Such taxpayers cannot include in the tax basis any portion of the eligible property cost paid with nonrecourse financing when calculating their commercial solar tax credit for the year a solar project is placed in service. For example, if a solar project cost $100,000, but $80,000 of the cost was paid with the help of a nonrecourse loan, then the tax credit initial basis is $20,000 of the cost.

There are two key exceptions to this rule requiring a basis reduction when nonrecourse financing is used. These exceptions should apply to most solar projects:

1. If the equipment financed through a nonrecourse loan would have qualified as "solar energy property" under section 46(c)(8)(F) of the tax code before that section was repealed in 1990, then the basis reduction is not required. (Solar equipment that qualifies today for the commercial solar tax credit would have qualified under that section, with the exception of solar hybrid lighting.[8]) However, this exception applies only if no more than 75% of the cost of the equipment is paid with nonrecourse debt and the nonrecourse debt is a level-payment loan, meaning that there is a straight-line amortization schedule for repayment of the loan. Level debt service payments are more interest than principal in early years and more principal than interest in later years.

8. Omnibus Budget Reconciliation Act of 1990 - H.R.5835 ENR

2. A basis reduction is also not required if the nonrecourse financing is "qualified commercial financing." The requirements of "qualified commercial financing" are:

   - The taxpayer must not acquire the solar equipment from a "related party."
   - The nonrecourse financing cannot be used to pay more than 80% of the cost.
   - The money must either be borrowed from a commercial lender or through a federal, state or local government program. A loan whose repayment is merely guaranteed by a federal, state or local government agency will still be considered to have been made under such a program. A commercial lender must be regularly engaged in the business of lending. The commercial lender cannot be related to the taxpayer or be the vendor who sold the equipment or be someone who receives a fee tied to the taxpayer's investment in the equipment.

The at-risk rules merely affect the timing of tax credits rather than the final amount. If part of the cost of the eligible property cannot be included in the first year's tax credit basis due to use of nonrecourse financing, then as the loan principal is later repaid, the taxpayer can claim a new credit calculated on the reduction in loan principal as the tax credit basis. Additional credits can be claimed in each year as the loan principal is repaid. No additional credits can be claimed on interest payments.

1.5 Cash Grants in Lieu of Tax Credits

Developers of new commercial solar projects placed in service in 2009 or 2010 have the option to take a cash payment from the U.S. Treasury for the same amount they would have been able to claim as a commercial tax credit. This option is also available for solar projects that start construction in 2009 or 2010 and are completed by 2016. The grants will be paid within 60 days after the project is placed in service or, if later, 60 days after the owner applies for the grant. The Treasury has no discretion whether to pay. Applications must be submitted by October 2011.

The option is only available on commercial projects -- not residential. Solar panels that are owned by a solar company and used by it to supply electricity to a homeowner under a power purchase agreement or that are leased by it to a homeowner are considered put to commercial use, assuming the contract with the homeowner is respected for tax purposes as a power contract or lease and is not recharacterized as an installment sale of the panels to the homeowner.

Any grant paid will be subject to recapture if the solar equipment is disposed of within five years. Only the "unvested" portion of the grant is recaptured. The grant vests at the rate of 20% a year.

Thus, if the solar equipment is sold after it has been in use for three years, then 40% of any cash grant paid will be recaptured. In this sense, the recapture rules are similar to what happens to the commercial tax credit. (See section 1.10 for more on recapture.)

Congress directed the Treasury to sort out whether the recapture rules for the grant are identical or whether they differ from the rules for the tax credit. The tax credit is also subject to recapture if equipment is owned by a partnership (including a limited liability company treated for tax purposes as a partnership) and a partner sells his interest or his share of partnership income is reduced by more than a third. It is unclear to what extent changes at the partner level will lead to recapture of cash grants. A grant may be spent by the partnership and never distributed to the partners, unlike commercial tax credits that are necessarily passed through to partners and claimed by them on their tax returns.

The Treasury will also have to decide when a project is considered to have started construction. It has five precedents from which to choose. Under these precedents, the earliest construction would be considered to start is when physical assembly of major components starts at a factory off site. The latest construction would be considered to start is when foundations start to be laid at the site (for example, in the case of a utility-scale solar project). Site clearance or engineering work would not count. A decision is not expected before July 2009.

Solar companies that are treated as partnerships for tax purposes and have raised money from private equity funds may be barred from receiving any cash grants. This is only a problem if the private equity fund invests directly and not through a US "blocker" corporation. Section 1603(g) of the "American Recovery and Reinvestment Act" prohibits the Treasury from paying any grant on a project owned by a "partnership or other pass-thru entity any partner (or other holder of an equity or profits interest) of which" is a federal, state or local government agency or instrumentality, a tax-exempt entity or an electric cooperative. Most private equity funds have state pension plans, university endowments and similar entities as investors. Congress may rewrite the prohibition to narrow it, but it would not do so before the summer or fall 2009. Also, be aware that if a blocker corporation is owned 50% or more by a tax-exempt entity, it may itself be considered a tax-exempt entity. The issue was still under discussion with the Treasury when this edition of the manual was completed and further guidance is expected.

1.6 Depreciation

1.6.1 Asset Breakdown

The owner of solar equipment can depreciate, or deduct, 85% of his or her tax basis in the same equipment on which the commercial tax credit can be claimed over five years. The deductions are claimed on a 200% declining-balance basis, meaning the deductions are front-loaded rather than taken in equal amounts each year over the period.

Any part of a solar project that is considered a building is depreciated over 39 years on a straight-line basis. Not all structures are buildings for tax purposes. A structure is usually only considered a building it if includes office or storage space or a control room.

Landscaping and other site improvements, like a parking lot, are depreciated over 15 years on a 150% declining-balance basis.

Transmission equipment used to transmit at 69 kV or higher voltage is depreciated over 15 years using 150%declining-balance depreciation. Other transmission and distribution equipment is depreciated over 20 years using 150% declining-balance depreciation. Utilities usually make owners of utility-scale solar projects reimburse them for the cost of any substation upgrades, grid improvements and other equipment required for interconnection that the utility will own. Some of the costs may be classified as "network upgrades" for regulatory purposes and the utility will collect the cost from the generator but then repay it later with interest or transmission credits. Any payments a generator makes for network upgrades are treated for tax purposes as a loan by the generator to the utility and the generator is not allowed to deduct them. The generator may also have to reimburse the utility for "direct intertie" costs that will not be repaid by the utility. The generator recovers any such payments on a straight-line basis over 20 years.

Property on an Indian reservation can be depreciated more rapidly. The part that would be depreciated over five years can be depreciated over three years instead. This only applies to equipment placed in service by December 2009 unless the deadline is extended by Congress. Depreciation must be taken more slowly to the extent tax-exempt financing is used to pay part of the equipment cost. It is also slower for assets used predominantly outside the United States and for any assets that are considered "tax-exempt use property." Examples of tax-exempt use property are solar panels leased to a tax-exempt entity or a project owned in a partnership between a private developer and a municipal utility. In the case of such a partnership, a fraction of the project is "tax-exempt use property." The fraction is the highest share of partnership income that the municipal utility will be allocated during the life of the partnership. Thus, if the municipal utility starts with a 10% share of income but this increases later to 50%, then 50% of the project will be "tax-exempt use property" from the start.

1.6.2 Basis Reduction

The owner of solar equipment on which an investment credit is claimed or on which a cash grant is paid by the Treasury can depreciate only 85% of the cost. The "basis" for depreciation must be reduced by half the amount of the investment credit or cash grant.

1.6.3 Depreciation Bonus

Solar equipment placed in service in 2008 or 2009 qualifies for a 50% "depreciation bonus,"

meaning that half the basis in the equipment can be deducted immediately. The remaining basis is deducted normally as depreciation. Thus, the bonus the first year on the part of a solar project that qualifies for an investment credit or cash grant is 42.5% of the equipment cost. The bonus can only be claimed on equipment that the owner was not committed to purchase before January 1, 2008. In larger solar projects, just because a contract was signed with someone before 2008 to build the project does not mean the owner was committed to the project when the contract was signed. In some cases, the owner is not considered committed until physical work started on the project at the site. Commitment to purchase depends on the facts of the individual case.

1.7 Project Timing Issues

1.7.1 Transition Issues for Some Projects

Projects that straddle a date when Congress changed the tax subsidies for solar equipment raise transition issues. There are potentially such issues with both tax credits and the Treasury cash grants.

The tax credit for commercial solar projects was increased from 10% to 30% in 2006 and it will drop back to 10% in 2017, unless Congress votes again to extend it. What happens when a solar energy system is installed partly in 2016, but not placed in service until 2017?
The answer is the taxpayer will probably qualify only for a 10% credit. However, it depends on whether the project is considered to be "self constructed" or "acquired" by the taxpayer.

1.7.1(a) Self-Constructed Projects

For the purposes of evaluating transition issues, a project is considered "self constructed" when:

- It is assembled and installed by the taxpayer, or
- "stick built" for a taxpayer by a construction contractor - at least in most cases where the taxpayer retains control over the design.

In cases where a project is considered self constructed, a 30% tax credit can only be claimed on the percentage of construction work done during the period 2006 through 2016. However, that assumes that the project will be completed in 2016. If work starts during 2016, but is not completed until 2017, then the taxpayer will get only a 10% credit unless he elects to claim credits on a "progress payments basis" or unless Congress extends the deadline to qualify for the 30% credit. (See section 7.2 under the commercial credit discussion for a discussion about progress expenditures.) It does not matter when

the construction contractor is actually paid. Thus, there is no advantage to paying the contractor is 2016 for work that will be done in 2017. Where work started in 2005 and finished in 2006, part of the cost of the project qualified for a 30% credit -- the part of the work completed during 2006. The portion of the project completed in 2005 qualified for a 10% credit.

1.7.1(b) Acquired Projects

A project is considered "acquired" when property ready for use is purchased ready for use without any associated construction or assembly delay.

If the taxpayer "acquires" the solar equipment rather than self constructs it, then a 30% credit can only be claimed if the property is both acquired and placed in service during the period 2006 through 2016. Thus, for example, if a taxpayer signs a contract to buy photovoltaic property in 2016, but it is not delivered or ready for use until 2017, then only a 10% energy credit can be claimed.

Treasury cash grants are paid on solar equipment that is placed in service in 2009 or 2010 or on which construction starts in 2009 or 2010 and is completed by 2016. It does not matter that the equipment was ordered or largely installed before 2009. The key is when it was placed in service.

1.7.2 Progress Expenditures

The commercial solar tax credit is ordinarily claimed in full in the year that eligible property is put into service. However, a taxpayer can elect to claim a commercial solar tax credit on his or her construction progress payments in situations where the eligible property is expected to take at least two years to build.

This could become relevant in cases where works starts on a project in 2016 when there is still a 30% commercial solar tax credit, but it will not be completed until after the credit has reverted to 10%. The 30% credit could be claimed on construction progress payments during 2016. Some developers of utility-scale solar projects that will take at least two years to construct and that are expected to get underway by 2010 also plan to take tax credits on construction progress payments and then pay back the amount of tax credits claimed and take a cash payment from the Treasury within 60 days after the project is placed in service. This would provide a time-value benefit.

The amount the taxpayer is considered to have paid toward construction in any year depends on a number of complicated rules.

The taxpayer must first determine whether a project is "self constructed" or "non-self constructed."

The progress expenditure rules use a much tighter definition of self construction than the transition rules do. That is, while most stick-built projects are considered self constructed for purposes of the transition rules, few projects are considered self constructed for progress payments purposes. To be self constructed for progress payments purposes, the taxpayer must expect to spend more than half the construction expenditures on wages for the taxpayer's own employees and on materials that they will install. This test is applied to each unit of property. A single project may consist of more than one unit. For example, each turbine, boiler and other large component at a power plant is probably considered a separate unit of property.

Spending on non-self-constructed property counts only when amounts are actually paid to a third party and, even then, one can only count the spending in a year "to the extent [it is] attributable to progress made in construction . . ." The IRS regulations say, "Progress will generally be measured in terms of the manufacturer's incurred cost, as a fraction of the anticipated cost . . . ."
More spending counts earlier in time as progress payments for self-constructed property. The rule for self-constructed property is that spending counts when the amount "accrues," meaning when the taxpayer is legally obligated to make the payment and the amount is known. However, spending on components comes under a special rule. It cannot be counted before the components are built at the factory (in the case of components that are specially designed for a project), or when they are delivered to the site (in the case of other components that would be "economically impractical to remove" after delivery), or when they are physically attached to the project (in the case of any remaining components).

1.8 Project Ownership Considerations

Subtleties associated with specific ownership structures that affect the commercial solar tax credit are discussed in the following paragraphs.

Commercial solar tax credits and depreciation are claimed by the owner of eligible property. Any owner that cannot use these tax incentives because he does not pay enough in taxes should explore one of several options:

- Take the cash value of the tax credit from the U.S. Treasury and finance the rest of the project with debt, perhaps with the help of a federal loan guarantee, to the extent the project will generate enough cash to cover the debt service. However, this will leave the project owner with "stranded" depreciation that he may not be able to use efficiently. The depreciation can be carried forward for up to 20 years and used when the project starts generating income. The depreciation will not have as great a time value as if the depreciation deductions could be used immediately.

- Do a "tax equity deal" to try to get value for the depreciation (and the tax credit if the developer chooses to claim it rather than take the cash value from the Treasury. Any tax equity deal might take one of four forms.

    - Sell the project to another company that can use the tax benefits and lease it back, thereby sharing indirectly in the tax subsidies in the form of reduced rent for use of the equipment.

    - Bring in an institutional equity investor that can use the tax benefits as a partner to own the project in a so-called "flip" partnership and allocate 99% of the tax subsidies to the institutional investor in exchange for the capital to build the project.

    - Do an "inverted pass-through lease" where the developer leases the project to a tax equity investor and elects to pass through the commercial tax credit or cash payment from the Treasury to the tax equity investor.

    - Let someone else own the project and just buy the electricity under a long-term contract.

1.8.1 Sale-Leasebacks

In a sale-leaseback, the developer sells the project to an institutional equity investor who can use the tax credits and depreciation on the project and then leases it back. The lessor claims the tax credits and depreciation. If the parties choose to receive cash from the Treasury in lieu of the tax credit, then the cash payment will go the lessor if the sale-leaseback occurs within three months after the project is originally placed in service. It will go the developer if the sale-leaseback occurs more than three months after the project is originally placed in service. The terms of the lease financing will be less generous if the payment goes to the developer.

The lease should not run longer than 80% of the expected life and value of the project. The developer can have one or more options to renew the lease, but the options should be at market rent determined at renewal. Any options to renew at a fixed rent count as part of the original lease term for purposes of testing whether the lease term is too long. The lease back must be to the same legal entity that placed the project in service.

In larger projects that take some time to construct and that are financed by borrowing the construction funds from a bank, the lessor commits at the start of construction to buy the project after construction is completed. The closing on the sale-leaseback must occur within three months after the project is put into service, or the lessor cannot claim any commercial solar tax

credits. (It would still be able to claim depreciation.) If cash will be paid by the Treasury in place of tax credits, the cash payment would have already been made to the developer and there would not be any recapture of the payment by the U.S. government. (See section 1.10.) The lessee will have a taxable gain on the sale if it charges the lessor more for the project than the lessor just paid to construct the project. However, the lessor must not pay more than the fair market value of the project. Commercial solar tax credits can only be claimed on new equipment. A special rule preserves the status of the equipment as new as long as it is sold and leased back within three months.

The lessor in a sale-leaseback can elect to leave the tax credit or Treasury cash payment with the lessee and claim only the tax depreciation on the project. The lessor must otherwise qualify for the tax credit. Thus, for example, the election cannot be made by a foreign lessor unless at least 50% of the gross rents are subject to U.S. income taxes.

A taxpayer must usually reduce his tax basis for depreciation by one half the solar tax credit. Thus, where a 30% credit is claimed, only 85% of the equipment cost can be depreciated. However, in a case where the project is sold and leased back and the lessor elects to leave the tax credit or Treasury cash grant with the lessee, then the lessor can claim depreciation on the full cost of the project without any basis reduction. However, the lessee would have to report half the credit it claims or cash grant it receives as taxable income over a five-year period.[9]

1.8.2 Partnership Flips

Another way for a developer to get value for tax subsidies it cannot use is to bring an institutional equity investor in as a partner to own the project and pay part of the capital cost. The project is owned by a partnership of the developer and the institutional investor. The partnership allocates 99% of the economic returns to the investor until the investor reaches a target internal rate of return, after which the investor's interest in the project drops as low as 4.95% and the developer's interest increases automatically to 95.5%. The developer has an option at that point to buy out the investor for the fair market value of its remaining 4.95% interest. In some transactions, cash is distributed 100% to the developer until the developer gets back any capital it has invested in the project. After that, cash follows other partnership items and is distributed 99% to the investor until the flip.

9. Most lessors are corporations. It is hard for an individual or other "non-corporate" lessor to claim commercial solar tax credits. Such a lessor can claim tax credits only in two situations. One is where he or she manufactured the equipment. The other is where the amount of business expense deductions the lessor can claim in the first 12 months in connection with the equipment is more than 15% of the rent he or she earns during the same period. An example of a business expense deduction is wages paid to employees. The lease would also have to have a term less than half the "class life" of the equipment. Thus, the lease in a solar project with a non-corporate lessor would have to be shorter than six years.

In a partnership, the investor must come into the deal before the solar project is placed in service (unlike a sale-leaseback where the investor has up to three months after the in-service date to invest).[10]

Even though the parties intend to allocate 99% of the tax benefits to the investor, the investor may not be able to absorb that much of the tax subsidy in fact due to partnership accounting rules. Anyone using a partnership flip structure should be careful to model the transaction, paying particular attention to the "capital account" and "outside basis" of the investor, as these determine its capacity to absorb tax benefits. They are a function partly of how much the investor invests in relation to the tax benefits.

Commercial solar tax credits must be shared among partners in the same ratio that they share in income for the year the project is placed in service.

It does not matter whether the partnership actually has any income that year. (Most solar projects show tax losses for the first three to four years.) However, care must be exercised when switching the ratio for sharing income before the partnership turns tax positive. For example, suppose there are two partners -- A and B -- who agree to allocate 99% of income to B for the first three years in order to get B 99% of the solar credits and then share everything 50-50 from year four onward. If the partnership has tax losses in each of the first three years, the IRS may argue on audit that the 99-1 sharing ratio for income that was used in year one to give the investor 99% of the solar tax credit is illusory. For that reason, it is important to hold the sharing ratio used in year one in place at least until a full year when the partnership has income.

The flip should not occur until at least five years after the project is put in service. Otherwise, part of the solar tax credit may be recaptured. The credit takes five years to vest fully. (See section 1.10 on credit recapture for a more detailed discussion.)

It is not clear whether a shift in partner sharing ratios will lead to recapture of any cash payment made to the partnership by the Treasury. Guidance is not expected from the Treasury until July 2009 at the earliest.

1.8.3 Inverted Pass-Through Leases

In an inverted lease, the developer owns the solar project, but leases it to an investor. The investor as lessee holds a power contract to sell the electricity to an off-taker. It takes in revenue from electricity sales and uses it to pay rent to the developer as lessor. The developer makes an election to allow the lessee to claim the commercial solar credit.

10. If the parties take a cash payment from the Treasury in place of the tax credit, then the sale-leaseback can be done more than three months after the project goes into service, but the cash payment would remain with the developer.

The developer keeps the tax depreciation and uses it to shelter the rents from income taxes. The investor as lessee claims the commercial tax credit and deductions for rent that may mirror the depreciation that it would have received as owner. It pays an additional amount as prepaid rent for the tax benefits.

The main attraction to the developer is it gets back the project at the end of the lease without having to pay anything for it. The lease might run as short as six or seven years. However, it is unclear how much continuing currency the structure will have after the economic stimulus bill in February 2009 given that the government is now monetizing tax credits. If it has continuing utility, it is because tax equity investors have been paying $1.21 per dollar of tax credit under the structure. The tax equity pays more than 100¢ on the dollar because it can deduct the amount it pays for the tax benefits as rent.

The structure can get very complicated. In some versions, the developer retains an interest as the managing member of the lessee and, instead of having the investor pay for the tax credits as prepaid rent, the developer makes a capital contribution to the lessee that the lessee contributes, in turn, to a lessor entity that is owned 51% by the developer and 49% by the lessee.
A lessor who elects to allow the investor as lessee to claim the commercial tax credit does not have to reduce its depreciable basis by half the credit. However, the investor must report half the credit as income spread ratably over five years.

1.8.4 Power Contracts

Another alternative for a company that cannot use the tax subsidies is simply to buy the electricity from the project under a long-term contract from someone else who owns the project and can use the tax subsidies. Some states have retail sale restrictions that bar anyone other than a regulated utility from supplying electricity at retail. It would be a good idea to limit the term of the power contract so that it does not run longer than 80% of the expected life and value of the project. The power purchaser can have options to renew the contract, but the electricity price should be reset to the current market level at time of renewal. The power purchaser can have an option to purchase the project at the end of term, but it would be best if the option were at market value determined at time of exercise rather than a fixed price.

1.8.5 Prepaid Service Contracts

In some larger solar projects, particularly where electricity is sold to a municipal utility or electric cooperative, a developer may suggest that the purchaser of the electricity prepay for a large share of the electricity to be delivered over the contract term. The prepayment can be used to help pay the project cost. It does not have to be reported immediately as taxable income by the developer,

provided the power contract is properly structured. The prepayment is reported as income over the period the electricity is delivered. The developer cannot report the income any more rapidly for book purposes.

The parties must be careful to ensure the prepayment is only for electricity and not for anything else like capacity or renewable energy credits. They should state in the contract that they intend it to be treated as a "service contract" within the meaning of section 7701(e)(3) of the U.S. tax code. The contract should be drafted to avoid four "foot faults." Transactions involving prepaid service contracts are complicated. Anyone planning to use the structure should get help from competent tax counsel.

The structure has two main attractions. One is that the developer raises part of the capital for the project. The prepayment is economically equivalent to soft debt that the developer repays over time by delivering electricity in kind. The attraction to a municipal utility or electric cooperative is that it is a way to come as close to ownership of a project as possible while still allowing the project to benefit from federal tax subsidies. The municipal utility or co-op is usually offered a discount on the electricity price by the developer in exchange for making the prepayment. It may raise the prepayment by issuing tax-exempt debt or borrowing on special terms through the Rural Utilities Service or other co-op lenders.

1.8.6 Regulated Utilities

Solar equipment owned or leased by a regulated utility did not qualify for commercial solar tax credits before February 14, 2008. Commercial credits could be claimed on "public utility property" before that date. A solar project is "public utility property" if the rates for the sale of electricity from the project are regulated on a rate-of-return basis. Congress dropped the restriction in October 2008 retroactively to the preceding February.

1.8.7 Model Homes

The commercial tax credit or Treasury cash payment can be claimed on solar equipment installed as part of a model home retained for a period by a homebuilder if the homebuilder can make the case that the home had been "placed in service" for tax purposes – the same test used to determine whether a homebuilder can depreciate the house. However, this is unlikely to be the optimal tax treatment. Practically, if the home was retained for fewer than five years, some portion of the credit or cash payment would not have vested with the homebuilder and would therefore be recaptured. (See section 1.10.)

1.8.8 Passive Loss and At-Risk Restrictions

It is hard for individuals, S corporations and closely-held C corporations to make full use of the solar credits and depreciation on commercial solar projects. For this reason, they are not usually appropriate investors for a developer to bring into a deal in the hope of bartering tax benefits the developer cannot to use to an investor in exchange for capital to build the project. A corporation is "closely held" if five or fewer individuals own more than half the stock.

Unless such an investor is involved personally in operating the project, he or she will be considered to have made a passive investment. The investor will end up only able to use the tax benefits as shelter against taxes on income from other passive solar investments, and possibly even just from the particular project.

The passive loss rules limit the ability of such an investor to use both tax credits and depreciation. "At-risk" rules are a second hurdle. The at-risk limits on the use of tax credits are different from the at-risk limits on the use of depreciation. The at-risk limits for tax credits were discussed earlier in section 1.4.4. The at-risk rules for depreciation limit such an investor to claiming an amount of depreciation equal to the amount the investor has at risk in the project -- basically the amount of equity he or she has invested plus any debt at the project level whose repayment has been guaranteed by the investor. Developers would do better to look for more widely-held corporations as investors, since they are not subject to either set of passive loss or at-risk restrictions.

1.9 Applying the Credit to Taxes

1.9.1 Alternative Minimum Tax and Floor

A corporation must calculate both its regular income taxes at a 35% rate and its "alternative minimum taxes" at a 20% rate but on a broader definition of taxable income and pay essentially whichever amount is greater. The commercial solar credit could not be used before 2009 to reduce a taxpayer's regular income taxes by more than 75%, or below the level the alternative minimum tax (AMT) kicked in.[11] Therefore, companies that paid the minimum tax were unable to use solar tax credits — at least in the year they paid the AMT. The credits could be carried to another tax year. These limits were limits not only on use of commercial solar tax credits, but also on most other "business credits." Thus, the commercial solar tax credits in combination with other business credits could not reduce a taxpayer's tax liability in a given year below the AMT floor. The law changed in October 2008. The solar credit can now be used to offset minimum taxes in tax years starting after October 3, 2008.

11. A corporation must pay, essentially, whichever amount is greater - its regular income taxes at a 35% rate, or its "alternative minimum taxes" at a 20% rate, but on a broader definition of taxable income.

Thus, for example, if a corporation has a tax year that ends on November 30, it would be able to use credits against minimum taxes for solar equipment placed in service on or after December 1, 2008. Most U.S. companies use a calendar tax year. They will benefit starting with solar equipment put into service in 2009. A tax credit earned in 2009 can be carried back to an earlier year and used against AMT liability in that year. However, the reverse is not also true: tax credits that went unused in 2008 because a company was on AMT cannot be used to reduce AMT in 2009.

1.9.2 Carryback and Carryforward of Tax Benefits

A commercial solar tax credit that a taxpayer cannot use can be carried back one year and forward 20 years. In general, a 30% credit cannot be carried back to a period when the credit was only 10%. However, the full 30% credit can be carried forward. If a taxpayer ends up carrying unused solar credits forward for 20 years and is still unable to use them, then the unused credit can be deducted in the year after the carryforward period ends. However, only half the credit can be deducted. The rest is lost.

Unused depreciation can be carried back two years and forward for 20 years. However, the economic stimulus bill allows small businesses to carry back any unused net operating loss in 2008 as far back as five years and get a refund of any taxes paid during that period. Unused depreciation deductions would be part of the company's net operating loss. (If the company uses a different tax year than the calendar year, then it can choose as its 2008 net operating loss to carry back either its loss in its tax year that ended in 2008 or the loss in its tax year that started in calendar year 2008.) A company would have to have gross receipts of $15 million or less in the loss year to take advantage of this provision.

1.10 Recapture of Credit Taken in Prior Years

1.10.1 General Recapture Rules

Although the credit is usually claimed in full in the year the solar project is put in service, commercial tax credits "vest" over five years at the rate of 20% a year. This means that if something happens to solar equipment in the four years after the equipment is put into service that would have prevented the taxpayer from claiming the credit had it happened at the start, then the "unvested" part of the credit will be recaptured (paid back to the IRS). For example, the unvested credit will be recaptured if the taxpayer sells the solar equipment or leases it for use by a government agency.

A taxpayer should take the potential for recapture into account when considering whether to sell solar equipment on which tax credits have been claimed before the recapture period has expired. The unvested portion of the credit will have to be reported as income in the year the recapture event occurs. The taxpayer can add back to his depreciable basis half the recapture income reported in the recapture year. The amount added back to the depreciable basis can be deducted over time as additional depreciation if the taxpayer continues to own the project. If the recapture event is a sale of the project, then the taxpayer will have less gain to report from the sale because of the upward tax basis adjustment. The taxpayer will also have a potential mismatch in tax rates. Recapture income is ordinary income. Gain from a sale in many cases will be capital gain. The combination of credit recapture and the upward basis adjustment has the effect of converting income from capital gain into ordinary income.

1.10.2 Recapture Rules for Nonrecourse Financed Projects

(Please note that these considerations apply only to projects not covered under the exemptions under section 1.4.4.)

Taxpayers covered by the at-risk rules should be careful not to increase the amount of nonrecourse debt secured by the project in a later year as that could lead to recapture of a commercial solar credit claimed earlier. Also, a credit will be recaptured to the extent that principal repayments fall short, at the end of any tax year, of the nonrecourse principal that would have had to be repaid by then under a level-payment loan. "Level payment" for this purpose means straight-line amortization of debt service over the term of the loan or, if shorter, the "class life" of the equipment. Most solar equipment has a class life of 12 years.

1.10.3 Recapture Rules for Partnerships

Partners face an added risk of recapture of the commercial credit.

For example, suppose there are two partners — A and B — who agree to allocate 99% of taxable income to B initially in order to allocate 99% of the solar tax credit to B. The project is placed in service in year one. B claims 99% of the credit in year one. Starting in year four, the allocations change to 50-50. B would suffer recapture of part of the solar tax credit when the sharing ratio shifts.

There will be recapture of a portion of B's unvested credits if B's share of taxable income during the next four years after the project is put in service drops to less than two thirds of his ratio in the first year. Thus, B's ratio could drop to 70% without any recapture, but a drop to 50% would trigger recapture of roughly half of B's unvested credits in year four when the shift occurs. Once B has suffered any recapture, then another shift will not cause any further recapture, unless the drop is to

less than one third of the share B had in taxable income in the year the project went into service.

1.10.4 Recapture of Treasury Cash Payments

Any cash payment made by the Treasury is expected to be subject to recapture in the same circumstances as the commercial solar credit, with one exception. It is unclear whether a sale of a partner interest or shift in the ratio in which partners share in partnership income will trigger recapture. The Treasury is not expected to issue guidance before July 2009.

1.11 Impact of Credits and Cash Grants on Depreciation Calculations

For the purpose of calculating depreciation on a commercial solar system, the tax basis for depreciation is a distinct value – separate from the tax credit basis. The depreciable basis that the taxpayer claims for the solar equipment must be reduced by 50% of the tax credit or Treasury cash grant. For example, if a 30% credit is claimed on a commercial solar energy system that cost $100,000, then the owner will have a depreciable basis in the equipment of $100,000 – (50% x $30,000) = $85,000. The depreciable basis is also used to calculate taxable gain or loss when the solar panel is later resold.

However, a corporation ignores the downward basis adjustment for purposes of calculating its "earnings and profits." Distributions by a corporation to its shareholders are dividends to the extent of the "earnings and profits" of the corporation. Earnings and profits are a form of net income. Thus, gross earnings are reduced by depreciation -- among other things -- to arrive at earnings and profits, but the depreciation subtracted in arriving at earnings and profits would be depreciation on the full basis of $100,000 in the example, notwithstanding the fact that a solar tax credit was claimed.

There is no basis adjustment where the owner of solar equipment leases it to someone else and elects to let to the lessee claim the solar tax credit. (See section 1.8.1 on sale-leasebacks.) However, the lessee must report taxable income equivalent to the basis adjustment. The income is spread over five years.

1.12 Claiming the Credit or Cash Grant and IRS Forms

Business energy credits are claimed by attaching a Form 3468 to one's tax return. This form is available from the IRS website at www.irs.gov. The Treasury is expected to explain soon how and where to apply for a cash payment in lieu of the tax credit.

1.13 Commercial Solar Tax Credit Examples

Example 1 – The Basic Commercial Credit

Company A pays $100,000, including on labor and equipment, to install a photovoltaic system on its corporate headquarters. The panels are purchased in 2008 and installed in 2009.

2009 Tax Basis		**= $ 100,000**
(The purchase and installation are both fully qualified under the credit.)		
2009 Tax Credit	**$ 100,000 x 30%**	**= $ 30,000**
(The full tax credit basis is multiplied by the 2008 tax credit.)		
Depreciable Basis	**$ 100,000 - (30,000 x ½)**	**= $ 85,000**
(The depreciable basis must be reduced by half to reflect the tax credit.)		

Example 2 – Commercial Credit Where Work Straddles Window Period

Company A acquires and pays for a pre-integrated, fully-designed and ready-to-run piece of solar equipment in 2016, but does not receive delivery until 2017. Assume the solar credit is not extended at a 30% rate by Congress.

2017 Tax Basis		**= $ 100,000**
(The purchase and installation are both fully qualified.)		
2017 Tax Credit	**$ 100,000 x 10%**	**= $ 10,000**
(The credit is claimed in the year equipment is placed in service.)		
Depreciable Basis	**$ 100,000 - ($ 10,000 x ½)**	**= $ 95,000**
(The depreciable basis must be reduced by half to reflect the tax credit.)		

Example 3 – Commercial Credit with Progress Payments

Company C hires a construction contractor to build a $10,000,000 multi-megawatt concentrating solar power facility. Forty percent of the construction work is completed in 2016, and the remaining 60% in 2017, at which time the project is put into use. Company C qualifies for a 30% credit on $4,000,000 and a 10% credit on $6,000,000. C has a tax basis of $9,100,000 in the project for depreciation purposes. This assumes that Congress does not extend the credit at a 30% rate and that the project has a long enough construction period to be able to claim credits on a progress payments basis.

2016 Tax Basis	**$ 10,000,000 x 40%**	**= $ 4,000,000**
2017 Tax Basis	**$ 10,000,000 x 60%**	**= $ 6,000,000**
(The project cost must be allocated between the two years it was under construction.)		
2016 Tax Credit	**$ 4,000,000 x 30%**	**= $ 1,200,000**
2017 Tax Credit	**$ 6,000,000 x 10%**	**= $ 600,000**
Total Credit		**= $ 1,800,000**
(The tax credits are claimed on a progress payments basis, and Company C must have a sufficient tax burden to realize the credits.)		
Depreciable Basis	**$ 10,000,000 - ($ 1,800,000 x 1/2)**	**= $ 9,100,000**
(The depreciable basis must be reduced by half the tax credits claimed.)		

Example 4 – Commercial Credit with Sale and Recapture

Company A pays $100,000, including labor and equipment, to install a photovoltaic system on its corporate headquarters. The panels are purchased in 2008 and installed in 2009. The system is sold in 2012 to Company B. Company A must recapture the unvested portion of the energy credit that it claimed in 2009. The unvested portion is 40%.

2009 Tax Basis		**= $ 100,000**
(The purchase and installation are both fully qualified under the credit.)		
2009 Tax Credit	**$ 100,000 x 30%**	**= $ 30,000**
(The full tax credit basis is multiplied by the credit.)		
Recapture Amount	**$ 30,000 x 40%**	**= $ 12,000**
(As in section 8.1, the credits "vest" over 5 years. The credits here have only vested in 2009, 20010, and 2011. Since two of the five years are missing, 40% of the credit is subject to recapture. Company A will have to report this "recapture income" as part of its ordinary income stemming from the sale to B.)		

Section 2. Residential Credit in Detail

The residential solar tax credit is in section 25D (residential energy efficient property) of the US tax code.

Determining what constitutes "eligible property" and understanding project timing issues are among the keys to calculating the value of the residential solar credit. Each of these items, along with additional special considerations, is discussed in detail in the following paragraphs.
This section refers to several topics that have already been discussed in the commercial solar tax credit section. A read through of the commercial credit section is strongly recommended, even for those who intend to take the residential credit only.

2.1 Eligible Property

2.1.1 Types of Eligible Property

The residential solar tax credit may be claimed for spending on two types of equipment: "qualified photovoltaic property" and "qualified solar water heating property."

"Qualified photovoltaic property" is defined by statute as "property, which uses solar energy to generate electricity for use in a dwelling unit located in the United States and used as a residence by the taxpayer." This definition is broad enough to include other types of solar equipment besides photovoltaic cells. The IRS has been left to interpret the statute and it is not yet clear whether the IRS will limit the credit to photovoltaic equipment. In the case of small devices like solar attic fans, the photovoltaic cells that supply power to the fan qualify, but not the rest of the fan. The residential credit covers "property which uses solar energy to *generate electricity* for use in a dwelling unit . . . " (Emphasis added.)

"Qualified solar water heating property" is defined in the statute as "property used to heat water for use in a dwelling unit located in the United States and used as a residence by the taxpayer if at least half of the energy used by such property for such purpose is derived from the sun."
Credits cannot be claimed on spending on solar heating systems for a swimming pool or hot tub.

2.1.2 Certification Requirement for Solar Water Heaters

Credits can only be claimed on solar water heaters that have been certified for performance by the nonprofit Solar Rating Certification Corporation or by a "comparable entity" endorsed by the state government in the state where the water heater will be used.There is no certification requirement for photovoltaic property.[12]

12. It is currently unclear whether the IRS requires SRCC OG – 300 certification for full systems, or only OG – 100 collector certification for property. SEIA is working towards a resolution of this issue.

2.1.3 Used Equipment

Credits can only be claimed on new equipment. The statute says the residential credit can only be claimed on equipment when it is "originally" installed.

2.1.4 Use of Eligible Property

To qualify for the residential solar credit, the property must be used in a dwelling unit that is located in the United States and used as a residence by the taxpayer. The residence does not have to be the *primary* residence of the taxpayer.[13]

2.1.5 Eligibility of Property that Is a Structural Component of a Roof

The commercial credit can only be claimed on equipment (as opposed to a building). This often leads to questions about whether structural components of a building qualify for the commercial credit. However, when it comes to the residential credit, Congress said solar property installed "as a roof" will not fail to qualify for the credit "solely because it constitutes a structural component of the structure on which it is installed," meaning that building-integrated solar property will not be disqualified simply because it serves a dual use.

2.2 Amount and Cap

An individual was limited through 2008 to $2,000 in credits per year for spending on photovoltaic equipment installed before 2009 and another $2,000 in tax credits per year for spending on solar water heating property installed before 2009. Thus, the government essentially paid 30% of the first $6,667 in cost for solar panels and another 30% of the first $6,667 in cost for a solar hot water heater. There is no limit on the amount of tax credits that can be claimed on such equipment installed in 2009 or later.

At first glance, one would think the way to maximize credits on photovoltaic equipment or a solar hot water heater before 2009 was to spread such spending over more than one year. However, this did not work. An individual was considered to have spent the full amount in the year that installation of the equipment was completed. However, if the solar energy system was included as part of construction of a new house, then the spending occurred when the taxpayer moved in.

The IRS will have to sort out what would happen if some solar panels were fully installed in 2007

13. The residential solar credit is in section 25D of the tax code. Section 25C, which was enacted at the same time and provides tax credits for other energy efficiency improvements, requires that those improvements be in the "taxpayer's principal residence (within the meaning of section 121)." Thus, it appears that Congress knew what it was doing when it required in section 25D that solar equipment merely be used in "a residence" of the taxpayer.

and the rest in 2008 at an existing residence in years when there was still a $2,000 cap on tax credits for photovoltaic equipment. It appears that Congress intended only $2,000 in total credits can be claimed in such a case, but the statute is unclear.

2.2.1 Cooperatives

A corporation usually owns cooperative apartment buildings, and the residents are shareholders in the corporation. If the corporation spends money on installing qualified solar property, each shareholder is allowed to claim residential solar tax credits on his or her share of the spending.

2.2.2 Condominiums

Owners of condominiums contribute to the upkeep of the condominiums by paying money to a condominium management association. Where such a management association spends money on installing qualified solar property, each member of the association can claim the residential solar tax credits on his or her share of that spending. However, the association must qualify as a "homeowners' association" under section 528(c)(1) of the tax code, and "substantially all" of the units in the condominium project must be used as residences.

2.3 Placed in Service Requirement

Credits can only be claimed on spending for property that is "placed in service" during the period 2006 through 2016. If the installed property is included as part of construction of a new house, then the "placed in service" date is when the taxpayer moves into the house. Seciton 1.3.3 discusses when equipment is considered "placed in service" in all other situations.

2.4 Tax Basis

The "tax basis" is the cost of the property that you use when calculating the amount of the credit. Item 3 in the discussion of the commercial tax credit explains how companies determine the "basis" in solar equipment put to commercial use. For residential systems, the majority of direct contractor labor costs to install the equipment are included in the tax credit basis. (This includes site preparation, assembly and original installation, and piping or wiring work to connect the equipment to the individual's home.) When there is spending on work tied both to solar equipment and to other construction -- for example, where the solar equipment is being installed during construction of a new building -- the construction costs must be allocated according to each activity.

2.4.1 Effect on Calculating Tax Basis in a House

Amounts that an individual spends on improving his or her house are added to the tax basis that the individual has in the house. A higher tax basis means a smaller gain on sale when the house is later sold. Spending on which residential solar tax credits were claimed adds to the tax basis, but the basis must be reduced by the amount of the residential tax credit allowed.

2.5 Effect of Loans, Grants, and Rebates on the Credit Amount

Section 1.4 contains a detailed analysis of the effect of state and utility incentives on the amount of the credit. Most rebates from state governments or non-profit organizations do not reduce the basis for the federal credit. However, if the rebate is provided by a utility to a homeowner as an inducement to install solar equipment, then the basis of the equipment is reduced by the amount of the rebate. Thus, most rebates from utilities to homeowners will decrease the basis of solar equipment by the amount of the rebate. Homeowners and installers that receive utility rebates should check with their utility and a tax attorney to understand the classification of their rebate.

2.6 Project Timing Issues, Transition Issues, Progress Expenditures

Unlike the commercial solar tax credit, the residential credit was a new credit beginning in 2006. The residential credit rewards spending on solar equipment for the home installed during the period 2006 through 2016. The full tax credit basis for the residential credit is determined by the year in which the installation of the equipment is completed; there is no provision for credits against progress payments, as described in section 1.7.2. Thus, it is important for the installation of all residential systems to be completed by December 31, 2016. Since individuals tend to use cash accounting for payment of taxes, it would be a good idea for an individual also to have paid for the equipment by December 31, 2016.

2.7 Taxpayers Subject to AMT

An individual can use the residential credit not only against regular income taxes, but also against alternative minimum taxes.

2.8 Special Rules

2.8.1 Occupancy Restriction

The $2,000 caps for solar photovoltaics and solar hot water heaters were applied by treating everyone living in a single dwelling unit as one taxpayer. Thus, each cap was in reality $2,000 per dwelling unit. (Structures such as apartment buildings consist of multiple dwelling units.) The caps on photovoltaic equipment and solar hot water heaters only apply to such equipment installed before 2009.

2.8.2 Business Use

The residential credit is intended to encourage the purchase of equipment that will be put to personal use. Business spending on solar equipment is rewarded through the commercial credit. However, some dwelling units serve a dual purpose -- for example, where there is a home office in the dwelling. In that case, the costs would have to be allocated between residential and business use. If the portion considered residential spending is at least 80%, then all the spending falls under the residential credit. Otherwise, only a fraction falls under the residential credit. The IRS will have to explain how to do the allocation. Probably the easiest way to do it is on the basis of square footage.

2.9 Residential Credit Examples

Example 1 – Basic Residential Credit with Deposit

Taxpayer A spent $20,000 to install a solar water heater for use in her home. She paid a deposit of $10,000 in 2005 and the rest in 2006 when the water heater was installed.

2006 Tax Basis		**= $ 20,000**
(The deposit had no effect on the residential credit, which is entirely determined on the basis of placed in service date.)		
2006 Tax Credit	**$ 20,000 x 30%**	**= $ 2,000**
(The taxpayer exceeded $2,000 per-technology cap.)		

Example 2 – Basic Residential with Delayed Installation

Taxpayer A spent $20,000 to install a solar water heater for use in her home. She paid a deposit of $1,000 in 2008 and will pay the rest in 2009 when the water heater is installed.

2009 Tax Basis		**= $ 20,000**
(The system is placed in service in 2009 and is not eligible for any credit before then.)		
2009 Tax Credit	**$ 20,000 x 30%**	**= $ 6,000**

Example 3 – Basic Residential with Delayed Payment

Taxpayer A spends $20,000 to install a solar water heater for use in her home. The system is installed in February 2017, but A pays for it in December 2016. Assume Congress does not extend the credit beyond 2016.

2017 Tax Credit Basis		**= $ 0**
(For the residential credit, expenditures are treated as made when the equipment is placed in service. This system was placed in service after the residential credit expired.)		
2017 Tax Credit		**= $ 0**

Example 4 – Home-Based Business

Taxpayer A pays $20,000 to install a photovoltaic system on his home in 2008 (at a time when photovoltaic equipment was still subject to a $2,000 cap). Taxpayer A has a dental practice that has a separate entrance in the same structure, occupies 40% of the area inside the house and consumes a reasonably equivalent amount of its electrical load.

2008 Residential Basis	$ 20,000 x 60%	= $ 12,000
2008 Commercial Basis	$ 20,000 x 40%	= $ 8,000
(The expense of the equipment can be allocated between the dental practice and the residential use.)		
2008 Residential Tax Credit	$ 12,000 x 30%	= $ 3,600 ▶ **= $ 2,000 Cap**
2008 Commercial Tax Credit	$ 8,000 x 30%	= $2,400
Total Credit		= $4,400
(Each would need to be reported separately – one on the individual's tax return and the other on the tax return for the dental practice.) Note: Home-based business and home office deductions are a frequent source of fraud and miscalculation on income taxes, and receive an accordingly high degree of attention from the IRS. Be very careful and conservative in your calculations for this type of situation.)		

Section 3. Tax Credit Bonds

Some solar projects can be financed using bonds that require payment of little or no interest.

3.1 CREBs

"Clean renewable energy bonds," or "CREBs" are bonds that can be used to finance solar and other renewable energy equipment that will be owned by a municipal utility, other state or local government agency, an electric cooperative or an Indian tribe. Little or no interest is paid on the bonds. The lender receives tax credits from the federal government instead.

The total amount of CREBs that can be issued nationwide is limited. Anyone proposing to use them must apply to the IRS for an allocation. A total of $1.2 billion in bonds were authorized originally, and all of the bond authority was allocated by the IRS in two rounds in 2006 and 2008. The "American Recovery and Reinvestment Act" in February 2009 authorized another $1.6 billion in new CREBs. The deadline to apply for an allocation of the new bond authority is August 4, 2009. The Treasury Department publishes the credit rates for CREBs and updates them on a daily basis. The credit rate is the amount of tax credit the lender must receive each year to be willing to forego interest. The rate that applies to a particular bond issue is the rate on the date a binding commitment is signed to buy the bonds.

The maximum term for the bonds is calculated by discounting the principal payments at the average annual interest rate for 10-year Treasury bonds issued the same month as the CREBs are issued. The term is the term that causes the present value of the principal payments to equal 50% of the face amount of the bonds.

The bonds must provide for level principal repayments over the term.

Each bondholder must report the tax credits it receives in place of interest as income.
The new CREBs will require some interest payments, since the lenders will receive tax credits equal only to 70% of what they would have received on the original CREBs.

Municipal utilities and coops considering using CREBs would probably do better in most cases to put the equipment in private hands and buy the electricity rather than own the project. A private owner would qualify for an investment tax credit or Treasury cash grant plus depreciation. The municipal utility or coop should be able to share indirectly on these benefits in the price it pays for electricity. Its savings should ordinarily exceed whatever savings it would achieve by borrowing with CREBs and paying a reduced interest rate.

3.2 Build America Bonds

Municipal utilities and other state or local government agencies can issue tax-exempt bonds to finance schools, roads, hospitals and other public facilities. The bonds bear interest, but at reduced rates because the lenders do not have to pay income taxes on the interest payments. Tax-exempt bonds can be used to finance solar installations that are put to public use. The state or municipality would have to be careful not to allow more than 10% "private business use" of the facilities. Examples of private business use are where equipment is leased to a private party or used to supply electricity to a private party under a special deal on terms that are not available to members of the general public. Hiring a private party to operate the equipment could also be considered private business use unless the terms of the operating contract stay with guidelines the IRS has established for such contracts. The guidelines limit how long a term such a contract can have and limit how the private operator can be compensated.

The economic stimulus bill gave states and municipalities the option during 2009 and 2010 to issue bonds that pay taxable interest and to receive refundable tax credits for 35% of the interest payable on the bonds. The state or municipality can turn in the tax credits to the U.S. Treasury for the cash value.

These are called "Build America Bonds."

States and municipalities can continue to issue such bonds after 2010, but the tax credits on the bonds will go to the lenders. The lender must pay taxes on the interest payments it receives. It must also report any tax credits it receives as additional interest income. However, the bonds should bear a reduced rate of interest because the tax credits the lender receives spare it from having to pay taxes on roughly two thirds of the interest.

3.3 Recovery Zone Bonds

The "American Recovery and Reinvestment Act" authorized two other types of bonds to help finance projects in parts of the country that are suffering from significant poverty or unemployment, high rates of home foreclosures or general distress. Each state decides for itself which parts of the state fall in this category.

Congress authorized $10 billion in "recovery zone economic development bonds." These are bonds for equipment that will be owned by a state or municipality. The lender must pay taxes on the interest. However, the state or municipality that is the borrower will receive refundable tax credits for 45% of the interest payable on the bonds. In other words, they are a type of Build

America Bond, but they can only be used for projects in distressed areas. The refundable tax credits that the borrower can convert to cash are 45% of the interest payable rather than 35%. There is a dollar limit on the total face amount of such bonds that can be issued. All recovery zone economic development bonds must be issued by December 2010.

Congress also authorized $15 billion in "recovery zone facility bonds." These are bonds that can be used to finance projects in the same distressed areas, but that will be privately owned. The bonds can only be used to finance new equipment. Substantially the entire use of the equipment must be in the recovery zone. The lender must pay taxes on the interest, but it receives federal tax credits for 35% of the interest payable. The lender must report the tax credits as additional interest income.

The IRS will allocate all $25 billion in recovery zone bond authority to the states in proportion to their job losses in 2008. However, each state must be allocated at least 0.9% of the nationwide cap for each type of recovery zone bond. Anyone who wants to use recovery zone bonds must apply for an allocation to the state where the project will be located.

3.4 Qualified Energy Conservation Bonds

"Qualified energy conservation bonds" or "QECBs" are bonds that can be issued to finance many different kinds of green energy projects. The bonds are issued by state and local governments. Only $3.2 billion in such bonds have been authorized nationwide. The IRS allocated the bond authority in April 2009 among states in proportion to their populations. Thus, for example, $381 million in bonds can be issued for projects in California, $90 million for projects in New Jersey, $252 million in Texas, $51 million in Colorado and $67 million in Arizona.

The bonds are mainly for projects that will be put to public use. However, up to 30% can be used to finance private projects.

Eligible projects include solar generating equipment.

The lender pays tax on the interest. It receives tax credits from the federal government at 70% of the tax credits it would need to forego interest entirely. The tax credits must be reported as income.

Section 4. Federal Loan Guarantees

The "American Recovery and Reinvestment Act" authorized the U.S. Department of Energy to guarantee loans made to renewable energy and transmission projects in an effort to jump start the stalled debt market. The guarantees will also be available to support loans to pay for construction or expansion of U.S. factories that produce equipment for renewable energy projects. Any projects helped by the new loan guarantees must be in a position to start construction by September 30, 2011.

Final agency guidance is pending and DOE hopes to start accepting applications in July 2009.

The agency already had authority under the Energy Policy Act in August 2005 to guarantee loans to companies trying to develop innovative technologies, or technologies that have not been put to more than three commercial applications in the United States. It took 15 months before the department opened the door for applications. It shortlisted 16 applicants in 2006. However, no guarantees had been issued by the spring 2009, three and a half years after the program was first authorized.

One criticism of the innovative program is that it was supposed to be self financing. Anyone awarded a loan guarantee would be required to pay a "credit subsidy charge" like the premium that must be paid when buying insurance. The problem was that applicants had to submit voluminous applications at great expense, but they would not learn the credit subsidy charge for their projects until close to the end of the process and the charges could make the guarantees uneconomic. They vary from borrower to borrower depending on the perceived riskiness of the project.

Congress appropriated $6 billion for a loss reserve for the new program. The new program is not limited to innovative technologies, and is available to all renewable energy projects. Secretary Chu announced that he intends to use the loss reserve to waive any credit subsidy charges, including for applicants who are eventually issued guarantees under the existing innovative program. The $6 billion should be enough to support guarantees of $80 to $110 billion.

DOE could guarantee debt of up to 80% of the project cost, but it is considering requiring an unguaranteed tranche of private debt as a way of piggybacking on the credit review by a private lender.

Among the issues that the government must decide is whether to let borrowers borrow through an arm of the US Treasury call the Federal Financing Bank (FFB). Any borrowing through FFB is expected to price at 22 basis points above the comparable Treasury yield. The guarantees are for

new financings and not for refinancing existing projects. The government will want the developer to have significant "skin in the game," or a significant equity investment. It does not have a position yet on whether the 30% Treasury cash grant counts as part of the developer's equity investment. Any project that benefits from a guarantee will become subject to the "National Environmental Policy Act," which means that it will require an environmental assessment or possibly even a more time-consuming environmental impact statement before it can start construction. The project will have to pay "prevailing wages" to construction workers. These are the same union wages that the U.S. government is required by the Davis-Bacon Act to pay on federal construction jobs. The project will also be required to use American steel, iron and manufactured products. However, this last requirement only applies to "public works" and "public building" projects and is unlikely to affect many private projects.

Section 5. Manufacturing Tax Credit

The "American Recovery and Reinvestment Act" created a new 30% investment tax credit that can be claimed on the cost of re-equipping, expanding or building a factory to make products for the green economy. Examples are factories to make solar panels or inverters, blades for wind turbines, pumps for geothermal projects, fuel cells and large batteries. However, only $2.3 billion in such credits can be claimed nationwide. Anyone wanting to claim the credits will have to apply to the Internal Revenue Service for an allocation.

Section 6. State Tax Considerations

(Adapted from work performed by Christy Herig for the National Renewable Energy Laboratory and Susan Gouchoe and Matthew Briggs with the DSIRE project.)

Currently, no state tax credits are reduced by the federal credit.[14] (The case for state and utility grant programs is more complex – see section 1.4 and the database at www.dsireusa.org for individual programs.)

However, it is important to remember for the purpose of calculating turnkey costs that state and federal income tax credits, along with grants, do not add up directly even if they are taxable. This is highly relevant for calculating system costs, but it is important to remember that again, except for residential systems in Hawaii, a $10,000 solar system is still claimed as a $10,000 system at every stage in the process.

14. The one exception to this case – the Hawaii state tax credit – was altered in 2006 to non-interaction with the SB 2957, which amends the Hawaii Revised Statutes, Section 235.12.5

Instead, the effect is best thought of as the state credit or other grant putting money in your pocket that the federal government then taxes.

The *effective* sum of any state and federal tax credits is, therefore, the federal tax credit (FTC) plus one, minus the FTC times the state tax credit (STC), or:

$$FTC + ((1-FTC)*STC)$$

For instance, assume your state offers a nontaxable credit of 25 percent (up to $3,750.) Assuming you did not reach this cap, the sum of the state and federal tax credits would be;

$$0.30 + ((1-0.30)*0.25)$$

which equals 0.475 (47.5%) (instead of a direct sum of (.30 + .25 = .55, or 55%.) In sequence:

1. You purchase a $5,000 solar system.
2. The state gives you a state tax credit of ($5,000 * .25) = $1250.
3. Your income has therefore increased by $1,250.
4. The federal government gives you a credit of ($5,000 *.30) = $1500.
5. The federal government then taxes the $1,250 you received from the state, reducing your savings by $375, leaving you with $2,375 net savings.

Section 7. Appendix

7.1 Frequently-Asked Questions

1. ***If I receive a rebate for my system from my state or local government, does that reduce the basis on which I can claim the federal 30% ITC?***
   A rebate received in a commercial context must usually be reported as taxable income by the recipient. A recipient who must report a rebate as income claims the gross amount paid for solar equipment as his "tax basis" in the equipment for purposes of calculating the commercial solar tax credit or Treasury cash grant.

   Grants from state or local governments must ordinarily be reported as taxable income and do not reduce the tax basis for calculating the 30% tax credit for the equipment whose purchase price is paid in part with the grant.

2. **If I receive a rebate for my system from my utility, does that reduce the basis on which I can claim the federal 30% ITC?**
   A rebate received from a utility in a commercial context usually must be reported as taxable income by the recipient. A recipient who must report a rebate as income claims the gross amount paid for solar equipment as his "tax basis" in the equipment for purposes of calculating the commercial solar tax credit or Treasury cash grant.

   A rebate received by a homeowner in a residential context usually does not have to be reported as income when the rebate is received from the local utility. A homeowner who does not report the rebate as income takes a "tax basis" in solar equipment equal to the net amount he paid. In other words, if the solar equipment has a gross cost of $20,000, but a rebate from the local utility pays $2,000, then his tax basis in the equipment for purposes of calculating the residential tax credit is $18,000.

3. **For the residential credit, now that 25D(e)(9) (subsidized energy financing) has been eliminated, how are basis adjustments addressed under 25D(f)?**
   A homeowner who claims a residential federal tax credit must reduce his basis in the solar equipment (or the house if he claims a single basis in the house) by the amount of tax credit he claimed. This will affect the amount of gain he has to report when the house is later sold.

4. **Are state and local government grants taxable?**
   See the answer to the first question.

5. **Can I take the 30% federal grant instead of the 30% tax credit?**
   The grant program option applies only to commercial systems and does not apply to residential systems.

   The owner of new solar equipment put to commercial use and placed in service in 2009 or 2010 qualifies potentially for a 30% cash grant from the US Treasury. The owner would receive this grant in place of the commercial tax credit. The grant will be paid within 60 days after the equipment is placed in service or, if later, after the application is submitted and approved for the grant. Grants will also be paid on commercial solar systems on which the owner commences construction in 2009 or 2010, provided the system is placed in service by 2016.

6. **If I build a new house for sale, can I take the residential credit or the commercial credit?**
   The homebuilder is not usually entitled to the tax credit. The commercial credit can only be claimed on solar equipment put to commercial use. It is claimed by the person who owns the equipment when it is placed in service. A homebuilder does not usually place a house in service, unless he retains ownership of the house and uses it as a rental property.

   In most situations where someone builds a house and sells it with solar equipment already installed, the new homeowner is the one entitled to any tax credit. He claims a residential credit. He must use the house as his residence.

7. **Can I take the 30% credit or grant on a system built on a new house in 2009 even if the house isn't sold until 2010?**
   See the previous answer. The homebuilder isn't usually entitled to any tax credit.

8. **If I don't have enough tax liability to take the full tax credit in the year my system is installed, can I apply the remainder of the credit to the following years' taxes?**
   Unused commercial credits can be carried forward for up to 20 years. Unused residential credits can be carried forward at least until tax year 2016 (the year the residential credit expires). It is unclear whether residential credits can be carried forward past 2016.

9. **What if I have to sell my house, can I still claim the credit?**
   The residential credit is not recaptured if the house is later sold. However, the homeowner will have had to have reduced his tax basis in the house by the amount of the credit. He is more likely to have a gain on sale.

10. **Does the 30% credit cover the cost of installation labor?**
    The cost of labor to install solar equipment goes into the "basis" for calculating the credit. However, only labor tied to eligible solar equipment goes into the basis. Thus, for example, if part of the labor is for replacing a roof under the solar panels, that part would not count.

11. **Does the 30% credit cover balance of system costs (racking, inverters, etc.)?**
    Yes, the "basis" for calculating the credit includes all equipment from the panels through to the inverter (the box that converts direct current to alternating current). It does not normally cover the cost of equipment "downstream" from the inverter like wiring to the buildings's electrical box or additional disconnect switches.

12. Is there a standard tax form for claiming the 30% credit? If so, where can I find it?
The commercial credit is claimed on IRS Form 3468. The residential credit is claimed on IRS Form 5695. Tax forms can be found at www.irs.gov. However, the 2009 forms may not be available yet on the IRS website as the agency is updating them to reflect the changes in the "American Recovery and Reinvestment Act" signed into law February 17, 2009.

13. I installed my residential system in 2008. Can I claim the full 30% credit?
You can claim a credit only up to the cap of $2,000 per system that was installed at the before 2009. *There is no cap for PV or solar thermal systems installed after 2008.*

14. Can I claim the residential solar water heating credit for a solar water heating system used for radiant floor heating?
Yes.

15. I received government loans to finance my system, does that affect the credit I can claim?
Any government loan considered "subsidized energy financing" --- and most should be --- is used to reduce the "basis" on which the credit is calculated before 2009. For the commercial credit, if the system was partly constructed before 2009, then there will be reduction in basis for the share of the cost incurred before 2009 that was financed with such a loan. For the residential credit, there is no reduction on account of such a loan for any system on which installation was completed after 2008. It does not matter if work started in 2008.

16. If I replace my roof at the same time I install a system, how do I calculate the system cost on which I can claim the credit?
Ask the contractor to allocate the cost of the job between the roof and the solar system. The credit may only be claimed on the solar system. However, where a solar system doubles as the roof, a residential credit can still be claimed on the full cost notwithstanding that the solar system serves a dual purpose.

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Practice Description

Keith Martin's principal areas of practice are tax and project finance. He is a transactional lawyer who advised 168 companies in 2008 and worked on transactions in the United States and eight foreign countries. He also lobbies Congress and the Treasury Department on policy issues. Chadbourne & Parke LLP is a large law firm headquartered in New York, with other offices in Washington, Los Angeles, Mexico City, Beijing, Almaty, Moscow, St. Petersburg, Kiev, Warsaw, Dubai and London. The firm has worked on power projects in more than 60 countries and is a franchise name in the business.

Activities and Affiliations

Speaker:

Mr. Martin is in frequent demand as a speaker. Recent talks include the Global Windpower 2009 convention in Chicago, the annual investor meeting of Riverstone Holdings in Houston, the Goldman Sachs power and utility conference in New York in May 2009, the annual meeting of the Gulf Coast Power Association in Houston, a renewable energy mergers & acquisitions conference in Washington, and an ocean energy conference in Washington in April 2009, a solar finance summit in San Diego and a Credit Suisse energy conference in New York in March 2009, the wind finance and investment summit in San Diego, and the Tax Executives Institute meeting in Houston in February 2009, a biomass finance conference in Miami in January 2009, a solar finance and investment summit in San Diego and a geothermal workshop in Palm Springs in November 2008, a green business summit in New York, the Solar Power 2008 convention in San Diego, the fall finance conference of the American Wind Energy Association in New York and a tutorial on developing and financing renewable energy projects in San Diego in October 2008, the annual tax meeting of the American Petroleum Institute and the annual meeting of the Independent Energy Producers in California in September 2008, a solar project development and finance tutorial in San Francisco in July 2008, and the Ocean Energy 2008 convention in Galveston and the Global Windpower 2008 convention in Houston in June 2008.

Editor:
Project Finance NewsWire, and a contributing editor of International Tax Report, Practical US/International Tax Strategies and Natural Gas & Electricity magazine.

Author:
He is the author of more than 130 articles and book chapters on project finance subjects, including:

"Financing Renewable Energy After the Stimulus," Special Update, February 2009
"Calculating How Much Tax Equity Can Be Raised," in Project Finance NewsWire, June 2008
"Master Limited Partnerships," in Project Finance NewsWire, March 2006
"Financing Pollution Control," in Project Finance NewsWire, October 2005
"Canadian Income Funds," in Project Finance NewsWire, December 2003
"Tax Issues in Project Sales," Project Finance NewsWire, February 2003
"Tax Issues and Incentives for Windpower Projects," Project Finance NewsWire, December 2002
"Potential Effects of Invading Iraq," Project Finance NewsWire, October 2002
"Corporate Inversions," International Tax Review, May 2002
"Storm Over Argentina," Project Finance NewsWire, February 2002
"Fallout from Enron," Metropolitan Corporate Counsel, January 2002
"Municipal Power Deals," Project Finance Monthly, February 2001
"Latest Tax Angles for Latin American Projects," Practical Latin American Tax Strategies, September 1999
"Cross Border Leasing," Proceedings, EEI Tax School, July 1997
"Tax Issues and Opportunities in Restructuring Contracts," Project Finance International, April 1997

Honors:
He is listed as one of the world's leading project finance lawyers in the latest Chambers global directory and International Who's Who of Project Finance Lawyers published in London and as a premier tax lawyer in The Legal 500 and Best Lawyers in America. (All four publications base their recommendations on peer reviews and polling of corporate law departments.)

Education and Professional Background

- Wesleyan University, B.A., 1974
- George Washington University, J.D., 1977
- The London School of Economics, M.Sc., 1978
- Legislative Assistant, Senator Henry M. Jackson (D. -Washington), 1974-1977
- Counsel, Senator Daniel Patrick Moynihan (D. -New York), 1979-1982
- Joined Chadbourne & Parke LLP in 1983 as a partner

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EXHIBIT C

"(i) 2 catamarans built by a shipbuilder incorporated in the State of Washington in 1964, the contracts for which were signed on April 22, 1986 and November 12, 1985, and 1 barge built by such shipbuilder the contract for which was signed on August 7, 1985.

"(ii) 2 large passenger ocean-going United States flag cruise ships with a passenger rated capacity of up to 250 which are built by the shipbuilder described in clause (i), which are the first such ships built in the United States since 1952, and which were designed at the request of a Pacific Coast cruise line pursuant to a contract entered into in October 1985. This clause shall apply only to that portion of the cost of each ship which does not exceed $40,000,000.

"(iii) Property placed in service during 1986 by Satellite Industries, Inc., with headquarters in Minneapolis, Minnesota, to the extent that the cost of such property does not exceed $1,950,000.

"(E) Subsections (c) and (d) of section 49 of such Code shall not apply to property described in section 204(a)(4) of this Act [enacting provisions set out as a note under section 168 of this title]."

SAVINGS PROVISION

For provisions that nothing in amendment by Pub. L. 101-508 be construed to affect treatment of certain transactions occurring, property acquired, or items of income, loss, deduction, or credit taken into account prior to Nov. 5, 1990, for purposes of determining liability for tax for periods ending after Nov. 5, 1990, see section 11821(b) of Pub. L. 101-508, set out as a note under section 45K of this title.

NORMALIZATION RULES

Section 211(b) of Pub. L. 99-514 provided that: "If, for any taxable year beginning after December 31, 1985, the requirements of paragraph (1) or (2) of section 46(f) of the Internal Revenue Code of 1986 are not met with respect to public utility property to which the regular percentage applied for purposes of determining the amount of the investment tax credit—

"(1) all credits for open taxable years as of the time of the final determination referred to in section 46(f)(4)(A) of such Code shall be recaptured, and

"(2) if the amount of the taxpayer's unamortized credits (or the credits not previously restored to rate base) with respect to such property (whether or not for open years) exceeds the amount referred to in paragraph (1), the taxpayer's tax for the taxable year shall be increased by the amount of such excess.

If any portion of the excess described in paragraph (2) is attributable to a credit which is allowable as a carryover to a taxable year beginning after December 31, 1985, in lieu of applying paragraph (2) with respect to such portion, the amount of such carryover shall be reduced by the amount of such portion. Rules similar to the rules of this subsection shall apply in the case of any property with respect to which the requirements of section 46(f)(9) of such Code are met."

EXCEPTION FOR CERTAIN AIRCRAFT USED IN ALASKA

Section 211(d) of Pub. L. 99-514 provided that:

"(1) The amendments made by subsection (a) [enacting this section and provisions set out above] shall not apply to property originally placed in service after December 29, 1982, and before August 1, 1985, by a corporation incorporated in Alaska on May 21, 1953, and used by it—

"(A) in part, for the transportation of mail for the United States Postal Service in the State of Alaska, and

"(B) in part, to provide air service in the State of Alaska on routes which had previously been served by an air carrier that received compensation from the Civil Aeronautics Board for providing service.

"(2) In the case of property described in subparagraph (A)—

"(A) such property shall be treated as recovery property described in section 208(d)(5) of the Tax Equity and Fiscal Responsibility Act of 1982 ("TEFRA") [section 208(d)(5) of Pub. L. 97-248, enacting provisions set out as a note under section 168 of this title];

"(B) '48 months' shall be substituted for '3 months' each place it appears in applying—

"(i) section 48(b)(2)(B) of the Code [26 U.S.C. 48(b)(2)(B)], and

"(ii) section 168(f)(8)(D) of the Code [26 U.S.C. 168(f)(8)(D)] (as in effect after the amendments made by the Technical Corrections Act of 1982 [Pub. L. 97-448] but before the amendments made by TEFRA); and

"(C) the limitation of section 168(f)(8)(D)(ii)(III) (as then in effect) shall be read by substituting 'the lessee's original cost basis.', for 'the adjusted basis of the lessee at the time of the lease.'

"(3) The aggregate amount of property to which this paragraph shall apply shall not exceed $60,000,000."

§50. Other special rules

(a) Recapture in case of dispositions, etc.

Under regulations prescribed by the Secretary—

(1) Early disposition, etc.

(A) General rule

If, during any taxable year, investment credit property is disposed of, or otherwise ceases to be investment credit property with respect to the taxpayer, before the close of the recapture period, then the tax under this chapter for such taxable year shall be increased by the recapture percentage of the aggregate decrease in the credits allowed under section 38 for all prior taxable years which would have resulted solely from reducing to zero any credit determined under this subpart with respect to such property.

(B) Recapture percentage

For purposes of subparagraph (A), the recapture percentage shall be determined in accordance with the following table:

If the property ceases to be investment credit property within—	The recapture percentage is:
(i) One full year after placed in service	100
(ii) One full year after the close of the period described in clause (i)	80
(iii) One full year after the close of the period described in clause (ii)	60
(iv) One full year after the close of the period described in clause (iii)	40
(v) One full year after the close of the period described in clause (iv)	20

(2) Property ceases to qualify for progress expenditures

(A) In general

If during any taxable year any building to which section 47(d) applied ceases (by reason of sale or other disposition, cancellation or abandonment of contract, or otherwise) to be, with respect to the taxpayer, property which, when placed in service, will be a qualified rehabilitated building, then the tax under this chapter for such taxable year

shall be increased by an amount equal to the aggregate decrease in the credits allowed under section 38 for all prior taxable years which would have resulted solely from reducing to zero the credit determined under this subpart with respect to such building.

(B) Certain excess credit recaptured

Any amount which would have been applied as a reduction under paragraph (2) of section 47(b) but for the fact that a reduction under such paragraph cannot reduce the amount taken into account under section 47(b)(1) below zero shall be treated as an amount required to be recaptured under subparagraph (A) for the taxable year during which the building is placed in service.

(C) Certain sales and leasebacks

Under regulations prescribed by the Secretary, a sale by, and leaseback to, a taxpayer who, when the property is placed in service, will be a lessee to whom the rules referred to in subsection (d)(5) apply shall not be treated as a cessation described in subparagraph (A) to the extent that the amount which will be passed through to the lessee under such rules with respect to such property is not less than the qualified rehabilitation expenditures properly taken into account by the lessee under section 47(d) with respect to such property.

(D) Coordination with paragraph (1)

If, after property is placed in service, there is a disposition or other cessation described in paragraph (1), then paragraph (1) shall be applied as if any credit which was allowable by reason of section 47(d) and which has not been required to be recaptured before such disposition, cessation, or change in use were allowable for the taxable year the property was placed in service.

(E) Special rules

Rules similar to the rules of this paragraph shall apply in cases where qualified progress expenditures were taken into account under the rules referred to in section 48(b).

(3) Carrybacks and carryovers adjusted

In the case of any cessation described in paragraph (1) or (2), the carrybacks and carryovers under section 39 shall be adjusted by reason of such cessation.

(4) Subsection not to apply in certain cases

Paragraphs (1) and (2) shall not apply to—

(A) a transfer by reason of death, or

(B) a transaction to which section 381(a) applies.

For purposes of this subsection, property shall not be treated as ceasing to be investment credit property with respect to the taxpayer by reason of a mere change in the form of conducting the trade or business so long as the property is retained in such trade or business as investment credit property and the taxpayer retains a substantial interest in such trade or business.

(5) Definitions and special rules

(A) Investment credit property

For purposes of this subsection, the term "investment credit property" means any property eligible for a credit determined under this subpart.

(B) Transfer between spouses or incident to divorce

In the case of any transfer described in subsection (a) of section 1041—

(i) the foregoing provisions of this subsection shall not apply, and

(ii) the same tax treatment under this subsection with respect to the transferred property shall apply to the transferee as would have applied to the transferor.

(C) Special rule

Any increase in tax under paragraph (1) or (2) shall not be treated as tax imposed by this chapter for purposes of determining the amount of any credit allowable under this chapter.

(b) Certain property not eligible

No credit shall be determined under this subpart with respect to—

(1) Property used outside United States

(A) In general

Except as provided in subparagraph (B), no credit shall be determined under this subpart with respect to any property which is used predominantly outside the United States.

(B) Exceptions

Subparagraph (A) shall not apply to any property described in section 168(g)(4).

(2) Property used for lodging

No credit shall be determined under this subpart with respect to any property which is used predominantly to furnish lodging or in connection with the furnishing of lodging. The preceding sentence shall not apply to—

(A) nonlodging commercial facilities which are available to persons not using the lodging facilities on the same basis as they are available to persons using the lodging facilities.[1]

(B) property used by a hotel or motel in connection with the trade or business of furnishing lodging where the predominant portion of the accommodations is used by transients;

(C) a certified historic structure to the extent of that portion of the basis which is attributable to qualified rehabilitation expenditures; and

(D) any energy property.

(3) Property used by certain tax-exempt organization

No credit shall be determined under this subpart with respect to any property used by an organization (other than a cooperative described in section 521) which is exempt from the tax imposed by this chapter unless such

[1] So in original. The period probably should be a semicolon.

property is used predominantly in an unrelated trade or business the income of which is subject to tax under section 511. If the property is debt-financed property (as defined in section 514(b)), the amount taken into account for purposes of determining the amount of the credit under this subpart with respect to such property shall be that percentage of the amount (which but for this paragraph would be so taken into account) which is the same percentage as is used under section 514(a), for the year the property is placed in service, in computing the amount of gross income to be taken into account during such taxable year with respect to such property. If any qualified rehabilitated building is used by the tax-exempt organization pursuant to a lease, this paragraph shall not apply for purposes of determining the amount of the rehabilitation credit.

(4) Property used by governmental units or foreign persons or entities

(A) In general

No credit shall be determined under this subpart with respect to any property used—

(i) by the United States, any State or political subdivision thereof, any possession of the United States, or any agency or instrumentality of any of the foregoing, or

(ii) by any foreign person or entity (as defined in section 168(h)(2)(C)), but only with respect to property to which section 168(h)(2)(A)(iii) applies (determined after the application of section 168(h)(2)(B)).

(B) Exception for short-term leases

This paragraph and paragraph (3) shall not apply to any property by reason of use under a lease with a term of less than 6 months (determined under section 168(i)(3)).

(C) Exception for qualified rehabilitated buildings leased to governments, etc.

If any qualified rehabilitated building is leased to a governmental unit (or a foreign person or entity) this paragraph shall not apply for purposes of determining the rehabilitation credit with respect to such building.

(D) Special rules for partnerships, etc.

For purposes of this paragraph and paragraph (3), rules similar to the rules of paragraphs (5) and (6) of section 168(h) shall apply.

(E) Cross reference

For special rules for the application of this paragraph and paragraph (3), see section 168(h).

(c) Basis adjustment to investment credit property

(1) In general

For purposes of this subtitle, if a credit is determined under this subpart with respect to any property, the basis of such property shall be reduced by the amount of the credit so determined.

(2) Certain dispositions

If during any taxable year there is a recapture amount determined with respect to any property the basis of which was reduced under paragraph (1), the basis of such property (immediately before the event resulting in such recapture) shall be increased by an amount equal to such recapture amount. For purposes of the preceding sentence, the term "recapture amount" means any increase in tax (or adjustment in carrybacks or carryovers) determined under subsection (a).

(3) Special rule

In the case of any energy credit—

(A) only 50 percent of such credit shall be taken into account under paragraph (1), and

(B) only 50 percent of any recapture amount attributable to such credit shall be taken into account under paragraph (2).

(4) Recapture of reductions

(A) In general

For purposes of sections 1245 and 1250, any reduction under this subsection shall be treated as a deduction allowed for depreciation.

(B) Special rule for section 1250

For purposes of section 1250(b), the determination of what would have been the depreciation adjustments under the straight line method shall be made as if there had been no reduction under this section.

(5) Adjustment in basis of interest in partnership or S corporation

The adjusted basis of—

(A) a partner's interest in a partnership, and

(B) stock in an S corporation,

shall be appropriately adjusted to take into account adjustments made under this subsection in the basis of property held by the partnership or S corporation (as the case may be).

(d) Certain rules made applicable

For purposes of this subpart, rules similar to the rules of the following provisions (as in effect on the day before the date of the enactment of the Revenue Reconciliation Act of 1990) shall apply:

(1) Section 46(e) (relating to limitations with respect to certain persons).

(2) Section 46(f) (relating to limitation in case of certain regulated companies).

(3) Section 46(h) (relating to special rules for cooperatives).

(4) Paragraphs (2) and (3) of section 48(b) (relating to special rule for sale-leasebacks).

(5) Section 48(d) (relating to certain leased property).

(6) Section 48(f) (relating to estates and trusts).

(7) Section 48(r) (relating to certain 501(d) organizations).

Paragraphs (1)(A), (2)(A), and (4) of the section 46(e) referred to in paragraph (1) of this subsection shall not apply to any taxable year beginning after December 31, 1995.

(Added Pub. L. 101–508, title XI, §11813(a), Nov. 5, 1990, 104 Stat. 1388–546; amended Pub. L. 104–188, title I, §§1616(b)(1), 1702(h)(11), 1704(t)(29), Aug.

20, 1996, 110 Stat. 1856, 1874, 1889; Pub. L. 105–206, title VI, § 6004(g)(7), July 22, 1998, 112 Stat. 796; Pub. L. 108–357, title III, § 322(d)(2)(D), Oct. 22, 2004, 118 Stat. 1475; Pub. L. 109–135, title IV, § 412(o), Dec. 21, 2005, 119 Stat. 2638.)

REFERENCES IN TEXT

The date of the enactment of the Revenue Reconciliation Act of 1990, referred to in subsec. (d), is the date of enactment of Pub. L. 101–508, which was approved Nov. 5, 1990.

PRIOR PROVISIONS

A prior section 50, Pub. L. 92–178, title I, § 101(a), Dec. 10, 1971, 85 Stat. 498, related to restoration of credit for investment in certain depreciable property, prior to repeal by Pub. L. 95–600, title III, § 312(c)(1), Nov. 6, 1978, 92 Stat. 2826, applicable to taxable years ending after Dec. 31, 1978.

AMENDMENTS

2005—Subsec. (a)(2)(E). Pub. L. 109–135 substituted "section 48(b)" for "section 48(a)(5)".

2004—Subsec. (c)(3). Pub. L. 108–357 struck out "or reforestation credit" after "energy credit" in introductory provisions.

1998—Subsec. (a)(5)(C). Pub. L. 105–206 substituted "this chapter" for "subpart A, B, D, or G".

1996—Subsec. (a)(2)(C). Pub. L. 104–188, § 1704(t)(29), substituted "subsection (d)(5)" for "subsection (c)(4)".

Subsec. (a)(2)(E). Pub. L. 104–188, § 1702(h)(11), substituted "48(a)(5)" for "48(a)(5)(A)".

Subsec. (d). Pub. L. 104–188, § 1616(b)(1), inserted closing provisions.

EFFECTIVE DATE OF 2004 AMENDMENT

Amendment by Pub. L. 108–357 applicable with respect to expenditures paid or incurred after Oct. 22, 2004, see section 322(e) of Pub. L. 108–357, set out as a note under section 46 of this title.

EFFECTIVE DATE OF 1998 AMENDMENT

Amendment by Pub. L. 105–206 effective, except as otherwise provided, as if included in the provisions of the Taxpayer Relief Act of 1997, Pub. L. 105–34, to which such amendment relates, see section 6024 of Pub. L. 105–206, set out as a note under section 1 of this title.

EFFECTIVE DATE OF 1996 AMENDMENT

Amendment by section 1616(b)(1) of Pub. L. 104–188 applicable to taxable years beginning after Dec. 31, 1995, see section 1616(c) of Pub. L. 104–188, set out as a note under section 593 of this title.

Amendment by section 1702(h)(11) of Pub. L. 104–188 effective, except as otherwise expressly provided, as if included in the provision of the Revenue Reconciliation Act of 1990, Pub. L. 101–508, title XI, to which such amendment relates, see section 1702(i) of Pub. L. 104–188, set out as a note under section 38 of this title.

EFFECTIVE DATE

Section applicable to property placed in service after Dec. 31, 1990, but not applicable to any transition property (as defined in section 49(e) of this title), any property with respect to which qualified progress expenditures were previously taken into account under section 46(d) of this title, and any property described in section 46(b)(2)(C) of this title, as such sections were in effect on Nov. 4, 1990, see section 11813(c) of Pub. L. 101–508, set out as an Effective Date of 1990 Amendment note under section 45K of this title.

SAVINGS PROVISION

For provisions that nothing in this section be construed to affect treatment of certain transactions occurring, property acquired, or items of income, loss, deduction, or credit taken into account prior to Nov. 5, 1990, for purposes of determining liability for tax for periods ending after Nov. 5, 1990, see section 11821(b) of Pub. L. 101–508, set out as a note under section 45K of this title.

[§§ 50A, 50B. Repealed. Pub. L. 98–369, div. A, title IV, § 474(m)(2), July 18, 1984, 98 Stat. 833]

Section 50A, added Pub. L. 92–178, title VI, § 601(b), Dec. 10, 1971, 85 Stat. 554; amended Pub. L. 93–406, title II, §§ 2001(g)(2)(B), 2002(g)(2), 2005(c)(4), Sept. 2, 1974, 88 Stat. 957, 968, 991; Pub. L. 94–12, title IV, § 401(a)(1), (2), Mar. 29, 1975, 89 Stat. 45; Pub. L. 94–401, § 4(a), Sept. 7, 1976, 90 Stat. 1217; Pub. L. 94–455, title V, § 503(b)(4), title XIX, §§ 1901(a)(6), (b)(1)(D), 1906(b)(13)(A), title XXI, § 2107(a)(1)–(3), (b), (c), Oct. 4, 1976, 90 Stat. 1562, 1765, 1790, 1834, 1903, 1904; Pub. L. 95–600, title III, § 322(a)–(c), Nov. 6, 1978, 92 Stat. 2836, 2837; Pub. L. 96–178, § 6(c)(1), Jan. 2, 1980, 93 Stat. 1298; Pub. L. 96–222, title I, § 103(a)(7)(D)(i), Apr. 1, 1980, 94 Stat. 211; Pub. L. 97–34, title II, § 207(c)(1), Aug. 13, 1981, 95 Stat. 225; Pub. L. 97–248, title I, § 265(b)(2)(A)(ii), Sept. 3, 1982, 96 Stat. 547; Pub. L. 97–354, § 5(a)(9), Oct. 19, 1982, 96 Stat. 1693, provided for a credit for expenses of work incentive programs, for the determination of the amount of that credit, and for the carryover and carryback of unused credit.

Section 50B, added Pub. L. 92–178, title VI, § 601(b), Dec. 10, 1971, 85 Stat. 556; amended Pub. L. 94–12, title III, § 302(c)(4), title IV, § 401(a)(3)–(5), Mar. 29, 1975, 89 Stat. 44, 46; Pub. L. 94–401, § 4(b), Sept. 7, 1976, 90 Stat. 1218; Pub. L. 94–455, title XIX, § 1906(b)(13)(A), title XXI, § 2107(a)(4), (d)–(f), Oct. 4, 1976, 90 Stat. 1834, 1903, 1904; Pub. L. 95–171, § 1(e), Nov. 12, 1977, 91 Stat. 1353; Pub. L. 95–600, title III, § 322(d), Nov. 6, 1978, 92 Stat. 2837; Pub. L. 96–178, §§ 3(a)(1), (3), 6(c)(2), (3), Jan. 2, 1980, 93 Stat. 1295, 1298; Pub. L. 96–222, title I, § 103(a)(5), (7)(C), (D)(ii), (iii), Apr. 1, 1980, 94 Stat. 209, 211; Pub. L. 96–272, title II, § 208(b)(1), (2), June 17, 1980, 94 Stat. 526, 527; Pub. L. 97–34, title II, § 261(b)(2)(B)(i), Aug. 13, 1981, 95 Stat. 261; Pub. L. 97–354, § 5(a)(10), Oct. 19, 1982, 96 Stat. 1693; Pub. L. 101–239, title VII, § 7644, Dec. 19, 1989, 103 Stat. 2381, provided for the definition of terms related to the expenses of work incentive programs, limitations on such expenses, and special rules to be applied in connection with the computation of the credit.

Subsequent to repeal, Pub. L. 101–239, title VII, § 7644(a), Dec. 19, 1989, 103 Stat. 2381, provided that:

"(a) IN GENERAL.—So much of subparagraph (A) of section 50B(h)(1) of the Internal Revenue Code of 1954 (as in effect for taxable years beginning before January 1, 1982) as precedes clause (i) thereof is amended to read as follows:

"'(A) who has been certified (or for whom a written request for certification has been made) on or before the day the individual began work for the taxpayer by the Secretary of Labor or by the appropriate agency of State or local government as—'.

"(b) EFFECTIVE DATE.—The amendment made by subsection (a) shall apply for purposes of credits first claimed after March 11, 1987."

EFFECTIVE DATE OF REPEAL

Repeal applicable to taxable years beginning after Dec. 31, 1983, and to carrybacks from such years, see section 475(a) of Pub. L. 98–369, set out as an Effective Date of 1984 Amendment note under section 21 of this title.

SUBPART F—RULES FOR COMPUTING WORK OPPORTUNITY CREDIT

Sec.
51. Amount of credit.
[51A. Repealed.]
52. Special rules.

AMENDMENTS

2006—Pub. L. 109–432, div. A, title I, § 105(e)(4)(B), Dec. 20, 2006, 120 Stat. 2937, struck out item 51A "Temporary

ORIGINAL

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Arizona Corporation Commission
DOCKETED
OCT 13 2009
DOCKETED BY

BEFORE THE ARIZONA CORPORATION COMMISSION

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CHAIRMAN

SANDRA D. KENNEDY
COMMISSIONER

PAUL NEWMAN
COMMISSIONER

GARY PIERCE
COMMISSIONER

BOB STUMP
COMMISSIONER

EXHIBIT
A-5
ADMITTED

IN THE MATTER OF THE APPLICATION OF SOLARCITY FOR A DETERMINATION THAT WHEN IT PROVIDES SOLAR SERVICE TO ARIZONA SCHOOLS, GOVERNMENTS, AND NON-PROFIT ENTITIES IT IS NOT ACTING AS A PUBLIC SERVICE CORPORATION PURSUANT TO ART. 15, SECTION 2 OF THE ARIZONA CONSTITUTION	**DOCKET NO. E-20690A-09-0346** **SOLARCITY'S NOTICE OF FILING OF TESTIMONY AND EXHIBITS**

Applicant, SolarCity, by and through its undersigned counsel hereby gives notice that it is submitting this Notice of Filing of Testimony and Exhibits including additional testimony of Lyndon Rive and David Peterson.

RESPECTFULLY SUBMITTED this 13th day of October, 2009.

Rose Law Group pc

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BEFORE THE ARIZONA CORPORATION COMMISSION

KRISTIN K. MAYES CHAIRMAN	SANDRA D. KENNEDY COMMISSIONER	PAUL NEWMAN COMMISSIONER
GARY PIERCE COMMISSIONER	BOB STUMP COMMISSIONER	

IN THE MATTER OF THE APPLICATION OF SOLARCITY FOR A DETERMINATION THAT WHEN IT PROVIDES SOLAR SERVICE TO ARIZONA SCHOOLS, GOVERNMENTS, AND NON-PROFIT ENTITIES IT IS NOT ACTING AS A PUBLIC SERVICE CORPORATION PURSUANT TO ART. 15, SECTION 2 OF THE ARIZONA CONSTITUTION	)	**DOCKET NO. E-20690A-09-0346** **SOLARCITY'S NOTICE OF FILING OF TESTIMONY AND EXHIBITS**

Additional Testimony of Lyndon Rive

Q: Explain the services that SolarCity has provided to its customers in Arizona.

A: SolarCity has traditionally provided its customers with design, installation and maintenance of rooftop solar photovoltaic systems at no up front cost to the user through our solar lease program.

Q: Does performing any of these services subject SolarCity to regulation from the Arizona Corporation Commission?

A: No, the industry has long been providing these services in Arizona without regulation. In fact, the ACC Staff has even expressly stated in the Solar Alliance Docket that the solar lease program does not subject providers to ACC regulation.

Q: Please explain the services that SolarCity wishes to provide to schools, non-profits and governmental entities under this docket?

A: SolarCity wishes to provide the schools, non-profits and governmental entities with the exact same services it provides its existing customers in Arizona; design, installation and maintenance of solar photovoltaic rooftop systems at no up front cost to the consumer.

Q: And none of these services you seek to provide would cause you to be regulated in Arizona?

A: That is correct.

Q: So why don't you just provide these services to the schools, what is holding you back?

A: As we have discussed, the provision of these services would make solar prohibitively expensive to these users unless we utilize an SSA because the IRS requires that our pricing relate to the amount of electricity provided. Without the federal tax incentives there is just no economically viable way to provide our services to schools, non-profit or governmental entities

Q: So what is the point of the SSA?

A: The SSA allows us to provide our core services to schools, non-profits, and governmental entities. Without the SSA we could not provide our services at a price that would make sense.

Q: And again, when you say "core services" you mean the unregulated services such as design, installation and maintenance with no up front costs that several companies provide to customers all over Arizona right?

A: Right.

Q: Are you aware that Commission Staff has said that the primary purpose of an SSA is to "furnish" electricity to the customer which would result in your company being a Public Service Corporation under the State Constitution?

A: Yes.

Q: What is your reaction to that?

A: I have two reactions; first, SolarCity does not furnish electricity at all because the customer owns all electricity the moment it is produced and therefore, there is never a transfer of possession. The SSA is very clear on this point; and second, even if the Commission believes that somehow SolarCity furnishes energy it never legally possesses it is crystal clear that any furnishing is merely incidental to our provision of wholly unregulated services. You have to

understand that there is simply no other economically viable way for schools, non-profits and governmental entities to utilize our unregulated services that we provide all over the state unless they use the SSA. All SolarCity is doing is trying to provide this class of non-profit customers with its core, unregulated services. If it means we somehow end up furnishing electricity then that is purely incidental. SolarCity never decided to change its business plan and start selling electricity. Instead, SolarCity tried to figure out a way to bring this class of non-profit customers its legal services and the SSA is the only way to do that. We have no reason to change our business plan as we have been highly successful. If we are furnishing electricity, which I do not agree with, it is merely incidental to us utilizing the only viable way to provide the unregulated services the non-profit group can benefit from.

Further, and this is extremely important, our pricing for the SSA is simply the price we would charge for a lease divided out over the number of kWh we expect the system to produce. The notion that we are charging for something different or selling electricity is just absurd.

Q: As to your first reaction it appears the Staff's witness contends that the fact that the SSA says the school owns and takes possession of all electricity the moment it is produced is merely a trick of semantics to avoid a transfer of possession. What is your response to that?

A: I have always felt, and my lawyers have agreed, that language in contracts is important. This is not semantics, this is about possession of something and when that possession occurs. Possession is a right and the provision of the SSA that provides that the customer possesses all of the electricity the moment it is produced transfers a right to the customer. That right is real, it is tangible and is much more than semantics. We are not quibbling over the meaning of some word

with dual meanings. We have negotiated the exact moment of possession such that the customer always owns the electricity and SolarCity never does.

Q: What do you think of the prospect of regulating SSAs while the other forms of solar installation are allowed to flourish unregulated?

A: Frankly, I think that prospect makes little sense. From public policy standpoint the SSA is a much better tool for protecting the end users of solar photovoltaic systems and should be far preferable the prospect of customers purchasing their own systems or even leasing systems.

Q: Can you explain that further?

A: Yes, there are several attributes of the SSA that protect the customer and make the arrangement preferable to a lease or straight purchase. First, the SSA customer only pays based on the performance of the system. In that case the risk of loss is entirely on the provider. If the system does not produce then the customer pays nothing. If the system underproduces then the customer pays less. By contrast, most leases are for a fixed amount each month that the customer pays regardless of performance. Obviously, with a purchase the customer becomes the owner and bears all the risk that their initial investment could be wasted if the system underproduces or fails to produce for periods of time. Second, the SSA gives the customer the opportunity to try the product before buying it. The customer has the option to purchase periodically during the term of the SSA. Unlike in a purchase situation, if the customer is unhappy with the product they do not end up owning it but if they like it they have the chance to buy it. Third, it incentivizes the solar provider to install a good working product. It needs to

perform optimally for the solar provider to profit. If the system is leased or purchased then the provider does not make more money based on optimal performance. The SSA gives incentive for reliable and optimal service. Fourth, with the SSA, the customer does not have to maintain his own system as he would if he bought the system outright. The solar provider takes care of all maintenance at no additional costs.

All in all the public is better protected by an SSA then a lease or a purchase of a solar photovoltaic system. That is why I think it makes little sense to regulate the SSA arrangement when leases and purchases are not regulated.

Q: Do you agree with Staff's assertion that SolarCity fails one of the Serv-Yu tests, because you will accept substantially all requests for service? Staff notes in its testimony at page 27 that you have not provided evidence that the number of potential customers is a small distinct subset of potential customers – do you have any such evidence?

A: I do not agree with staff and have the evidence to prove we do not accept anywhere near substantially all the service requests we receive. We keep track of all of our incoming requests for service through a customer relationship management platform called SolarWorks. When someone calls SolarCity seeking service, their particulars go into this system, and we generate a quote for them if we can. I have reviewed the records for the past 21 months of SolarWorks data and found that SolarCity has turned away 91% of those that have requested service during that period. All in all SolarCity only accepts a small percentage of the requests for service that we receive and clearly it cannot be said that SolarCity accepts "substantially all requests for service."

Staff discusses that our goal is to serve millions of customers and they are right about that if you look at our plans to grow nationwide outside of the specific question in this Docket. But the Serv-Yu test isn't "many" or "millions:" it's "substantially all." As I just mentioned we are a far cry from accepting "substantially all" requests for service as we are turning away the overwhelming majority of requests. I think it's a very long walk from us turning away 9 out of every ten people who requested service to accepting "substantially all" requests for service.

Q: Mr. Rive, is there any reason to believe you actually cannot (as opposed to will not) accept substantially all requests for service from the public?

A: Yes. Right now, as the ACC is aware, distributed generation is only made practical with the utilities' rebates added into the equation. As you know, there is a limited pot of rebate money each year on both the commercial and residential side. Once that rebate money has been used up for the year there is no way to move forward with any additional projects in an economically viable manner. This was extremely evident this year when APS came to the Commission to ask for more money to serve its commercial rebate program for the year and also asked for a set aside of $20 million in rebates just for schools. Without that set aside for school projects no school projects would have been able to be completed this year no matter how many requests for service were made. In response to that school set aside more than 20 school districts, several community colleges, and several charter schools were in contact with SolarCity to discuss the potential to install solar this year in APS' service area. Even with the $20 million set aside there is no way SolarCity could accept all of these requests and the many buildings and many megawatts involved because the rebate money will not support enough megawatt production this

year to cover all those who inquired. No matter what SolarCity's intentions may be you can plainly see we simply cannot accept substantially all requests for service from the public.

Q: Mr. Rive, do you feel that your company offers a commodity comparable to energy provided by an Incumbent Utility?

A: That's another point - we don't feel that solar systems are a commodity. In fact, we find that solar customers can be very finicky, based on their own private preferences. By no means do they just want cheaper electrons and not care where they come from. Customers will happily pay more or less, or not sign on at all, because one solar system is ugly and the other attractive, because one's modules are made in America and the other's are not, because one takes up more roof space than another, because one system will penetrate a customers' roof and the other will not, because we offer a really interesting Web interface and others do not, because one competitor requires an upfront payment and another does not. Even if they produce the same number of electrons, the products and offerings we finance for our customers are unique and highly differentiated. Different customers look for different things.

Q: Have you had a chance to compare SolarCity's Articles of Incorporation with those of some Public Service Corporations in Arizona?

A: Yes.

Q: And what have you found?

A: While SolarCity's Articles of Incorporation make no reference to being a utility or serving electricity, each of the Articles of Incorporation for the PSCs in Arizona that I have had a chance to review clearly indicates that the utility is being formed to act as a public utility. For example, I have attached copies of the Article of Incorporation for Sulphur Springs Valley Electric Cooperative (SSVEC), The Navopache Electric Cooperative (NEC), TEP and APS. SSVEC's Articles of incorporation reference that it is being formed subject to the "Electric Cooperative Act." NEC's Articles of Incorporation actually state flat out that it is going to "furnish" electric energy while TEP's Articles indicate it is formed to transact business as a "public service corporation within the meaning of Section 2 of Article 15 of the Arizona Constitution." Similarly, APS' Articles of Incorporation include the statement that, "[t]he character of the business which the Corporation intends to actually conduct in the State of Arizona on and for the foreseeable period after July 1, 1976 is that of a public service corporation within the meaning of Section 2 of Article 15 of the Constitution of Arizona as in effect on July 1, 1976." Each of these Articles of Incorporation are attached to this testimony as SolarCity Exhibit "D" and SolarCity's Articles of Incorporation are attached as SolarCity Exhibit "E."

Q: Does that conclude your testimony?

A: Yes.

Additional Testimony of David Peterson

Q: On page 19 of his testimony, the Staff's witness Mr. Irvine states that the "provision of electricity" under the Scottsdale SSAs is the "primary purpose of the agreements." As a party to the agreements in question do you agree with that assessment and if you do not please tell me what you believe to be the "primary purpose of the agreements?"

A: I do not agree with Mr. Irvine at all. The fact of the matter is that the Scottsdale Unified School District already has all of the electricity it needs and I have absolutely no need for additional or different electricity. I have no reason to believe that either APS or SRP will ever fail to meet my electrical needs so, no, I do not agree with Mr. Irvine as SUSD simply does not need additional electricity for any reason. What SUSD does need however, is to save money wherever we can save money so that I can hire more teachers or buy more books or improve more buildings. What SolarCity is offering is a chance for SUSD to lower its overall operating budget. Without the SSA arrangement SUSD would have no way of recognizing this savings. The purpose of the SSA is clearly to provide a financing mechanism that allows SUSD to save money. The fact that we are saving money in relation to electricity is completely and totally irrelevant to SUSD. The important part is that SUSD is being offered an opportunity to save money without putting up any upfront money. If anyone can offer SUSD the opportunity to save millions of dollars without coming out of pocket one penny upfront then we are going to strongly consider that opportunity whether it involves solar panels, school books or cleaning supplies. To say this is about the electricity is absurd; it is about the savings and the ability to recognize those savings without up front capital investment.

Additionally, everyone has to remember that there is no other economically viable way for us to make this work. If SUSD could purchase the system or lease it while taking advantage of the substantial tax incentives we would explore that but as has already been explained that does not work because of our tax exempt status. All SUSD wants are the services that SolarCity provides without regulation in this State right now which are the design, installation and maintenance of the system with no upfront costs. Because we are a school the only way we can get these services at a price that makes sense is through a SSA.

Q: You mention the word "financing" in your response yet Mr. Irvine, in his testimony indicates that he believes that the SSA is not actually a form of "financing." What do you think of that?

A: Again, I totally disagree with Mr. Irvine. If SUSD buys the panels then SUSD needs to come up with approximately $10 million dollars just to install the solar systems for the two schools. The SSA allows us the opportunity to get the solar panels in place and to begin saving money without spending anything up front. We are using SolarCity to raise the upfront costs for us and are paying for that based on the savings we ultimately receive from their installation. That is "financing" in its most basic sense. I don't know what else to call that. Also, a simple glance at the dictionary under the word "financing" shows that what we are doing is plainly "financing." The Cambridge Dictionary defines "financing" as, "to provide the money needed for something to happen." In this case, we are utilizing the SSA so that SolarCity and its third party investors can provide the money needed so that the School District can save money. Mr. Irvine's definition of "financing" was self serving and inaccurate.

"SOLARCITY EXHIBIT D"

Articles of Incorporation for Sulphur Springs Valley Electric Cooperative

AMENDED AND RESTATED
ARTICLES OF INCORPORATION
OF
SULPHUR SPRINGS VALLEY ELECTRIC COOPERATIVE, INC.

Pursuant to Sections 10-2056 of the Arizona Revised Statutes, the undersigned corporation hereby adopts the following Articles of Incorporation amending and restating in their entirety the Articles of Incorporation filed with the Arizona Corporation Commission, as amended to date. The Amended and Restated Articles of Incorporation hereinafter appearing correctly set forth without change the provisions of the Articles of Incorporation as heretofore amended and amended hereby, and supersede the original Articles of Incorporation and all amendments thereto.

The following Articles of Amendment are executed pursuant to Arizona Revised Statutes 10-2051 et. seq. and were made on behalf of Sulphur Springs Valley Electric Cooperative, Inc. with its principal office in Willcox, Arizona

ARTICLES OF INCORPORATION
OF
SULPHUR SPRINGS VALLEY ELECTRIC COOPERATIVE, INC.

ARTICLE I.

The corporation as it now exists is Sulphur Springs Valley Electric Cooperative, Inc., and the present address of its principal office is Willcox, Arizona. The name of the company as a cooperative shall be Sulphur Springs Valley Electric Cooperative, Inc., and the address of its principal office as a cooperative shall be Willcox, Arizona.

ARTICLE II.

This corporation was organized under the statutes of the State of Arizona providing for the incorporation of a corporation not for profit and as set forth in Section 602, Revised Code Arizona, 1928.

ARTICLE III.

The Sulphur Springs Valley Electric Cooperative, Inc., elects to become a cooperative non-profit membership corporation subject to the Electric Cooperative Act.

ARTICLE IV.

The nature of the business of the corporation and the objects or purposes to be transacted promoted or carried on by it shall be as allowed by law. The corporation may engage in any transaction or business authorized by law and shall have all the powers authorized by law that may be necessary, convenient or appropriate to accomplish the purpose for which the corporation is organized or to carry out its business or affairs. The corporation may adopt By-Laws.

ARTICLE V.

The business and affairs of the corporation shall be vested in and managed and controlled by a board of directors and the officers of the corporation shall be a president, a vice-president, a treasurer and a secretary. The offices of Secretary and Treasurer may be held by the same person.

The directors, as such, shall not receive any compensation for their services, but the By-Laws may provide for reimbursement for reasonable expenses incurred in connection with the performance of their duties.

ARTICLE VI.

The number of directors, their election, removal, and filling of vacancies, and delineation of voting districts shall be as set forth in the By-Laws.

ARTICLE VII.

The corporate existence of the corporation shall be perpetual.

ARTICLE VIII.

Section 1. Membership in the corporation and rights, duties, and responsibilities shall be set forth in the By-Laws.

Section 2. The private property of the members of the corporation shall be exempt from execution for the debts of the corporation and no member shall be liable or responsible for any debts or liabilities of the corporation.

IN WITNESS WHEREOF, the President and Secretary of the Corporation, acting for and on behalf of the corporation, have hereunto set their hands this 23rd day of June, 1999.

Curtis Nolan
President

Harold L. Hinkley
Secretary

STATE OF ARIZONA)
)ss
County of Cochise)

On this, the 23rd day of June, 1999, before me, the undersigned Notary Public, personally appeared Curtis Nolan and Harold Hinkley, the President and Secretary, respectively of Sulphur Springs Valley Electric Cooperative, Inc., an Arizona Corporation (now known as SSVEC) and acknowledged tome that they, being authorized to do so, executed the foregoing instrument for the purposes therein contained by signing the name of the Corporation by themselves as such officers.

IN WITNESS WHEREOF, I have hereunto set my hand and official seal.

Laura M. Room
Notary Public

(Seal)

Official Seal
NOTARY PUBLIC
STATE OF ARIZONA
County of Cochise
LAURA M. ROOM
My Commission Expires July 21, 2002

Articles of Incorporation for The Navopache Electric Cooperative

ARTICLES OF INCORPORATION
of
MAVOPACHE ELECTRIC COOPERATIVE, INC.

KNOW ALL MEN BY THESE PRESENTS: That we, the undersigned, having this day voluntarily associated ourselves together for the purpose of forming a corporation under the laws of the State of Arizona, hereby adopt the following articles of incorporation:

ARTICLE I.--NAME

The name of this Corporation is MAVOPACHE ELECTRIC COOPERATIVE, INC.

ARTICLE II.--PLACE OF BUSINESS

The principal place of business of the Corporation shall be Phoenix, Maricopa County, Arizona, but the Corporation may have and maintain offices and places of business in such other places in and out of the State of Arizona as its Board of Directors may from time to time deem advisable.

ARTICLE III.--INCORPORATORS.

The names, residences and addresses of the incorporators are as follows:

NAME	RESIDENCE AND ADDRESS
W. H. Larson	Lakeside, Arizona
T. A. Caldwell	Lakeside, Arizona
James A. Trent	Lakeside, Arizona
S. W. Jaques	Lakeside, Arizona
C. Gilmore Jackson	Lakeside, Arizona

ARTICLE IV.--NATURE OF BUSINESS

The general nature of the business to be transacted and the object or objects and purpose or purposes for which the Corporation is formed are:

(a) To generate, manufacture, purchase, acquire and accumulate electric energy for its members and to transmit, distribute, furnish, sell and dispose of such electric energy to its members only, and to

construct, erect, purchase, lease as lessee and in any manner acquire, own, hold maintain, operate, sell, dispose of, lease as lessor, exchange and mortgage plants, buildings, works, machinery, supplies, apparatus, equipment and electric transmission and distribution lines or systems necessary, convenient or useful for carrying out and accomplishing any or all of the foregoing purposes;

(b) To acquire, own, hold, use, exercise and, to the extent permitted by law, to sell, mortgage, pledge, hypothecate and in any manner dispose of franchises, rights, privileges, licences, rights-of-way and easements necessary, useful or appropriate to accomplish any or all of the purposes of the corporation;

(c) To purchase, receive, lease as lessee, or in any other manner acquire, own, hold, maintain, use, convey, sell, lease as lessor, exchange, mortgage, pledge or otherwise dispose of any and all real and personal property or any interest therein necessary, useful or appropriate to enable the corporation to accomplish any or all of its purposes;

(d) To assist its members to wire their premises and install therein electrical and plumbing appliances, fixtures, machinery, supplies, apparatus and equipment of any and all kinds and character (including, without limiting the generality of the foregoing, such as are applicable to water supply and sewage disposal) and, in connection therewith and for such purposes, to purchase, acquire, lease, sell, distribute, install and repair electrical and plumbing appliances, fixtures, machinery, supplies, apparatus and equipment of any and all kinds and character (including, without limiting the generality of the foregoing, such as are applicable to water supply and sewage disposal) and to receive, acquire, endorse, pledge, guarantee, hypothecate, transfer or otherwise dispose of notes and other evidences of indebtedness and all security therefor;

(e) To borrow money, to make and issue bonds, notes and other evidences of indebtedness, secured or unsecured, for moneys borrowed or in payment for property acquired, or for any of the other objects or purposes of the corporation and to secure the payment of such bonds,

notes or other evidences of indebtedness by mortgage or mortgages, or deed or deeds of trust upon, or by the pledge of or other lien upon, all or any of the property, rights, privileges, or permits of the corporation, wheresoever situated, acquired or to be acquired;

(f) To do and perform any and all acts and things, and to have and exercise any and all powers which may be necessary or convenient to accomplish any or all of the foregoing purposes or which may be permitted, from time to time, by the Act under which the corporation is formed and the laws of the State of Arizona; provided, however, that all of the operations of the corporation shall be on a cooperative basis, not for profit, and for the use and benefit of its members as such. The corporation shall render no service to or for the public.

ARTICLE V.--NON-CAPITAL STOCK

The corporation is organized as a non-profit corporation without capital stock.

ARTICLE VI.--DURATION OF CORPORATE EXISTENCE

The corporate existence shall begin on the date these articles are filed and a certified copy of the same recorded in accordance with the law and a certificate of incorporation delivered by the Corporation Commission, and the termination thereof shall be twenty-five (25) years thereafter, with the privilege of renewal as provided by law.

ARTICLE VII.--CORPORATE GOVERNMENT

(a) The affairs of the Corporation shall be governed by a Board of Directors of not less than three (3) nor more than nine (9) directors and such officers as the Board of Directors may elect or appoint. The officers shall be a President, Vice-President, Secretary and Treasurer, elected by and from among the directors. Deputy officers may be provided for by the Bylaws adopted hereunder.

(b) At the annual meeting of the members to be held on the last Wednesday in November of each year, beginning with the year 1946, the directors shall be elected by and from the members of the Cooperative to hold office until the next annual meeting of the members or until

their successors shall have been elected and shall have qualified.

(c) The first directors of the Corporation who shall hold office until the annual meeting of the members in the year 1946, or until their successors shall have been elected and shall have qualified, are:

NAME	ADDRESS
W. H. Larson	Lakeside, Arizona
T. A. Caldwell	Lakeside, Arizona
James A. Treat	Lakeside, Arizona
S. F. Jaques	Lakeside, Arizona
C. Gilmore Jackson	Lakeside, Arizona

The above named persons were elected as directors at a meeting of the corporators held at Phoenix, Maricopa County, State of Arizona, at 2:00 o'clock, P.M., on the 14th day of August, 1946.

(d) The Bylaws may provide that directors may be nominated or elected from different divisions of the entire territory to be served.

ARTICLE VIII.--INDEBTEDNESS OR CORPORATE LIABILITY

The highest amount of indebtedness or liability, direct or contingent, to which this Corporation shall at any time subject itself is Four Million ($4,000,000.00) Dollars.

ARTICLE IX.--EXEMPTION OF MEMBERS

The private property of the members of the corporation shall be exempt from execution for the debts of the corporation and no member shall be individually liable or responsible for any debts or liabilities of the corporation.

ARTICLE X.--MEMBERSHIP

Membership in the corporation shall be evidenced by a certificate of membership which shall be in such form and shall contain such provisions as shall be determined by the Board of Directors, not contrary to or inconsistent with these Articles of Incorporation or by the Bylaws of the Corporation. Such certificate shall be signed by the President and by the Secretary of the corporation and the corporate seal shall be affixed thereto.

ARTICLE XI.--AMENDMENT OF ARTICLES

These Articles shall be adopted at an organization meeting by a vote of not less than two-thirds of the original corporators and may be amended as now or hereafter provided by law.

ARTICLE XII.--BYLAWS

The power to adopt bylaws shall be vested in the members. The bylaws of the corporation may be altered, amended or repealed by the members at any regular or special meeting, provided that the notice of such meeting shall have contained a copy of the proposed alteration, amendment or repeal.

ARTICLE XIII.--STATUTORY AGENT

The statutory agent of this corporation shall be Virgil W. Chandler, 516 Heard Building, Phoenix, Arizona, who has been a bona fide resident of the State of Arizona for more than three (3) years last past, who is appointed its lawful agent for and in behalf of said corporation to accept and acknowledge service of and upon whom may be served all necessary process or processes in any action, suit or proceeding that may be had or brought against the said corporation in any of the Courts of said State of Arizona. His appointment may be revoked at any time by filing the appointment of another agent.

IN WITNESS WHEREOF, we, as corporators, hereunto set our hands as such corporators in the County of Maricopa, State of Arizona, the 19th day of August, in the year 1946.

S. W. Sagnus
W. H. Larson
James A. Trent
B. A. Caldwell
C. Gilmore Jackson

STATE OF ARIZONA)
; ss.
County of Maricopa)

On this the 19th day of August, 1946, before me, the undersigned officer, personally appeared W. H. LARSON, T. A. CALDWELL, JAMES A. TREAT, S. W. JAQUES AND C. GILMORE JACKSON, known to me to be the persons whose names are subscribed to the foregoing Articles of Incorporation, as corporators, and that they executed the same for the purpose therein contained.

IN WITNESS THEREOF, I have hereunto set my hand and affixed my official seal in said Maricopa County, the day and year in this certificate last above mentioned.

Ann Steinberg
Notary Public

My Commission Expires:
4-9-48

(Seal)

39819

Certificate of Inc.) Issued 9-20-46
License)

Signed by
W. J. Wright Chairman
Geo. M. McNeil Secretary
Ass't Secy.

ARIZONA CORPORATION COMMISSION
INCORPORATING DIVISION
FILED
AUG 19 1946
SECRETARY

Articles of Incorporation for Tucson Electric Power Company

RESTATED
ARTICLES OF INCORPORATION
OF
TUCSON ELECTRIC POWER COMPANY

KNOW ALL MEN BY THESE PRESENTS: That the incorporators, having associated themselves together for the purpose of forming a corporation under and by virtue of the laws of the State of Arizona did adopt Articles of Incorporation, which are restated as follows:

FIRST: The name of the Corporation shall be Tucson Electric Power Company.

SECOND: The known and principal place of business of the Corporation within the State of Arizona shall be 220 West Sixth Street, Tucson, Arizona 85702, and its known place of business may be changed and other offices may be established and maintained in or outside of the State of Arizona at such places as the Board of Directors may designate.

THIRD: The purposes for which the Corporation is organized shall be the transaction of any or all lawful business for which corporations may be incorporated under Chapter 1 of Title 10, Arizona Revised Statutes.

The character of business which the Corporation intends actually to conduct in the State of Arizona is that of a public service corporation within the meaning of Section 2 of Article 15 of the Constitution of Arizona.

FOURTH: The total number of shares of Capital Stock of all classes which the Corporation shall have authority to issue is Two Hundred One Million (201,000,000) shares, divided into:

One Million (1,000,000) shares of Preferred Stock without par value; and

Two Hundred Million (200,000,000) shares of Common Stock without par value.

The Capital Stock of the Corporation shall be paid in at such time and upon such conditions as the Board of Directors shall from time to time determine.

003320

Preferred Stock

The Board of Directors of the Corporation shall have the authority to divide the Preferred Stock into series and determine the designation, preferences, privileges and voting powers of the shares of each series so established and the restrictions and qualifications thereof, all to the extent and in the manner provided by law; provided, however, that prior to January 1, 1995 such authority shall be exercised only by the unanimous act of the entire Board of Directors.

Common Stock

Subject to the limitations, if any, specified with respect to the Preferred Stock, or any series thereof, dividends may be paid on shares of the Common Stock, out of any funds legally available therefor, when and as declared by the Board of Directors.

Subject to the limitations, if any, specified with respect to the Preferred Stock, or any series thereof, in the event of any liquidation, dissolution or winding up of the Corporation, whether voluntary or involuntary, the assets of the Corporation available for payment and distribution to shareholders shall be distributed ratably in accordance with their holdings to the holders of shares of the Common Stock.

All voting power shall vest exclusively as the holders of shares of the Common Stock, except as any statute of the State of Arizona shall expressly provide to the contrary, and except as and to the extent otherwise specified with respect to the Preferred Stock, or any series thereof, and each holder of the Common Stock shall, in the election of directors and upon each other matter coming before any meeting of shareholders, be entitled to one (1) vote for each share of such stock standing in the name of such holder on the books of the Corporation.

General Provisions

The Corporation may, subject to such limitations, if any, as may be specified with respect to the Preferred Stock, or any series thereof, amend these Articles of Incorporation from time to time, in as many respects as may be desired and authorized hereafter permitted by law. The rights conferred upon shareholders in these Articles of Incorporation are granted subject to the foregoing right to amend.

The Corporation may, subject to such limitations, if any, as may be specified with respect to the Preferred Stock, or any series thereof, acquire, hold, own, pledge, transfer or otherwise dispose of any shares of its Capital Stock theretofore issued and outstanding; provided, however, that purchases, whether direct or indirect, shall be made only to the extent of unreserved and unrestricted earned surplus available therefor.

A statutory consolidation or merger of the Corporation shall not be deemed to be a liquidation, dissolution or winding up of the Corporation within the meaning of any provision of these Articles of Incorporation.

In consideration of the issue by the Corporation of shares of the Capital Stock of the Corporation, each and every present and future holder of shares of the Capital Stock of the Corporation shall be conclusively deemed, by acquiring or holding such shares, to have expressly consented to all and singular the terms and provisions of these Articles of Incorporation and to have agreed that the voting rights of such holder and the restrictions or qualifications thereof shall be as set forth in, or determined pursuant to, this Article.

Any action required or permitted by these Articles of Incorporation to be taken by the Board of Directors of the Corporation may be taken by a duly authorized committee of the Board of Directors, except as otherwise required by law.

FIFTH: The consideration for the issuance of shares of Capital Stock of the Corporation may be paid to the Corporation, in whole or in part, in cash, in other property, tangible or intangible, or in labor or services actually performed for the Corporation, as may be determined by the Board of Directors; *provided, however*, that the consideration for shares of Capital Stock of the Corporation having a par value shall not be less than the par value thereof. Shares of Capital Stock of the Corporation shall be deemed to be fully paid and non-assessable when payment of the consideration for which such shares are to be issued has been received by the Corporation. The private property of shareholders of the Corporation shall be forever exempt from the debts and obligations of the Corporation.

SIXTH: The period of duration of the Corporation shall be perpetual.

SEVENTH: (A) The affairs of the Corporation shall be conducted by a Board of Directors consisting of a number of persons, not less than seven (7) nor more than ten (10), specified by the Board of Directors in the Bylaws of the Corporation. Directors shall receive reasonable compensation for the services which they perform. Directors shall be elected annually by the shareholders at the annual meeting of shareholders and when so elected shall serve until the next annual meeting of shareholders or until their successors have been duly elected and qualified.

(B) No director of the Corporation shall be personally liable for monetary damages for breach of fiduciary duty as a Director; *provided, however*, that nothing herein shall be deemed to eliminate or limit any liability which may not be so eliminated or limited under the laws of the State of Arizona, as in effect at the effective date of this paragraph (B) of Article SEVENTH or as thereafter amended. No amendment, modification or repeal of this paragraph (B) shall eliminate or limit the protection afforded by this paragraph (B) to a director with respect to any act or omission occurring before the effective date thereof.

(C) (1) The Corporation shall, to the maximum extent permitted by applicable law, as from time to time in effect, indemnify any person who is or was or is a party to or otherwise involved in (or threatened to be made a party to or otherwise involved in) any threatened, pending or completed action, suit or proceeding (hereinafter called an "Action"), whether civil, criminal, administrative or investigative (including without limitation any Action by or in the right of the Corporation to procure a judgment in its favor) by reason of the fact that he is or was a director or officer of the Corporation, or is or was serving at the request of the Corporation as a director or officer of another corporation, of any type or kind, domestic or foreign, or any partnership, joint venture, trust, employee benefit plan or any other entity or enterprise, against expenses, including attorneys' fees, and against judgments, fines and amounts paid in settlement incurred by him in connection with such Action or any appeal therein.

(2) The Corporation shall pay any expenses incurred by a director or officer of the Corporation in defending any such Action in advance of its final disposition thereof upon receipt of any undertaking by or on behalf of such person to repay such advances to the extent of the amount to which such person shall ultimately be determined not to be entitled.

(3) The Corporation, by resolution of the Board of Directors, may extend the benefits of this paragraph (C) of Article SEVENTH to employees, agents and other representatives of the Corporation (each director, officer, employee, agent and other representative entitled to benefits under this paragraph (C) being hereinafter sometimes called an "Indemnified Person").

(4) All rights to indemnification and to the advancement of expenses granted under or pursuant to this paragraph (C) shall be deemed to be rights arising under a contract between the Corporation and each person who is an Indemnified Person at any time while this paragraph (C) is in effect and may be evidenced by a separate contract between the Corporation and each Indemnified Person, and such rights shall be effective in respect of all Actions commenced after the effective date of this paragraph (C), whether arising from acts or omissions occurring before or after such date. No amendment, modification or repeal of this Article shall affect any rights or obligations theretofore existing.

(5) The Corporation may purchase and maintain insurance on behalf of, or insure or cause to be insured, any person who is an Indemnified Person against any liability asserted against him and incurred by him in any capacity in respect of which he is an Indemnified Person, or arising out of his status in such capacity, whether or not the Corporation would have the power to indemnify him against such liability under this Article. As used in this section, "insurance" includes retrospectively rated and self-insured programs, provided, however, that no such program shall provide coverage for directors and officers

which is prohibited by applicable law. The Corporation's indemnity of any person who is an Indemnified Person shall be reduced by any amounts such person may collect with respect to such liability (a) under any policy of insurance purchased and maintained on his behalf by the Corporation or (b) from any other entity or enterprise served by such person.

(6) The rights to indemnification and to the advancement of expenses and all other benefits provided by, or granted pursuant to, this Article shall continue as to a person who has ceased to serve in the capacity in respect of which such person was an Indemnified Person and shall inure to the benefit of the heirs, executors and administrators of such person.

(7) The Board of Directors shall have the power and authority to make, alter, amend and repeal such procedural rules and regulations relating to indemnification and the advancement of expenses as it, in its discretion, may deem necessary or expedient in order to carry out the purposes of this Article, such rules and regulations, if any, to be set forth in the Bylaws of the Corporation or in a resolution of the Board of Directors.

EIGHTH: The Corporation shall have power to accept any law of any other state of the United States, within the territorial limits of which the Corporation may from time to time be desirous of exercising its franchises or carrying on any part of its business, and to exercise within such other state all such franchises, powers, privileges, and rights and be subject to such restrictions as may by the laws of such state be permitted or imposed.

NINTH: The name, residence and post office address of each Incorporator were as follows:

Name	Residence	Post Office Address
J. R. Snider	2717 Exeter St. Tucson, Arizona	35 West Pennington St. Tucson, Arizona
J. Luther Davis	1815 North Norton Ave. Tucson, Arizona	35 West Pennington St. Tucson, Arizona
C. L. Clawson	2640 East Seventh St. Tucson, Arizona	35 West Pennington St. Tucson, Arizona

TENTH: The directors of the Corporation shall have the power to make, alter, amend and repeal such bylaws for the management of the business and affairs of the Corporation as they may deem necessary or expedient, and to fill vacancies occurring in the Board of Directors from any cause.

IN WITNESS WHEREOF, the undersigned, Tucson Electric Power Company, an Arizona corporation, has executed the foregoing Restated Articles of Incorporation of Tucson Electric Power Company by its President, Charles E. Bayless, and by its Secretary, Dennis R. Nelson, whose signatures are acknowledged as hereinafter set forth, and said Corporation by said officers hereby states that the foregoing Restated Articles of Incorporation set forth all of the operative provisions of the Articles of Incorporation of Tucson Electric Power Company as heretofore amended and that the Restated Articles of Incorporation correctly set forth without change the provisions of the Articles of Incorporation as heretofore amended and that the Restated Articles of Incorporation supersede the original Articles of Incorporation and all amendments thereto, and said officers further state that said Restated Articles of Incorporation were heretofore duly adopted by the Board of Directors of the Corporation.

TUCSON ELECTRIC POWER COMPANY

By: _____
Charles E. Bayless
Its: President

By: _____
Dennis R. Nelson
Its: Secretary

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STATE OF ARIZONA)
) ss. Tucson
COUNTY OF PIMA)

The foregoing instrument was acknowledged before me this 5th day of August, 1994, by Charles E. Bayless and Dennis R. Nelson, President and Secretary of Tucson Electric Power Company, an Arizona corporation, on behalf of the corporation.

Janice Spencer
Notary Public

My Commission Expires:

August 8, 1995

Articles of Incorporation for Arizona Public Service Company

ARTICLES OF INCORPORATION
OF
ARIZONA PUBLIC SERVICE COMPANY
Restated As Of May 25, 1988

KNOW ALL MEN BY THESE PRESENTS, that we, the undersigned, HOWARD L. ALLER, GEORGE P. BULLARD AND JOHN H. PAGE, desiring to form a corporation under and according to the laws of the State of Arizona, do hereby adopt the following Articles of Incorporation:

FIRST: The name of the Corporation is Arizona Public Service Company.

SECOND: The purposes for which this Corporation is organized include the transaction of any or all lawful business for which corporations may be incorporated under Chapter 1 of Title 10, Arizona Revised Statutes, on or at any time after July 1, 1976.

The character of business which the Corporation intends actually to conduct in the State of Arizona on and for the foreseeable period after July 1, 1976 is that of a public service corporation within the meaning of Section 2 of Article 15 of the Constitution of Arizona as in effect on July 1, 1976.

THIRD: The authorized Capital Stock of the Corporation is 115,535,000 shares divided into 100,000,000 shares of Common Stock with a par value of $2.50 per share, 160,000 shares of $1.10 Cumulative Preferred Stock with a par value of $25.00 per share (the "$1.10 Preferred"), 105,000 shares of $2.50 Cumulative Preferred Stock with a par value of $50.00 per share (the "$2.50 Preferred"), 120,000 shares of $2.36 Cumulative Preferred Stock with a par value of $50.00 per share (the "$2.36 Preferred"), 150,000 shares of $4.35 Cumulative Preferred Stock with a par value of $100.00 per share (the "$4.35 Preferred"), 1,000,000 shares of Serial Preferred Stock with a par value of $50.00 per share, 4,000,000 shares of Serial Preferred Stock with a par value of $100.00 per share and 10,000,000 shares of Serial Preferred Stock with a par value of $25.00 per share. The $1.10 Preferred, the $2.50 Preferred, the $2.36 Preferred and the $4.35 Preferred are hereinafter sometimes collectively referred to as the "Preferred Stock"; and the 15,000,000 shares, in the aggregate, of Serial Preferred Stock, without regard to the amount of the par value thereof, are hereinafter sometimes collectively referred to as the "Serial Preferred". The Serial Preferred shall be issuable in series.

The Capital Stock of the Corporation shall be paid in at such time and upon such conditions as a majority of the Board of Directors shall from time to time fix and determine. Subject to the terms and provisions of this Article Third, the Board of Directors of the Corporation is authorized to provide from time to time for the issuance, within the limitations and restrictions herein set forth, of shares of the Serial Preferred in series and to fix from time to time before issuance the designations, preferences, privileges and voting powers of the shares of each series of the Serial Preferred and the restrictions or qualifications thereof, including, without limiting the generality of the foregoing, the following:

(a) the serial designation and authorized number of shares,
(b) the dividend rate, the date or dates at which such dividends shall be payable and the extent to which such dividends shall be cumulative,
(c) the amount or amounts, not less than the par value, to be received by the holders in the event of voluntary or involuntary dissolution or liquidation of the Corporation,
(d) the price or prices at which shares may be redeemed and any terms, conditions and limitations upon such redemptions,
(e) any sinking fund provisions for the redemption or purchase of shares of such series, and
(f) the terms and conditions (if any) on which shares may be converted;

provided, however, that subject to the provisions of Section 10-033 of the Arizona Revised Statutes, the shares of all series of the Serial Preferred shall not have more than one vote each.

The designations and preferences of each of said classes of stock (excluding, except as specifically otherwise set forth, the Serial Preferred) shall be as follows:

(1) The Preferred Stock, each class *pari passu* with each other class thereof and with the Serial Preferred, but in preference to the Common Stock and any stock junior to the Preferred Stock and the Serial Preferred, shall be entitled to dividends from surplus or profits at the rates of One Dollar and Ten cents ($1.10), Two Dollars and Fifty Cents ($2.50), Two Dollars and Thirty-Six Cents ($2.36) and Four Dollars and Thirty-Five Cents ($4.35), respectively, per share per annum, payable quarterly on March 1, June 1, September 1 and December 1 of each year, when and as declared by the Board of Directors. Such dividends with respect to each share shall be cumulative from the first day of the dividend period in which such share shall originally have been issued. No share of Preferred Stock shall be entitled to any dividends from surplus or profits in excess of the dividends at the respective rates per share per annum aforesaid. Each series of Serial Preferred, *pari passu* with each class of the Preferred Stock but in preference to the Common Stock and any stock junior to the Preferred Stock and the Serial Preferred, shall be entitled to dividends from surplus or profits at the rates, payable at such times and cumulative to the extent fixed by the Board of Directors of the Corporation pursuant to the authority herein conferred upon such Board of Directors.

(2) In the event of involuntary dissolution or liquidation of the Corporation, the holders of the Preferred Stock, each class *pari passu* with the other classes thereof and with the Serial Preferred, but in preference to the Common Stock and any stock junior to the Preferred Stock and the Serial Preferred, shall be entitled to receive, respectively, the par value of their shares, plus an amount equal to the accrued and unpaid dividends on such shares to the date of dissolution or liquidation. In the event of any voluntary dissolution or liquidation, the holders of the Preferred Stock, each class *pari passu* with each other class thereof and the Serial Preferred, but in preference to the Common Stock and any stock junior to the Preferred Stock and the Serial Preferred, shall be entitled to receive, respectively, the par value of their shares, plus an amount equal to the accrued dividends on such shares to the date of dissolution or liquidation plus the redemption premium. On and after July 1, 1976, the redemption premium shall be: $2.50 per share of the $1.10 Preferred; $1.00 per share of either the $2.50 Preferred or the $2.36 Preferred; and $2.00 per share of the $4.35 Preferred. In the event of dissolution or liquidation of the Corporation, voluntary or involuntary, the holders of the Serial Preferred, *pari passu* with each class of the Preferred Stock, but in preference to the Common Stock and any stock junior to the Preferred Stock and the Serial Preferred, shall be entitled to receive such amount or amounts, not less than par value, as may be fixed by the Board of Directors pursuant to the authority herein conferred upon the Board of Directors.

(3-a) Upon the affirmative vote of a majority of the shares of the issued and outstanding Common Stock at any annual meeting or at any special meeting called for that purpose, any class of Preferred Stock may be redeemed in whole or in part at any time at the applicable redemption price for each share thereof redeemed, plus an amount equal to the accrued dividends to the date fixed for redemption. On and after July 1, 1976, the redemption price shall be: $27.50 per share of the $1.10 Preferred; $51.00 per share of either the $2.50 Preferred or the $2.36 Preferred; and $102.00 per share of the $4.35 Preferred. If, pursuant to such vote of the Common Stock, less than all of the share of any class of Preferred Stock are to be redeemed, they shall be selected in such manner as the Board of Directors or the Executive Committee shall determine. Nothing herein contained shall limit any right of the Corporation to purchase or otherwise acquire any shares of any class of Preferred Stock.

(3-b) Each series of Serial Preferred shall be subject to redemption in whole or in part at such price or prices and on such terms, conditions and limitations as may be fixed by the Board of Directors prior to the issuance of any such series. If less than all of the shares of any series of the Serial Preferred are to be redeemed, they shall be selected in such manner as the Board of Directors or the Executive Committee shall determine. Nothing herein contained shall limit any right of the Corporation to purchase or otherwise acquire any shares of any series of the Serial Preferred. Any shares of Serial Preferred redeemed or otherwise acquired by the Company shall have the status of authorized and unissued shares, undesignated as to series, and may thereafter, in the discretion of the Board of Directors and to the extent permitted by law, be sold or reissued from time to time, as part of another series or (unless prohibited by the terms of such series as fixed by the Board of Directors) of the same series, subject to the terms and conditions herein set forth.

(3-c) Notice of the intention of the Corporation to redeem shares of Preferred Stock of any class, or any series of the Serial Preferred, shall be mailed at least thirty (30) days before the date of redemption to each holder of record of the shares to be redeemed, at his last known post office address as shown by the records of the Corporation. At any time after such notice has been mailed as aforesaid, the Corporation may deposit (separately as to each class or series) the aggregate redemption price payable with respect to shares of such class or series to be redeemed (or the portion thereof not already paid in the redemption of shares so to be redeemed) with any bank or trust company (having capital, surplus and undivided profits aggregating at least $4,000,000) in The City of New York, a member of the Clearing House of The City of New York, or with any bank or trust company (having capital, surplus and undivided profits aggregating at least $4,000,000) in the City of Phoenix, Arizona, a member of the Clearing House of the City of Phoenix, Arizona, named in such notice of redemption, payable in amounts aforesaid to the respective orders of the holders of record of the shares of such class or series so to be redeemed, on endorsement, if required, and surrender of their certificates. Thereupon said holders shall cease to be stockholders with respect to said shares and from and after the making of such deposit said holders shall have no interest or claim against the Corporation with respect to said shares, but shall be entitled only to receive said monies from said bank or trust company without interest.

(4-a) The term "net income available for fixed charges" whenever hereafter used in these Articles of Incorporation shall mean the sum of (a) the net income of the Corporation determined in accordance with generally accepted accounting principles and (b) an amount equal to the interest charges on long-term debt of the Corporation deducted in determining such net income including amortization of debt discount and expense if and to the extent such amortization was deducted in determining net income. The term "long-term debt" as hereinafter used in these Articles of Incorporation shall include all indebtedness of the Corporation having a fixed maturity date more than one year from the date of issue thereof or renewable or refundable at the option of the obligor pursuant to any revolving or other similar credit agreement or otherwise to a date more than one year from the date of issue thereof. The certificate of any firm of independent accountants selected by the Board of Directors shall be conclusive evidence as to the net income available for fixed charges for any period.

(4-b) So long as any shares of any class of Preferred Stock are outstanding, the Corporation shall not, without the affirmative vote or consent of the holders of at least two-thirds of the outstanding shares of said class, voting as a class: (a) authorize, by amendment of the Articles of Incorporation, any stock ranking prior in any respect to said class; or (b) make any change, by amendment of the Articles of Incorporation, or otherwise, in the terms and provisions of said class that would adversely affect the rights and preferences of the holders thereof; or (c) issue any shares of said class theretofore authorized but unissued, or shares of any stock *pari passu* with said class, other than in exchange for, or for the purpose of effecting the redemption or other retirement of, not less than an equal aggregate par value of shares of Preferred Stock, or of any stock *pari passu* therewith, at the time outstanding, unless the net income available for fixed charges of the Corporation for a period of any twelve (12) consecutive months within the fifteen (15) calendar months immediately preceding the first day of the month in which such additional stock is issued is at least one and one-half (1½) times the sum of (i) the interest requirements for one year on the long-term debt of the Corporation to be outstanding immediately after the date of issue of such additional shares and (ii) the dividend requirements for one year on all shares of Preferred Stock, and of all other classes of stock ranking on a parity with or prior to said class of Preferred Stock in respect to dividends or assets, to be outstanding immediately after such proposed issue of additional shares.

(4-c) So long as any shares of the Serial Preferred are outstanding, the Corporation shall not, without affirmative action taken as hereinafter provided by the holders of Serial Preferred: (a) authorize, by amendment of the Articles of Incorporation, any stock ranking prior in any respect to the Serial Preferred; or (b) make any change, by amendment of the Articles of Incorporation, or otherwise, in the terms and provisions of the Serial Preferred or any series of the Serial Preferred of which any shares are then outstanding, that would adversely affect the rights and preferences of the holders of the Serial Preferred; or (c) issue any shares of the Serial Preferred theretofore authorized but unissued, or shares of any stock *pari passu* with the Serial Preferred, other than in exchange for, or for the purpose of effecting the redemption or other retirement of, not less than an equal aggregate par value of shares of Serial Preferred, or of any stock *pari passu* therewith, at the time outstanding, unless the net income available for fixed charges of the Corporation for a period of any twelve (12) consecutive months within the fifteen (15) calendar months immediately preceding the first day of the month in which such additional stock is issued is at least one and one-half (1½) times the sum of (i) the interest requirements for one year on the long-term debt of the Corporation to be outstanding immediately after the date of issue of such additional shares and (ii) the dividend requirements for one year on all shares of Serial Preferred, and of all other classes of stock ranking on a parity with or prior to the Serial Preferred in respect of dividends or assets, to be outstanding immediately after such proposed issue of additional shares. In taking any affirmative action that may be required by this Section (4-c), the holders of Serial Preferred shall vote or consent according to the following two classes: Serial Preferred Stock with a par value of either $50.00 or $100.00 per share; and Serial Preferred Stock with a par value of $25.00 per share; and such action shall require the affirmative vote or consent of the holders of at least two-thirds of the then outstanding shares of each such voting or consenting class; provided, however, that if a proposed amendment requiring affirmative action pursuant to clause (b) of the immediately preceding sentence will adversely affect less than all series of Serial Preferred of which shares are then outstanding, then the affirmative vote or consent of the holders of at least two-thirds of the outstanding shares of each series which will be adversely affected by the proposed amendment, each such Series (regardless of the par value of the shares thereof) voting or consenting as a class, shall constitute the required affirmative action, and in such event the affirmative vote or consent of the holders of two-thirds of the outstanding shares of all series within each class referred to in the first clause of this sentence shall not be required.

(5) So long as any of the shares of the Preferred Stock or the Serial Preferred are outstanding, the Corporation shall not, without affirmative action taken as hereinafter provided by the holders of Preferred Stock and Serial Preferred, merge or consolidate with any other corporation or corporations or sell substantially all of the property of the Corporation; provided the provisions of this Section (5) shall not apply to any mortgage of all or substantially all of the property of the Corporation, or to a purchase or other acquisition by the Corporation of the assets or franchises of another corporation, or to any other transaction which does not include such a merger, consolidation or sale of property of the Corporation. In taking any affirmative action that may be required by this Section (5), the holders of Preferred Stock and Serial Preferred shall vote or consent according to the following classes: each class of Preferred Stock; each series of Serial Preferred Stock with a par value of either $50.00 or $100.00 per share; and the Serial Preferred Stock with a par value of $25.00 per share; and such action shall require the affirmative vote or consent of the holders of at least a majority of the then outstanding shares of each such voting or consenting class.

(6-a) Each holder of Preferred Stock or Serial Preferred shall be entitled to one vote for each share of stock standing in his name on the books of the Corporation.

(6-b) If at the time of any annual meeting of stockholders dividends payable on the $1.10 Preferred or on the $2.50 Preferred shall be accrued and unpaid in an amount equal to six (6) quarterly dividends, the holders of both such classes of stock, voting as a single class for such purpose, shall be entitled to elect two directors. Whenever the right shall vest in the holders of the $1.10 Preferred and the $2.50 Preferred to elect two directors, the Board of

Directors shall, at least ten (10) days prior to such annual meeting at which such dividends remain accrued and unpaid, cause to be mailed to each stockholder, at his last known post office address as shown on the stock records of the Corporation, a notice to this effect. At all meetings of stockholders where the holders of the $1.10 Preferred and the $2.50 Preferred shall have such right to elect two directors, the presence in person or by proxy of the holders of a majority of the aggregate number of outstanding shares of $1.10 Preferred and $2.50 Preferred shall be required to constitute a quorum for the election of such two directors; provided, however, that the absence of a quorum of the holders of $1.10 Preferred and $2.50 Preferred shall not prevent the election at any such meeting or adjournment thereof of directors in the usual manner by the holders of all classes of stock if the necessary quorum of the holders of all classes of stock is present in person or by proxy at such meeting. When all dividends accrued and unpaid on the $1.10 Preferred and the $2.50 Preferred shall have been paid or declared and set apart for payment, holders of $1.10 Preferred and $2.50 Preferred shall at the next annual meeting be divested of their rights in respect of such election of two directors, and the voting power of the holders of the $1.10 Preferred and the $2.50 Preferred and the holders of the Common Stock shall revert to the status existing before the first dividend payment date on which dividends on the $1.10 Preferred or the $2.50 Preferred were not paid in full; but always subject to the same provisions for vesting such special rights in the holders of the $1.10 Preferred and the $2.50 Preferred in the event dividends on the $1.10 Preferred or the $2.50 Preferred shall again become accrued and unpaid in an amount equal to six (6) quarterly dividends. Vacancies among directors elected by holders of the $1.10 Preferred and $2.50 Preferred during any period for which directors shall have been so elected shall be filled, until the next annual or special meeting for the election of directors, by the vote of the remaining directors of the Corporation. Vacancies among directors elected by holders of all classes of stock shall be filled by the vote of a majority of the remaining directors elected by the holders of all classes of stock until the next annual meeting for the election of directors or special meeting in lieu thereof.

(6-c) If at the time of any annual meeting of stockholders dividends payable on the $2.36 Preferred shall be accrued and unpaid in an amount equal to six (6) quarterly dividends, the holders of the $2.36 Preferred, voting as a single class for such purpose, in addition to the other rights to which they may be entitled hereunder by law, shall be entitled to elect one director. Whenever the right shall vest hereunder in such holders to elect one director, the Board of Directors shall, at least ten (10) days prior to such meeting at which such dividends remain accrued and unpaid, cause to be mailed to each stockholder, at his last known post office address as shown on the stock records of the Corporation, a notice to this effect. At all meetings of stockholders where such holders shall have such right to elect one director, the presence in person or by proxy of the holders of a majority of the aggregate number of outstanding shares of said class of stock shall be required to constitute a quorum for the election of such one director; provided, however, that the absence of a quorum of the holders of said class of stock shall not prevent the election at any such meeting or adjournment thereof of directors in the usual manner by the holders of all classes of stock if the necessary quorum of the holders of all classes of stock is present in person or by proxy at such meeting. When all dividends accrued and unpaid on the $2.36 Preferred shall have been paid or declared and set apart for payment, the holders of the said class of stock shall at the next annual meeting be divested of their rights in respect of such election of such one director, and the voting power of the holders of the $2.36 Preferred and the holders of the Common Stock shall revert to the status existing before the first dividend payment date on which dividends on the $2.36 Preferred were not paid in full; but always subject to the same provisions for vesting such special rights in the holders of the $2.36 Preferred in the event dividends on said class of stock shall again become accrued and unpaid in an amount equal to six (6) quarterly dividends. Vacancies among directors elected by holders of all classes of stock shall be filled by the vote of a majority of the remaining directors elected by the holders of all classes of stock until the next annual meeting for the election of directors or special meeting in lieu thereof.

(6-d) If at the time of any annual meeting of stockholders dividends payable on the $4.35 Preferred shall be accrued and unpaid in an amount equal to six (6) quarterly dividends, the holders of the $4.35 Preferred, voting as a single class for such purpose, in addition to the other rights to which they may be entitled hereunder by law, shall be entitled to elect one director. Whenever the right shall vest hereunder in such holders to elect one director, the Board of Directors shall, at least ten (10) days prior to such meeting at which such dividends remain accrued and unpaid, cause to be mailed to each stockholder, at his last known post office address as shown on the stock records of the Corporation, a notice to this effect. At all meetings of stockholders where such holders shall have such right to elect one director, the presence in person or by proxy of the holders of a majority of the aggregate number of outstanding shares of said class of stock shall be required to constitute a quorum for the election of such one director; provided, however, that the absence of a quorum of the holders of the said class of stock shall not prevent the election at any such meeting or adjournment thereof of directors in the usual manner by the holders of all classes of stock, if the necessary quorum of the holders of all classes of stock is present in person or by proxy at such meeting. When all dividends accrued and unpaid on the $4.35 Preferred shall have been paid or declared and set apart for payment, the holders of the said class of stock shall at the next annual meeting be divested of their rights in respect of such election of such one director, and the voting power of the holders of the $4.35 Preferred and the holders of the Common Stock shall revert to the status existing before the first dividend payment date on which

dividends on the $4.35 Preferred were not paid in full; but always subject to the same provisions for vesting such special rights in the holders of the $4.35 Preferred in the event dividends on said class of stock shall again become accrued and unpaid in an amount equal to six (6) quarterly dividends. Vacancies among directors elected by holders of all classes of stock shall be filled by the vote of a majority of the remaining directors elected by the holders of all classes of stock until the next annual meeting for the election of directors or special meeting in lieu thereof.

(6-e) If at the time of any annual meeting of stockholders dividends payable on any series of Serial Preferred shall be accrued and unpaid in an amount equal to six (6) quarterly dividends, the holders of the Serial Preferred, voting as a single class for such purpose, shall be entitled to elect two directors, plus one additional director for each class of Preferred Stock, if any, of which all of the shares shall have ceased to be outstanding, provided that in no event shall the aggregate number of directors which the holders of Serial Preferred are entitled hereunder to elect exceed one-fourth of the total number of members of the Board of Directors at the date the right to elect directors vests in such holders hereunder. Whenever the right shall vest in the holders of the Serial Preferred to elect the number of directors hereinabove provided, the Board of Directors shall, at least ten (10) days prior to such annual meeting at which such dividends remain accrued and unpaid, cause to be mailed to each stockholder, at his last known post office address as shown on the stock records of the Corporation, a notice to this effect. At all meetings of stockholders where the holders of the Serial Preferred shall have such right to elect directors, the presence in person or by proxy of the holders of a majority of the aggregate number of outstanding shares of Serial Preferred shall be required to constitute a quorum for the election of such directors; provided, however, that the absence of a quorum of the holders of Serial Preferred shall not prevent the election at any such meeting or adjournment thereof of directors in the usual manner by the holders of all classes of stock if the necessary quorum of the holders of all classes of stock is present in person or by proxy at such meeting. When all dividends accrued and unpaid on the Serial Preferred shall have been paid or declared and set apart for payment, holders of Serial Preferred shall at the next annual meeting be divested of their rights in respect of such election of directors, and the voting power of the holders of the Serial Preferred and the holders of the Common Stock shall revert to the status existing before the first dividend payment date on which dividends on the Serial Preferred were not paid in full; but always subject to the same provisions for vesting such special rights in the holders of the Serial Preferred in the event dividends on any series of the Serial Preferred shall again become accrued and unpaid in an amount equal to six (6) quarterly dividends. Vacancies among directors elected by holders of the Serial Preferred during any period for which directors shall have been so elected shall be filled, until the next annual or special meeting for the election of directors, by the vote of the remaining directors of the Corporation. Vacancies among directors elected by holders of all classes of stock shall be filled by the vote of a majority of the remaining directors elected by the holders of all classes of stock until the next annual meeting for the election of directors or special meeting in lieu thereof.

(7) Dividends may be paid upon the Common Stock and upon any other stock junior to the Preferred Stock and the Serial Preferred only when dividends have been paid or funds have been set apart for the payment of dividends as aforesaid on the Preferred Stock and the Serial Preferred from the date after which dividends thereon became cumulative to the beginning of the period then current with respect to which such dividends are usually declared, but whenever there shall have been paid or funds shall have been set apart for the payment of all such dividends upon the Preferred Stock and the Serial Preferred, as aforesaid, then dividends upon the Common Stock and upon any other stock junior to the Preferred Stock and the Serial Preferred may be declared payable then or thereafter out of any surplus or profits then remaining. After the payment of the limited dividends and/or shares in distribution of assets or amounts payable upon dissolution or liquidation to which the Preferred Stock and the Serial Preferred are expressly entitled in preference to the Common Stock and any other stock junior to the Preferred Stock and the Serial Preferred in accordance with the provisions hereinabove set forth, the Common Stock alone (subject to the rights of any class of stock hereafter authorized) shall receive all further dividends and shares in distribution.

(8) Each holder of Common Stock shall be entitled to one vote for each share of stock standing in his name on the books of the Corporation.

(9) Subject to the provisions of Section (4) hereof, the Corporation may issue and dispose of any of its shares, authorized but unissued, for such consideration as may be fixed by the Board of Directors.

(10) The Corporation from time to time may resell any of its own stock, purchased or otherwise acquired by it as herein provided for, at such price as may be fixed by its Board of Directors or Executive Committee.

(11) Subject to the provisions of Section (4) hereof, the Corporation, in order to acquire funds with which to redeem any Preferred Stock of any class or any series of Serial Preferred, may issue and sell stock of any class then authorized but unissued, bonds, notes, evidences of indebtedness, or other securities.

(12) Subject to the provisions of Section (4) hereof, the Board of Directors of the Corporation may at any time authorize the conversion or exchange of the whole or any particular share of the outstanding Preferred Stock of any class, or of any series of Serial Preferred, with the consent of the holder thereof, into or for stock of any other class at the time of such consent authorized but unissued and may fix the terms and conditions upon which such conversion or exchange may be made; provided that the Board of Directors may not offer Preferred Stock of any class or any series of Serial Preferred in conversion or exchange into or for Common Stock or into or for Preferred Stock of any other class or Serial Preferred of any other series if, by such conversion or exchange, the amount which the holders of the shares of stocks so converted or exchanged would be entitled to receive either as dividends or shares in distribution of assets would be increased in preference to the Common Stock, unless the Preferred Stock or Serial Preferred so offered in conversion or exchange shall have been authorized by a majority vote of the shares of stock outstanding at a meeting at which the stockholders voting for the authorization of the Preferred Stock or Serial Preferred so to be offered in conversion or exchange shall include the holders of record of not less than a majority of the shares of Common Stock then outstanding and entitled to vote.

(13) Upon any issue for money or other consideration of any stock of the Corporation that may be authorized from time to time, no holder of stock irrespective of the class of such stock shall have any preemptive or other right to subscribe for, purchase or receive any proportionate or other share of the stock so issued, but the Board of Directors may dispose of all or any portion of such stock as and when it may determine free of any such rights, whether by offering the same to stockholders or by sale or other disposition as said Board may deem advisable; provided, however, that if the Board of Directors shall determine to offer any new or additional shares of Common Stock, or any security convertible into Common Stock, for money, other than by (a) a public offering of all of such shares, (b) an offering of all of such shares to or through underwriters or investment bankers who shall have agreed promptly to make a public offering of such shares or (c) an offering of all of such shares to the stockholders (whether comprising the holders of all outstanding classes or of the Common Stock only), the employees or the customers of the Corporation, then the same shall first be offered pro rata to the holders of the then outstanding shares of Common Stock of the Corporation upon terms not less favorable to the purchaser (without deduction of such reasonable compensation, allowance or discount for the sale, underwriting or purchase as may be fixed thereafter by the Board of Directors) than those on which the Board of Directors issues and dispose of such stock or securities to other than such holders of Common Stock; and provided further, that the time within which such preemptive rights shall be exercised may be limited by the Board of Directors to such time as to said Board may seem proper, not less, however, than twenty days after mailing of notice that such stock rights are available and may be exercised.

(14) A consolidation, merger or amalgamation of the Corporation with or into any other corporation or corporations shall not be deemed a distribution of assets of the Corporation within the meaning of any provisions hereof.

(15) In addition to the Preferred Stock, the Serial Preferred and the Common Stock, subject to the provisions of Section (4) hereof, upon the vote of a majority of all the directors of the Corporation and of a majority of the total number of shares of stock then issued and outstanding and entitled to vote (or if a larger number or different proportion of shares is required by the laws of the State of Arizona, notwithstanding the above agreement of the stockholders to the contrary, then upon the vote of the larger number or different proportion of shares so required), the Corporation may from time to time create or authorize one or more other classes of stock with such designations, preferences, privileges, voting powers, conditions, restrictions and liabilities as may be determined by said vote, which may be the same or different from the designations and preferences of the classes of stock of the Corporation then authorized. Any such vote authorizing the creation of a new class of stock may provide that moneys payable by the Corporation with respect to any class of stock thereby authorized shall be paid in the money of any foreign country named therein or designated by the Board of Directors, pursuant to authority therein granted, at a fixed rate of exchange therein stated or provided for and all such payments shall be made accordingly.

(16) Subject to the provisions of Section (4), any class of the Preferred Stock or the Serial Preferred or the Common Stock, or all of said classes or series of stock, may be increased at any time upon vote of the holders of a majority of the total number of shares of the Corporation then issued and outstanding and entitled to vote thereon.

FOURTH: The name and address of the statutory agent of the Corporation on July 1, 1976 is General Investment Company (an Arizona corporation), 3100 Valley Center, Phoenix, Arizona 85073. The address of the known place of business of the Corporation on July 1, 1976 is 411 North Central Avenue, Phoenix, Arizona 85004.

FIFTH: The Board of Directors shall consist of not less than eleven nor more than thirty persons. Within such limits, the number of directors shall be fixed and may be altered from time to time as may be provided by the bylaws.

The number of directors constituting the Board of Directors of the Corporation on July 1, 1976 is seventeen. The names and addresses of the persons who are to serve as directors on and after July 1, 1976 until the first annual meeting of stockholders next succeeding that date, or until their successors are elected and qualified, are:

Ralph M. Bilby
700 North Bertrand
Flagstaff, AZ 86001

Norman W. Fain
Dewey Route
Prescott, AZ 86301

William T. Garland
Garland's Oak Creek Lodge
Sedona, AZ 86336

Marvin R. Morrison
P.O. Box 464
Gilbert, AZ 85234

James B. Rolle, Jr.
1920 Fifth Avenue
Yuma, AZ 85364

Richard Snell
4515 North Dromedary Road
Phoenix, AZ 85018

Maurice R. Tanner
5229 East Palo Verde Place
Scottsdale, AZ 85253

Morrison F. Warren
1061 East Magdalena Drive
Tempe, AZ 85283

Ben F. Williams, Jr.
2100 Ninth Street
Douglas, AZ 85607

Karl Eller
2225 East Georgia Avenue
Phoenix, AZ 85016

Del W. Fisher
107 East Boca Raton Road
Phoenix, AZ 85022

Victor H. Lytle
1130 Smoke Avenue
Prescott, AZ 86301

W. P. Reilly
722 East Winter Drive
Phoenix, AZ 85020

Henry B. Sargent, Jr.
9 West Palmaire Avenue
Phoenix, AZ 85021

Donald N. Soldwedel
503 East Palo Verde Street
Yuma, AZ 85364

Keith L. Turley
4601 East Solano Drive
Phoenix, AZ 85018

K.O. Wilbanks
800 Crestview Drive
Farmington, NM 87401

The Corporation may indemnify any and all of its directors and officers, or former directors and officers, against expenses incurred by them, including legal fees, or judgments or penalties rendered or levied against any such person in a legal action brought against any such person for actions or omissions alleged to have been committed by any such person while acting within the scope of his employment as a director or officer of the Corporation, provided that the Board of Directors shall determine in good faith that such person did not act, fail to act, or refuse to act willfully or with gross negligence or with fraudulent or criminal intent in regard to the matter involved in the action or omission.

SIXTH: A director of the Corporation shall not be personally liable to the Corporation or its shareholders for monetary damage for breach of fiduciary duty as a director, except for liability for any of the following:

(a) any breach of the director's duty of loyalty to the Corporation or its shareholders,
(b) acts or omissions which are not in good faith or which involve intentional misconduct or a knowing violation of law,
(c) any authorization of an unlawful payment of a dividend or other distribution on the Corporation's capital stock or the unlawful purchase of its capital stock,
(d) any transaction from which the director derived an improper personal benefit, or
(e) a violation of Arizona Revised Statutes Section 10-041.

If the Arizona General Corporation Law is amended after the date of these Articles of Incorporation to authorize corporate action further eliminating or limiting the personal liability of directors, the liability of a director of the Corporation shall be eliminated or limited to the full extent permitted by the Arizona General Corporation Law, as amended.

Any repeal or modification of this Article SIXTH shall not increase the personal liability of any director of the Corporation for any act or occurrence taking place prior to such repeal or modification or otherwise adversely affect any right or protection of a director of the Corporation existing at the time of such repeal or modification.

The provisions of this Article SIXTH shall not be deemed to limit or preclude indemnification of a director by the Corporation for any liability of a director which has not been eliminated by the provisions of this Article SIXTH.

IN WITNESS WHEREOF, we have hereunto set out hands and seals this Eleventh day of February, One Thousand Nine Hundred and Twenty.

(SIGNED) HOWARD L. ALLER (Seal)
(SIGNED) GEORGE P. BULLARD (Seal)
(SIGNED) JOHN H. PAGE (Seal)

STATE OF ARIZONA
SS
COUNTY OF MARICOPA

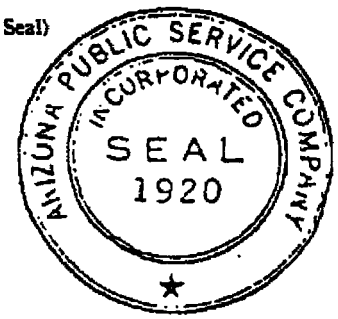
On this 11th day of February, in the year One Thousand Nine Hundred and Twenty, before me, Cora A. Hess, a Notary Public in and for the County and State aforesaid, personally appeared HOWARD L. ALLER, GEORGE P. BULLARD and JOHN H. PAGE, known to me to be the perons described in and whose names are subscribed to and who executed the foregoing Articles of Incorporation, and they acknowledged to me that they executed the same for the purposes and considerations therein expressed.

IN WITNESS WHEREOF, I have hereunto set my hand and affixed my official seal, at my office in the said County and State, the day and year last above written.

Cora H. Hess
Notary Public in and for the County
and State aforesaid.

My commission expires September 30, 1923

(Notarial Seal)



"SOLARCITY EXHIBIT E"

Delaware

The First State

I, HARRIET SMITH WINDSOR, SECRETARY OF STATE OF THE STATE OF DELAWARE, DO HEREBY CERTIFY THE ATTACHED IS A TRUE AND CORRECT COPY OF THE RESTATED CERTIFICATE OF "SOLARCITY CORPORATION", FILED IN THIS OFFICE ON THE TWENTY-EIGHTH DAY OF OCTOBER, A.D. 2008, AT 12:23 O'CLOCK P.M.

A FILED COPY OF THIS CERTIFICATE HAS BEEN FORWARDED TO THE NEW CASTLE COUNTY RECORDER OF DEEDS.

Harriet Smith Windsor

Harriet Smith Windsor, Secretary of State

4178768 8100

081071748

AUTHENTICATION: 6935840

DATE: 10-28-08

You may verify this certificate online at corp.delaware.gov/authver.shtml

State of Delaware
Secretary of State
Division of Corporations
Delivered 12:29 PM 10/28/2008
FILED 12:23 PM 10/28/2008
SRV 081071748 - 4178768 FILE

FIFTH AMENDED AND RESTATED CERTIFICATE OF INCORPORATION

OF

SOLARCITY CORPORATION

The undersigned, Lyndon Rive, hereby certifies that:

1. He is the duly elected Chief Executive Officer and President of SolarCity Corporation, a Delaware corporation.

2. The Certificate of Incorporation of this corporation was originally filed with the Secretary of State of Delaware on June 21, 2006; an Amended and Restated Certificate of Incorporation was filed with the Secretary of State of Delaware on July 6, 2006; a Second Amended and Restated Certificate of Incorporation was filed with the Secretary of State of Delaware on April 9, 2007; a Third Amended and Restated Certificate of Incorporation was filed with the Secretary of State of Delaware on August 7, 2007; and a Fourth Amended and Restated Certificate of Incorporation was filed with the Secretary of State of Delaware on March 14, 2008.

3. The Certificate of Incorporation of this corporation shall be further amended and restated to read in full as follows:

ARTICLE I

The name of this corporation is SolarCity Corporation (the "Corporation").

ARTICLE II

The address of the Corporation's registered office in the State of Delaware is 2711 Centerville Road, Suite 400, Wilmington, County of New Castle, Delaware 19808. The name of its registered agent at such address is Corporation Service Company.

ARTICLE III

The purpose of the Corporation is to engage in any lawful act or activity for which corporations may be organized under the General Corporation Law of Delaware.

ARTICLE IV

(A) **Classes of Stock**. The Corporation is authorized to issue two classes of stock to be designated, respectively, "Common Stock" and "Preferred Stock." The total number of shares which the Corporation is authorized to issue is forty five million nine hundred seventy two thousand one hundred fifty one (45,972,151) shares, each with a par value of $0.0001 per share. Twenty eight million five hundred thousand (28,500,000) shares shall be Common Stock and seventeen million

four hundred seventy two thousand one hundred fifty one (17,472,151) shares shall be Preferred Stock.

(B) **Rights Preferences and Restrictions of Preferred Stock**. The Preferred Stock authorized by this Fifth Amended and Restated Certificate of Incorporation may be issued from time to time in one or more series. The first series of Preferred Stock is designated "Series A Preferred Stock" and consists of six million nineteen thousand six hundred twenty four (6,019,624) shares. The rights, preferences, privileges and restrictions granted to and imposed on the Series A Preferred Stock are as set forth below in this Article IV(B). The second series of Preferred Stock shall be designated "Series B Preferred Stock" and shall consist of two million five hundred and four thousand nine hundred and six (2,504,906) shares. The rights, preferences, privileges and restrictions granted to and imposed on Series B Preferred Stock are as set forth below in this Article IV(B). The third series of Preferred Stock shall be designated "Series C Preferred Stock" and shall consist of six million fifty seven thousand two hundred thirty one (6,057,231) shares. The rights, preferences, privileges and restrictions granted to and imposed on Series C Preferred Stock are as set forth below in this Article IV(B). The fourth series of Preferred Stock shall be designated "Series D Preferred Stock" and shall consist of two million eight hundred ninety thousand three hundred ninety (2,890,390) shares. The rights, preferences, privileges and restrictions granted to and imposed on Series D Preferred Stock are as set forth below in this Article IV(B).

1. **Dividend Provisions**. The holders of shares of Series A Preferred Stock, Series B Preferred Stock, Series C Preferred Stock and Series D Preferred Stock shall be entitled to receive dividends, on a pari passu basis, out of any assets legally available therefor, prior and in preference to any declaration or payment of any dividend (payable other than in Common Stock or other securities and rights convertible into or entitling the holder thereof to receive, directly or indirectly, additional shares of Common Stock of the Corporation) on the Common Stock of the Corporation, at the rate of $0.02 per share (as adjusted for stock splits, stock dividends, reclassification and the like) per annum on each outstanding share of Series A Preferred Stock, Series B Preferred Stock, Series C Preferred Stock or Series D Preferred Stock, payable when, as and if declared by the Board of Directors. Such dividends shall not be cumulative. The holders of Preferred Stock shall be entitled to participate pro rata in any dividends or other distributions paid on the Common Stock on an as-converted basis that exceeds the dividends or distributions paid on the Preferred Stock.

2. **Liquidation**.

(a) **Series D Liquidation Preference**. In the event of any liquidation, dissolution or winding up of the Corporation, either voluntary or involuntary, the holders of the Series D Preferred Stock shall be entitled to receive, prior and in preference to any distribution of any of the assets of the Corporation to the holders of the Series A Preferred Stock, Series B Preferred Stock, Series C Preferred Stock or Common Stock, by reason of their ownership thereof, an amount per share equal to the greater of (i) $10.4034 (as adjusted for stock splits, stock dividends, reclassification and the like) for each share of Series D Preferred Stock then held by them, plus declared but unpaid dividends or (ii) such amount per share as would have been payable had each such share been converted into Common Stock pursuant to Section 4 immediately prior to such liquidation, dissolution or winding up. If, upon the occurrence of such event, the assets and funds

thus distributed among the holders of the Series D Preferred Stock shall be insufficient to permit the payment to such holders of the full aforesaid preferential amounts, then the entire assets and funds of the Corporation legally available for distribution shall be distributed ratably among the holders of the Series D Preferred Stock in proportion to the preferential amount each such holder is otherwise entitled to receive.

(b) **Series A Preferred Stock, Series B Preferred Stock and Series C Preferred Stock Liquidation Preference**. After payment has been made to the holders of Series D Preferred Stock of the full amounts to which they are entitled pursuant to Section 2(a) above, the holders of Series A Preferred Stock, Series B Preferred Stock and Series C Preferred Stock shall be entitled to receive, prior and in preference to any distribution of any of the assets of the Corporation to the holders of Common Stock, by reason of their ownership thereof, an amount per share equal to $0.38 (as adjusted for stock splits, stock dividends, reclassification and the like) for each share of Series A Preferred Stock, an amount per share equal to $1.20 (as adjusted for stock splits, stock dividends, reclassification and the like) for each share of Series B Preferred Stock and an amount per share equal to $4.80 (as adjusted for stock splits, stock dividends, reclassification and the like) for each share of Series C Preferred Stock then held by them, plus declared but unpaid dividends. If, upon the occurrence of such event, the assets and funds thus distributed among the holders of the Series A Preferred Stock, Series B Preferred Stock and Series C Preferred Stock shall be insufficient to permit the payment to such holders of the full aforesaid preferential amounts, then the entire assets and funds of the Corporation legally available for distribution shall be distributed ratably among the holders of the Series A Preferred Stock, Series B Preferred Stock and Series C Preferred Stock in proportion to the preferential amount each such holder is otherwise entitled to receive.

(c) **Remaining Assets**. Upon the completion of the distributions required by Sections 2(a) and 2(b) above, if assets remain in the Corporation, such remaining assets shall be distributed ratably among the holders of the Common Stock in proportion to the number of shares held by each such holder.

(d) **Certain Acquisitions**.

(i) **Deemed Liquidation**. For purposes of this Section 2, a liquidation, dissolution, or winding up of the Corporation shall be deemed to occur if the Corporation shall sell, convey, or, otherwise dispose of all or substantially all of its property or business or merge with or into or consolidate with any other corporation, limited liability company or other entity or effect any other transaction or series of related transactions in which more than 50% of the voting power of the Corporation is disposed of, provided that this Section 2(d)(i) shall not apply to a merger effected exclusively for the purpose of changing the domicile of the Corporation, (ii) an equity financing in which the Corporation is the surviving corporation, or (iii) a transaction in which the stockholders of the Corporation immediately prior to the transaction own 50% or more of the voting power of the surviving corporation following the transaction.

(ii) **Valuation of Consideration**. In the event of a deemed liquidation as described in Section 2(d)(i) above, if the consideration received by the Corporation is other than cash, its value will be deemed its fair market value. Any securities shall be valued as follows:

(A) Securities not subject to investment letter or other similar restrictions on free marketability:

(1) If traded on a securities exchange, the value shall be deemed to be the average of the closing prices of the securities on such exchange over the thirty-day period ending three days prior to the closing of such transaction;

(2) If actively traded over-the-counter, the value shall be deemed to be the average of the closing bid or sale prices (whichever is applicable) over the thirty-day period ending three days prior to the closing of such transaction; and

(3) If there is no active public market, the value shall be the fair market value thereof, as mutually determined by the Board of Directors of the Corporation and the holders of at least sixty-six and two-thirds percent (66 2/3%) of the then outstanding shares of Preferred Stock, voting together as a single class on an as-converted basis.

(B) The method of valuation of securities subject to investment letter or other restrictions on free marketability (other than restrictions arising solely by virtue of a stockholder's status as an affiliate or former affiliate) shall be to make an appropriate discount from the market value determined as above in Section 2(d)(ii)(A) to reflect the approximate fair market value thereof, as mutually determined by the Board of Directors of the Corporation and the holders of at least sixty-six and two-thirds percent (66 2/3%) of the then outstanding shares of Preferred Stock, voting together as a single class on an as-converted basis.

(iii) **Notice of Transaction**. The Corporation shall give each holder of record of Preferred Stock written notice of such impending transaction not later than ten days prior to the stockholders' meeting called to approve such transaction, or ten days prior to the closing of such transaction, whichever is earlier, and shall also notify such holders in writing of the final approval of such transaction. The first of such notices shall describe the material terms and conditions of the impending transaction and the provisions of this Section 2, and the Corporation shall thereafter give such holders prompt notice of any material changes. The transaction shall in no event take place sooner than ten days after the Corporation has given the first notice provided for herein or sooner than ten days after the Corporation has given notice of any material changes provided for herein; provided, however, that such periods may be shortened upon the written consent of the holders of at least sixty-six and two-thirds percent (66 2/3%) of the then outstanding shares of Preferred Stock, voting together as a single class on an as-converted basis.

(iv) **Effect of Noncompliance**. In the event the requirements of this Section 2(d) are not complied with, the Corporation shall forthwith either cause the closing of the transaction to be postponed until such requirements have been complied with, or cancel such transaction, in which event the rights, preferences and privileges of the holders of the Preferred Stock shall revert to and be the same as such rights, preferences and privileges existing immediately prior to the date of the first notice referred to in Section 2(d)(iii) hereof.

3. **Redemption**.

(a) **Series D Redemption**. Shares of Series D Preferred Stock shall be redeemed by the Corporation out of funds lawfully available therefor at a price per share equal to the Series D Redemption Price (as defined below), within 60 days after receipt by the Corporation at any time on or after October 28, 2015, from the holders of at least 51% of the then outstanding shares of Series D Preferred Stock, of written notice requesting redemption of all shares of Series D Preferred Stock (the date of such payment being referred to as a "Series D Redemption Date") provided, however, that redemption shall be available if (and only if) the Corporation's financial statements prepared in accordance with Generally Accepted Accounting Principles (which financial statements shall be certified in writing by the Corporation's principal financial officer) reflect that the following conditions exist as of immediately prior to such redemption on the Series D Redemption Date: (i) the annual gross revenue of the Corporation exceeded $100 million for the most recent fiscal year; and (ii) the Corporation has no less than $15 million in available cash. On the Series D Redemption Date, the Corporation shall redeem all of the outstanding shares of Series D Preferred Stock owned by each holder. If the Corporation does not have sufficient funds legally available to redeem on any Series D Redemption Date all shares of Series D Preferred Stock and of any other class or series of stock to be redeemed on such Series D Redemption Date, the Corporation shall redeem a pro rata portion of each holder's redeemable shares of such stock out of funds legally available therefor, based on the respective amounts which would otherwise be payable in respect of the shares to be redeemed if the legally available funds were sufficient to redeem all such shares, and shall redeem the remaining shares to have been redeemed as soon as practicable after the Corporation has funds legally available therefor.

For purposes of this Section 3(a), "Series D Redemption Price" shall mean the greater of (i) $10.4034 plus all declared and unpaid dividends payable to the holders of Series D Preferred Stock and (ii) the fair market value of such share of Series D Preferred Stock, such valuation to be determined by an independent appraisal, exclusive of liquidity or minority ownership discounts, performed by an independent third party appraiser mutually agreeable to the holders of a majority of the outstanding shares of Series D Preferred Stock and the Board of Directors of the Corporation.

(b) **Series C Redemption**. Shares of Series C Preferred Stock shall be redeemed by the Corporation out of funds lawfully available therefor at a price equal to $4.80 per share, plus all declared but unpaid dividends thereon (the "Series C Redemption Price" and together with the Series D Redemption Price, the "Redemption Price"), within 60 days after receipt by the Corporation at any time on or after October 28, 2015, from the holders of at least 51% of the then outstanding shares of Series C Preferred Stock, of written notice requesting redemption of all shares of Series C Preferred Stock (the date of such payment being referred to as a "Series C Redemption Date" and together with the Series D Redemption Date, the "Redemption Date") provided, however, that redemption shall be available if (and only if) the Corporation's financial statements prepared in accordance with Generally Accepted Accounting Principles (which financial statements shall be certified in writing by the Corporation's principal financial officer) reflect that the following conditions exist as of immediately prior to such redemption on the Series C Redemption Date: (i) the annual gross revenue of the Corporation exceeded $100 million for the most recent fiscal year; and (ii) the Corporation has no less than $15 million in available cash. On the Series C Redemption Date, the Corporation shall redeem all of the outstanding shares of Series C Preferred Stock owned

by each holder. If the Corporation does not have sufficient funds legally available to redeem on any Series C Redemption Date all shares of Series C Preferred Stock and of any other class or series of stock to be redeemed on such Series C Redemption Date, the Corporation shall redeem a pro rata portion of each holder's redeemable shares of such stock out of funds legally available therefor, based on the respective amounts which would otherwise be payable in respect of the shares to be redeemed if the legally available funds were sufficient to redeem all such shares, and shall redeem the remaining shares to have been redeemed as soon as practicable after the Corporation has funds legally available therefor.

(c) **Redemption Notice**. Written notice of the mandatory redemption (the "Redemption Notice") shall be mailed, postage prepaid, to each holder of record of Series C Preferred Stock or Series D Preferred Stock, as applicable, at its post office address last shown on the records of the Corporation, or given by electronic communication in compliance with the provisions of the General Corporation Law, not less than 40 days prior to each Redemption Date. Each Redemption Notice shall state:

(i) the number of shares of Series C Preferred Stock or Series D Preferred Stock, as applicable, held by the holder that the Corporation shall redeem on the Redemption Date specified in the Redemption Notice;

(ii) the Redemption Date and the Redemption Price;

(iii) the date upon which the holder's right to convert such shares terminates (as determined in accordance with Section 4(a)); and

(iv) that the holder is to surrender to the Corporation, in the manner and at the place designated, his, her or its certificate or certificates representing the shares of Series C Preferred Stock or Series D Preferred Stock, as applicable, to be redeemed.

If the Corporation receives, on or prior to the 20th day after the date of delivery of the Redemption Notice to a holder of Series C Preferred Stock or Series D Preferred Stock, as applicable, written notice from such holder that such holder elects to be excluded from the redemption provided in this Section 3, then the shares of Series C Preferred Stock or Series D Preferred Stock, as applicable, registered on the books of the Corporation in the name of such holder at the time of the Corporation's receipt of such notice shall thereafter be "Excluded Shares."

(d) ***Surrender of Certificates; Payment***. On or before the applicable Redemption Date, each holder of shares of Series C Preferred Stock or Series D Preferred Stock, as applicable, to be redeemed on such Redemption Date (other than Excluded Shares), unless such holder has exercised his, her or its right to convert such shares as provided in Section 4 hereof, shall surrender the certificate or certificates representing such shares to the Corporation, in the manner and at the place designated in the Redemption Notice, and thereupon the Redemption Price for such shares shall be payable to the order of the person whose name appears on such certificate or certificates as the owner thereof, and each surrendered certificate shall be canceled and retired. In the event less than all of the shares of Series C Preferred Stock or Series D Preferred Stock, as applicable, represented by a certificate are redeemed, a new certificate representing the unredeemed

shares of Series C Preferred Stock or Series D Preferred Stock, as applicable, shall promptly be issued to such holder.

(e) **Rights Subsequent to Redemption**. If the Redemption Notice shall have been duly given, and if on the applicable Redemption Date the Redemption Price payable upon redemption of the shares of Series C Preferred Stock or Series D Preferred Stock, as applicable, to be redeemed on such Redemption Date is paid or tendered for payment or deposited with an independent payment agent so as to be available therefor, then notwithstanding that the certificates evidencing any of the shares of Series C Preferred Stock or Series D Preferred Stock, as applicable, so called for redemption shall not have been surrendered, dividends with respect to such shares of Preferred Stock shall cease to accrue after such Redemption Date and all rights with respect to such shares shall forthwith after the Redemption Date terminate, except only the right of the holders to receive the Redemption Price without interest upon surrender of their certificate or certificates therefor.

(f) **Redeemed or Otherwise Acquired Shares**. Any shares of Preferred Stock which are redeemed or otherwise acquired by the Corporation or any of its subsidiaries shall be automatically and immediately canceled and shall not be reissued, sold or transferred. Neither the Corporation nor any of its subsidiaries may exercise any voting or other rights granted to the holders of Series C Preferred Stock or Series D Preferred Stock, as applicable, following redemption.

4. **Conversion**. The holders of the Preferred Stock shall have conversion rights as follows (the "*Conversion Rights*"):

(a) **Right to Convert**.

(i) Subject to Section 4(c), each share of Series D Preferred Stock shall be convertible, at the option of the holder thereof, at any time after the date of issuance of such share, at the office of the Corporation or any transfer agent for such stock, into such number of fully paid and nonassessable shares of Common Stock as is determined by dividing $10.4034 by the Conversion Price (as defined below) applicable to such share, determined as hereafter provided, in effect on the date the certificate is surrendered for conversion. The initial Conversion Price per share of Series D Preferred Stock shall be $10.4034. Such initial Conversion Price shall be subject to adjustment as set forth in Section 4(d).

(ii) Subject to Section 4(c), each share of Series C Preferred Stock shall be convertible, at the option of the holder thereof, at any time after the date of issuance of such share, at the office of the Corporation or any transfer agent for such stock, into such number of fully paid and nonassessable shares of Common Stock as is determined by dividing $4.80 by the Conversion Price applicable to such share, determined as hereinafter provided, in effect on the date the certificate is surrendered for conversion. The initial Conversion Price per share of Series C Preferred Stock shall be $4.80. Such initial Conversion Price shall be subject to adjustment as set forth in Section 4(d).

(iii) Subject to Section 4(c), each share of Series B Preferred Stock shall be convertible, at the option of the holder thereof, at any time after the date of issuance of such

share, at the office of the Corporation or any transfer agent for such stock, into such number of fully paid and nonassessable shares of Common Stock as is determined by dividing $1.20 by the Conversion Price applicable to such share, determined as hereinafter provided, in effect on the date the certificate is surrendered for conversion. The initial Conversion Price per share of Series B Preferred Stock shall be $1.20. Such initial Conversion Price shall be subject to adjustment as set forth in Section 4(d).

(iv) Subject to Section 4(c), each share of Series A Preferred Stock shall be convertible, at the option of the holder thereof, at any time after the date of issuance of such share, at the office of the Corporation or any transfer agent for such stock, into such number of fully paid and nonassessable shares of Common Stock as is determined by dividing $0.38 by the Conversion Price applicable to such share, determined as hereinafter provided, in effect on the date the certificate is surrendered for conversion. The initial Conversion Price per share of Series A Preferred Stock shall be $0.38. Such initial Conversion Price shall be subject to adjustment as set forth in Section 4(d).

(v) "Conversion Price" shall mean, as of the date of the filing of this Fifth Amended and Restated Certificate of Incorporation, $0.38 per share for the Series A Preferred Stock, $1.20 per share for the Series B Preferred Stock, $4.80 per share for the Series C Preferred Stock and $10.4034 per share for the Series D Preferred Stock, in each case, subject to adjustment as set forth in Section 4(d).

(b) **Automatic Conversion.**

(i) **Automatic Conversion of Series D Preferred Stock.** Each share of Series D Preferred Stock shall automatically be converted into shares of Common Stock at the Conversion Price at the time in effect for such share immediately upon the earlier of (i) except as provided below in Section 4(c), the Corporation's sale of its Common Stock in a firm commitment underwritten public offering pursuant to a registration statement under the Securities Act of 1933, as amended (the "Securities Act"), in which (A) the pre-public offering market capitalization of the Corporation is at least $250,000,000 (as determined by multiplying all capital stock of the Corporation on a fully diluted basis prior to the public offering by the price per share at which the shares are sold to the public in the public offering) and (B) which results in aggregate cash proceeds to the Corporation of not less than $50,000,000 (net of underwriting discounts and commissions) or (ii) the date specified by written consent or agreement of the holders of a majority of the then outstanding shares of Series D Preferred Stock.

(ii) **Automatic Conversion of Series A Preferred Stock, Series B Preferred Stock and Series C Preferred Stock.** Each share of Series A Preferred Stock, Series B Preferred Stock and Series C Preferred Stock shall automatically be converted into shares of Common Stock at the Conversion Price at the time in effect for such share immediately upon the earlier of (i) except as provided below in Section 4(c), the Corporation's sale of its Common Stock in a firm commitment underwritten public offering pursuant to a registration statement under the Securities Act, in which (A) the pre-public offering market capitalization of the Corporation is at least $250,000,000 (as determined by multiplying all capital stock of the Corporation on a fully diluted basis prior to the public offering by the price per share at which the shares are sold to the

public in the public offering) and (B) which results in aggregate cash proceeds to the Corporation of not less than $50,000,000 (net of underwriting discounts and commissions) or (ii) the date specified by written consent or agreement of the holders of a majority of the then outstanding shares of Series A Preferred Stock, Series B Preferred Stock and Series C Preferred Stock, voting together as a single class on an as-converted basis.

(c) **Mechanics of Conversion**. Before any holder of Preferred Stock shall be entitled to convert the same into shares of Common Stock, he shall surrender the certificate or certificates therefor, duly endorsed, at the office of the Corporation or of any transfer agent for such series of Preferred Stock, and shall give written notice to the Corporation at its principal corporate office, of the election to convert the same and shall state therein the name or names in which the certificate or certificates for shares of Common Stock are to be issued. The Corporation shall, as soon as practicable thereafter, issue and deliver at such office to such holder of Preferred Stock, or to the nominee or nominees of such holder, a certificate or certificates for the number of shares of Common Stock to which such holder shall be entitled as aforesaid. Such conversion shall be deemed to have been made immediately prior to the close of business on the date of such surrender of the shares of such series of Preferred Stock to be converted, and the person or persons entitled to receive the shares of Common Stock issuable upon such conversion shall be treated for all purposes as the record holder or holders of such shares of Common Stock as of such date. If the conversion is in connection with an underwritten offering of securities registered pursuant to the Securities Act, the conversion may, at the option of any holder tendering such Preferred Stock for conversion, be conditioned upon the closing with the underwriters of the sale of securities pursuant to such offering, in which event the person(s) entitled to receive Common Stock upon conversion of such Preferred Stock shall not be deemed to have converted such Preferred Stock until immediately prior to the closing of such sale of securities.

(d) **Conversion Price Adjustments of Preferred Stock for Certain Dilutive Issuances, Splits and Combinations**. The Conversion Price of the Preferred Stock shall be subject to adjustment from time to time as follows:

(i) **Issuance of Additional Stock below Purchase Price**. If the Corporation shall issue, after the date of the filing of this Fifth Amended and Restated Certificate of Incorporation (the "Purchase Date" with respect to such series), any Additional Stock (as defined below) without consideration or for a consideration per share less than the Conversion Price for such series in effect immediately prior to the issuance of such Additional Stock, the Conversion Price for such series in effect immediately prior to each such issuance shall automatically be adjusted as set forth in this Section 4(d)(i), unless otherwise provided in this Section 4(d)(i).

(A) **Adjustment Formula**. Whenever the Conversion Price is adjusted pursuant to this Section (4)(d)(i), the new Conversion Price shall be determined by multiplying the Conversion Price then in effect by a fraction, (x) the numerator of which shall be the number of shares of Outstanding Common (as defined below) plus the number of shares of Common Stock that the aggregate consideration received by the Corporation for the total number of shares of Additional Stock so issued (or deemed to be issued) would purchase at such Conversion Price; and (y) the denominator of which shall be the number of shares of Outstanding Common plus the number of shares of Additional Stock so issued (or deemed to be issued). As used herein, the term

"Outstanding Common" shall mean all shares of Common Stock outstanding immediately prior to any such issuance of Additional Stock (treating for this purpose as outstanding (1) all shares of Common Stock issuable upon exercise of any options to purchase or rights to subscribe for Common Stock outstanding immediately prior to such issuance, (2) all shares of Common Stock issuable upon conversion or exercise of any securities (including, without limitation, evidences of indebtedness) by their terms convertible into or exchangeable for Common Stock outstanding immediately prior to such issuance and (3) all shares of Common Stock issuable upon conversion or exercise of any convertible or exchangeable securities issuable upon conversion or exercise of any options to purchase or rights to subscribe for such convertible or exchangeable securities outstanding immediately prior to such issuance).

(B) **Definition of "Additional Stock"**. For purposes of this Section 4(d)(i), "Additional Stock" shall mean any shares of Common Stock issued (or deemed to have been issued pursuant to Section 4(d)(i)(E)) by the Corporation after the Purchase Date other than:

(1) Common Stock issued pursuant to a transaction described in Section 4(d)(ii) hereof;

(2) Shares of Common Stock issuable or issued to employees, consultants or directors of the Corporation directly or pursuant to a stock option plan or restricted stock plan approved by the Board of Directors of the Corporation;

(3) Shares of Common Stock or Preferred Stock issuable upon exercise of options, warrants, notes or other rights to acquire securities of the Corporation outstanding as of the date of this Fifth Amended and Restated Certificate of Incorporation;

(4) Shares of Common Stock issuable or issued to financial institutions, lessors or other lenders in connection with commercial credit arrangements, equipment financings, bridge financings, commercial property lease transactions, or similar transactions, the terms of which have been approved by the Board of Directors;

(5) Up to 2,403,051 shares of Common Stock (as adjusted for stock splits, stock dividends, reclassification and the like) issuable or issued in strategic partnership transactions or other transactions the terms of which have been approved by the Board of Directors;

(6) Shares of Common Stock issued or issuable upon conversion of the Preferred Stock; and

(7) Shares of Common Stock issued or issuable in a public offering prior to or in connection with which all outstanding shares of Preferred Stock will be converted to Common Stock.

(C) **No Fractional Adjustments**. No adjustment of the Conversion Price for the Preferred Stock shall be made in an amount less than one cent per share.

provided that any adjustments which are not required to be made by reason of this sentence shall be carried forward and shall be either taken into account in any subsequent adjustment made prior to three years from the date of the event giving rise to the adjustment being carried forward, or shall be made at the end of three years from the date of the event giving rise to the adjustment being carried forward.

(D) **Determination of Consideration**. In the case of the issuance of Common Stock for cash, the consideration shall be deemed to be the amount of cash paid therefor before deducting any reasonable discounts, commissions or other expenses allowed, paid or incurred by the Corporation for any underwriting or otherwise in connection with the issuance and sale thereof. In the case of the issuance of the Common Stock for a consideration in whole or in part other than cash, the consideration other than cash shall be deemed to be the fair value thereof (exclusive of liquidity or minority discounts in the case of securities) as determined in good faith by the Board of Directors irrespective of any accounting treatment.

(E) **Deemed Issuances of Common Stock**. In the case of the issuance (whether before, on or after the Purchase Date) of options to purchase or rights to subscribe for Common Stock, securities (including, without limitation, evidences of indebtedness) by their terms convertible into or exchangeable for Common Stock or options to purchase or rights to subscribe for such convertible or exchangeable securities, the following provisions shall apply for all purposes of this Section 4(d)(i):

(1) The aggregate maximum number of shares of Common Stock deliverable upon exercise (assuming the satisfaction of any conditions to exercisability, including without limitation, the passage of time, but without taking into account potential antidilution adjustments) of such options to purchase or rights to subscribe for Common Stock shall be deemed to have been issued at the time such options or rights were issued and for a consideration equal to the consideration (determined in the manner provided in Section 4(d)(i)(D)), if any, received by the Corporation upon the issuance of such options or rights plus the minimum exercise price provided in such options or rights (without taking into account potential antidilution adjustments) for the Common Stock covered thereby.

(2) The aggregate maximum number of shares of Common Stock deliverable upon conversion of or in exchange (assuming the satisfaction of any conditions to convertibility or exchangeability, including, without limitation, the passage of time, but without taking into account potential antidilution adjustments) for any such convertible or exchangeable securities or upon the exercise of options to purchase or rights to subscribe for such convertible or exchangeable securities and subsequent conversion or exchange thereof shall be deemed to have been issued at the time such securities were issued or such options or rights were issued and for a consideration equal to the consideration, if any, received by the Corporation for any such securities and related options or rights (excluding any cash received on account of accrued interest or accrued dividends), plus the minimum additional consideration, if any, to be received by the Corporation (without taking into account potential antidilution adjustments) upon the conversion or exchange of such securities or the exercise of any related options or rights (the consideration in each case to be determined in the manner provided in Section 4(d)(i)(D)).

(3) In the event of any change in the number of shares of Common Stock deliverable or in the consideration payable to the Corporation upon exercise of such options or rights or upon conversion of or in exchange for such convertible or exchangeable securities, including, but not limited to, a change resulting from the antidilution provisions thereof, the Conversion Price of the Preferred Stock, to the extent in any way affected by or computed using such options, rights or securities, shall be recomputed to reflect such change, but no further adjustment shall be made for the actual issuance of Common Stock or any payment of such consideration upon the exercise of any such options or rights or the conversion or exchange of such securities.

(4) Upon the expiration of any such options or rights, the termination of any such rights to convert or exchange or the expiration of any options or rights related to such convertible or exchangeable securities, the Conversion Price of the Preferred Stock, to the extent in any way affected by or computed using such options, rights or securities or options or rights related to such securities, shall be recomputed to reflect the issuance of only the number of shares of Common Stock (and convertible or exchangeable securities which remain in effect) actually issued upon the exercise of such options or rights, upon the conversion or exchange of such securities or upon the exercise of the options or rights related to such securities.

(5) The number of shares of Common Stock deemed issued and the consideration deemed paid therefor pursuant to Sections 4(d)(i)(E)(1) and 4(d)(i)(E)(2) shall be appropriately adjusted to reflect any change, termination or expiration of the type described in either Section 4(d)(i)(E)(3) or 4(d)(i)(E)(4).

(F) **No Increased Conversion Price**. Notwithstanding any other provisions of this Section (4)(d)(i), except to the limited extent provided for in Sections 4(d)(i)(E)(3) and 4(d)(i)(E)(4), no adjustment of the Conversion Price pursuant to this Section 4(d)(i) shall have the effect of increasing the Conversion Price above the Conversion Price in effect immediately prior to such adjustment.

(ii) **Stock Splits and Dividends**. In the event the Corporation should at any time or from time to time after the Purchase Date fix a record date for the effectuation of a split or subdivision of the outstanding shares of Common Stock or the determination of holders of Common Stock entitled to receive a dividend or other distribution payable in additional shares of Common Stock or other securities or rights convertible into, or entitling the holder thereof to receive directly or indirectly, additional shares of Common Stock (hereinafter referred to as "Common Stock Equivalents") without payment of any consideration by such holder for the additional shares of Common Stock or the Common Stock Equivalents (including the additional shares of Common Stock issuable upon conversion or exercise thereof), then, as of such record date (or the date of such dividend distribution, split or subdivision if no record date is fixed), the Conversion Price of the Preferred Stock shall be appropriately decreased so that the number of shares of Common Stock issuable on conversion of each share of such series shall be increased in proportion to such increase of the aggregate of shares of Common Stock outstanding and those issuable with respect to such Common Stock Equivalents with the number of shares issuable with respect to Common Stock Equivalents determined from time to time in the manner provided for deemed issuances in Section 4(d)(i)(E).

(iii) **Reverse Stock Splits**. If the number of shares of Common Stock outstanding at any time after the Purchase Date is decreased by a combination of the outstanding shares of Common Stock, then, following the record date of such combination, the Conversion Price for the Preferred Stock shall be appropriately increased so that the number of shares of Common Stock issuable on conversion of each share of such series shall be decreased in proportion to such decrease in outstanding shares.

(e) **Other Distributions**. In the event the Corporation shall declare a distribution payable in securities of other persons, evidences of indebtedness issued by the Corporation or other persons, assets (excluding cash dividends) or options or rights not referred to in Section 4(d)(ii), then, in each such case for the purpose of this Section 4(e), the holders of Preferred Stock shall be entitled to a proportionate share of any such distribution as though they were the holders of the number of shares of Common Stock of the Corporation into which their shares of Preferred Stock are convertible as of the record date fixed for the determination of the holders of Common Stock of the Corporation entitled to receive such distribution.

(f) **Recapitalization**. If at any time or from time to time there shall be a recapitalization of the Common Stock (other than a subdivision, combination or merger or sale of assets transaction provided for elsewhere in this Section 4 or Section 2) provision shall be made so that the holders of the Preferred Stock shall thereafter be entitled to receive upon conversion of such Preferred Stock the number of shares of stock or other securities or property of the Corporation or otherwise, to which a holder of Common Stock deliverable upon conversion would have been entitled on such recapitalization. In any such case, appropriate adjustment shall be made in the application of the provisions of this Section 4 with respect to the rights of the holders of such Preferred Stock after the recapitalization to the end that the provisions of this Section 4 (including adjustment of the Conversion Price then in effect and the number of shares purchasable upon conversion of such Preferred Stock) shall be applicable after that event and be as nearly equivalent as practicable.

(g) **No Impairment**. The Corporation will not, by amendment of this Fifth Amended and Restated Certificate of Incorporation or through any reorganization, recapitalization, transfer of assets, consolidation, merger, dissolution, issue or sale of securities or any other voluntary action, avoid or seek to avoid the observance or performance of any of the terms to be observed or performed hereunder by the Corporation, but will at all times in good faith assist in the carrying out of all the provisions of this Section 4 and in the taking of all such action as may be necessary or appropriate in order to protect the Conversion Rights of the holders of Preferred Stock against impairment. This provision will not restrict the Corporation's right to amend this Fifth Amended and Restated Certificate of Incorporation with the requisite stockholder consent and in compliance with applicable law.

(h) **No Fractional Shares and Certificate as to Adjustments**.

(i) No fractional shares shall be issued upon the conversion of any share or shares of the Preferred Stock, and the number of shares of Common Stock to be issued shall be rounded down to the nearest whole share. The number of shares issuable upon such conversion shall be determined on the basis of the total number of shares of Preferred Stock the holder is at the

time converting into Common Stock and the number of shares of Common Stock issuable upon such aggregate conversion.

(ii) *Upon the occurrence of each adjustment or readjustment of the* Conversion Price of Preferred Stock pursuant to this Section 4, the Corporation, at its expense, shall promptly compute such adjustment or readjustment in accordance with the terms hereof and prepare and furnish to each holder of such Preferred Stock a certificate setting forth such adjustment or readjustment and showing in detail the facts upon which such adjustment or readjustment is based. The Corporation shall, upon the written request at any time of any holder of Preferred Stock, furnish or cause to be furnished to such holder a like certificate setting forth (A) such adjustment and readjustment, (B) the Conversion Price for the Preferred Stock at the time in effect, and (C) the number of shares of Common Stock and the amount, if any, of other property which at the time would be received upon the conversion of a share of the Preferred Stock.

(i) **Notices of Record Date**. In the event of any taking by the Corporation of a record of the holders of any class of securities for the purpose of determining the holders thereof who are entitled to receive any dividend (other than a cash dividend) or other distribution, any right to subscribe for, purchase or otherwise acquire any shares of stock of any class or any other securities or property, or to receive any other right, the Corporation shall mail to each holder of Preferred Stock, at least ten days prior to the date specified therein, a notice specifying the date on which any such record is to be taken for the purpose of such dividend, distribution or right, and the amount and character of such dividend, distribution or right.

(j) **Reservation of Stock Issuable Upon Conversion**. The Corporation shall at all times reserve and keep available out of its authorized but unissued shares of Common Stock, solely for the purpose of effecting the conversion of the shares of the Preferred Stock, such number of its shares of Common Stock as shall from time to time be sufficient to effect the conversion of all outstanding shares of such series of Preferred Stock; and if at any time the number of authorized but unissued shares of Common Stock shall not be sufficient to effect the conversion of all then outstanding shares of such series of Preferred Stock, in addition to such other remedies as shall be available to the holder of such Preferred Stock, the Corporation will take such corporate action as may, in the opinion of its counsel, be necessary to increase its authorized but unissued shares of Common Stock to such number of shares as shall be sufficient for such purposes, including, without limitation, engaging in best efforts to obtain the requisite stockholder approval of any necessary amendment to this Fifth Amended and Restated Certificate of Incorporation.

(k) **Waiver of Adjustment of Conversion Price**. Notwithstanding anything herein to the contrary, any downward adjustment of the Conversion Price of any series of Preferred Stock may be waived, either prospectively or retroactively and either generally or in a particular instance, with the prior written consent of the holders of at least a majority of the then outstanding shares of such series. Any such waiver shall bind all future holders of shares of such series of Preferred Stock.

(l) **Notices**. Any notice required by the provisions of this Section 4 to be given to the holders of shares of Preferred Stock shall be deemed given if deposited in the United

States mail, postage prepaid, and addressed to each holder of record at his address appearing on the books of the Corporation.

5. **Voting Rights**.

(a) Except as otherwise expressly provided herein or by law, the holder of each share of Preferred Stock shall have the right to one vote for each share of Common Stock into which such Preferred Stock could then be converted, and with respect to such vote, such holder shall have full voting rights and powers equal to the voting rights and powers of the holders of Common Stock, and shall be entitled, notwithstanding any provision hereof, to notice of any stockholders' meeting in accordance with the bylaws of the Corporation, and shall be entitled to vote, together with holders of Common Stock, with respect to any question upon which holders of Common Stock have the right to vote. Fractional votes shall not, however, be permitted and any fractional voting rights available on an as-converted basis (after aggregating all shares into which shares of Preferred Stock held by each holder could be converted) shall be rounded to the nearest whole number (with one-half being rounded upward). Except as otherwise expressly provided herein or as required by law, the holders of Preferred Stock and the holders of Common Stock shall vote together and not as separate classes.

(b) The Board of Directors shall consist of nine members by vote as described in this paragraph. So long as at least 3,070,008 shares of the Series A Preferred Stock remain issued and outstanding (as adjusted for stock splits, stock dividends, reclassification and the like), the holders of the Series A Preferred Stock, voting as a separate class, shall be entitled to elect up to two members of the Board of Directors (the "Series A Preferred Directors") at each meeting or pursuant to each consent of the Corporation's stockholders for the election of directors and to remove from office such director(s) and to fill any vacancy caused by the resignation, death or removal of such director. So long as at least 1,277,502 shares of the Series B Preferred Stock remain issued and outstanding (as adjusted for stock splits, stock dividends, reclassification and the like), the holders of the Series B Preferred Stock, voting as a separate class, shall be entitled to elect up to one member of the Board of Directors (the "Series B Preferred Director") at each meeting or pursuant to each consent of the Corporation's stockholders for the election of directors and to remove from office such director(s) and to fill any vacancy caused by the resignation, death or removal of such director. So long as at least 2,229,871 shares of the Series C Preferred Stock remain issued and outstanding (as adjusted for stock splits, stock dividends, reclassification and the like), the holders of the Series C Preferred Stock, voting as a separate class, shall be entitled to elect up to two members of the Board of Directors (the "Series C Preferred Directors") at each meeting or pursuant to each consent of the Corporation's stockholders for the election of directors and to remove from office such director(s) and to fill any vacancy caused by the resignation, death or removal of such director. So long as at least 1,474,099 shares of the Series D Preferred Stock remain issued and outstanding (as adjusted for stock splits, stock dividends, reclassification and the like) (the "Series D Share Limitation"), the holders of the Series D Preferred Stock, voting as a separate class, shall be entitled to elect up to one member of the Board of Directors (the "Series D Preferred Director") at each meeting or pursuant to each consent of the Corporation's stockholders for the election of directors and to remove from office such director(s) and to fill any vacancy caused by the resignation, death or removal of such director (provided, however, that the Series D Share Limitation shall not apply during any period of time in which the Corporation is then in default of its

obligation to redeem the full number of shares of Series D Preferred Stock required to be redeemed pursuant to the terms of Section 3 hereof). The holders of the Common Stock, voting as a separate class, shall be entitled to elect two members of the Board of Directors at each meeting or pursuant to each consent of the Corporation's stockholders for the election of directors and to remove from office such director(s) and to fill any vacancy caused by the resignation, death or removal of such director. The holders of the Common Stock and Preferred Stock, voting together as a single class on an as-converted basis, shall be entitled to elect one member of the Board of Directors at each meeting or pursuant to each consent of the Corporation's stockholders for the election of directors and to remove from office such director and to fill any vacancy caused by the resignation, death or removal of such director. If at any time the issued and outstanding shares of a series of Preferred Stock, considered separately as a class, falls below the threshold specified for such series in this Section 5(b), then a majority of the remaining issued and outstanding Preferred Stock, voting together as a single class on an as-converted basis, shall be entitled to elect the members of the Board of Directors otherwise designated for such series in this Section 5(b), unless the remaining issued and outstanding shares of Preferred Stock considered together as a single class amount to fewer than 8,051,480 shares in the aggregate (as adjusted for stock splits, stock dividends, reclassification and the like), in which case a majority of the remaining issued and outstanding Preferred Stock and Common Stock, voting together as a single class on an as-converted basis, shall be entitled to elect the members of the Board of Directors otherwise designated for such series in this Section 5(b).

6. **Protective Provisions**. So long as at least 5,500,000 shares of Preferred Stock remain issued and outstanding (as adjusted for stock splits, stock dividends, reclassification and the like), the Corporation shall not without first obtaining the approval (by vote or written consent, as provided by law) of the holders of at least sixty-six and two-thirds percent (66 2/3%) of the then outstanding shares of Preferred Stock, voting together as a single class on an as-converted basis:

(a) effect a transaction described in Section 2(d)(i) above;

(b) alter or change the rights, preferences or privileges of the shares of any series of Preferred Stock so as to affect adversely the shares of such series, including without limitation, by amendment, modification or repeal of any provision of this Fifth Amended and Restated Certificate of Incorporation or the Bylaws of the Corporation or by merger, consolidation, reclassification or otherwise;

(c) increase or decrease (other than by redemption or conversion) the total number of authorized shares of Preferred Stock;

(d) authorize or issue, or obligate itself to issue, any other equity security, including any other security convertible into or exercisable for any equity security, having a preference over, or being on a parity with, the Preferred Stock with respect to voting, redemption, dividends, conversion, anti-dilution rights, registration rights or upon liquidation;

(e) redeem, purchase or otherwise acquire (or pay into or set funds aside for a sinking fund for such purpose) any share or shares of Preferred Stock or Common Stock other

than in accordance with Section 3 hereof; provided, however, that this restriction shall not apply to the repurchase of shares of Common Stock from employees, officers, directors, consultants or other persons performing services for the Corporation or any subsidiary pursuant to agreements under which the Corporation has the option to repurchase such shares at no greater than cost upon the occurrence of certain events, such as the termination of employment, or through the exercise of any right of first refusal;

(f) increase or decrease the total number of authorized members of the Board of Directors;

(g) dismiss, suspend, replace or demote the Corporation's Chief Executive Officer or Chief Operating Officer;

(h) declare or pay any dividend on Common Stock; or

(i) amend this Section 6.

7. **Status of Converted Stock**. In the event any shares of Preferred Stock shall be converted pursuant to Section 4 hereof, the shares so converted shall be cancelled and shall not be issuable by the Corporation. This Fifth Amended and Restated Certificate of Incorporation of the Corporation shall be appropriately amended to effect the corresponding reduction in the Corporation's authorized capital stock.

(C) **Common Stock**.

1. **Dividend Rights**. Subject to the prior rights of holders of all classes of stock at the time outstanding having prior rights as to dividends, the holders of the Common Stock shall be entitled to receive, when and as declared by the Board of Directors, out of any assets of the Corporation legally available therefor, such dividends as may be declared from time to time by the Board of Directors.

2. **Liquidation Rights**. Upon the liquidation, dissolution or winding up of the Corporation, the assets of the Corporation shall be distributed as provided in Section 2 of Article IV(B).

3. **Redemption**. The Common Stock is not redeemable.

4. **Voting Rights**. The holder of each share of Common Stock shall have the right to one vote, and shall be entitled to notice of any stockholders' meeting in accordance with the Bylaws of the Corporation, and shall be entitled to vote upon such matters and in such manner as may be provided by law.

ARTICLE V

The Board of Directors of the Corporation is expressly authorized to make, alter or repeal Bylaws of the Corporation.

ARTICLE VI

Elections of directors need not be by written ballot unless otherwise provided in the Bylaws of the Corporation.

ARTICLE VII

(A) To the fullest extent permitted by the Delaware General Corporation Law, as the same exists or as may hereafter be amended, a director of the Corporation shall not be personally liable to the Corporation or its stockholders for monetary damages for breach of fiduciary duty as a director.

(B) The Corporation shall indemnify to the fullest extent permitted by law any person made or threatened to be made a party to an action or proceeding, whether criminal, civil, administrative or investigative, by reason of the fact that he, his testator or intestate is or was a director or officer of the Corporation or any predecessor of the Corporation, or serves or served at any other enterprise as a director or officer at the request of the Corporation or any predecessor to the Corporation.

(C) Neither any amendment nor repeal of this Article VII, nor the adoption of any provision of the Corporation's Certificate of Incorporation inconsistent with this Article VII, shall eliminate or reduce the effect of this Article VII in respect of any matter occurring, or any action or proceeding accruing or arising or that, but for this Article VII, would accrue or arise, prior to such amendment, repeal or adoption of an inconsistent provision.

ARTICLE VIII

The Corporation renounces any interest or expectancy of the Corporation in, or in being offered an opportunity to participate in, any Excluded Opportunity. An "Excluded Opportunity" is any matter, transaction or interest that is presented to, or acquired, created or developed by, or which otherwise comes into the possession of (i) the Series D Preferred Director or (ii) First Solar, Inc. or any affiliate, partner, member, director, stockholder, employee or agent of First Solar, Inc. (collectively, "Covered Persons"), unless such matter, transaction or interest is presented to, or acquired, created or developed by, or otherwise comes into the possession of, a Covered Person expressly and solely in such Covered Person's capacity as a director of the Corporation.

* * *

The foregoing Fifth Amended and Restated Certificate of Incorporation has been duly adopted by this corporation's Board of Directors and stockholders is accordance with the applicable provisions of Sections 223, 242 and 245 of the General Corporation Law of the State of Delaware.

Executed at Foster City, California, on October 28, 2008.

/s/ Lyndon Rive
Lyndon Rive, Chief Executive Officer &
President

MEMORANDUM

RECEIVED

2009 MAR 11 P 4:43

AZ CORP COMMISSION
DOCKET CONTROL

EXHIBIT
A-8
ADMITTED

TO: Docket Control

FROM: Ernest G. Johnson EA for EGJ
Director
Utilities Division

DATE: March 11, 2009

RE: STAFF REPORT FOR THE SOLAR ALLIANCE APPLICATION FOR A DECLARATORY ORDER THAT PROVIDERS OF CERTAIN SOLAR SERVICE AGREEMENTS WOULD NOT BE PUBLIC SERVICE CORPORATIONS (DOCKET NO. E-20633A-08-0513)

Attached is the Staff Report for The Solar Alliance application for a Declaratory Order that providers of certain solar service agreements would not be public service corporations. Staff recommends that a hearing should be held in this matter.

EGJ:SPI:red

Originator: Steve Irvine

Attachment: Original and Thirteen Copies

Arizona Corporation Commission
DOCKETED

DOCKETED BY

Service List for: The Solar Alliance
Docket No. E-20633A-08-0513

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STAFF REPORT

UTILITIES DIVISION
ARIZONA CORPORATION COMMISSION

THE SOLAR ALLIANCE
DOCKET NO. E-20633A-08-0513

APPLICATION FOR A DECLARATORY ORDER THAT PROVIDERS OF CERTAIN SOLAR SERVICE AGREEMENTS WOULD NOT BE PUBLIC SERVICE CORPORATIONS

MARCH 11, 2009

STAFF ACKNOWLEDGMENT

The Staff Report on the Solar Alliance's application for a declaratory order that providers of certain solar service agreements would not be public service corporations, Docket No. E-20633A-08-0513, was the responsibility of the Staff members listed below.

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INTRODUCTION

Background

On October 3, 2008, the Solar Alliance ("Solar Alliance") filed with the Arizona Corporation Commission ("Commission") an application ("Application") for a declaratory order that providers of certain solar service agreements ("SSAs") would not be public service corporations. A Procedural Order was issued on January 12, 2009, that directed Commission Staff to file a Staff Report on the Application on or before March 6, 2009. The Procedural Order does not set a hearing date, but directs Staff to indicate in the Staff Report whether Staff believes there are disputed issues of fact at the time the Staff Report is filed. The Procedural Order further directs Staff to make a recommendation to the Commission regarding the need for a hearing.

The Application describes the Solar Alliance as an alliance of solar manufacturers, integrators and financiers dedicated to accelerating the development of photovoltaic energy in the United States. In response to a data request, the Solar Alliance indicated that the members of the Solar Alliance (in the context of the instant application) are American Solar Electric; Applied Materials; Borrego Solar; BP Solar; Conergy; Dow-Corning; Energy Innovations; Evergreen Solar; First Solar; Iberdrola Renewables; Kyocera; Mainstream Energy; Mitsubishi Electric, MMA Renewable Ventures; Oerlikon Solar; Sanyo; Schott Solar; Sharp Solar; Solar City; Solaria; Solar Power Partners; SolarWorld; SPG Solar; SunEdison; SunPower; Suntech; Tioga Energy; Trinity Solar; Uni-Solar; and Xantrex. The data response clarifies that the applicant in this docket is the Solar Alliance and not its individual members. Because the applicant in this matter is an industry organization, as opposed to a service provider, the application does not contain any information about the articles of incorporation, purposes, or other corporate authorizations for any of the Solar Alliance's individual members.

The Solar Alliance explains in response to a data request that it is seeking adjudication for a narrowly defined business model, rather than an adjudication for its members specifically or any other entity. The Solar Alliance does not intend to provide services under SSAs.

The business model for which the Solar Alliance seeks a declaratory order involves the installation of solar photovoltaic equipment at a customer's premises for the generation and delivery of electricity for the customer's use. According to the Solar Alliance's application, the SSA provider "finances, owns, maintains and operates" the solar photovoltaic ("PV") system.1 Either the SSA provider or a third-party lender also receives any tax credits associated with the equipment. This model allows customers to access solar photovoltaic equipment with much, or all, of the up-front costs associated with purchase of the equipment born by someone other than the customer. In other words, a customer entering into an SSA, as described by the Application, would typically not pay the up-front costs for purchase and installation of the solar photovoltaic equipment.

1 Application at 7.

The Solar Alliance seeks a declaratory order only for SSAs that install solar photovoltaic systems. The Solar Alliance does not seek a declaratory order for SSAs that install any other sort of generation, whether it be a renewable energy type, such as solar thermal, or conventional generation, such as natural gas-fired generation.

The Application suggests that there is uncertainty as to whether providers of SSAs are subject to regulation by the Commission as public service corporations, and further suggests that this uncertainty will hamper the growth of distributed solar power in Arizona. The Solar Alliance explains that for this reason it is seeking a declaratory order that providers of SSAs that conform to certain criteria are not public service corporations, and are not subject to the Commission's regulation. The application, however, does not specifically address how or to what degree the growth of distributed solar power has been hampered.

The Application appears to be more like a legal brief than factual testimony. The section entitled "Facts Upon Which the Application is Based" on pages six through eight is a list of the twelve characteristics that the Solar Alliance proposes as facts in support of the requested declaration. The Application then offers legal arguments that providers of SSAs with those characteristics are not public service corporations and are therefore not subject to regulation by the Commission.

This Staff report provides Staff's analysis of the factual aspects of the Application. It is limited to a discussion of the factual aspects of the proposal. The report does not respond to the Application with comment on the legal merits of the arguments contained in the Application and does not offer legal conclusions. Staff believes that the ultimate issue at question in the application calls for a legal conclusion, and we anticipate that the legal arguments will be analyzed and addressed by the parties in the briefing process. The purpose of this report is to lay a factual background for that legal analysis.

Summary of the Renewable Energy Standard and Tariff

The Commission adopted the Renewable Energy Standard and Tariff ("REST") Rules on November 14, 2006, in Decision No. 69127. The REST Rules require load-serving entities to derive a portion of the retail energy they sell from renewable technologies, defined as "Eligible Renewable Energy Resources" (A.A.C. R14-2-1802). A.A.C. R14-2-1802 defines Renewable Energy Resources as energy resources that are replaced rapidly by a natural, ongoing process and that is not nuclear or fossil fuel. Eligible Renewable Energy Resources include solar generation from either photovoltaic or solar thermal devices, among other things. The portfolio percentage requirement increases annually. The requirement was 1.25 percent initially in 2006, 1.5 percent in 2007, 1.75 percent in 2008, and will be 2 percent in 2009. The requirement rises incrementally until reaching 15 percent for all years following 2024.

The REST Rules require the increased use of energy derived from renewable resources. This increased use of renewable energy offsets energy that would otherwise be generated from nuclear or fossil fuels. There are many advantages associated with the use of renewable

resources rather than conventional nuclear or fossil fuel generation. Generally, these advantages include reduced reliance on foreign-sourced fuels, displacing generation that relies on finite fuel resources, and environmental considerations.

The REST Rules include energy generated from solar photovoltaic generation as an eligible source from which to meet the requirements. More particularly, the REST Rules include a Distributed Renewable Energy Requirement. The Distributed Renewable Energy Requirement is contained in A.A.C. R14-2-1805. The Distributed Renewable Energy Requirement requires that a portion of the renewable energy requirements contained in the rules be met from certain approved generation technologies located at a customer's premises that displace conventional energy resources that would otherwise be used to provide electricity to Arizona customers. The approved generation technologies include solar photovoltaic generation.

The SSAs contemplated in the Solar Alliance Application would facilitate the increased use of photovoltaic generation, which in turn would provide an additional means for electric utilities to meet the Distributed Renewable Energy Requirements. The SSAs proposed by the Solar Alliance would appear to be consistent with recent Commission policy goals that have been pursued through the REST Rules. Staff fully supports efforts to make solar facilities more generally available to the public.

STAFF'S ANALYSIS

Description of Operation of SSAs

The Solar Alliance enumerates the characteristics of SSAs for which it seeks a declaratory order.[2] The characteristics are as follows:

- An SSA provider finances, installs, owns, maintains and operates a solar PV facility that is located on a customer's premises and generates electricity using solar power.
- The customer provides its premises for the solar facility.
- The SSA provider provides a number of services to the customer as part of the single package, including analysis of the customer's load characteristics, sizing and placement of the solar facility on the customer's premises, financing of costs of acquiring the solar facility, monetizing tax credits related to the solar facility, ongoing maintenance of the solar facility, and electric output of the solar facility.
- The customer's charges for all of the services under the SSA are computed as a price per kWh for the entire package of services (prices are not broken out by individual service provided).
- The customer charges are computed based on power actually produced by the solar facility.

2 Application at 7-8.

- The customer must remain connected to the utility grid and generally continues to purchase power from the customer's electric utility. Energy produced by the solar facility reduces the energy provided to the customer by the electric utility.
- Facilities operate in parallel with an electric utility's existing transmission and distribution facilities.
- The customer purchases the full output generated by the facility at agreed upon prices.
- Due to practical limitations such as available surface area for facility installation, the electricity generated on-site typically serves less than the customer's total annual electrical load.
- The SSA provider owns the solar facility throughout the term of the SSA, but a customer may have an option of purchasing a facility during the term of the agreement.
- The SSA provider negotiates an individualized price with each customer taking into account factors such as the cost of the solar facilities, the cost of installation, the surface area available for an installation, the efficiency of a solar array and its orientation and tilt, the price paid for electricity from a local utility, and any other values such as those provided by renewable energy credits.
- At the time an SSA is entered, the customer's billing rate for the services to be provided is established for the term of the contract.

Staff inquired of the Solar Alliance whether its proposal envisions a declaratory order that applies only to SSAs with all twelve of these characteristics, or whether it envisions that the declaratory order could apply to SSAs with only some of the characteristics. The Solar Alliance responded that it believes that the vast majority of SSAs would meet all twelve characteristics. The Solar Alliance characterized its request as "proposing a set of guidelines that, if followed, would provide a reasonable assurance that regulation as a public service corporation could be avoided if there were to be a challenge to an SSA provider's non-public service corporation status." The Application provides the list of twelve characteristics that it proposes as a means to define the SSAs and asks that the Commission specifically declare that entities meeting those twelve characteristics are not public service corporations.

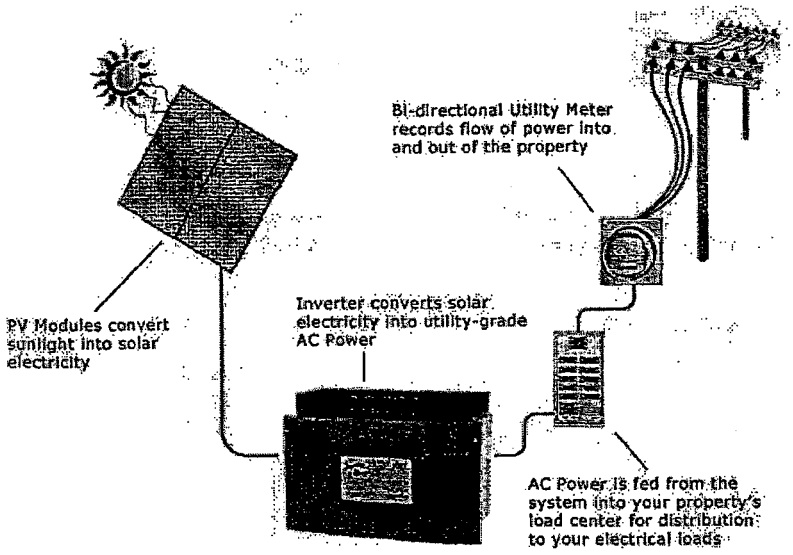
The following is a description of the operation of the contemplated SSAs as described to Staff by the Solar Alliance through responses to data requests. The description includes discussion of the physical aspects of the equipment involved, treatment of generation of energy beyond the SSA customer's own use, safety considerations of the interconnection with the grid, and the financial aspects of the SSA.

Physical Aspects of the Equipment and Treatment of Excess Energy

The equipment that would be installed under a typical SSA includes photovoltaic solar panels, mounting structures, wiring and conduit, direct current ("DC") to alternating current ("AC") electricity inverters, inverter mounting equipment, and disconnect switches. The photovoltaic system is connected to an inverter that changes DC electricity into AC electricity

that can be used on site. The inverter is connected to the service entrance where the energy is sent to the customer's home or building for use. The customer remains connected to the utility grid and generally continues to purchase power from the utility. The solar facilities operate in parallel with the utility's existing transmission and distribution facilities. That is, the customer load has separate connections to both energy sources, but is connected in such a way that electricity from the grid is used only if sufficient electricity from the solar system is not available. The inverter makes sure that all solar energy is utilized on site before any energy from the utility grid is utilized. If the photovoltaic system is producing more energy than is needed by the customer, the additional energy is fed back into the grid through a bi-directional utility meter. Further, the inverter in a grid-tied photovoltaic system is designed to shut down immediately if power from the grid is interrupted. Any customer who attempted to disconnect from the grid would not be able to utilize energy from the solar system.

The Solar Alliance provided the following general diagram depicting the configuration of the system under a typical SSA:



The SSA provider generates electricity through the solar facility and delivers all of the energy generated to the SSA customer. According to the terms of the SSA, the SSA customer buys all the output of the solar generating facility. Although it is not shown on the Solar Alliance's diagram, it is Staff's understanding that a dedicated photovoltaic system kWh meter measures the power generated by the solar facility before it reaches the service entrance or load center. Any excess energy is sent to the grid, and it is the SSA customer that is credited by the electric utility for any excess power under a net metering arrangement. The SSA provider, as described in the Application, would not sell any excess electricity to the incumbent utility.

An SSA would be unlikely to enable a customer to forego service from a traditional electric utility because, due to the intermittent nature of solar, it is unlikely that the system would be able to meet the customer's entire load, particularly during times of no sun. Customers would therefore likely remain connected to incumbent providers.

Safety Considerations

The interconnection of outside generation equipment with a utility's distribution system can raise safety concerns. Those concerns include the stability of the grid, and the physical safety of the general public, utility workers, and those living or working at the premises where the generation is installed. Electric utilities in Arizona have Commission-approved tariffs that establish the terms of service that apply to the utility and ratepayer. These tariffs address a variety of matters; however, they do not commonly specifically address the interconnection of generation equipment sited at a customer's premises with the utility's distribution system. Trico Electric Cooperative's tariff includes a section that establishes safety considerations for a customer's stand-by generation equipment, but does not specifically address generation equipment installed to operate concurrently with utility-supplied energy. Some utility tariffs require that any customer equipment comply with the National Electric Safety Code. Other utility tariffs simply state that the customers are responsible for all equipment on their side of the point of delivery.

Any photovoltaic system that connects to the grid should undergo a thorough utility inspection before being activated. For example, Arizona Public Service Company's ("APS) current interconnection practices include the following: the customer must enter into an interconnection agreement with APS, submit to APS an interconnection application and sample diagrams, receive preliminary confirmation based on the plans submitted, obtain all required permits, and schedule an interconnection inspection. Only upon final APS approval after inspection will APS activate the interconnection.

In Decision No. 69674, the Commission adopted a standard for interconnection of distributed generation equipment, such as the solar photovoltaic devices that are used in SSAs. The decision refers to the standard as the Interconnection Document. This standard, contained in the Interconnection Document, has not yet been incorporated as a rule in the Arizona Administrative Code. It will provide a detailed and uniform set of guidelines for the interconnection of distributed generation equipment. The guidelines will address safety concerns and other considerations.

As noted by the Solar Alliance in a data response, until the rulemaking process is complete, the Commission has recommended that utilities use the draft rules as a guide for interconnecting such systems. The Solar Alliance believes that application of these rules will allow utilities to safely and efficiently interconnect a customer-sited, solar PV system.

Financial Aspects of SSAs

The Solar Alliance characterizes SSAs as financial instruments that allow customers to obtain solar equipment and lower their dependence on grid-supplied energy and characterizes the energy delivered as incidental to the SSA. The purchase of a solar photovoltaic system is typically costly. While a solar photovoltaic system provides long-term benefits through the reduction of electricity purchased from a utility, achieving the long-term benefits requires a large initial expense. The Solar Alliance describes SSAs as a means to mitigate the cost of acquiring solar photovoltaic equipment. Page two of the Application states, "Customers generally include businesses, state or local governmental entities, schools, congregations and non-profit groups that are interested in supporting renewable energy but lack the necessary capital to invest in such facilities or lack a sufficient taxable income to fully capture federal tax incentives that are available to help finance solar systems." Service to residential customers is not anticipated at this time.

SSAs can allow a reduction in the cost of solar facilities to be realized by taking advantage of federal tax credits. The Emergency Economic Stabilization Act of 2008 continued a 30 percent income tax credit for those who install solar equipment. As many entities might lack sufficient taxable income to take full advantage of the tax credit, SSAs create an arrangement where the SSA provider, as owner of the equipment, can take advantage of the tax credit and thus reduce the total cost of the equipment. Similarly, as mentioned in the Solar Alliance data response, SSAs allow entities such as non-profits and governments who lack income tax liability to benefit from the federal tax incentives.

Under an SSA, someone other than the customer would bear all or most of the cost to acquire the solar equipment. The initial costs to acquire and install such systems are considerable. Those who enter into SSAs enjoy the benefit of reduced electric bills without incurring the large upfront costs of purchasing the systems.

The Solar Alliance describes the SSA model as a financing method in which SSA providers raise capital, usually from third party tax equity investors, and use the money to purchase and install the solar equipment. These third parties, which are often large banks, provide the necessary capital for the SSA provider to purchase what is in many cases millions of dollars worth of solar panels. The third parties also have a second function. Because of their size, they have a large "tax appetite" and can repeatedly absorb or utilize the 30% federal tax credit on a multi-million dollar solar system. The Solar Alliance asserts that this monetizing of the tax credit is crucial for utilizing all available solar incentives. However, very recent changes in the federal stimulus package that allow the solar investment tax credit to be taken as a grant rather than a tax credit may allow some SSA providers to offer financing options directly to the customer in some cases.

SSAs could include options or provisions where customers entering into the SSAs could at some point purchase the equipment. Another possibility is that the customer would lease the equipment. In an example of an SSA contract supplied to Staff by the Solar Alliance, the

agreement includes checkmark boxes where the purchaser (customer) is designated as either owning the facility or alternatively leasing the facility. Staff is not certain whether the Solar Alliance views a leasing arrangement as falling within the twelve characteristics of an SSA. Although the sample SSA referred to in the preceding paragraph refers to a lease, other statements by the Alliance would seem to indicate that a lease is not contemplated by the twelve proposed characteristics.

In a data request, Staff inquired of the Solar Alliance about what sorts of ownership arrangements could be established relative to the provision of solar equipment. Staff asked the Solar Alliance to comment particularly on leasing agreements. The Solar Alliance's response is as follows:

> "There are no other mechanisms that will serve the same ends as an SSA. This is particularly true for non-profit and governmental entities. The Federal tax code does not allow the lessor of a solar system sited on property owned by governments or non-profits (schools included) to take the Federal investment tax credit for solar. Given that federal tax credit can account for as much as one-third the cost of a solar PV system, solar leases prevent governmental entities and non-profits from receiving the federal tax benefits that are passed through in SSAs in the form of lower pricing for the same services provided. Therefore, SSAs are the only financially viable vehicle available for school districts and other government entities to obtain third party financing."

DISCUSSION OF SOLAR ALLIANCE'S TWELVE CHARACTERISTICS

The Solar Alliance has proposed twelve characteristics that it believes distinguish the service of an SSA provider from that of a public service corporation. While these twelve characteristics were helpful to Staff in understanding the rough outlines of an SSA provider, the majority of these characteristics do not necessarily distinguish SSA providers from public service corporations. It would be possible for a public service corporation to have most (if not all) of these twelve characteristics. For example, it is not impossible that an incumbent electric utility could elect to forego the construction of a new central station power plant and instead choose to serve a portion—even a significant portion—of its load with rooftop solar generating facilities located on individual customer premises. It would also be possible for an entity to have these twelve characteristics, but nonetheless not be a public service corporation. In other words, these twelve characteristics are not necessarily a "litmus test" for determining an entity's status, either one way or another.

In its Application, the Solar Alliance states that the provision of electricity is incidental to an SSA Provider's primary purpose, which is to facilitate the financing and acquisition of on-site solar facilities for an individual entity. Staff fully supports efforts to make solar facilities more generally available to the public. None of the twelve characteristics, however, appear to

specifically identify or define the supposed "incidental" nature of the electric service. Characteristic No. 1 provides as follows:

> An SSA provider finances, installs, owns, maintains and operates a solar PV facility that is located on a customer's premises and generates electricity using solar power.

Characteristic No. 3 provides as follows:

> The SSA provider provides a number of services to the customer as part of the single package, including analysis of the customer's load characteristics, sizing and placement of the solar facility on the customer's premises, financing of costs of acquiring the solar facility, monetizing tax credits related to the solar facility, ongoing maintenance of the solar facility, and electric output of the solar facility.

These are the two characteristics that appear to describe the services that an SSA Provider actually provides; however, both of these proposed characteristics list the services as if each is of equal value. In other words, these characteristics would appear to encompass not only entities that are primarily in the business of providing financing, while providing electricity in an incidental way but also entities that are primarily in the business of owning solar generating plants and selling electricity, while providing some other service in an incidental way. The twelve characteristics do not seem to be helpful in addressing how to determine whether the provision of electricity is incidental to some other primary business function.

Staff does not quibble with the notion that an entity could provide electricity in a way that is incidental to its primary business and not be a public service corporation. However, Staff is not convinced that the Solar Alliance has thus far provided facts that explain why the provision of electricity in the circumstances of an SSA is incidental. Certain marketing materials from Solar Alliance members appear to emphasize the ownership of the generating plant by the SSA provider and the sale of electricity from that plant to the customer. However, it is unclear to Staff at this point to what degree the contemplated financing arrangements, which may potentially involve complex tax credit considerations, are in themselves a specialized and unique service that might dwarf any provision of electricity. Additional information in this regard may be helpful. Because of these issues, a hearing would be helpful.

Finally, Staff notes that, to the extent that an SSA provider is in the business of providing a means for customers to finance the customer's purchase or lease of solar generating equipment, an SSA may potentially be viewed as similar to self-service, as in the example of a backyard well. This factor could be viewed as distinguishing SSAs from other entities that are in the business of owning solar generating facilities indefinitely and selling their energy output. Staff is not certain to what degree this observation addresses the Solar Alliance's concerns.

SSA PROVIDERS AND OTHER REGULATED AND NON-REGULATED ENTITIES

In the previous sections of this report, Staff provided a factual description of a typical SSA provider and discussed the Solar Alliance's proposed twelve characteristics for SSAs. In the following section, Staff will provide an overview and description of various entities, both regulated and unregulated, in an effort to provide an additional factual context for the Commission's consideration of this matter.

The Commission regulates a variety of utility industries. They include electric utilities, gas utilities, water utilities, telephone utilities, and sewer utilities. Within each industry, there are different kinds of providers and different kinds of services that are offered.

In the typical context, a public service corporation is engaged in providing a commodity that is fundamental to the public health and welfare, such as electric, gas, water, sewer, or telecommunications service. The public service corporation invests in the plant and facilities necessary to provide service, and often provides "bundled" services. Typically, a public service corporation operates in a monopoly context. However, not all public service corporations share each of these characteristics. For example, many competitive telecommunications providers such as resellers, competitive local exchange providers, Coin Operated Pay Telephones ("COPTs"), and others are subject to regulation. These various telecommunications entities operate in a competitive context, yet are still subject to some level of Commission regulation.

By contrast, an individual who installs a well on his property for the provision of water only to himself is not regulated as a public service corporation. Similar treatment is accorded to certain water providers that satisfy certain conditions. In Decision No. 55568, the Commission established a set of criteria that could be used as a guideline to determine whether an entity providing water services can be adjudicated as not a public service corporation. The criteria include that the association has a fixed number of members and cannot further subdivide. The criteria set forth in the Decision serve to require that the association not grow in its provision of service and behave like, or compete with, public service corporation water utilities.

COPTs provide an example of stream-lined Commission regulation. Rather than performing a traditional rate case for determining tariff rates for COPT, the Commission applies the Generic Tariff, established in Decision No. 58535, to all COPT applications. While a COPT provider could conceivably make an application seeking some rate other than the Generic Tariff, this generally does not happen. Commission regulation of COPT service is, for the most part, limited to granting the application for a CC&N and assigning the Generic Tariff. Rather than issuing a generic tariff, it is more common for tariff rates specific to an individual utility to be determined through a rate case. Most utilities are subject to this more rigorous review by the Commission, particularly for-profit utilities providing electric, gas, water, and sewer service.

The Solar Alliance states that service under an SSA is different from service by a public service corporation because, in an SSA, generation and delivery of electricity occurs entirely on a customer's private property. Even assuming that this description is accurate, there were

entities that provided service as public service corporations entirely on a customer's private property. For example, competitive meter service providers provided a meter which separated the customer's facilities from the utility's facilities. In such a case, the meter belonged to the meter service provider. It was connected to the utility's distribution lines. Meter service providers were considered to be public service corporations.

Staff would also note that, in an SSA, the generation and delivery of electricity involves more than the customer's private property, because the solar generating unit is owned by the SSA provider. As the solar photovoltaic panels themselves would typically be owned by the SSA provider, the electricity would be generated by SSA property, the solar panel, rather than the customer's property. The fact that the SSA provider owns the solar panel that is located on the customer's building does not change the fact that the panel is owned by the SSA provider. The solar generator may be located on a customer's building, but the energy is generated from equipment that is owned by the SSA provider, not by the customer.

The Solar Alliance also states that service under an SSA is different from service by a public service corporation because, in an SSA, the generation and delivery of electricity occurs without any use of common infrastructure. Even assuming that this description of the SSA is accurate, there are entities that provide service as public service corporations even in the absence of connection to or use of any common infrastructure. For example, during the relatively brief period in which retail electric competition was active, meter reading service could be performed by providers other than traditional incumbent utilities. Meter reading service typically includes all functions related to the collection and storage of consumption data. Providers of meter reading service were considered to be public service corporations, and were granted Certificates of Convenience and Necessity ("CC&Ns"). Meter reading service providers did not supply equipment connected to the grid. In fact, their service did not make use of any connected equipment either on the customer or utility side of the meter.

Private Line Telecommunications Service is another example of an activity considered as provision of a public service even in the absence of connection to or use of any common infrastructure. Providers of Private Line Telecommunications Service make use of a direct circuit or channel specifically dedicated to the use of an end user organization for the purpose of directly connecting two or more sites in a multi-site enterprise, or alternatively connecting multiple enterprises. While these circuits or channels on some occasions have no interconnection with the public network, they have historically been granted CC&Ns by the Commission.

In the application, the Solar Alliance claims that the services provided through an SSA are not indispensable to large segments of the population. At the present time, this claim would appear to be accurate. It does not appear that a substantial number of SSAs are in existence in Arizona at this time. Staff asked the Solar Alliance to provide estimates as to how many customers would be served by SSAs in the future. In response, the Solar Alliance provided the following chart, which is based on the APS and Tucson Electric Power Company ("TEP") 2009

REST Implementation Plans. The information in the 2013 column is not cumulative but, rather, represents additional customers.

		Projected #s of SSA Financed Systems								
This chart conservatively assumes that half of all non-residential systems will be financed through SSAs.		2010			2013			2018		
APS Service Territory	Percentage of Category by Property Type (Comercial, Government, Non-Profit)	Large >200kW	Medium <200, >50	Small <50	Large >200kW	Medium <200, >50	Small <50	Large >200kW	Medium <200, >50	Small <50
Percentage of Total # of Systems by Size		10%	30%	60%	20%	30%	50%	30%	30%	40%
# of Total Systems by Size		11	33	67	21	32	53			
APS Estimate of Total# of Non-residential solar systems to needed to Meet REST Goals * (Including SSA financed and Customer Purchased)		111			105			No Utility Data Available		
Non-Residential Commercial Financed**	50%	6	17	33	11	16	26			
Non-Residential Government	30%	3	10	20	6	9	16			
Non-Residential Non-Profit	20%	2	7	13	4	6	11			
Total SSA Financed Systems		11	33	67	21	32	53			
TEP Service Territory		Large >200kW	Medium <200, >50	Small <50	Large >200kW	Medium <200, >50	Small <50	Large >200kW	Medium <200, >50	Small <50
Percentage of Total # of Systems by Size		10%	30%	60%	20%	30%	50%	30%	30%	40%
# of Total Systems by Size		2	5	11	9	13	22			
TEP Estimate of Total# of Non-residential solar systems to needed to Meet REST Goals*** (Including SSA financed and Customer Purchased)		18			44			No Utility Data Available		
Non-Residential Commercial	50%	1	3	5	4	7	11			
Non-Residential Government	30%	1	2	3	3	4	7			
Non-Residential Non-Profit	20%	0	1	2	2	3	4			
Total SSA Financed Systems		2	5	11	9	13	22			

* From APS 2009 REST Implementation Plan
** There are no residential SSA agreements
*** From TEP 2009 REST Implementation Plan. TEP estimates that there will be .919 MW of Non-residential Capacity installed in 2010 and 2.2 MW in 2018. Assumes average system size of 50kW.

The Solar Alliance states that the size of the distributed generation solar market is largely tied to the available utility incentive funding, as well as minimum non-residential distributed generation carve-outs included in the REST Rules. Because of this, the Solar Alliance believes that utility estimates of how many solar systems it will take to meet goals are fairly accurate. It is difficult to draw any definite conclusions as to the total potential load from these predictions, as they do not indicate the load that would be associated with these installations.

Finally, in the current regulatory circumstances, it is possible that the operation of SSAs will not result in duplication of services. This is because of the REST Rules. Absent the REST Rules, the entry of SSAs could lead to the development of a duplication of resources, because incumbent utilities must develop resource plans in order to serve their entire loads, while SSA providers would essentially be developing duplicate resources in the hopes of acquiring a portion of the utilities' load. The REST Rules, however, require traditional utilities to meet certain goals related to distributed renewable energy. It may be helpful for the electric utilities to address in a hearing in this matter whether this application has any implications for their resource planning.

OTHER ISSUES AND CONCERNS

Staff notes that there are certain matters that were largely unaddressed in the Solar Alliance's application. Although Staff has attempted to clarify these matters through discovery, some issues are still not clear. It is possible that the clarification of some of these issues may require input from the electric utilities.

For example, Staff has less than perfect understanding as to why the Solar Alliance is seeking this adjudication. Staff is not certain whether it is as simple as a preference to be unregulated or whether there is some impediment (either perceived or real) that regulation would pose for these entities. Staff would note that it would appear to be undisputed that a lease (and probably even an SSA with a provision for the customer to eventually own the plant) would likely not lead to regulation as a public service corporation. However, the Solar Alliance apparently rejects this as a business model. For example, a sample SSA supplied to Staff specifically provided for either a lease or an option to purchase. In a data response, however, the Solar Alliance specifically stated that, for tax implications, its twelve proposed characteristics do not support a lease or purchase option. The tax implications apparently relate to their provision of service to non-profit and government entities. At this point, the Solar Alliance has not identified how much business it anticipates to receive from such entities, so it is difficult for Staff to judge the scope of this issue. Staff would also note that, even if there were to be no other conclusion than that SSA providers are public service corporations, there are examples of Commission regulation that are different (and more light-handed) than traditional notions of regulation. The Solar Alliance has not discussed why those would not be possible. Staff fully supports the efforts to make distributed solar facilities more generally available to the public, but at the same time, Staff seeks to fully understand the nature of the problems faced by the Solar Alliance and its members that have led to this application.

Staff notes that the application does not address any safety implications that may be raised by a conclusion that SSA providers are not public service corporations. Staff performed its own research on this issue and has not thus far identified any safety concerns. However, Staff believes that it would be helpful for the Solar Alliance and the electric utilities to address this issue.

In addition, the application does not appear to address any potential reliability implications that may be raised by a conclusion that SSA providers are not public service corporations. For example, if SSA providers were to acquire some significant degree of Arizona load, it is unclear what the repercussions may be if SSA facilities were to suffer a sudden, catastrophic failure. At this point, it is unclear to Staff whether such an event would have repercussions for Arizona's electric system as a whole or for non-SSA customers. Again, Staff believes that it would be helpful for the Solar Alliance and the electric utilities to address these issues.

Because of these various issues as well as others noted throughout the body of this report, Staff believes that a hearing would be helpful.

CONCLUSIONS AND RECOMMENDATIONS

Staff fully supports efforts to make the acquisition of solar distributed renewable energy facilities more accessible to the public.

In reviewing the twelve proposed criteria, Staff finds that, while the characteristics are helpful in describing and understanding the physical aspects of the equipment and the operations of the proposed business model, the majority of the characteristics do not necessarily distinguish SSA providers from public service corporations. In Staff's opinion, public service corporations could offer services that share many of the proffered characteristics, rendering the characteristics less meaningful for the purpose of comparisons between SSA providers and public service corporations. Also, there is the potential for SSAs to contain additional terms or characteristics beyond those identified and discussed.

Staff must also be mindful of the potential repercussions of any Commission order in this matter for other circumstances. While some may be incline to adjudicate SSA providers so that the public may enjoy the benefits contemplated by the REST Rules of increased applications of solar distributed generation facilities, such a potential result may have an undesirable effect in other circumstances in which the Commission would desire an expansive view of its authority. For this reason, any conclusion that SSA providers are not public service corporations should be as narrowly drawn as possible.

While Staff acknowledges that an entity's provision of electric service could be incidental to some other business purpose, thereby not qualifying as a public service corporation, the twelve proposed characteristics do not provide factors for determining when such provision of electricity is incidental to some other business purpose. Further, it might be possible that other criteria may be more appropriate then that proffered than the Applicant.

To the extent that an SSA envisions a customer's lease or eventual ownership of the solar generating equipment, the SSA would seem to be somewhat more akin to an individual digging a well on his own property and providing service only to himself.

However, in circumstances where the SSA provider owns the solar generating facility on an indefinite basis, and sells electricity generated to a customer, we do not at present have facts that would allow us to conclude that such activity is largely incidental to some other business purpose.

Staff believes a hearing in this matter would be helpful. As Staff has noted throughout this report, there may be additional information that the Alliance could provide that may be helpful. In addition, there are thirteen interveners in this matter, and Staff anticipates that they will express opinions, and present testimony in this matter.

BEFORE THE ARIZONA CORPORATION COMMISSION

MIKE GLEASON
Chairman
WILLIAM A. MUNDELL
Commissioner
JEFF HATCH-MILLER
Commissioner
KRISTIN K. MAYES
Commissioner
GARY PIERCE
Commissioner

Arizona Corporation Commission
DOCKETED
JUN 28 2007
DOCKETED BY nr

EXHIBIT A-9 ADMITTED

IN THE MATTER OF INTERCONNECTION OF DISTRIBUTED GENERATION FACILITIES IN THE GENERIC INVESTIGATION OF DISTRIBUTED GENERATION.

DOCKET NO.E-00000A-99-0431

DECISION NO. 69674

ORDER

Open Meeting
June 26 and 27, 2007
Phoenix, Arizona

BY THE COMMISSION:

FINDINGS OF FACT

Introduction

1. Commission Decision No. 67744 directed Staff to schedule workshops to consider outstanding issues concerning distributed generation ("DG"). The first issue to be addressed by the workshops was DG interconnection. Workshops were held on July 8, 2005; August 26, 2005; September 23, 2005; October 21, 2005; November 18, 2005; December 15, 2005; and March 17, 2006. Participants in the Workshops included representatives from utilities, government agencies, energy efficiency and environmental advocacy groups, utility investors, large industrial consumers, advocates for renewable resources, competitive power providers, advocates for distributed generation, product suppliers, research entities, and others.

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2. In addition, the Energy Policy Act of 2005 requires each state regulatory authority to consider certain PURPA[1] standards, including one on interconnection. The Commission may decline to implement the standard or adopt a modified standard. The Commission was required to begin its consideration by August 8, 2006, and must complete its consideration by August 8, 2007. On January 23, 2006, Staff filed a memo in Docket Control that interconnection was being addressed in Docket No. E-00000A-99-0431.

3. The Workshop participants developed an Interconnection Document that includes proposed processes and procedures for standardizing the interconnection of DG facilities of 10 MW or less. It was a difficult process that led to facilitating the installation of distributed generation while protecting the reliability and safety of the grid.

4. On January 24, 2007, Staff filed a Staff Report which contained its proposed version of the Interconnection Document. There were some parts of the document in which the group could not achieve consensus. Staff chose positions for those issues and made other changes as described in the Staff Report. The Staff Report also contained descriptions of each section in the Interconnection Document as well as participant positions on the controversial issues. In addition, Staff made minor edits throughout the Interconnection Document.

5. In the Staff Report, Staff recommended that the Commission adopt a modified version of the PURPA standard on interconnection that would apply to all electric distribution companies in Arizona that are regulated by the Commission. Staff also recommended that the Commission direct Staff to begin a rulemaking process to convert the Interconnection Document into rules. In addition, Staff recommended that the electric distribution companies use the Interconnection Document as a guide for interconnecting DG facilities until such time as interconnection rules go into effect.

6. On January 30, 2007, Staff issued a letter that requested comments from interested parties on the proposed Interconnection Document. Comments were to be filed on or before February 21, 2007. Comments were received by Arizona Municipal Power Users' Association

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[1] Public Utility Regulatory Policies Act of 1978.

("AMPUA"), Arizonans for Electric Choice and Competition ("AECC"), the Cooperatives,[2] the DG Advocates,[3] the Joint Utilities,[4] and UniSource Energy.[5] The comments are summarized in the discussions below.

Consideration of the PURPA Standard on Interconnection

7. The Energy Policy Act of 2005 requires each state regulatory authority to consider a PURPA standard on interconnection. The standard would apply to utilities with greater than 500,000 MWh in annual retail sales. The Commission may decline to implement the standard or adopt a modified standard. The standard is as follows:

> *Each electric utility shall make available, upon request, interconnection service to any electric consumer that the electric utility serves. For purposes of this paragraph, the term 'interconnection service' means service to an electric consumer under which an on-site generating facility on the consumer's premises shall be connected to the local distribution facilities. Interconnection services shall be offered based upon the standards developed by the Institute of Electrical and Electronics Engineers: IEEE Standard 1547 for Interconnecting Distributed Resources with Electric Power Systems, as they may be amended from time to time. In addition, agreements and procedures shall be established whereby the services are offered shall promote current best practices of interconnection for distributed generation, including but not limited to practices stipulated in model codes adopted by associations of state regulatory agencies. All such agreements and procedures shall be just and reasonable, and not unduly discriminatory or preferential.*

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[2] The Grand Canyon State Electric Cooperative Association filed comments on behalf of the Cooperatives which include Duncan Valley Electric Cooperative, Inc.; Graham County Electric Cooperative, Inc.; Mohave Electric Cooperative, Inc.; Navopache Electric Cooperative, Inc.; Sulphur Springs Valley Electric Cooperative, Inc.; and Trico Electric Cooperative, Inc.

[3] The Distributed Energy Association of Arizona filed comments on behalf of the DG Advocates which include Annan Group; the Arizona Solar Energy Industries Association; the Distributed Energy Association of Arizona; Energy Innovations; the Greater Tucson Coalition for Solar Energy; the Intermountain Combined Heat and Power Application Center; the Southwest Energy Efficiency Project; SunEdison; Venture Catalyst, Inc.; and Vote Solar. Some of the members of the DG Advocates who filed these comments are different from the members of the DG Advocates who participated in the Workshops.

[4] Arizona Public Service Company filed comments on behalf of the Joint Utilities which include Arizona Public Service Company; Duncan Valley Electric Cooperative, Inc.; Graham County Electric Cooperative, Inc.; Mohave Electric Cooperative, Inc.; Navopache Electric Cooperative, Inc.; Sulphur Springs Valley Electric Cooperative, Inc.; and Trico Electric Cooperative, Inc.

[5] UniSource Energy includes Tucson Electric Power Company and UNS Electric, Inc.

8. The Commission is required to consider the three purposes of PURPA in its determination of whether to adopt the interconnection standard. The three purposes of PURPA are as follows:

- conservation of energy supplied by electric utilities,
- optimal efficiency of electric utility facilities and resources, and
- equitable rates for electric consumers

9. Having interconnection standards may facilitate the installation of DG and thus reduce the amount of energy to be supplied by electric utilities. The presence of DG may improve the efficiency of electric utility facilities and thus reduce costs for electric consumers.

10. Staff's proposed Interconnection Document is consistent with the PURPA standard in that it includes reference to IEEE[6] Standard 1547; however, the Interconnection Document also includes references to other standards, including other IEEE standards. In addition, the Interconnection Document addresses features of agreements and the procedures for interconnection.

11. Staff recommended in the Staff Report that the Commission adopt a modified version of the PURPA standard on interconnection. The modified standard would be as follows:

> *Each electric utility shall make available, upon request, interconnection service to any electric consumer that the electric utility serves. For purposes of this paragraph, the term 'interconnection service' means service to an electric consumer under which an on-site generating facility on the consumer's premises shall be connected to the local distribution facilities. Interconnection services shall be offered based upon the Arizona Corporation Commission's rules for interconnection when such rules are adopted and become effective. Until such rules are adopted and become effective, the Interconnection Document shall serve as a guide for interconnection unless otherwise ordered by the Commission.*

12. Staff's proposed standard would apply to all electric distribution companies in Arizona that are regulated by the Commission. This would be in contrast to the PURPA standard that applies only to electric distribution companies with retail sales of more than 500,000 MWh.

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[6] The Institute of Electrical and Electronics Engineers.

13. The Cooperatives request that an exemption be granted to electric distribution companies with retail sales of less than 500,000 MWh because "these systems are not equipped with the manpower or financial resources to meet the requirements" of the standard. AMPUA agrees with the Cooperatives due to the operational and financial impacts on small electric distribution companies. While most AMPUA members are non-jurisdictional, AMPUA states that "actions of the Commission do set precedent and act as a public guide which influences the members of AMPUA which are non-jurisdictional." AECC supports Staff's recommendation that a modified version of the PURPA standard should apply to all Commission-jurisdictional utilities irrespective of size. AECC believes that the development and implementation of viable DG projects requires the application of the same fair and reasonable interconnection standards to all electric utilities regulated by the Commission.

14. Staff continues to believe that the standard should apply to all jurisdictional electric distribution companies. A customer of a small electric utility may choose to install DG. Both the customer and the utility would benefit by the existence of interconnection standards to both streamline the interconnection process and ensure that the interconnection does not impair the safety and reliability of the grid.

Discussion of Comments by Section of the Interconnection Document

15. The Interconnection Document describes procedures for customer-owned Generating Facilities with power ratings of 10 MW or less to connect with an electric distribution system. All sections of the Interconnection Document are summarized below along with discussion of the comments that were filed in response to the Interconnection Document as filed by Staff on January 24, 2007. The Interconnection Document is attached as an exhibit.

1 Applicability

16. This section of the Document describes the generating facilities that could be interconnected to utility distribution systems using the procedures contained in the Document.

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1.1 Applicable Generating Facilities

17. This subsection states that the Document applies to generating facilities with a size of 10 MW or less interconnecting or applying to interconnect with electric public utilities subject to the jurisdiction of the Arizona Corporation Commission.

1.2 Types of Generating Facilities

18. A distributed generator can operate as either a Parallel system or as a Separate system in connection with the utility grid. With a Parallel System, the distributed generator is connected to the Utility's system (either on a continuous basis or momentarily), resulting in a transfer of power between the two systems. A Separate System is one in which there is no possibility of electrically connecting or operating the distributed generator in parallel with the Utility's system.

19. One type of a Parallel System is an Islandable System. An Islandable System is a Generating Facility interconnected to the Utility's system, where the Generating Facility is designed to serve part of the Utility grid that has become or is purposefully separated from the rest of the grid.

20. The Interconnection Document contains the following language: "*Currently there are no rules, standards, or protocols governing this type of system operation. As such, an Islandable System as defined herein is not allowed.*"

21. The DG Advocates suggest that Islandable Systems be recognized as the "legitimate approach to DG, and be given the proper consideration and response from utilities." The DG Advocates state that the Commission may revisit Islandable Systems after a successful balloting of IEEE Standard 1547.4. They claim that Islandable Systems already exist on the Arizona service grid, and that the terms and conditions of their operation are negotiated. The recognition would protect DG developers from arbitrary, irrelevant and costly negotiating postures from the utilities, and create a fair and level playing field. By recognizing Islandable Systems, Arizona would send a "clear message that it is responsive to the market-place and the growing concern with energy security."

. . .

22. The Joint Utilities strongly support the language in the Interconnection Document that disallows Islandable Systems for following reasons:

a. there are no industry-wide rules, standards, or protocols governing this type of system;

b. Islandable Systems present a safety hazard for utility personnel because it is a source of power that is not under the Utility's control;

c. the Utility is unable to resynchronize with an islanded system;

d. Islandable Systems present a potential for degradation of Utility power quality because the Generating Facility is not under the Utility's control; and

e. Islandable Systems pose Utility reliability concerns.

23. Staff agrees with the Joint Utilities on the topic of Islandable System. Industry-wide standards do not yet exist. The 1547.4[7] is still a draft standard. The safety and reliability issues are too important to ignore, and the Commission could revisit the issue in the future if warranted.

2. Rights and Responsibilities

24. This section describes the rights and responsibilities of both the customer with a generating facility and the utility.

2.1 Customer Rights and Responsibilities

25. This subsection describes the rights and responsibilities of a customer with a generating facility and desiring to interconnect it with the utility's grid. A customer has the right to interconnect with a utility's grid and the right to receive prompt and reasonable responses from the utility. The customer has responsibilities to provide information to the utility and meet various requirements that will help to maintain utility grid reliability and safety.

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[7] IEEE Standard 1547 was adopted by the Institute of Electrical and Electronics Engineers to establish criteria and requirements for interconnection of distributed resources with electric power systems; 1547.4 is a draft guide for design, operation, and integration of distributed resource island systems with electric power systems.

2.2 Utility Rights and Responsibilities

26. This subsection describes the utility's rights and responsibilities regarding interconnection. A utility is obligated to interconnect generating facilities, but also has the responsibility to safeguard its system, other consumers, and the general public.

27. In the subsection, Customer Rights and Responsibilities, there is a statement that the customer is responsible for all interconnection facilities required to be installed to interconnect the customer's generating facility to the utility system at the customer's sole expense. Staff believes that including the value of benefits when calculating costs may be beneficial; however, it may not always be practical to do so. The wording in the Document is as follows:

> *If facility upgrades are needed to accommodate the Generating Facility, a Utility will reduce the charge to the customer by the amount of any benefits to the grid that are readily quantifiable.*

28. The Joint Utilities state that the quantification of any grid-specific benefits related to the generating facility depends on utility-specific information and circumstances. They believe that it is imperative that any such benefits be quantified by the utility to prevent other customers from providing a subsidy to DG. The Joint Utilities support Staff's language with the modifications as shown below:

> *If facility upgrades are needed to accommodate the Generating Facility, a Utility will reduce the charge <u>of the upgrade</u> to the customer by the amount of any benefits, if any, to the grid that are readily quantifiable <u>by the Utility</u>.*

29. Staff finds the above language modifications proposed by the Joint Utilities to be acceptable.

30. The DG Advocates suggest including a quick and efficient process to resolve interconnection disputes between the utility and an applicant. They suggest language from Texas PUCT Rule 25.211(o) which requires the Texas Commission to attempt to resolve interconnection disputes informally within 20 days of filing. The DG Advocates believe that a similar process may prove useful for resolving disputes regarding facility upgrades. The Texas language is as follows:

. . .

> *Complaints relating to interconnection disputes under this section shall be handled in an expeditious manner pursuant to §22.242 (relating to Complaints). In instances where informal dispute resolution is sought, complaints shall be presented to the Electric Division. The Electric Division shall attempt to informally resolve complaints within 20 business days of the date of receipt of the complaint. Unresolved complaints shall be presented to the commission at the next available open meeting.*

31. Staff believes that the Texas language on dispute resolution is not necessary for Arizona. Section 3.8 of the Interconnection Document already contains language on dispute resolution; however, if the Interconnection Document were to be converted into rules, the Dispute Resolution subsection would be more appropriate to be placed in the Interconnection Agreements instead of in the rules.

32. Staff had also included the following language in the Interconnection Document:

> *In addition, a Utility cannot reject an Application on the basis of distribution system conditions that are already deficient, or charge a Customer for facility upgrades that are overdue or soon to be required to ensure compliance with good utility practice, except that applications can be rejected in instances where reliability or safety would be further compromised by a DG installation.*

33. The Joint Utilities generally support the basic premise of the above language, but they propose modified language to allow the utility to continue to charge generating facilities for upgrades consistent with the manner in which it charges any of its customers. They believe that DG should be treated in a non-discriminatory fashion. Their proposed language is the following:

> *In addition, a Utility cannot reject an Application on the basis of distribution system conditions that are already deficient~~, or charge a Customer for facility upgrades that are overdue or soon to be required to ensure compliance with good utility practice,~~ except that an ~~a~~Applications can be rejected in instances where reliability or safety would be further compromised by a DG installation. A Utility shall not charge a Generating Facility Customer differently than any other Customer for facility upgrades needed to ensure compliance with good Utility practices in accordance with generally applicable Commission approved tariffs and service schedules.*

34. Staff believes that a utility has an obligation to maintain its grid in good condition, and the utility should not unfairly block a DG installation. However, if reliability or safety would be further compromised by a DG installation, the utility has an obligation to prevent or delay the installation until the reliability or safety situation is alleviated, regardless of who is responsible for

the grid problem. Staff believes that DG should be treated in a non-discriminatory fashion, but that a utility should not take unfair advantage of a DG installation. Staff proposes to modify the language in the Interconnection Document as follows:

> *In addition, a Utility cannot reject an Application on the basis of distribution system conditions that are already deficient, or charge a Customer for facility upgrades that are overdue or soon to be required to ensure compliance with good utility practice, except that applications can be rejected in instances where reliability or safety would be further compromised by a DG installation. A Utility shall not charge a Generating Facility Customer differently than any other Customer for facility upgrades in accordance with generally applicable Commission-approved tariffs.*

2.3 Easements/Rights of Way

35. The customer must provide or obtain and provide any easements and rights of way necessary for an interconnection.

2.4 Insurance

36. This subsection of the Document contains language regarding insurance as follows:

> *The Customer is not required to provide general liability insurance coverage as a condition for Interconnection. Due to the risk of incurring damages, it is recommended that every Interconnection Customer protect itself with insurance or other suitable financial instrument sufficient to meet its construction, operating, and liability responsibilities. At no time shall the Utility require that the Customer negotiate any policy or renewal of any policy covering any liability through a particular insurance provider, agent, solicitor, or broker.*
>
> *The inability of the Utility to require the Customer to provide general liability insurance coverage for operation of the Generating Facility is not a waiver of any rights the Utility may have to pursue remedies at law against the Customer to recover damages.*

37. The Joint Utilities strongly recommend that there be an insurance requirement. They believe that not having the requirement creates a potentially enormous risk to both the interconnection customer and the utility (and its customers) from third-party personal injury claims. In addition, they state that an insurance requirement is not redundant to an indemnification provision in an interconnection contract. An indemnification provision is an agreement to assume financial responsibility for liability, while insurance addresses the financial ability to honor the indemnification responsibility. The Joint Utilities propose the following language:

> *The Customer shall maintain public liability and property damage insurance in amounts not less than ONE MILLION DOLLARS ($1,000,000) per occurrence. Residential customers who operate a static inverter based Generating Facility rated less than 50 kW are exempt from this requirement. At no time shall the Utility require that the Customer negotiate any policy or renewal of any policy covering any liability through a particular insurance company, agent, solicitor, or broker.*

38. The DG Advocates had stated in an earlier position paper that any owner of interconnected distributed generation equipment will already have sufficient general liability insurance to cover the "infinitesimal" risk that its operation will result in a liability claim. They support a simple attestation on the interconnection application form that the owner or operator has in place a general liability insurance policy. The DG Advocates point out that other states have rejected the need for DG owners to hold additional insurance. They believe that DG owners should decide how much insurance they want to hold to protect their equipment. Each side of the interconnection should protect themselves. The DG Advocates believe that an insurance requirement also creates an arbitrary financial burden.

39. Staff supports the language in the Interconnection Document. The language (based on the NARUC interconnection model) alerts customers about their liability responsibilities without creating an undue burden on the customer.

2.5 Non-Circumvention

40. This subsection provides that information given to the utility for interconnection to only be used for that purpose. The language is as follows:

> *A utility and its affiliates shall not use knowledge of proposed distributed generation projects submitted to it for interconnection or study to initiate competing proposals to the customer that offer either discounted rates in return for not installing the distributed generation, or offer competing distributed generation projects. Customers are not precluded from sharing information in their possession regarding a potential distributed generation project with a utility or its affiliates, or from using information regarding a potential distributed generation project to negotiate a discounted rate or other mutually beneficial arrangement with a utility or its affiliates.*

41. AECC had supplied the above language and believes that it represents the appropriate standard for protection of customer rights with respect to their information regarding DG projects.

42. The Joint Utilities propose that the following language be added to clarify that the above language does not preclude the utility from keeping the customer informed of all current and pending rate schedules that may be applicable to the customer:

> *The Utility shall be permitted to inform the Customer of existing or pending (awaiting approval by the ACC) rate schedules that may economically benefit or otherwise affect the Customer's project.*

43. The DG Advocates believe that the language in the Interconnection Document does not offer protection to a DG project developer. They mention a case where the Commission had approved a utility offer to a customer not to install DG. They propose the following language:

> *A Utility and/or its affiliates shall not use information or knowledge of proposed distributed generation projects submitted to it for interconnection or study to initiate competing proposals to the customer that offer either discounted rates in return for not installing the distributed generation, or offer competing distributed generation projects, unless the rate offered is pursuant to an existing published tariff rate and the rate is available to all other customers in that rate class.*
>
> *Customers are not precluded from sharing information in their possession regarding a potential distributed generation project with a utility or its affiliates, or from using information regarding a potential distributed generation project to negotiate a discounted rate or other mutually beneficial arrangement with a utility or its affiliates, so long as any negotiated discounted rates or arrangements are 1) pursuant to an existing published tariff rate, or 2) available to all other customers in that rate class.*

44. As an alternative, the DG Advocates propose that at a minimum the language should acknowledge that neither the customer nor the utility should be allowed to disclose or discuss any information that the DG developer has contractually designated as confidential.

45. Staff supports the language in the Interconnection Document. It does not allow the utility to initiate competing proposals, but it allows a customer to negotiate with the Utility for a discounted rate if it so chooses. Any negotiated rate would have to be approved by the Commission before going into effect. The Commission only approves such a rate if it is in the public interest. Staff only recommends approval of a special contract containing a discounted rate if the customer has a viable alternative to the tariffed rate, and other ratepayers would benefit by the customer remaining on the Utility's system. Similarly situated customers are treated equally.

A discounted rate is recommended only for a customer in a situation that is not similar to the situation of other customers.

46. Staff agrees with the addition of the language proposed by the Joint Utilities. The customer should be informed about existing or pending rate schedules. Staff rejects the DG Advocates' alternative language because the Commission should not have to remind someone to honor a contract.

3. General Process and Procedures for All Levels

47. This section contains the general process and procedures to be used for all interconnections regardless of the three interconnection tracts.

3.1 Designation of Contact Persons

48. Each customer applying for interconnection and each utility shall designate a contact person or persons. The utility will also provide its contact names to the Commission and on the utility's website.

3.2 Non-discrimination

49. The utility shall process all applications for interconnection in a non-discriminatory manner.

3.3 Application Submission Requirements

50. This subsection describes some additional information that may be required by the utility.

3.4 Minor Modifications

51. Minor modifications to an application are allowed without the application being considered incomplete or treated as new.

3.5 Certification

52. In order for equipment to qualify as "certified," it must comply with specific codes and standards and other requirements listed in this subsection.

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3.6 No Additional Requirements

53. A utility may not require additional controls or tests if a customer's generating facility complies with all requirements in the Interconnection Document, unless agreed to by the parties or required by the Commission.

3.7 Disconnect from or Reconnect with the Grid Procedure

54. This subsection lists the conditions under which a utility may disconnect a customer's generating facility from the utility system. Those conditions are: (a) expiration or termination of the Interconnection Agreement; (b) non-compliance with the technical interconnection requirements; (c) system emergency; (d) routine maintenance, repairs, and modifications; and (e) absence of executed Interconnection Agreement.

55. The DG Advocates had previously proposed that a paragraph on incremental demand charges be included in this subsection of the Document. The paragraph was the following:

> *During the term of an Interconnection Agreement a Utility may require that a Customer disconnect its Generating Facility and/or take it off-line as a result of Utility system conditions described in subsection (c) and (d) above. Incremental demand charges arising from disconnecting the Generating Facility as directed by the Utility during such periods shall not be assessed by Utility to the Customer.*

56. Staff had not included the above paragraph in the Interconnection Document filed on January 24, 2007. The Joint Utilities strongly agree with Staff that the proposed paragraph should not be included in the Document since the issue of incremental demand charges has not been fully vetted with the current Workshop participants. In addition, they believe that it is a rates issue which does not belong in a technical interconnection document.

57. The DG Advocates believe that the issue of incremental demand charges is not a rate issue because they did not propose reduced or modified demand charges when the utility takes a customer's DG system offline; instead, they proposed that no incremental demand charges be assessed.

58. Staff continues to agree with the Joint Utilities that the DG Advocates' proposed language on incremental demand charges should not be included in the Interconnection Document.

Whether or not to assess a demand charge is a rate issue. The topic of rates in regard to DG will be addressed separately. Many of the participants in the DG Workshops to date are those with expertise in the technical/engineering field rather than in the accounting/ratemaking field.

3.8 Dispute Resolution

59. This subsection describes the steps that would be followed in the event of a dispute. Those steps are notification and response, good faith negotiation, dispute resolution by mediation, and the Arizona Corporation Commission.

60. If the Interconnection Document were to be converted into rules, the Dispute Resolution subsection would be more appropriate to be placed in the Interconnection Agreements instead of in the rules.

Other Issues

61. The DG Advocates had previously proposed adding subsection 3.9 which would consist of two parts: **Distribution or transmission line charge** and **Interconnection operations and maintenance costs**. The language was as follows:

> ***Distribution or transmission line charge.*** *No distribution or transmission line charge shall be assessed to a customer for exporting energy to the utility system. For purposes of this paragraph distribution and transmission charges means access and line charges, transformation charges, and line loss charges.*
>
> ***Interconnection operations and maintenance costs.*** *No charge for operation and maintenance of the utility system's facilities shall be assessed against a customer for exporting energy to the utility system.*

62. Staff had not included the above paragraphs in the Interconnection Document filed on January 24, 2007, because the topic of rates in regard to DG will be addressed separately. Many of the participants in the DG Workshops to date are those with expertise in the technical/engineering field rather than in the accounting/ratemaking field.

63. The Joint Utilities believe that the issues of transmission line charges, operations costs, and maintenance costs should not be included in the Interconnection Document since the use of transmission facilities is FERC jurisdictional and subject to FERC transmission rates. In addition, they believe that it is a rate issue, and there is no justification why generating facility

customers should receive different and more favorable rate treatment than any other customer using the utility's distribution or transmission system.

64. The DG Advocates state that there are two issues. The first issue is whether such charges are appropriate at all. Secondly, what should those charges be if the first issue is resolved in favor of the utilities. The DG Advocates claim that the Staff recommendation, taken at face value, appears to de facto decide that access and line charges, transformation charges, line loss charges, and charges for operation and maintenance of the utility system's facilities are already acceptable. They state that they do not believe that this was Staff's intent. The DG Advocates believe that when a DG facility produces energy in excess of its consumption and exports it to the grid, the utility will not have to deliver that energy across its transmission and distribution facilities, thus reducing the load on the utility's existing systems.

65. Staff continues to believe that the DG Advocates' proposed language on distribution or transmission line charge and interconnection operations and maintenance costs should not be included in the Interconnection Document. Staff clarifies that it has not decided whether such charges are appropriate. The appropriateness of such charges is a rate issue, and the topic of rates in regard to DG will be addressed separately.

4. Specific Process and Procedures for Each Level

66. This section provides the process and procedures for three interconnection levels or tracks.

4.1 Summary of Interconnection Levels/Tracks

67. This subsection defines the three interconnection levels or tracts. Level 1 is the Super Fast Track for the least complex interconnections and facilities with a power rating of 10 kW or less. Level 2 is the Fast Track for interconnections that are more complex and facilities with a power rating of 2 MW or less. Level 3 is the Study Track for the most complex interconnections and facilities having a power rating of 10 MW or less. Each level progressively has more requirements.

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68. Also contained here is a paragraph about generating facilities being allowed on distribution networks on a trial basis at the discretion of the utility. Additional details are in subsection 4.6.

4.2 Screens

69. This subsection lists nine screens or technical criteria that are used to determine which level or track the interconnection application will follow. To qualify for the Level 1 Super Fast Track, the fifth and sixth screens must be met. To qualify for the Level 2 Fast Track, all nine screens must be met. All proposed generating facilities that do not meet the screens for the other levels would go through the Level 3 Study Track.

4.3 Level 1 Super Fast Track Process

70. This subsection describes the steps and timeline of the Level 1 Super Fast Track process. The first step is the customer submitting an application. The utility then receives the application and notifies the customer as to whether the application is complete or incomplete. The utility reviews the complete application. After approval of the application, an Interconnection Agreement is signed. The utility performs a site inspection. After the generating facility meets all applicable requirements, the utility notifies the customer of approval for parallel operation or of any deficiencies. If the generating facility does not pass the initial site inspection, the customer corrects outstanding issues and schedules a re-inspection.

4.4 Level 2 Fast Track Process

71. This subsection describes the steps and timeline of the Level 2 Fast Track process. The customer is encouraged to contact the utility to discuss the project prior to applying for interconnection. The customer then submits an application. The utility receives the application and notifies the customer as to whether the application is complete or incomplete. The utility reviews the complete application. After approval of the application, an Interconnection Agreement is signed. The utility performs a site inspection. After the generating facility meets all applicable requirements, the utility notifies the customer of approval for parallel operation or of any deficiencies. If the generating facility does not pass the initial site inspection, the customer corrects outstanding issues and schedules a re-inspection.

Timelines

72. The Cooperatives had previously proposed adding the words "*normally not more than*" before the number of business days in the Level 2 process for the five business days to determine whether an application is complete and the 15 business days to review the application and notify the customer of the result.

73. The DG Advocates had opposed any softening of the timeframes in the Level 2 process. Level 3 timeframes had been softened to reflect the fact that Level 3 interconnections can be more complicated or variable. However, the Level 1 and Level 2 processes only apply to simpler and problem-free interconnections.

74. Staff had not included the Cooperatives' proposed language in the Interconnection Document filed on January 24, 2007. If the Level 2 timeframes are set at reasonable levels, they should be firm.

75. The Cooperatives continue to propose, and AMPUA supports, the language "*normally not more than*" for the following reasons:

a. The Level 2 time frames may be set at reasonable levels for large utilities, but small municipal and other non-jurisdictional electric distribution companies as well as cooperatives may not have the level of staff or expertise to process the applications in the listed time frames.

b. There is the potential of having to process a very complicated system under level 2. There may be a need to consult an expert in generators and/or protection equipment to determine the completeness of an application.

c. More time may be needed when several applications are filed within a short amount of time or when an employee or consultant with specific expertise is not available.

d. An application may meet all of the screens for Level 2, but the utility will need to look at its own system to see if any changes need to be made to accommodate the generator. Examples are needing to modify breaker settings or needing to install a capacitor to correct power factor problems.

76. Staff continues to agree with the DG Advocates on this issue. If the Level 2 timeframes are set at reasonable levels, they should be firm. If a project is more complex than a typical Level 2 project and requires extra time to process, it should be moved to Level 3 unless the customer agrees that the Utility can have more time in Level 2.

Application Fees

77. Staff included the following sentence in the Interconnection Document filed on January 24, 2007:

> *A Utility may charge an application fee, if a tariff containing such a fee is approved by the Commission.*

78. The Joint Utilities support the proposal on application fees and recommend that initial tariffs be approved during the compliance phase of the rulemaking portion of this proceeding. The DG Advocates concur in setting these fees in a process before the Commission. Staff believes that a utility could file a request for Commission approval of a tariff containing an application fee at any time.

Additional Review

79. When a generating facility has failed to meet one or more of the screens, the utility may offer to perform an "Additional Review" (typically about three hours of study) to determine whether minor modifications to the electric distribution system would enable the interconnection to be made consistent with safety, reliability, and power quality. The utility would provide to the customer a non-binding, good faith estimate of the costs of such Additional Review and/or such minor modifications. The utility would not undertake the Additional Review or minor modifications until the customer consents to pay for the review and/or modifications.

80. Staff had included the following language in the Interconnection Document filed on January 24, 2007:

> *A Utility may charge a fee for an Additional Review, if a tariff containing the hourly rate for Additional Review is approved by the Commission. In addition, costs for Utility facilities and/or equipment modifications necessary to accommodate the Customer's generator interconnection will be the responsibility of the Customer.*

81. The Joint Utilities believe that the utility should be permitted to collect the estimated costs for any additional review from the customer prior to conducting such review. This would ensure that the customer is serious about the project and alleviates any issues associated with collecting dollars after the review is performed. The Joint Utilities also recommend that initial tariffs be approved during the compliance phase of the rulemaking portion of this

proceeding They propose the following modifications to the language in the Interconnection Document:

> *A Utility may charge a fee for an Additional Review, if a tariff containing the hourly rate for Additional Review is approved by the Commission. Upon receipt of the Utility's non-binding good faith estimate of the costs of such additional review, the Customer must agree in writing within 15 Business Days of the offer and submit a deposit for the estimated costs. The Customer must pay any review costs that exceed the deposit within 20 Business Days of receipt of the invoice. In addition, costs for Utility facilities and/or equipment modifications necessary to accommodate the Customer's generator interconnection will be the responsibility of the Customer.*

82. Staff agrees that the utility should provide an estimate of the cost of an additional review and that the customer should pay a deposit before the work begins. However, Staff is not sure that the time limits should be imposed on the customer. Staff proposes the following language:

> *A Utility may charge a fee for an Additional Review, if a tariff containing the hourly rate for Additional Review is approved by the Commission. The Utility shall provide a non-binding good faith estimate of the fee for such additional review. The Customer must submit a deposit for the estimated fee before the Additional Review will be initiated. In addition, costs for Utility facilities and/or equipment modifications necessary to accommodate the Customer's generator interconnection will be the responsibility of the Customer.*

Inspections and Re-inspections

83. After approval of the application and an Interconnection Agreement is signed, the utility performs a site inspection within ten business days of request from the customer. Staff included the following sentence in the Interconnection Document filed on January 24, 2007:

> *A Utility may charge for the initial site inspection, if a tariff containing such a fee is approved by the Commission.*

84. If the Generating Facility does not pass the initial site inspection, the customer corrects outstanding issues and schedules a re-inspection. Staff included the following sentence in the Interconnection Document filed on January 24, 2007:

> *A Utility may charge for a re-inspection, if a tariff containing such a fee is approved by the Commission.*

85. The Joint Utilities support the proposals on both inspection and re-inspection fees and recommends that initial tariffs be approved during the compliance phase of the rulemaking portion of this proceeding. Staff believes that a utility could file a request for Commission approval of a tariff containing an inspection or re-inspection fee at any time.

4.5 Level 3 Study Track Process

86. This subsection describes the steps and timeline of the Level 3 Study Track process. The customer is encouraged to contact the utility to discuss the project prior to applying for interconnection. The customer then submits an application. The utility receives the application and notifies the customer as to whether the application is complete or incomplete. The utility reviews the complete application. If further information is needed, a scoping meeting is held where the customer describes the proposed generating facility design and the utility talks about system conditions at the proposed point of interconnection. The utility will send an acknowledgement letter about the scope to the customer upon request. If requested by the customer, the utility undertakes an interconnection feasibility study to provide a preliminary review of potential impacts resulting from the proposed interconnection. If deemed necessary by either party, the utility undertakes a system impact study which is a full engineering review of all aspects of the generator's impact on the utility system. If deemed necessary by the utility, the utility undertakes a facilities study which is a comprehensive analysis of the actual construction needed to take place based on the outcome of the impact study. After all requirements are met and all items identified in the studies are resolved, an Interconnection Agreement is signed. The utility performs a site inspection and witnesses the testing of protective devices. After the utility verifies that the generating facility is in compliance with all applicable requirements, the utility notifies the customer of approval for parallel operation or of any deficiencies. If the generating facility does not pass the initial site inspection, the customer corrects outstanding issues and schedules a re-inspection.

Application Fees

87. Staff included the following sentence in the Interconnection Document filed on January 24, 2007:

A Utility may charge an application fee, if a tariff containing such a fee is approved by the Commission.

88. The Joint Utilities support the proposal on application fees and recommend that initial tariffs be approved during the compliance phase of the rulemaking portion of this proceeding. Staff believes that a utility could file a request for Commission approval of a tariff containing an application fee at any time.

Engineering Review

89. Staff included the following language in the Interconnection Document filed on January 24, 2007:

> *A Utility may charge a fee for an engineering review, if a tariff containing the hourly rate for engineering review is approved by the Commission. In addition, costs for Utility facilities and/or equipment modifications necessary to accommodate the Customer's generator interconnection will be the responsibility of the Customer. The Customer may not be charged for the review of a certified generator's protection equipment.*

90. The Joint Utilities believe that the utility should be permitted to collect the estimated costs for engineering reviews from the customer prior to conducting such review. This would ensure that the customer is serious about the project and alleviates any issues associated with collecting dollars after the review is performed. The Joint Utilities also recommend that initial tariffs be approved during the compliance phase of the rulemaking portion of this proceeding They propose the following modifications to the language in the Interconnection Document:

> *A Utility may charge a fee for an engineering review, if a tariff containing the hourly rate for engineering review is approved by the Commission. Upon receipt of the Utility's non-binding good faith estimate of the costs of such engineering review, the Customer must agree in writing within 15 Business Days of the offer and submit a deposit for the estimated costs. The Customer must pay any review costs that exceed the deposit within 20 Business Days of receipt of the invoice. In addition, costs for Utility facilities and/or equipment modifications necessary to accommodate the Customer's generator interconnection will be the responsibility of the Customer. The Customer may not be charged for the review of a certified generator's protection equipment.*

91. Staff agrees that the utility should provide an estimate of the cost of an engineering review and that the customer should pay a deposit before the work begins. However, Staff is not

sure that the time limits should be imposed on the customer. Staff proposes the following language:

> *A Utility may charge a fee for an engineering review, if a tariff containing the hourly rate for engineering review is approved by the Commission. The Utility shall provide a non-binding good faith estimate of the fee for such engineering review. The Customer must submit a deposit for the estimated fee before the engineering review will be initiated. In addition, costs for Utility facilities and/or equipment modifications necessary to accommodate the Customer's generator interconnection will be the responsibility of the Customer. The Customer may not be charged for the review of a certified generator's protection equipment.*

Inspections and Re-inspections

92. After approval of the application and an Interconnection Agreement is signed, the utility performs a site inspection within ten business days of request from the customer. Staff included the following sentence in the Interconnection Document filed on January 24, 2007:

> *A Utility may charge for the initial site inspection, if a tariff containing such a fee is approved by the Commission.*

93. If the Generating Facility does not pass the initial site inspection, the customer corrects outstanding issues and schedules a re-inspection. Staff included the following sentence in the Interconnection Document filed on January 24, 2007:

> *A Utility may charge for a re-inspection, if a tariff containing such a fee is approved by the Commission.*

94. The Joint Utilities support the proposals on both inspection and re-inspection fees and recommends that initial tariffs be approved during the compliance phase of the rulemaking portion of this proceeding. Staff believes that a utility could file a request for Commission approval of a tariff containing an inspection or re-inspection fee at any time.

95. If updated documentation is required to reflect "as-built" conditions, the Customer submits it to the Utility for review and approval. Staff included the following sentence in the Interconnection Document filed on January 24, 2007:

> *The Utility may charge a fee, if a tariff containing such a fee is approved by the Commission.*

...

96. The Joint Utilities support the above language and recommend that initial tariffs be approved during the compliance phase of the rulemaking portion of this proceeding. Staff believes that a utility could file a request for Commission approval of a tariff containing a correction fee at any time.

4.6 Interconnection to Secondary Spot Network Systems

97. This subsection describes a pilot program that Arizona Public Service Company ("APS") has developed for interconnecting a small amount of inverter-based customer generation to a Secondary Spot Network System. Currently, APS is the only utility in Arizona that has a Secondary Spot Network System.

5. Utility Reporting Requirements

98. This subsection describes an Interconnection Manual that each utility would file for Commission approval within 90 days after adoption of the Interconnection Document. Each Utility would also maintain records concerning applications for interconnection. In addition, Staff had included language in the Interconnection Document that provided for an annual interconnection report. The language is the following:

> *By March 30 of each year, every Utility shall file with the Commission a distributed generation Interconnection report for the preceding calendar year that lists the new Generating Facilities interconnected with the system since the previous year's report, any distributed generation facilities no longer interconnected with the Utility's system since the previous report, and the capacity of each facility. The annual report shall include, for the reporting period, a summary of the number of complete Applications received, the number of complete Applications approved, the number of complete Applications denied by level, and the reasons for denial.*

99. The Joint Utilities support the above language and believe that the reporting requirements, as proposed, will not place an undue burden on the Utility.

100. UniSource Energy proposes that the reasons for denial listed in the annual report be limited to systems above 10 kW. Otherwise, there would be a large volume of data of reasons for denial, much of which would not be useful for the purpose of monitoring how well the interconnection process is working. UniSource Energy states that systems of 10 kW and below will generally fall into the Level 1 screen criteria. As this screen is simple and straightforward,

there is little to be gained in reporting specific reasons for denial. UniSource proposes the following modification to the last sentence in the language on reporting requirements:

> *The annual report shall include, for the reporting period, a summary of the number of complete Applications received, the number of complete Applications approved, the number of complete Applications denied by level, and for systems above 10 kW, the reasons for denial.*

101. Staff finds it difficult to believe that the reporting requirement would produce the voluminous amount of data that UniSource Energy fears. The reasons for denial could be summarized. If the number of denials is so great, there is even more need to know why.

102. The DG Advocates propose that the reports also list specific customers that receive special rate considerations in lieu of connecting to a generating facility. The DG Advocates state that, while such considerations must be approved through a Commission proceeding, it is administratively difficult to monitor all such proceedings, and compiling the data in one place will allow ratepayers to analyze whether their funds are being used appropriately.

103. Staff has expanded the items in the annual report to include a list of special contracts approved by the Commission that provide discounted rates to customers as an alternative to self-generation. Since the number of such contracts is small, this should not be burdensome to the utilities. The language is as follows:

> *The annual report shall also include a list of special contracts, approved by the Commission during the reporting period, that provide discounted rates to customers as an alternative to self-generation.*

6. Definitions

104. This subsection includes definitions of terms used in the Document.

Waiver Provision

105. UniSource Energy suggests that the upcoming rulemaking on interconnection standards include a provision for utility-requested waivers of specific details of the interconnection standards to allow for changing generation technologies and the aggregate impacts of interconnected DG.

. . .

Staff Recommendations

106. Staff has recommended that the Commission adopt a modified version of the PURPA standard on interconnection, as included in Finding of Fact No. 11, that would apply to all electric distribution companies in Arizona that are regulated by the Commission.

107. Staff has also recommended that the Commission direct Staff to begin a rulemaking process to convert the Interconnection Document into rules. The DG Advocates and AECC agree with Staff that a rulemaking process should begin on the subject of interconnection.

108. In addition, Staff has recommended that the electric distribution companies use the Interconnection Document as a guide for interconnecting distributed generation facilities until such time as interconnection rules go into effect.

CONCLUSIONS OF LAW

1. The Commission has jurisdiction the subject matter of the application.

2. The Commission, having reviewed the application and Staff's Memorandum dated June 15, 2007, concludes that it is in the public interest to direct Staff to begin a rulemaking process on interconnection.

ORDER

IT IS THEREFORE ORDERED that a modified version of the PURPA standard on interconnection, as included in Finding of Fact No. 11, that would apply to all electric distribution companies in Arizona that are regulated by the Commission is adopted.

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IT IS FURTHER ORDERED that Staff is to begin a rulemaking process to convert the Interconnection Document into rules.

IT IS FURTHER ORDERED that this Decision shall become effective immediately.

BY THE ORDER OF THE ARIZONA CORPORATION COMMISSION

CHAIRMAN COMMISSIONER

COMMISSIONER COMMISSIONER COMMISSIONER

IN WITNESS WHEREOF, I BRIAN C. McNEIL, Executive Director of the Arizona Corporation Commission, have hereunto, set my hand and caused the official seal of this Commission to be affixed at the Capitol, in the City of Phoenix, this 28th day of June, 2007.

BRIAN C. McNEIL
Executive Director

DISSENT: _____

DISSENT: _____

EGJ:BEK:red/KL

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EXHIBIT

INTERCONNECTION DOCUMENT

INTERCONNECTION DOCUMENT

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1. APPLICABILITY

1.1 Applicable Generating Facilities

This Document applies to all Generating Facilities with power ratings of 10 MW or less, operating (or applying to operate) in parallel with an electric public utility distribution system in Arizona.[1] This Document establishes technical and procedural requirements, terms, and conditions that will promote the safe and effective parallel operation of Customer-owned Generating Facilities. This Document includes provisions for interconnecting to a radial or secondary spot network system. It includes the three distinct types of generators: (a) solid-state or static inverters, (b) induction machines, and (c) synchronous machines.

These Interconnection procedures are limited to 10 MW or less. The total capacity of an individual Customer's Generating Facility may exceed 10 MW; however, no more than 10 MW of a facility's capacity will be interconnected at a single Point of Interconnection as provided for in these procedures.

The electric rates and schedules, terms and conditions of service, or other contract provisions governing the electric power sold by an electric public utility to an Arizona retail customer are subject to the jurisdiction of the Arizona Corporation Commission ("ACC"). The ACC also has jurisdiction when the Utility purchases excess power from Customer-owned Qualifying Facilities ("QFs") under 18 C.F.R. §§292.303, 292.306(2004).

The Federal Energy Regulatory Commission has jurisdiction over all Interconnections with facilities that are subject to the electric public Utility's Open Access Transmission Tariff ("OATT") at the time the interconnection request was made.

1.2 Types of Generating Facilities

Generating Facilities include induction and synchronous electrical generators as well as any type of electrical inverter capable of producing A/C power. The Customer may elect to run his Generating Facility in Parallel with the Utility's system (either on a continuous basis or momentarily), or he may run it as a Separate System with non-parallel load transfer between the two independent power systems. A description and the basic requirements for these methods of operation are outlined below.

Parallel System
A Parallel, or interconnected, generator is connected to a bus common with the Utility's system, and a transfer of power between the two systems is a direct result. A consequence of such interconnected operation is that the Customer's Generating Facility becomes an integral part of the distribution system, and it must be considered in the electrical protection and operation of the distribution system.

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[1] subject to Commission jurisdiction.

Parallel Systems include any type of Generating Facility that can electrically parallel with, or potentially backfeed the Utility system. Additionally, any Generating Facility system using a "closed transition" type transfer switch or a multi-breaker transfer scheme, or an electrical inverter that can be configured or programmed to operate in a "utility interactive mode," may be required to have relays to prevent potential backfeeding to the Utility system, and is classified as a Parallel System. Continuous uninterruptible power supply, units without grid tie capability, and islanding inverter technologies are not considered Parallel Systems provided they are not a potential backfeed source to the Utility.

The Utility has specific interconnection, contractual, and inspection requirements, as outlined in these provisions, that must be complied with and information that needs to be submitted for all interconnected Generating Facilities. These may include protective relaying, metering, special rate schedules, applicable safety devices, and information requirements (as specified in each Utility's Interconnection Manual).

There are two sub-types of Parallel Systems, as described below: Momentary Parallel Systems and Islandable Systems. Momentary Parallel Systems have similar requirements as regular Parallel Systems, whereas Islandable Systems are unique.

- **Momentary Parallel System.** A Momentary Parallel System is one that transfers electrical load between the Utility grid and the Customer's Generating Facility by means of a "make-before break" transfer scheme. Momentary Parallel Systems synchronize the Generating Facility with the Utility grid for a period not to exceed ten seconds for the purpose of uninterrupted load transfer.

  Momentary Parallel Systems are useful for customers who wish to have greater reliability of electric service without experiencing the momentary outage of service that occurs under a "break-before-make" transfer switch scheme. Additionally, this approach allows the customer to more effectively test the switchgear and generator with load during weekly and monthly testing.

- **Islandable System.** An Islandable System is a Generating Facility interconnected to a bus common with the Utility's system, where the Generating Facility is designed to serve part of the Utility grid that has become or is purposefully separated from the rest of the grid. Currently there are no rules, standards, or protocols governing this type of system operation. As such, an Islandable System as defined herein is not allowed.

Separate System

A Separate System is one in which there is no possibility of electrically connecting or operating the Customer's Generating Facility in parallel with the Utility's system. The Customer's equipment must transfer load between the two power systems in an open transition or non-parallel mode. If the Customer claims a Separate System, the Utility may require verification that the transfer scheme meets the non-parallel requirements.

Separate Systems used to supply part or all of the Customer's load during a Utility power outage must be connected to the Customer's wiring through a double throw, "break-before-make" transfer switch specifically designed and installed for that purpose. The transfer switch must be of a fail-safe design, which, under no circumstances, will allow the Generating Facility to electrically interconnect or parallel with Utility's system. The transfer switch must always

disconnect the Customer's load from the Utility's power system prior to connecting it to the Generating Facility. Conversely, the transfer switch must also disconnect the load from the Generating Facility prior to re-connecting it with the Utility's system. These requirements apply to both actual emergency operations as well as any testing of the Generating Facility. All transfer switches and transfer schemes must be listed by a Nationally Recognized Testing Laboratory ("NRTL") for the purpose as used, and also inspected and approved by the jurisdictional electrical inspection agency.

Separate Systems that are not connected with the Utility system and do not pose a potential backfeed source are not subject to ACC jurisdiction or the provisions in this Document, short of verifying that the transfer scheme meets the non-parallel requirements.

There is one sub-type of Separate System, as described below: Portable Generators.

- **Portable Generators.** Portable Generators are not designed to be connected to a building's permanent wiring system, and are not to be connected to any such wiring unless a permanent and approved transfer switch is used. Failure to use a transfer switch can result in backfeed into the Utility system. (The generator voltage can backfeed through the Utility transformer and be stepped up to a very high voltage.) This can pose an electrocution hazard to anyone working on the power lines or on Utility equipment.

  Portable Generators that are not connected with the Utility system and do not pose a potential backfeed source are not subject to ACC jurisdiction or the provisions in this Document short of verifying that the transfer scheme meets the non-parallel requirements.

2. RIGHTS AND RESPONSIBILITIES

2.1 Customer Rights and Responsibilities

A Customer has the right to interconnect a Generating Facility with the electric Utility system. A Customer has the right to expect prompt, reasonable, and professional responses from the Utility at every step of the interconnection process. A Customer has the right to expect reasonable cost estimates, outlines of the proposed work, supporting data, and justification for proposed work before the Utility undertakes any studies or system upgrades to accommodate the Generating Facility.

A Customer has the responsibility of disclosing to the Utility items specified herein on the Generating Facility and its operation. The Customer also has the responsibility of ensuring that:

(a) the Generating Facility meets all minimum safety and protection requirements outlined in these provisions and the Utility's Interconnection Manual;
(b) the Generating Facility meets all applicable construction codes, safety codes, electric codes, laws, and requirements of government agencies having jurisdiction;
(c) all the necessary protection equipment is installed and operated to protect its equipment, Utility personnel, the public, and the Utility system;
(d) the Generating Facility design, installation, maintenance, and operation reasonably minimizes the likelihood of causing a malfunction or other disturbance, damaging, or otherwise impairing the Utility system;
(e) the Generating Facility will not adversely affect the quality of service to other customers (but no more or less than the present standard of care observed by regular Utility/consumer connections;
(f) the Generating Facility will minimally hamper efforts to restore a feeder to service (specifically when a clearance is required);
(g) the Generating Facility is maintained in accordance with applicable manufacturers' maintenance schedule; and
(h) the Utility is notified of any emergency or hazardous condition or occurrence with the Customer's Generating Facility, which could affect safe operation of the Utility system. (This notification can be through electronic communication.)

The Customer is required to meet the timeframes specified in this Document unless the Utility and Customer mutually agree on other time frames and so long as the project moves forward in a fair and reasonable manner.

The Customer is responsible for all Interconnection facilities required to be installed to interconnect the Customer's Generating Facility to the Utility system. These may include connection, transformation, switching, protective relaying, metering and safety equipment, and any other requirements as outlined in these provisions or other special items specified by the Utility. All such interconnection facilities are to be installed by the Customer at its sole expense.

The Customer will own and be responsible for designing, installing, operating and maintaining control and protective devices, in addition to minimum protective relays and devices specified in the Utility's Interconnection Manual, to protect its facilities from abnormal operating conditions such as, but not limited to, electric overloading, abnormal voltages, and fault currents. Such

protective devices must promptly disconnect the Generating Facility from the Utility's system in the event of a power outage on the Utility's system. The Customer will also own and be responsible for designing, installing, operating and maintaining interconnection facilities on the Customer's premises as may be required to deliver power from the Customer's Generating Facility to the Utility's system at the Point of Interconnection.

In the event that additional facilities are required to be installed on the Utility's system to accommodate the Customer's generation, the Utility will install such facilities at the Customer's expense. The Utility shall provide notice to the Customer of intent to install such facilities early in the process. The Customer is not responsible for Utility upgrades for other customers unrelated to the Generating Facility installation.

All Customers interconnecting a Generating Facility with the Utility system shall (a) sign an Interconnection/Connection Agreement, and all other applicable purchase, supply, and standby agreements, in accordance with the prevailing Document in effect at that time; and (b) comply with all applicable tariffs, rate schedules and Utility service requirements.

2.2 Utility Rights and Responsibilities

A Utility is obligated to interconnect Generating Facilities, subject to the requirements set forth in these provisions and in each Utility's Interconnection Manual.

A Utility has the right to expect prompt, reasonable, and professional responses from the Customer during the interconnection process.

Because a Utility is required to safeguard its system, other consumers, and the general public, a Utility has the right and responsibility to ensure that an interconnected Generating Facility:

(a) will not present any unreasonable hazards to Utility personnel, other customers, or the public;
(b) minimizes the possibility of damage to the Utility and other customers' equipment; and
(c) minimally hampers efforts to restore a feeder to service (specifically when a clearance is required).

The Utility will notify the Customer if there is any evidence that the Customer's Generating Facility operation causes disruption or deterioration of service to other customers served from the utility system or if such operation causes damage to the utility system.

A Utility is required to meet the time frames specified in this Document unless the Utility and Customer mutually agree on other time frames and so long as the project moves forward in a fair and reasonable manner.

A Utility has the responsibility to make its Interconnection Manual, standard Application form(s) and Interconnection Agreement(s) readily available to Customers, and as soon as practical, readily accessible on its website.

A Utility has the responsibility to ensure that Customers with Generating Facilities are treated without discrimination.

Before the Utility undertakes any studies or system upgrades that will be charged to the Customer, a Utility has the responsibility to provide a detailed cost estimate, outline of the proposed work, supporting data, and justification for the proposed work.

A Utility must show good cause why a Customer's Generating Facility that satisfies the requirements of this Document and the Utility's Interconnection Manual should not be approved for interconnected operation.

If facility upgrades are needed to accommodate the Generating Facility, a Utility will reduce the charge of the upgrade to the customer by the amount of ~~any~~ benefits, if any, to the grid that are readily quantifiable by the Utility. In addition, a Utility cannot reject an Application on the basis of distribution system conditions that are already deficient, or charge a Customer for facility upgrades that are overdue or soon to be required to ensure compliance with good utility practice, except that applications can be rejected in instances where reliability or safety would be further compromised by a DG installation. A Utility shall not charge a Generating Facility Customer differently than any other Customer for facility upgrades in accordance with generally applicable Commission-approved tariffs.

2.3 Easements/Rights of Way

Utility Right to Access Utility-Owned Facilities and Equipment. Where an easement or right of way does not exist, but is required to accommodate the interconnection, the Customer must provide to the Utility suitable easements or rights of way, in the Utility's name, on the premises owned, leased, or otherwise controlled by the Customer. If the required easement or right of way is on another's property, the Customer must obtain and provide to the Utility a suitable easement or right of way, in the Utility's name, at the Customer's sole cost and in sufficient time to comply with the Interconnection Agreement requirements. The Utility will use reasonable efforts to utilize existing easements to accommodate the interconnection to the extent possible and will assist the Customer in securing necessary easements at the Customer's expense that do not exist but are necessary to accommodate the interconnection.

2.4 Insurance

The Customer is not required to provide general liability insurance coverage as a condition for Interconnection. Due to the risk of incurring damages, it is recommended that every Interconnection Customer protect itself with insurance or other suitable financial instrument sufficient to meet its construction, operating, and liability responsibilities. At no time shall the Utility require that the Customer negotiate any policy or renewal of any policy covering any liability through a particular insurance provider, agent, solicitor, or broker.

The inability of the Utility to require the Customer to provide general liability insurance coverage for operation of the Generating Facility is not a waiver of any rights the Utility may have to pursue remedies at law against the Customer to recover damages.

2.5 Non-Circumvention

A Utility and its affiliates shall not use knowledge of proposed distributed generation projects submitted to it for interconnection or study to initiate competing proposals to the customer that offer either discounted rates in return for not installing the distributed generation, or offer competing distributed generation projects. Customers are not precluded from sharing information in their possession regarding a potential distributed generation project with a Utility or its affiliates, or from using information regarding a potential distributed generation project to negotiate a discounted rate or other mutually beneficial arrangement with a Utility or its affiliates. The Utility shall be permitted to inform the Customer of existing or pending (awaiting approval by the ACC) rate schedules that may economically benefit or otherwisw affect the Customer's project.

3. GENERAL PROCESS AND PROCEDURES FOR ALL LEVELS

3.1 Designation of Contact Persons

Each Utility shall designate a person or persons who will serve as the Utility's contact for all matters related to distributed generation Interconnection, identify to the Commission its distributed generation contact person, and provide convenient access through its internet web site to the names, telephone numbers, mailing addresses and electronic mail addresses for its distributed generation contact person(s).

Each customer applying for Interconnection shall designate a contact person or persons, and provide to the Utility the contact's name, telephone number, mailing address, and electronic mail addresses.

3.2 Non-discrimination

All Applications for interconnection and parallel operation of distributed generation shall be processed by the Utility in a non-discriminatory manner.

3.3 Application Submission Requirements

The Utility may require additional documentation to be submitted with the Application. Each Utility's Application form will specify what additional documentation is required. Additional documentation may include an electrical one-line diagram, an electrical three-line diagram, AC and DC control schematics, plant location diagram, and site plan. Upon request, the Utility will provide the Customer with sample diagrams that indicate the preferred level of detail and type of information required for a typical inverter-based system.

3.4 Minor Modifications

It is recognized that certain Applications may require minor modifications to the Generating Facility or the Application while they are being reviewed by the Utility. Such minor modifications to a pending Application shall not require that it be considered incomplete and treated as a new or separate Application.

3.5 Certification

Compliance with codes and standards. In order to qualify as "Certified" for any interconnection procedures, relevant equipment shall comply with the following codes, guides, and standards as applicable, and as specified in this document:

(a) IEEE 1547 Standard for Interconnecting Distributed Resources with Electric Power Systems (including use of IEEE 1547.1 testing protocols to establish conformity);

(b) IEEE 1547.1 Standard for Conformance Testing Procedures for Equipment Interconnecting Distributed Resources with Electric Power Systems;

(c) UL 1741 Inverters, Converters, and Controllers for Use in Independent Power Systems;

(d) IEEE Std 929-2000 IEEE Recommended Practice for Utility Interface of Photovoltaic (PV) Systems;

(e) NFPA 70 (2002), National Electrical Code;

(f) IEEE Std C37.90.1-1989 (R1994), IEEE Standard Surge Withstand Capability (SWC) Tests for Protective Relays and Relay Systems;

(g) IEEE Std C37.90.2 (1995), IEEE Standard Withstand Capability of Relay Systems to Radiated Electromagnetic Interference from Transceivers;

(h) IEEE Std C37.108-1989 (R2002), IEEE Guide for the Protection of Network Transformers;

(i) IEEE Std C57.12.44-2000, IEEE Standard Requirements for Secondary Network Protectors;

(j) IEEE Std C62.41.2-2002, IEEE Recommended Practice on Characterization of Surges in Low Voltage (1000V and Less) AC Power Circuits;

(k) IEEE Std C62.45-1992 (R2002), IEEE Recommended Practice on Surge Testing for Equipment Connected to Low-Voltage (1000V and Less) AC Power Circuits;

(l) ANSI C84.1-1995 Electric Power Systems and Equipment – Voltage Ratings (60 Hertz);

(m) IEEE Std 100-2000, IEEE Standard Dictionary of Electrical and Electronic Terms NEMA MG 1-1998, Motors and Small Resources, Revision 3;

(n) IEEE Std 519-1992, IEEE Recommended Practices and Requirements for Harmonic Control in Electrical Power Systems; and

(o) NEMA MG 1-2003 (Rev 2004), Motors and Generators, Rev. 1.

Requirements for Certification. Generating Facility equipment proposed for use separately or packaged with other equipment in an Interconnection system shall be considered Certified for interconnected operation if:

(a) it has been tested in accordance with industry standards for continuous utility interactive operation in compliance with the appropriate codes and standards referenced above by any Nationally Recognized Testing Laboratory (NRTL) recognized by the U. S. Occupational Safety and Health Administration to test and certify Interconnection equipment pursuant to the relevant codes and standards listed above;

(b) it has been labeled and is publicly listed by such NRTL at the time of the Interconnection application; and

(c) such NRTL makes readily available for verification all test standards and procedures it utilized in performing such equipment certification, and, with consumer approval, the test data itself. The NRTL may make such information available on its website and by encouraging such information to be included in the manufacturer's literature accompanying the equipment.

The Customer must verify that the intended use of the equipment falls within the use or uses for which the equipment was tested, labeled, and listed by the NRTL.

Certified equipment shall not require further type-test review, testing, or additional equipment to meet the requirements of this Interconnection procedure and the Utility's Interconnection Manual. Nothing herein shall preclude the need for project Interconnection review and approval by the Utility or on-site commissioning testing prior to the Interconnection nor follow-up production testing by the NRTL.

If the certified equipment includes only interface components (switchgear, inverters, or other interface devices), then a Customer must show that the Generating Facility is compatible with the interface components and is consistent with the testing and listing specified for this type of Interconnection equipment.

Certified equipment does not include equipment provided by the Utility.

3.6 No Additional Requirements

If a Customer's Generating Facility complies with all applicable requirements in this Document and the Utility's Interconnection Manual, a Utility may not require the Customer to install additional controls, or perform or pay for additional tests, in order to obtain approval to interconnect except as mutually agreed to by the parties or required by the Commission. Additional equipment may be installed by the Utility at its own expense.

3.7 Disconnect from or Reconnect with the Grid Procedure

A Utility may disconnect a Customer's Generating Facility from the Utility system under the following conditions:

(a) **Expiration or termination of Interconnection Agreement.** The Interconnection Agreement specifies the effective term and termination rights of the Utility and the Customer. Upon expiration or termination of the Interconnection Agreement with a Customer, in accordance with the terms of the agreement, the Utility may disconnect a Customer's Generating Facility.

(b) **Non-compliance with technical Interconnection requirements.** A Utility may disconnect a Customer's Generating Facility if the facility is not in compliance with the

technical requirements. Normally within two business days from the time the Customer notifies the Utility that the facility has been restored to compliance with the technical requirements, the Utility shall have an inspector verify such compliance. Upon such verification, the Customer in coordination with the Utility may reconnect the facility.

(c) **System emergency.** A Utility may temporarily disconnect a Customer's Generating Facility without prior written notice in cases where continued Interconnection of the Generating Facility will endanger persons or property. During the forced outage of a Utility system, the Utility shall have the right to temporarily disconnect a Customer's facility to make immediate repairs on the Utility's system. When possible, the Utility shall provide the Customer with reasonable notice and reconnect the Customer as quickly as reasonably practical.

(d) **Routine maintenance, repairs, and modifications.** A Utility may disconnect a Customer's Generating Facility from the grid with reasonable prior notice of a service interruption for routine maintenance, repairs, and Utility system modifications. The Utility shall allow reconnection of the Customer's Generating Facility as quickly as reasonably possible following any such service interruption.

(e) **Absence of executed Interconnection Agreement.** In order to interconnect a Customer's Generating Facility to a Utility system, the Customer and the Utility must execute an Interconnection Agreement. The Utility may refuse to connect or may disconnect the Customer's Generating Facility if an executed Interconnection Agreement is not in effect.

The Parties shall cooperate with each other to restore the Generating Facility and the Utility system to their normal operating state as soon as reasonably practicable.

Temporary disconnection by Customer. The Customer retains the option to temporarily disconnect its Generating Facility from the Utility's system at any time. Such temporary disconnection shall not be a termination of the Interconnection Agreement unless specified as such.

Agreement survival rights. The Interconnection Agreement between the Utility and the Customer shall continue in effect after disconnection or termination of electric service to the extent necessary to allow or require either party to fulfill rights or obligations that arose under the agreement.

Duration and Termination of the Interconnection Agreement. The Interconnection Agreement shall become effective on the effective date specified in the Agreement and shall remain in effect thereafter unless and until:

(a) it is terminated by mutual agreement of the parties;

(b) it is replaced by another Interconnection Agreement with mutual consent of the parties;

(c) it is terminated by either party pursuant to a breach or default of the Agreement; or

(d) the Customer terminates its electric Utility service with the Utility and/or vacates or abandons the property on which the Generating Facility is located, or the Generating Facility, without mutual agreement of the parties.

Upon termination of the Interconnection Agreement, the Customer shall be responsible for ensuring that the electrical conductors connecting the Generating Facility to the Utility system are immediately lifted and permanently removed, so as to preclude any possibility of interconnected operation in the future. The Utility reserves the right to inspect the Customer's Generating Facility to verify that it is permanently disconnected.

3.8 Dispute Resolution

If a dispute arises between the parties regarding a provision contained in this Document and/or Agreement, or a party's performance of its obligations as stated in this Document and/or Agreement, or any other matter governed by the terms of the Document and/or Agreement, the parties agree that such dispute will be resolved in the manner prescribed in this section.

(a) **Notification and Response.** Promptly upon the occurrence of the dispute, the aggrieved party will notify the other party in writing (the "Claimant's Statement"), setting forth in sufficient detail the basis for the dispute, the aggrieved party's position, and its proposal for resolution of the dispute. Within ten (10) business days following receipt of the Claimant's Statement, the other party will respond in writing (the "Responsive Statement") setting forth in sufficient detail the respondent's position and its proposal for resolution of the dispute.

(b) **Good Faith Negotiation.** Within ten (10) business days after the aggrieved party's receipt of the Responsive Statement, the parties will meet and attempt in good faith to expeditiously negotiate a resolution to the dispute. In attendance for each party at that opening session and throughout the dispute resolution procedure described in this section will be a representative or representatives of each party who are authorized to act for the party and resolve this dispute without resort to higher authority.

(c) **Dispute Resolution by Mediation.** Any dispute(s) arising out of or relating to this Document shall be subject to binding mediation by a mutually acceptable mediator. If no mediator is mutually acceptable, then a mediator shall be appointed by the Arizona Office of the American Arbitration Association, at the request of any party. The costs of mediation shall be borne by the losing party and as prescribed by the mediator.

(d) **Arizona Corporation Commission.** In the event such dispute is not resolved by mediation, then the parties consent to jurisdiction to resolve any such dispute by the Arizona Corporation Commission of the State of Arizona.

4. SPECIFIC PROCESS AND PROCEDURES FOR EACH LEVEL

4.1 Summary of Interconnection Levels / Tracks

Level 1 Super Fast Track: Certified inverter-based facilities that have a power rating of 10 kW or less, are interconnected on a radial line, and meet screens (e) and (f) in section 4.2 below. Refer to Section 4.3 for additional details.

Level 2 Fast Track: Generating Facilities that have a power rating of 2 MW or less, are interconnected on a radial line, and meet screens (a) through (i) in section 4.2 below. Refer to Section 4.4 for additional details.

Level 3 Study Track: Generating Facilities that have a power rating of 10 MW or less that do not meet the criteria or screens for other Levels. Interconnection studies may be required. Refer to Section 4.5 for additional details.

Distribution Networks: On an interim basis, certified inverter-based Generating Facilities that have a power rating of 10 kW or less will be allowed to be interconnected on a secondary spot network system and otherwise as approved by the Utility. Generators will only be interconnected on a trial, pilot basis, at the discretion of the Utility, under the interconnection process set forth in the Utility's Interconnection Manual. This process may be revised upon completion of IEEE 1547.6. Refer to subsection 4.6 for additional details.

4.2 Screens

(a) For Interconnection of a proposed generator to a radial distribution circuit, the aggregated generation, including the proposed generator, on the circuit will not exceed 15 percent of the total circuit annual peak load as most recently measured at the substation or on a line section. In the case of generators certified to UL 1741 and IEEE 1547, a line section is that portion of a distribution system connected to a customer's facility bounded by automatic sectionalizing devices, or the end of the distribution line. For non-certified generators, a line section is that portion of a distribution system connected to a customer's facility bounded by automatic sectionalizing devices, a fused lateral, or the end of the distribution line. The aggregated generation, including the proposed generator, must also be less than 50 percent of the minimum daytime feeder or line section load, where these data are available, unless the minimum load is zero.

(b) The proposed generator, and new motors associated with the proposed generator, in aggregation with other generation on the distribution circuit, will not contribute more than 10 percent to the distribution circuit's maximum fault current at any point on the Utility's distribution system, including normal contingency conditions that may occur due to reconfiguration of the feeder or the distribution substation.

(c) The proposed generator, in aggregate with other generation on the distribution circuit, will not cause any distribution protective devices and equipment (including but not limited to substation breakers, fuse cutouts, and line reclosers), or customer equipment on the system, to exceed 90 percent of the short circuit interrupting capability; nor is the Interconnection

proposed for a circuit that already exceeds 90 percent of the short circuit interrupting capability.

(d) The proposed generator is interconnected to the Utility as shown in the table below:

Primary distribution line configuration	Interconnection to primary distribution line
Three-phase, three wire	If a three-phase or single phase generator, Interconnection must be phase-to-phase
Three-phase, four wire	If a three-phase (effectively grounded) or single-phase generator, Interconnection must be line-to-neutral

(e) If the proposed generator is to be interconnected on single-phase shared secondary, the aggregate generation capacity on the shared secondary, including the proposed generator, cannot exceed 10 kW, and the proposed generator must be listed to UL 1741.

(f) If the proposed generator is single-phase and is to be interconnected on a transformer center tap neutral of a 240 volt service, its addition will not create an imbalance between the two sides of the 240 volt service of more than 20 percent of nameplate rating of the service transformer.

(g) The proposed generator, in aggregate with other generation interconnected to the distribution low voltage side of the substation transformer feeding the distribution circuit where the generator proposes to interconnect, will not exceed 10 MW in an area where there are known or posted transient stability limitations to generating units located in the general electrical vicinity (e.g., 3 or 4 transmission voltage level busses from the Point of Interconnection).

(h) The proposed generator's Point of Interconnection will not be on a transmission line.

(i) The generator cannot exceed the capacity of the customer's existing electrical service.

4.3 Level 1 Super Fast Track Process

The Level 1 Process is available to Customers interconnecting either a single certified static inverter, with a continuous output power nameplate rating of 10 kW or less, or multiple certified static inverters with a combined continuous power nameplate rating of 10 kW or less (screen "e") to the Utility's distribution system. The inverter(s) must be UL 1741 listed, and certified to meet the shutdown protective functions (under/over voltage, under/over frequency and anti-islanding) specified in IEEE 929 (screen "f"). The Generating Facility must also meet all applicable codes and standards, as well as comply with the Utility Interconnection and contractual requirements.

Nothing in this process precludes the Customer and Utility from mutually agreeing to different timeframes or other procedures for the approval of interconnected operation of a Generating Facility, so long as the project moves along in a fair and reasonable manner. Nothing in this process precludes the Customer from starting construction prior to contacting the Utility;

however, the Customer accepts the risk of potentially needing to modify or substantially change the installation.

The Level 1 Process steps are as follows:

(a) **Customer Submits Application.** The Customer completes the Interconnection Application and submits it to the Utility along with all required supplemental information which shall be noted on the Application form. The Customer may submit a pre-executed Interconnection Agreement together with the Interconnection Application, if permitted by the Utility. No initial application fee or processing fee will be charged.

(b) **Application is Received and is Complete or Incomplete.** The Utility notifies the Customer within five (5) business days of receipt of the Application as to whether it is complete or incomplete.

(i) If the Application is incomplete, the Utility will specify what information or material is necessary to complete the Application.

(ii) The Customer has thirty (30) business days after receipt of such notification to submit the required information or materials (or request an extension), or the Application may be considered withdrawn.

(c) **Utility Reviews Application.** Within ten (10) business days following the receipt of a complete Interconnection Application, the Utility reviews the proposed Interconnection and notifies the Customer of one of the following determinations:

(i) The proposed Generating Facility design appears to meet all Interconnection requirements and the Interconnection Application is approved as submitted. An Interconnection Agreement (if not already pre-executed) will be prepared by the Utility and forwarded to the Customer for review and signature in accordance with Step (d) below; or

(ii) The proposed Generating Facility design has failed to meet one or more of the Interconnection requirements, and the Interconnection Application is denied. The Utility provides an explanation of the reason(s) for the denial (in writing, if requested by the Customer), and specifies what additional information and/or modifications to the Customer's Generating Facility or Utility system are required in order to obtain approval of the proposed design.

If the Application is denied, the Customer notifies the Utility within twenty (20) business days whether or not it wishes to proceed with the project. If the Customer does not wish to proceed with the project, or the Utility is not notified within the specified time frame, the Application may be considered withdrawn. If the Customer wishes to proceed with the project, then a new Application shall be submitted to the Utility for review and processing (Step (a) above is re-initiated), along with any additional information and/or modifications to the Customer's Generating Facility. Alternatively, the Customer may request processing under Level 2 or Level 3 and shall provide any additional information requested by the Utility and necessary to process the request under Levels 2 or 3.

(d) **Interconnection Agreement.** If the Generating Facility meets all of the applicable interconnection requirements and the Application is approved, then:

(i) Within five (5) business days after the notice of Application approval, or following receipt of any "as built" or final diagrams from the Customer, the Utility sends to the Customer the appropriate Interconnection Agreement for review and signature. (This step may be omitted if the Utility has received a pre-executed Interconnection Agreement).

(ii) The Customer reviews, signs, and returns the Interconnection Agreement to the Utility.

(iii) The Customer then completes installation of the Generating Facility within 180 days after execution of the Interconnection Agreement, unless an extension is mutually agreed to by the parties, which extension shall not be unreasonably withheld. The Utility has the right to terminate any Agreements, and the Interconnection Application may be considered withdrawn, in the event that this timeframe is exceeded without extension.

(e) **Inspection and Testing.** The Customer will give the Utility at least five (5) business days notice to schedule the Utility site inspection and inverter shutdown testing. The Utility may schedule metering replacement, if necessary, and labeling of Utility equipment to occur at the same time. There will be no charge for one initial site inspection by the Utility.

The Utility performs the site inspection as arranged and verifies that the Generating Facility, as best as can be determined, is in compliance with all applicable interconnection and safety requirements. At a minimum, it is suggested that the Utility shall verify the following:

(i) An electrical permit and/or clearance has been issued by the authority having jurisdiction, if required;

(ii) All Generating Facility equipment is properly labeled;

(iii) Generating Facility system layout is in accordance with the plant location and site plan(s) submitted to the Utility;

(iv) Inverter nameplate ratings are consistent with the information submitted to the Utility;

(v) Utility has unrestricted 24-hour access to the Disconnect Switch (if required), and the switch meets all applicable requirements;

(vi) The inverter shuts down as required upon simulated loss of Utility voltage; and

(vii) The Generating Facility is wired, as best as can be determined, in accordance with the electrical diagrams submitted to the Utility.

The Utility will normally before or at the time of the site inspection:

(i) Install appropriate metering if required;

(ii) Label all Utility equipment; and

(iii) Ensure that the Generating Facility is properly incorporated onto Utility operating maps and identified as a backfeed source.

The Utility does not have the right to fail a site inspection in the event that any of the above three requirements (metering, Utility equipment labeling, and the identification of the Generating Facility on the operating maps) are not in place at the time of the Site Inspection. The Utility does have the right to fail any Generating Facility that does not meet the applicable Interconnection requirements, is not installed substantially in accordance with the documentation submitted to the Utility, or as a result of any safety or protection violation.

(f) **Notification.** Immediately following completion of the site inspection (and upon receipt of all final applicable signed interconnection documents), the Utility shall determine whether or not the Generating Facility meets all applicable requirements, and notify the Customer that:

(i) The Generating Facility is approved for parallel operation with the Utility's distribution system per the agreed terms and conditions. Within one (1) business day, following such oral notification, the Utility shall provide the Customer with such notice in writing; or

(ii) The Generating Facility has failed to meet one or more of the applicable requirements or a safety or protection violation has been identified, and the Generating Facility is not approved for parallel operation. The Utility must provide the reason(s) (in writing, if requested by the Customer) for not approving parallel operation. Furthermore, the Utility has the right to take any reasonable steps (including locking open the Disconnect Switch) to prevent the Generating Facility from parallel operation. Operation of a generator in parallel without Utility approval may result in immediate termination of electric service to the Customer.

(g) **Corrections (if necessary).** In the event that the Generating Facility does not pass the initial Utility site inspection:

(i) The Customer must correct any outstanding issues and schedule a re-inspection. The Utility shall re-inspect upon five (5) business days notice from the Customer to verify that the deficiencies have been remedied. A fee not exceeding one hundred dollars ($100) may be assessed for each re-inspection conducted by the Utility. Within one (1) business day following any site re-inspection, where the Utility approves parallel operation of the Generating Facility, the Utility will provide written notification to the Customer that the Generation Facility is approved for parallel operation.

(ii) If updated diagrams are required to reflect "as-built" conditions, the Customer must submit these to the Utility for review and approval within ten (10) business days following the site inspection. The Utility will process and mail an amendment to the Interconnection Agreement within five (5) business days after receipt and acceptance of the revised diagrams for Customer review and signature.

4.4 Level 2 Fast Track Process

The Level 2 Process is available to Customers interconnecting a Generating Facility with a continuous output power nameplate rating of 2 MW or less to the Utility's distribution system. In order to qualify for Level 2, the Generating Facility must meet screens (a) through (i) in subsection 4.2 above. The Generating Facility must also meet all applicable codes and standards, as well as comply with the Utility Interconnection and contractual requirements.

Nothing in this process precludes the Customer and Utility from mutually agreeing to different timeframes or other procedures for the approval of interconnected operation of a Generating Facility, so long as the project moves along in a fair and reasonable manner. Also, nothing in this process precludes the Customer from starting construction prior to contacting the Utility; however, in such case the Customer accepts the risk of potentially needing to modify or substantially change the installation.

The Level 2 Process steps are as follows:

(a) **Prior to applying.** The Customer is encouraged to contact and work closely with the Utility at the conceptual stages of the design to discuss the proposed design, installation, and operation. A preliminary electrical one-line diagram would be very helpful at this stage. This step will ensure that proposed projects proceed in a smooth and timely manner, and that the Utility and Customer understand whether any special considerations, protective equipment, system modifications, or studies may be required. Upon the Customer's request, the Utility shall meet with the Customer prior to submission of an Application.

(b) **Customer Submits Application.** The Customer completes the standard Interconnection Application and submits it to the Utility along with all required supplemental information which shall be noted on the Application form. A Utility may charge an application fee, if a tariff containing such a fee is approved by the Commission.

(c) **Application is Received and is Complete or Incomplete.** The Utility notifies the Customer within five (5) business days of receipt of the Application as to whether it is complete or incomplete.

(i) If the Application is incomplete, the Utility will specify what information or material is necessary to complete the Application.

(ii) The Customer has thirty (30) business days after receipt of such notification to submit the required information or materials (or request an extension), or the Application may be considered withdrawn.

(d) **Utility Reviews Application.** Within fifteen (15) business days following the receipt of a complete Interconnection Application, the Utility reviews the proposed Interconnection and notifies the Customer of one of the following determinations:

(i) The proposed Generating Facility design appears to meet all Interconnection requirements and the Interconnection Application is approved as submitted. An *Interconnection Agreement* will be prepared by the Utility and forwarded to the Customer for review and signature in accordance with Step (e) below; or

(ii) The proposed Generating Facility has failed to meet one or more of the screens, but the initial review indicates that Additional Review may enable the Utility to determine that the Customer's Generating Facility can be interconnected consistent with safety, reliability, and power quality. In such case, the Utility shall offer to perform Additional Review (typically about 3 hours of study) to determine whether minor modifications to the electric distribution system (for example, changing meters, fuses, or relay settings) would enable the Interconnection to be made consistent with safety, reliability and power quality. The Utility shall provide to the Customer a non-binding, good faith estimate of the costs of such Additional Review, and/or such minor modifications. The Utility shall undertake the Additional Review or minor modifications only after the Customer consents to pay for the review and/or modifications. Such Additional Review shall take place within 20 business days after the Customer has submitted payment for the estimated costs; or

(iii) The proposed Generating Facility design has failed to meet one or more of the Interconnection requirements, and the Interconnection Application is denied. The Utility provides an explanation of the reason(s) for the denial (in writing, if requested by the Customer), and specifies what additional information and/or modifications to the Customer's Generating Facility or Utility system are required in order to obtain approval of the proposed design.

If the Application is denied, the Customer notifies the Utility within twenty (20) business days whether or not it wishes to proceed with the project. If the Customer does not wish to proceed with the project, or the Utility is not notified within the specified time frame, the Application may be considered withdrawn. If the Customer wishes to proceed with the project, then a new Application shall be submitted to the Utility for review and processing (Step (a) above is re-initiated), along with any additional information and/or modifications to the Customer's Generating Facility. Alternatively, the Customer may request processing under Level 3 and shall provide any additional information requested by the Utility and necessary to process the request under Level 3.

(e) **Interconnection Agreement.** If the Generating Facility meets all of the applicable Interconnection requirements and the Application is approved, then:

(i) Within normally not more than ten (10) business days after the notice of Application approval, or following receipt of any "as built" or final diagrams from the Customer, the Utility sends to the Customer the appropriate Interconnection Agreement for review and signature.

(ii) The Customer reviews, signs, and returns the Interconnection Agreement to the Utility.

(iii) The Customer then completes installation of the Generating Facility within 180 days after execution of the Interconnection Agreement, unless an installation schedule has been submitted with an alternative in-service date, or the parties have mutually agreed to an extension. The Utility has the right to terminate any Agreements, and the Interconnection Application may be considered withdrawn, in the event that this timeframe is exceeded without extension.

(f) **Inspection and Testing.** The Customer will contact the Utility to schedule the Utility site inspection and witness of the testing of the protective devices. The Utility site inspection and witness of the testing of the protective devices will normally occur within ten (10) business days of request from the Customer. The Utility may schedule metering replacement, if necessary, and labeling of Utility equipment to occur at the same time. A Utility may charge for the initial site inspection, if a tariff containing such a fee is approved by the Commission.

The Utility performs the site inspection as arranged and verifies that the Generating Facility, as best as can be determined, is in compliance with all applicable interconnection and safety requirements. At a minimum, it is suggested that the Utility shall verify the following:

(i) An electrical permit and/or clearance has been issued by the authority having jurisdiction, if required;

(ii) All Generating Facility equipment is properly labeled;

(iii) Generating Facility system layout is in accordance with the plant location and site plan(s) submitted to the Utility;

(iv) Generator nameplate ratings are consistent with the information submitted to the Utility;

(v) Utility has unrestricted 24-hour access to the Disconnect Switch (if required), and the switch meets all applicable requirements;

(vi) The Utility will witness the required protective relay calibration and functional tests. (The Utility may accept a certified test report in lieu of witnessing the tests); and

(vii) The Generating Facility is wired, as best as can be determined, in accordance with the electrical diagrams submitted to the Utility.

The Utility will normally, before or at the time of the site inspection:

(i) Install appropriate metering if required;

(ii) Label all Utility equipment; and

(iii) Ensure that the Generating Facility is properly incorporated onto Utility operating maps and identified as a backfeed source.

The Utility does not have the right to fail a site inspection in the event that any of the above three requirements (metering, Utility equipment labeling, and the identification of the Generating Facility on the operating maps) are not in place at the time of the site inspection. The Utility does have the right to fail any Generating Facility that does not meet the applicable Interconnection requirements, is not installed substantially in accordance with the documentation submitted to the Utility, or as a result of any safety or protection violation.

(h) **Notification.** Immediately following completion of the site inspection (and upon receipt of all final applicable signed Interconnection documents) the Utility shall determine whether or

not the Generating Facility meets all applicable requirements. The Utility shall provide the Customer oral notification within twenty-four (24) hours and written notification within three (3) business days that:

(i) The Generating Facility is approved for parallel operation with the Utility's distribution system per the agreed terms and conditions; or

(ii) The Generating Facility has failed to meet one or more of the applicable requirements or a safety or protection violation has been identified, and the Generating Facility is not approved for parallel operation. The Utility must provide the reason(s) (in writing, if requested by the Customer) for not approving parallel operation. Furthermore, the Utility has the right to take any reasonable steps (including locking open the Disconnect Switch) to prevent the Generating Facility from parallel operation. Operation of a generator in parallel without Utility approval may result in immediate termination of electric service to the Customer.

(i) **Corrections (if necessary).** In the event that the Generating Facility does not pass each Utility site inspection:

(i) The Customer must correct any outstanding issues and schedule a re-inspection. The Utility shall re-inspect upon ten (10) business days notice from the Customer to verify that the deficiencies have been remedied. A Utility may charge a fee for a re-inspection, if a tariff containing such a fee is approved by the Commission. Following any site re-inspection where the Utility approves parallel operation of the Generation Facility, the Utility will provide to the Customer such oral notification within twenty-four (24) hours and such written notification within three (3) business days that the Generation Facility is approved for parallel operation.

(ii) If updated diagrams are required to reflect "as-built" conditions, the Customer must submit these to the Utility for review and approval within ten (10) business days following the site inspection. The Utility will process and mail an amendment to the Interconnection Agreement within five (5) business days after acceptance of the revised diagrams for Customer review and signature.

Customer Timeframes. The Utility timeframes contained herein do not include the time for the Customer to execute agreements or submit needed documentation. If at any point in the Level 2 Fast Track process, the Customer does not submit requested materials necessary to process the interconnection Application, or submit applicable executable agreements within thirty (30) business days, or request an extension, the Application may be considered withdrawn.

Fees for Level 2 Additional Review. A Utility may charge a fee for an Additional Review, if a tariff containing the hourly rate for Additional Review is approved by the Commission. The Utility shall provide a non-binding good faith estimate of the fee for such additional review. The Customer must submit a deposit for the estimated fee before the Additional Review will be initiated. In addition, costs for Utility facilities and/or equipment modifications necessary to accommodate the Customer's generator interconnection will be the responsibility of the Customer.

4.5 Level 3 Study Track Process

Level 3, also called the Study Track, is the interconnection procedure to be used for all Generating Facilities that do not meet the screening requirements for Level 1 Super Fast Track or Level 2 Fast Track. It is an in-depth engineering review of whatever aspects of generator performance and/or grid interaction the Utility deems necessary to study. More details are available in each Utility's Interconnection Manual. For generators that are certified, no review of the generator's protection equipment is required, although the Utility may study the interface between the Generating Facility and the Utility. The Generating Facility is required to meet applicable local electric codes and standards, as well as comply with all terms and conditions of the Utility's Interconnection Manual and Interconnection Agreement.

Nothing in these procedures shall preclude the Customer and Utility from mutually agreeing to different timeframes or other procedures for the approval of interconnected operation of a Generating Facility, so long as the project moves along in a fair and reasonable manner.

The Level 3 Study Track interconnection process is as follows:

(a) **Prior to applying.** The Customer is encouraged to contact and work closely with the Utility at the conceptual stages of the design to discuss the proposed design, installation, and operation. A preliminary electrical one-line diagram would be very helpful at this stage. This step will ensure that proposed projects proceed in a smooth and timely manner, and that the Utility and the Customer understand whether any special considerations, protective equipment, system modifications, or studies may be required. Upon the Customer's request, the Utility shall meet with the Customer prior to submission of an Application.

(b) **Customer Submits Application.** The Customer completes the Interconnection Application and submits it to the Utility along with all required supplemental information (which shall be noted on the Application form). A Utility may charge an application fee, if a tariff containing such a fee is approved by the Commission.

(c) **Application is Received and is Complete or Incomplete.** The Utility notifies the Customer in normally not more than ten (10) business days of receipt of the Application (or transfer from Level 1 or 2) as to whether it is complete or incomplete.

(i) If the Application is incomplete, the Utility will specify what information or material is necessary to complete the Application.

(ii) The Customer has normally not more than thirty (30) business days after receipt of such notification to submit the missing information or materials (unless other mutually agreeable arrangements are made); otherwise the Application may be considered withdrawn.

(iii) Once the Customer submits any missing information, the Utility has normally not more than another ten (10) business days to determine if the Application is complete or incomplete and notify the Customer.

(d) **Utility Reviews Application.** Normally within ten (10) business days following the receipt of a complete Interconnection Application, the Utility reviews the proposed interconnection and notifies the Customer of one of the following determinations:

(i) The Generating Facility design as submitted appears to meet all of the applicable Interconnection requirements and no further studies, special protective requirements, or system modifications are required. An Interconnection Agreement will be prepared by the Utility and forwarded to the Customer for review and signature in accordance with Step (j) below; or

(ii) The Generating Facility cannot be interconnected without further information, data, engineering studies, and/or modifications to the Utility system or Generating Facility. In this case, the Interconnection proceeds according to the following meeting and study process, as deemed necessary by the Utility. All itemized costs and timelines for the studies are to be disclosed and agreed upon by the Utility and Customer prior to the start of each one. In addition, all studies are to be made available to the Customer directly after their completion.

(e) **Scoping Meeting.** This is a high-level, initial review meeting between the Utility and the Customer, where the Customer describes the proposed Generating Facility design and the Utility talks about system conditions at the proposed Point of Interconnection. This meeting can also allow the Utility and Customer to discuss which of the following study elements are needed. The Utility and the Customer will bring to the meeting personnel, including system engineers and other resources as may be reasonably required to accomplish the purpose of the meeting. This meeting shall be held in normally not more than ten (10) business days after an Application is deemed complete unless other mutual agreements are made.

(f) **Acknowledgement Letter.** The Utility will provide an Acknowledgement Letter following the Scoping Meeting upon request from the Customer. The letter will describe the project scope and include a good faith cost estimate by the Utility. If requested, the Acknowledgement Letter will be sent out normally within 10 business days following the Scoping Meeting.

(g) **Interconnection Feasibility Study.** If requested by the Customer, the Utility shall undertake an Interconnection Feasibility Study. The Utility shall provide the Customer, as soon as possible, but in normally not more than ten (10) business days after the Scoping Meeting, an Interconnection Feasibility Study Agreement including an outline of the scope of the study and a non-binding, good faith, detailed estimate of the materials and labor costs to perform the study. Once the interconnecting Customer executes the Interconnection Feasibility Study Agreement, provides all requested Customer information necessary to complete the Study, and pays pursuant to the good faith estimate contained therein, the Utility will conduct the Interconnection Feasibility Study.

The Feasibility Study will be completed in normally not more than twenty (20) business days, unless other mutually agreeable terms are made.

The Interconnection Feasibility Study provides a preliminary review of the potential impacts on the distribution system that will result from the proposed Interconnection. The Interconnection Feasibility Study will review short circuit currents including contribution

from the proposed generator as well as coordination of and potential overloading of distribution circuit protection devices. This study principally benefits the Customer by providing initial details and ideas on the complexity and likely costs to interconnect prior to commitment of costly engineering review. The Interconnection Feasibility Study may also be used to focus or eliminate some or all of the more intensive System Impact study.

(h) **System Impact Study.** If deemed necessary by either party, the Utility shall undertake a System Impact Study. The Utility shall provide the Customer as soon as possible, but in normally not more than fifteen (15) business days after completing the previous study or meeting, a System Impact Study Agreement including an outline of the scope of the study and a non-binding, good faith, detailed estimate of the materials and labor costs to perform the study. Once the Customer executes the System Impact Study Agreement, provides all requested Customer information necessary to complete the Study, and pays any required deposit pursuant to the good faith estimate contained therein, the Utility will conduct the Impact Study.

The System Impact Study will be completed in normally not more than thirty (30) business days, unless other mutually agreeable terms are made.

The System Impact Study is a full engineering review of all aspects of the generator's impact on the Utility system, including power flow, Utility system protective device coordination, generator protection schemes (if not certified), stability, voltage collapse, frequency impacts, and short circuit duty. The System Impact Study reveals all areas where the Utility system would need to be upgraded to allow the generator to be built and interconnected as designed. It may include discussions with the Customer about potential alterations to generator design, including downsizing to limit grid impacts.

If the Utility determines, in accordance with Good Utility Practice, that the Utility electric system modifications required to accommodate the proposed Interconnection are not substantial, the System Impact Study shall identify the scope and detailed cost of the modifications.

If the Utility determines, in accordance with Good Utility Practice, that the system modifications to the Utility electric system are substantial, a Facilities Study shall be performed.

Each Utility shall include in its Interconnection Manual a description of the various elements of a System Impact Study it would typically undertake pursuant to this Section including:

(i) Load Flow Study;

(ii) Short-Circuit Study;

(iii) Circuit Protection and Coordination Study;

(iv) Impact on System Operation;

(v) Stability Study (and the conditions that would justify including this element in the Impact Study); and

(vi) Voltage Collapse Study (and the conditions that would justify including this element in the Impact Study).

(i) **Facilities Study.** If deemed necessary by the Utility, the Utility shall undertake a Facilities Study. The Utility shall provide the Customer as soon as possible, but in normally not more than five (5) business days after completing the previous study or meeting, a Facilities Study Agreement including an outline of the scope of the study and a non-binding, good faith, detailed estimate of the materials and labor cost to perform the study. Once the interconnecting Customer executes the Facilities Study Agreement, provides all requested Customer information necessary to complete the Study, and pays pursuant to the good faith estimate contained therein, the Utility will conduct the Facilities Study. The Facilities Study will be completed in normally not more than thirty (30) business days, unless other mutually agreeable terms are made.

The Facilities Study is a comprehensive analysis of the actual construction needed to take place based on the outcome of the Impact Study. It delineates the detailed costs of construction and milestones. Construction may include new circuit breakers, relocation of reclosers, new construction of Utility grid extensions, reconductoring lines, new transformers, protection requirements and interaction. Where no Utility construction is required there would be no Facilities Study.

(j) **Interconnection Agreement.** If the Generating Facility meets all of the applicable Interconnection requirements, all items identified in any Meeting or Study have been resolved and agreed to (if applicable), and the Utility has received the final design drawings, then:

(i) The Utility shall send to the Customer in normally not more than ten (10) business days an executable Interconnection Agreement, which shall include as an exhibit the cost for any required Utility system modifications.

(ii) The Customer reviews, signs, and returns the signed Interconnection Agreement and any balance due for Interconnection studies or required deposit for facilities.

(iii) The Customer then completes installation of the Generating Facility and the Utility completes any utility system modifications, according to the milestones set forth in the Interconnection Agreement. The Utility shall employ best reasonable efforts to complete such system upgrades in the shortest time reasonably practical.

(k) **Inspection and Testing.** The Customer will contact the Utility to schedule the Utility site inspection and witness of the testing of the protective devices. The Utility site inspection and witness of the testing of the protective devices will normally occur within ten (10) business days of notice from the Customer. The Utility may schedule metering replacement, if necessary, and labeling of Utility equipment to occur at the same time.

The Utility performs the site inspection as arranged and verifies that the Generating Facility, as best as can be determined, is in compliance with all applicable Interconnection and code requirements. At a minimum, it is suggested that the Utility verify the following:

(i) An electrical permit and/or clearance has been issued by the authority having jurisdiction, if required;

(ii) All Generating Facility equipment is properly labeled;

(iii) Generating Facility system layout is in accordance with the plant location and site plan(s) submitted to the Utility;

(iv) Generator nameplate ratings are consistent with the information submitted to the Utility;

(v) The Utility has unrestricted access to the Disconnect Switch (if required), and the switch meets all requirements;

(vi) The Utility will witness the required protective relay calibration and functional tests. (The Utility may accept a certified test report in lieu of witnessing the tests); and

(vii) The Generating Facility is wired, as best can be determined, in accordance with the electrical diagrams submitted to the Utility.

The Utility will normally, before or at the time of the site inspection:

(i) Install all appropriate metering, if required;

(ii) Label all Utility equipment; and

(iii) Ensure that Generating Facility is properly incorporated onto Utility operating maps and identified as a backfeed source.

The Utility shall not have the right to fail a site inspection in the event that any of the above three requirements (metering, Utility equipment labeling, and the identification of the Generating Facility on the operating maps) are not in place at the time of the site inspection.

The Utility does have the right to fail any Generating Facility that does not meet the applicable Interconnection requirements, is not installed substantially in accordance with the documentation submitted to the Utility, or as a result of any safety or protection violation.

(l) **Notification.** Immediately following completion of the site inspection (and upon receipt of all final applicable signed Interconnection documents) the Utility shall determine whether or not the Generating Facility meets all applicable requirements. The Utility shall provide the Customer oral notification normally within twenty-four (24) hours and written notification normally within three (3) business days that:

(i) The Generating Facility is approved for parallel operation with the Utility's distribution system per the Interconnection Agreement. The Utility shall provide the Customer with such notification in writing in normally not more than three (3) business day following the Utility inspection under (k) above; or

(ii) The Generating Facility has failed to meet one or more of the applicable requirements or a safety violation has been identified, and the Generating Facility is not approved for parallel operation. The Utility shall provide the reason(s) (in writing, if requested by the Customer) for not approving parallel operation. Furthermore, the Utility has the right to disconnect and lock out the Generating Facility to prevent the Generating Facility from parallel operation, and the Customer must reschedule the site inspection with the Utility. The Customer may not operate in parallel until it receives written approval from the Utility, and violation of this condition may result in immediate termination of electric service to the Customer.

(m) **Correction (if necessary).** In the event that the Generating Facility does not pass the initial Utility site inspection:

(i) The Customer must correct the deficiencies identified by the Utility and schedule a re-inspection. The Utility shall re-inspect normally not more than ten (10) business days notice from the Customer to verify that the deficiencies have been remedied. Following any site re-inspection where the utility approves parallel operation of the Generation Facility, the Utility will provide to the Customer such oral notification normally within twenty-four (24) hours and such written notification normally within three (3) business days that the Generation Facility is approved for parallel operation.

(ii) If updated documentation is required to reflect "as-built" conditions, the Customer must submit these to the Utility for review and approval within ten (10) business days following the site inspection. The Utility may charge a fee, if a tariff containing such a fee is approved by the Commission. The Utility will process and mail an amendment to the Interconnection Agreement normally not more than five (5) business days after receipt and acceptance of the revised diagrams for Customer review and signature.

Customer Timeframes. The Utility timeframes contained herein do not include the time for the Customer to execute agreements or submit needed documentation. If at any point in the Level 3 Study Track process, the Customer does not submit requested materials necessary to process the Interconnection Application, or submit applicable executable agreements in normally not more than thirty (30) business days, or request an extension, the Application may be considered withdrawn.

Fees for Level 3 Interconnection. A Utility may charge a fee for an engineering review, if a tariff containing the hourly rate for engineering review is approved by the Commission. The Utility shall provide a non-binding good faith estimate of the fee for such engineering review. The Customer must submit a deposit for the estimated fee before the engineering review will be initiated. In addition, costs for Utility facilities and/or equipment modifications necessary to accommodate the Customer's generator interconnection will be the responsibility of the Customer. The Customer may not be charged for the review of a certified generator's protection equipment. The utility may charge a fee for an initial inspection or for a re-inspection, if a tariff containing such a fee is approved by the Commission.

4.6 Interconnection to Secondary Spot Network Systems

The requirements for interconnecting generating facilities to Secondary Spot Network Systems are different than those for Interconnection to radial distribution systems. In the Secondary Spot Network System, there are technical requirements to be considered particularly with the design and operational aspects of network protectors that are not required on radial systems.

Currently, Arizona Public Service ("APS") is the only Utility in Arizona that has Secondary Spot Networks. As such, APS has developed the following interim criteria for interconnecting a small amount of inverter-based customer generation to a Secondary Spot Network System. Because the maximum level of generation that could be interconnected to a Secondary Spot Network System is unknown at this time, this "Pilot" effort should be viewed as a trial basis only. APS reserves the right to suspend it at any time. APS has initiated this Pilot effort in a proactive attempt to include distributed generation in the State of Arizona on Secondary Spot Network Systems.

The Pilot criteria require that the generation meet all of the following conditions simultaneously:

(a) Inverter based units must be less than 10 kW;

(b) Units must be "Certified" as prescribed in this Document, and must meet current IEEE 1547 and UL 1741 standards; and

(c) Must be less than or equal to 10% of the interconnecting customer's verifiable minimum load during the operation of the inverter. (For photovoltaics, the minimum load refers to the daytime minimum.)

APS reserves the right to suspend, change, modify, or add to the above conditions based on the results from future test reports or guidelines as they become available.

Once the 1547.6 standards are completed, APS (and any other Arizona Utilities who have since added Secondary Spot Networks) will review the Pilot criteria for possible modification to include guidelines for Interconnection to the Secondary Spot Network Systems.

The process for interconnecting to a Secondary Spot Network System will be determined by the Utility.

5. UTILITY REPORTING REQUIREMENTS

Interconnection Manual. Each Utility shall file an Interconnection Manual for approval with the Commission no later than ninety (90) calendar days after adoption of this document. Each Interconnection Manual shall contain procedural and technical requirements necessary to interconnect a Generating Facility to each Utility's respective distribution system but shall not be inconsistent with this Document. An updated Interconnection Manual shall be provided to the Commission upon any substantive revision by the Utility and shall become effective within sixty (60) days unless otherwise acted upon by the Commission.

Documentation of projects. Each electric Utility shall maintain records concerning Applications received for Interconnection and parallel operation of distributed generation. Such records will include the date each Application is received, documents generated in the course of processing each Application, correspondence regarding each Application, the final disposition of each Application, and the date on which the Application was approved (if approved).

Annual Interconnection report to the Commission. By March 30 of each year, every Utility shall file with the Commission a distributed generation Interconnection report for the preceding calendar year that lists the new Generating Facilities interconnected with the system since the previous year's report, any distributed generation facilities no longer interconnected with the Utility's system since the previous report, and the capacity of each facility. The annual report shall include, for the reporting period, a summary of the number of complete Applications received, the number of complete Applications approved, the number of complete Applications denied by level, and the reasons for denial. The annual report shall also include a list of special contracts, approved by the Commission during the reporting period, that provide discounted rates to customers as an alternative to self-generation.

6. DEFINITIONS

ANSI: American National Standards Institute. See www.ansi.org.

Application: The standard form for applying to interconnect a Generating Facility with the Utility system.

Arizona Corporation Commission ("ACC" or "Commission"): The regulatory agency of the state of Arizona having jurisdiction over public service corporations operating in Arizona.

Backfeed: To energize a section of a Utility electric system that is supplied from a source other than its normal source.

Business Day: Monday through Friday, excluding Federal and Arizona State Holidays.

Certified Equipment: A specific generating and protective equipment system or systems that have been certified as meeting the requirements in subsection 3.4 relating to testing, operation, safety, and reliability by an entity approved by the Commission.

Customer: A electric consumer that generates electricity on the consumer's side of the Utility meter.

Disconnect Switch: A device that the Customer may be required to install and maintain that is a visible open, manual, gang operated, load break disconnect device, capable of being locked in a "visible open" position by a standard Utility padlock that will completely isolate the Customer's Generating Facility from the Utility grid. "Visible open" has the same definition as used in the National Electric Code. If the voltage is over 500 volts, it has to be capable of being grounded on the Utility side.

Distributed Generation ("DG"): Any type of Customer electrical generator, static inverter, or Generating Facility interconnected with the distribution system that either (a) has the capability of being operated in electrical parallel with the Utility's distribution system, or (b) can feed a customer load that can also be fed by the Utility's electrical system. A distributed generator is often referred to as a "Generating Facility" in this Document.

Distribution System: The infrastructure constructed, maintained, and operated by an electric Utility to deliver electric service to retail customers.

Electric Supply or Purchase Agreement: An agreement, together with appendices, signed between the Utility and the Customer covering the terms and conditions under which electrical power is supplied to and/or purchased from the Utility.

Equipment Package: A group of components connecting an electric generator with a Utility distribution system, and includes all interface equipment including switchgear, inverters, or other interface devices. An equipment package may include an integrated generator or electric source.

Fault Current: The level of current that can flow if a short circuit is applied to a voltage source.

Generating Facility: All or part of the Customer's electrical generator(s) or inverter(s) together with all protective, safety, and associated equipment necessary to produce electric power at the Customer's facility. A Generating Facility also includes any Qualifying Facility ("QF").

Good Utility Practice: Any of the practices, methods, and acts engaged in or approved by a significant portion of the electric industry during the relevant time period, or any of the practices, methods, and acts which, in the exercise of reasonable judgment in light of the facts known at the time the decision was made, could have been expected to accomplish the desired result at a reasonable cost consistent with good business practices, reliability, safety, and expedition. Good Utility Practice is not intended to be limited to the optimum practice, method, or act to the exclusion of all others, but rather to be acceptable practices, methods, or acts generally accepted in the region.

IEEE: The Institute of Electrical and Electronic Engineers. See www.ieee.org.

Interconnection Agreement: An agreement, together with appendices, signed between the Utility and the Customer, covering the terms and conditions governing the Interconnection and operation of the Generating Facility with the Utility.

Interconnection: The physical connection of Customer's Generating Facility to the Utility system.

Interconnection Manual: A separate document developed and maintained by each Utility, made available on each Utility's website, and approved by the Commission, containing detailed technical, safety, and protection requirements necessary to interconnect a Generating Facility to each Utility's respective distribution system. The Interconnection Manual shall be consistent with this Document.

Interconnection Study: A study or studies that may be undertaken by a Utility (or a Utility-designated third party) in response to its receipt of a completed Application for Interconnection and parallel operation with the Utility system. Interconnection studies may include, but are not limited to, Interconnection Feasibility Studies, System Impact Studies, and Facilities Studies.

Island: A condition in which a portion of a Utility electric power system is energized solely by one or more local electric power systems throughout the associated Point of Interconnection while that portion of the Utility electric power system is electrically separated from the rest of the Utility electric power system. Islands can either be intentional (planned) or unintentional (unplanned).

Islandable System: A Generating Facility interconnected to a bus common with the Utility's system, where the Generating Facility is designed to serve part of the Utility grid that has become or is purposefully separated from the rest of the grid.

Minimum Protective Devices, Relays, and Interconnection Requirements: The minimum required protective relaying and/or safety devices or requirements specified in this Document, are for the purpose of protecting only the Utility and its other customer facilities from damage or disruptions caused by a fault, malfunction, or improper operation of the Customer's Generating Facility. Minimum Protective Relaying and Interconnection Requirements do not include relaying, protective, or safety devices as may be required by industry and/or government codes

and standards, equipment manufacturing and prudent engineering design and practice to fully protect the Customer's Generating Facility; those are the sole responsibility of the Customer.

NEMA: National Electrical Manufacturers Association. See www.nema.org.

NFPA: National Fire Protection Association. See www.nfpa.org.

Parallel System: The operation of a Generating Facility that is electrically interconnected to a bus common with the Utility's electric distribution system, either on a momentary or continuous basis.

Point of Interconnection: The physical location where the Utility's service conductors are connected to the Customer's service conductors to allow parallel operation of the Customer's Generating Facility with the Utility's electric distribution system.

Primary Network: An AC power distribution system that uses two or more dedicated primary voltage feeders, connected in parallel, to simultaneously supply power to one customer. The system includes automatic protective devices intended to isolate faulted primary feeders, while maintaining uninterrupted service to the customer served from the other primary feeder circuit(s).

Qualifying Facility ("QF"): Any cogeneration or small power production facility that meets the criteria for size, fuel use, efficiency, and ownership as promulgated in 18 CFR, Chapter I, Part 292, Subpart B of the Federal Energy Regulatory Commission's Regulations.

Radial Line: A distribution line that originates from a substation and is normally not connected to another substation or another circuit sharing the common supply of electric power.

Relay: An electric device that is designed to interpret input conditions in a prescribed manner and after specified conditions are met to respond to cause contact operation or similar abrupt change in associated electric control circuits.

Secondary Spot Network System: An AC power distribution system in which a Customer is simultaneously served from three-phase, four-wire low-voltage (typically 480V) circuits supplied by two or more network transformers whose low-voltage terminals are connected to the low-voltage circuits through network protectors. The low voltage circuits do not have ties to adjacent or nearby secondary network systems. The secondary spot network system has two or more high-voltage primary feeders. These primary feeders are either dedicated network feeders that serve only other network transformers, or a non-dedicated network feeder that serves radial transformers in addition to the network transformer(s), depending on network size and design. The system includes automatic protective devices and fuses intended to isolate faulted primary feeders, network transformers, or low-voltage cable sections while maintaining uninterrupted service to the customers served from the low-voltage circuits.

Separate System: The operation of a Generating Facility that has no possibility of operating in parallel with the Utility's system.

Transmission System: Utility-owned high-voltage lines (69 kVa or higher) and associated equipment for the movement or transfer of electric energy between power plants and the distribution system.

UL: Underwriters Laboratories Inc. See www.ul.com.

Utility: An electric distribution company that constructs, operates, and maintains the electrical distribution system for the receipt and/or delivery of power.

EXHIBIT
S-1
ADMITTED

DIRECT

TESTIMONY

OF

STEVE IRVINE

DOCKET NO. E-20690A-09-0346

IN THE MATTER OF THE APPLICATION OF SOLARCITY FOR A DETERMINATION THAT WHEN IT PROVIDES SOLAR SERVICE TO ARIZONA SCHOOLS, GOVERNMENTS, AND NON-PROFIT ENTITIES IT IS NOT ACTING AS A PUBLIC SERVICE CORPORATION PURSUANT TO ART. 15, SECTION 2 OF THE ARIZONA CONSTITUTION

SEPTEMBER 30, 2009

BEFORE THE ARIZONA CORPORATION COMMISSION

KRISTIN K. MAYES
Chairman
GARY PIERCE
Commissioner
PAUL NEWMAN
Commissioner
SANDRA D. KENNEDY
Commissioner
BOB STUMP
Commissioner

IN THE MATTER OF THE APPLICATION OF SOLARCITY FOR A DETERMINATION THAT WHEN IT PROVIDES SOLAR SERVICE TO ARIZONA SCHOOLS, GOVERNMENTS, AND NON-PROFIT ENTITIES IT IS NOT ACTING AS A PUBLIC SERVICE CORPORATION PURSUANT TO ART. 15, SECTION 2 OF THE ARIZONA CONSTITUTION	)	DOCKET NO. E-20690A-09-0346

DIRECT

TESTIMONY

OF

STEVE IRVINE

PUBLIC UTILITIES ANALYST IV

UTILITIES DIVISION

ARIZONA CORPORATION COMMISSION

SEPTEMBER 30, 2009

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EXECUTIVE SUMMARY
SOLARCITY CORPORATION
DOCKET NO. E-20690A-09-0346

Staff's conclusions are as follows:

- Through its contracts with nonprofits, schools and governmental entities, SolarCity would provide electricity to the public.
- Staff believes that the SSAs have been structured as sales of electricity so that SolarCity and the schools could take advantage of federal tax incentives, which the schools otherwise did not qualify for.
- The provisions of the SSAs as a whole support Staff's position that the contracts are primarily for the sale of electricity to the schools.
- The contracts provide for the customer to pay SolarCity under the SSAs on a kWh basis.
- The facilities installed by SolarCity will be owned, operated, and maintained by SolarCity throughout the life of the contract unless the schools exercise an option to purchase the system at years 6 or 10 of the contract or at the end of the SSAs life, year 15 of the contract.
- The public has an interest in SolarCity's facilities in that the facilities are dedicated to supplying electricity to the public. In addition electricity generated in excess of the schools' own need at a given time would flow through the grid and could be available for public use.
- The electricity produced under an SSA is no different than electricity provided by the Incumbent Utilities, a commodity in which the general public has been held to have an interest.

- While SolarCity will provide its services through individual contract, this is not dispositive of the issue of whether it is functioning as a public utility. It is more the nature of the services it offers, and the fact that it offers its services to the public.
- SolarCity intends to serve a substantial portion of the public. SolarCity will compete with other public service corporations.

Staff recommends the following:

- That should the Commission find that SolarCity is acting as a public service corporation, the Commission continue to require SolarCity to provide its special contracts or a tariff with a standard contract to the Commission for review and approval until the Commission approved a CC&N for SolarCity.
- That should the Commission find that SolarCity is acting as a public service corporation, SolarCity should be required to apply for a CC&N.
- That the Commission's findings in this matter apply only to SolarCity's SSAs for schools, nonprofits and governmental entities. Determinations on other contracts or sales should be made upon separate application.

I. INTRODUCTION

Q. Please state your name, occupation, and business address.

A. My name is Steve Irvine. I am a Public Utilities Analyst IV employed by the Arizona Corporation Commission ("ACC" or "Commission") in the Utilities Division ("Staff"). My business address is 1200 West Washington Street, Phoenix, Arizona 85007.

Q. Briefly describe your responsibilities as a Public Utilities Analyst.

A. In my capacity as a Public Utilities Analyst, I conduct studies to estimate the cost of the capital component and determine the overall revenue requirement in rate proceedings. I also design rates to generate the revenue requirement in rate proceedings. My duties have also included evaluating a variety of applications or components of applications including financings, purchased power agreements, Renewable Energy Standard and Tariff programs, and others.

Q. Please describe your educational background and professional experience.

A. In 1994, I graduated from Arizona State University, receiving a Bachelor of Science degree in Business Marketing. In 1997, I received a Masters degree in Public Administration from Arizona State University. I began employment with the Commission in May of 2001 and have worked in the Utilities Division since September of 2002.

Q. What is the scope of your testimony in this case?

A. My testimony provides a discussion of the facts underlying SolarCity Corporation's ("SolarCity" or "Company") request for a determination that, when it provides solar service to Arizona schools, governments, and non-profit entities, it is not acting as a Public Service Corporation pursuant to Article 15, Section 2 of the Arizona Constitution.

Q. Does your testimony in this case draw any legal conclusions regarding SolarCity's status as a public service corporation?

A. No. My testimony is meant only to discuss the factual aspects of this matter. Legal conclusions will be provided through briefs.

Q. Have you reviewed the testimony submitted by SolarCity in this case?

A. Yes. I reviewed the testimony of witnesses Ben Tarbell, Lyndon Rive, and David Peterson.

Q. Are these individuals employees of SolarCity?

A. Mr. Tarbell is the Director of Products for SolarCity. Mr. Rive is the CEO of SolarCity. Mr. Peterson, however, is Scottsdale Unified School District's Assistant Superintendant for Operations. Testimonies of these individuals were filed jointly as witnesses for the Applicant.

Q. Briefly summarize how your testimony is organized.

A. My testimony is organized into eleven sections. Section one is this introductory section. Section two describes SolarCity and how it provides its service. Section three addresses SolarCity's Application. Section four discusses the SolarCity Solar Service Agreements ("SSAs") with the School district. Section five discusses the question of whether SolarCity's provision of electricity is incidental to financing provisions of the contract. Section six discusses other factors used to determine public service corporation status. Section seven discusses the impact of providing service at wholesale. Section eight discusses renewable energy credits. Section nine discusses other considerations. Section ten discusses Commission rules as applied to SolarCity. Section eleven is a summary of Staff's recommendations.

II. WHO IS SOLARCITY AND HOW DOES IT PROVIDE ITS SERVICE

Q. Who is SolarCity?

A. Solar City was founded in 2006. According to its CEO, it is a full-service solar power company, providing design, financing, installation, and monitoring services.

Q. What is an SSA?

A. The Company describes the SSA as a financing arrangement that allows nonprofit entities to take advantage of certain federal tax incentives pertaining to the use of solar energy.

Q. Does Staff agree with the characterization of the SSAs as financing arrangements?

A. No. This matter will be discussed further later in this testimony.

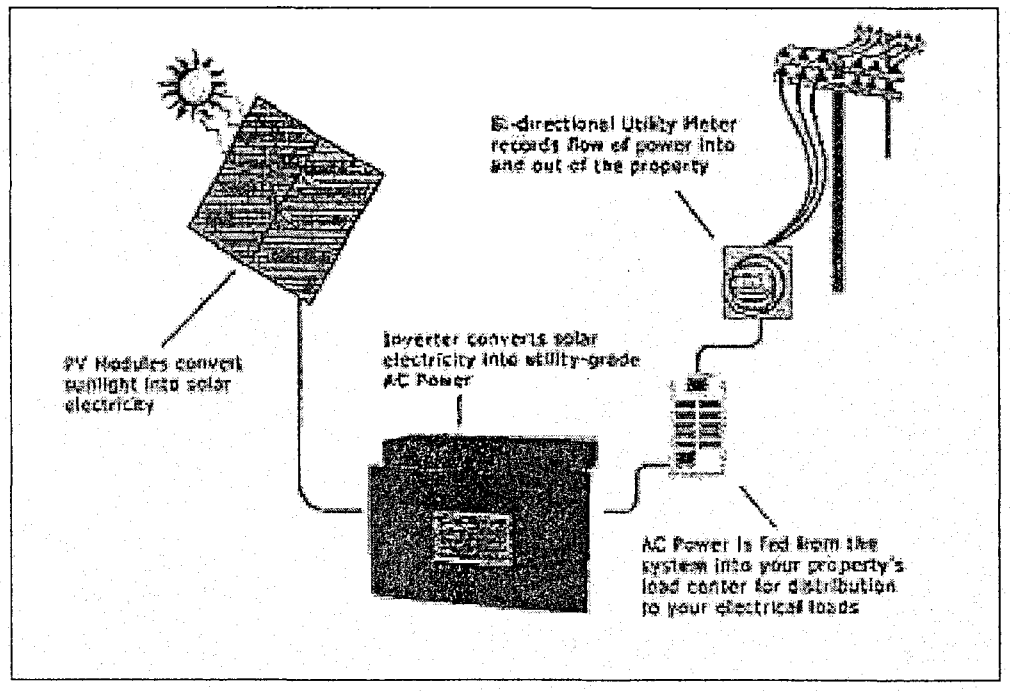
Q. Please briefly describe the systems that SolarCity proposes to install through its SSAs.

A. I will discuss how SolarCity's facilities generate electricity. Information about the equipment and physical arrangement of the equipment can be found in the Application and in SolarCity's pre-filed testimony. The Application includes an SSA contract for Coronado High School. The contract includes information about the generating equipment, its anticipated production of electricity, and photo-maps of the school roofs where the systems would be deployed. Testimony of Ben Tarbell describes the systems, and Exhibit A of SolarCity's testimony includes a diagram showing how the major components of the system are arranged and how they interconnect with the customer's electric panel (load center), the utility meter, and the grid. These sources provide more specific information about the equipment and the physical arrangement of the equipment. I will, nevertheless, describe the equipment and its arrangement in brief.

The major system components include First Solar FS-275 thin film modules, SatCon power inverters, the customer's existing electrical panel (load center), the Incumbent Utility's bi-directional meter, and the grid itself. The First Solar FS-275 thin film modules are photovoltaic panels that are used for generating electricity. The SatCon power inverters are devices that convert DC energy produced by the solar panels to AC energy that can be used by the school. The customer's existing electrical panel is the point of receipt of energy from the grid. It is not common to refer to an electrical panel as a 'load center' as has been done in the diagram below; however, it is likely to be simply another term for electrical panel, or service panel. Finally, the term "grid" refers to the Incumbent Utility's distribution wires and equipment combined with all other interconnected distribution and transmission wires and associated equipment.

These components are arranged as described by the diagram included in Exhibit A of SolarCity's prefiled testimony. This diagram is included below.

Diagram I



Q. Please briefly describe the physical arrangement of the equipment that SolarCity proposes to install.

A. As seen in Diagram I from left to right, the system begins with photovoltaic panels. While not shown in the diagram, they would be installed on the roofs of the schools. The photovoltaic panels use energy from the sun to produce electricity. The panels connect to inverters that convert DC electricity produced by the panels into AC electricity used by the schools. SolarCity testimony further explains that the inverters are certified to ensure that the system safely interconnects to the grid without risk of islanding if the grid voltage goes down.[1] As further seen in Diagram I, the inverter connects to the schools' electrical panels, or load centers. Beyond the electrical panel is a bi-directional meter capable of measuring either the kWh that flows from the grid to the school, or alternatively a net production of energy resulting in the passage of kWh to the grid. The meter connects to the grid as it does conventionally. Not depicted in this diagram is a meter measuring the electrical output of the photovoltaic panels. SolarCity testimony makes reference to such a device as follows:

> **At what point is it possible to identify electricity that has been created in the facilities?**
> The energy created by the solar energy system is usable by the school as soon as it exits the inverter as AC electricity. The inverter output will be metered separately from the building load.[2]

Q. Why is a meter that measures the kWh produced by the panels necessary?

A. The SSAs establish a payment rate that is based on a specified rate per-kWh. Consequently, it is important to know how many kWh are produced by the panels. The Incumbent Utility's bi-directional meter measures only the amount of kWh that flows from the grid to the school, or conversely the amount of kWh that flows from the school to

[1] Pre-Filed Direct written testimony of SolarCity witness Ben Tarbell, at 2, lines 25-27.
[2] Pre-Filed Direct written testimony of SolarCity witness Ben Tarbell, at 3,lines 12-14.

the grid. Consider the following hypothetical example and imagine that the photovoltaic panels produce 4 kWh and that the school needs 10 kWh. In this example, the school needs 6 kWh from the grid, and the Incumbent Utility's meter measures 6 kWh.

Equation I

School's Need		Panel Produces		Grid Supplies
10 kWh	-	4 kWh	=	6 kWh

Now consider an example where the photovoltaic panels produce 10 kWh and the school needs 16 kWh to meet its electric load. In this example, the school needs 6 kWh from the grid, and the Incumbent Utility's meter measures 6 kWh.

Equation II

School's Need		Panel Produces		Grid Supplies
16 kWh	-	10 kWh	=	6 kWh

In both examples, the Incumbent Utility supplies 6 kWh and its meter measures the passage of 6 kWh from the grid to the school. In either example, the Incumbent utility's meter senses and records only the passage of 6 kWh from the grid to the school, having no ability to measure the school's actual load or the reduction to that load as a result of kWh generated by the photovoltaic panels. Consequently, a meter measuring the production of electricity from the panels is necessary in order to calculate payments to SolarCity. SolarCity would install, maintain, own, and read such a meter. It would be located at some point between the photovoltaic panels and the schools' electric panels (load centers).

Q. In this arrangement, does all the SolarCity equipment connect on the customer's side of the Incumbent Utility's meter?

A. Yes. SolarCity's equipment is installed only on the customer's side of the Incumbent Utility's meter.

Q. Who owns the equipment associated with SolarCity's SSAs?

A. SolarCity owns the equipment associated with the SSAs. The Application states, "SolarCity retains initial ownership and "use" of the system as defined in the Federal tax code, thus allowing them to capitalize on the available tax incentives which would otherwise be stranded.[3]" Testimony of Lyndon Rive states, "SolarCity finances, designs, constructs, owns, operates and maintains the solar system for the benefit of the customer."[4]

III. SOLARCITY'S APPLICATION

Q. Please describe SolarCity's request.

A. SolarCity seeks a determination by the Commission that, when it provides solar energy service through an SSA to schools, government or nonprofits, it is not acting as a public service corporation.

[3] Application, at 6, lines 22-24.
[4] Pre-filed written Direct Testimony of SolarCity witness Lyndon Rive, at 2, lines 24-26.

Q. Is there a description for the term public service corporation in Article 15, Section 2 of the Arizona Constitution?

A. While I am not a lawyer, I am aware that the Arizona Constitution, Article 15, Section 2, describes a public service corporation as follows:

> All corporations other than municipal engaged in *furnishing* gas, oil, or *electricity* for light, fuel, or power; or in furnishing water for irrigation, fire protection, or other public purposes; or in furnishing, for profit, hot or cold air or steam for heating or cooling purposes; or engaged in collecting, transporting, treating, purifying and disposing of sewage through a system, for profit; or in transmitting messages or furnishing public telegraph or telephone service, and all corporations other than municipal, operating as common carriers, shall be deemed public service corporations. (Emphasis added).

Q. Does SolarCity believe that it is furnishing electricity through its SSAs?

A. No. SolarCity represents that it is only furnishing equipment and maintenance. According to SolarCity, the SSA itself provides that SolarCity will never own the electricity because the SSA states that, from the moment it is created, the electricity is in the sole legal possession of the School District. Finally, SolarCity states that its SSAs are financing arrangements only and not a means for furnishing electricity.

Q. Does Staff agree with SolarCity's assertions on this issue?

A. No. Staff does not believe that SolarCity's positions on these issues are determinative of the issue of whether it is furnishing electricity. A party cannot simply through semantics change the true nature of a transaction and the nature of the services offered.

IV. THE SOLARCITY SSAs WITH THE SCHOOL DISTRICT

Q. Briefly describe the SSAs at issue in this proceeding.

A. According to the testimony of Lyndon Rives (at Q.9 and Q.10), an SSA is a third-party financing arrangement which allows SolarCity and a third-party investor to finance, install, own, operate and maintain a solar system for the benefit of and located on a customer's property with no up-front capital expense to the customer. Pursuant to the agreement, SolarCity finances, designs, constructs, owns, operates and maintains the solar system for the customer's benefit. SolarCity charges the customer on a per kWh basis. SolarCity witness Rives (at Q. 9) states that it retains ownership and use of the system as defined in the Federal Tax code, thus allowing it to capitalize on the available tax incentives which would otherwise be stranded.

Q. Has SolarCity limited the use of its SSAs to a particular group of customers?

A. Yes, SolarCity has stated in its Application that the SSAs will be used only for schools, governmental entities or other non-profit customers.

Q. How many SSAs does SolarCity anticipate it will enter into over the next few years?

A. In response to STF 2.28, the Company states the following:

> However, in its best estimate SolarCity anticipates the potential for a total of 20 MW in systems via SSA's in AZ over the next 2 years, 100 MW over 5 years and 1 GW over 10 years. SolarCity estimates that 50% of the SSAs will be schools (half k-12, half post-secondary), 40% government (state and local), 10% other non-profits. Geographically the installations will largely track population densities with a bend toward jurisdictions with higher electricity prices and/or higher incentives since the value proposition of solar is stronger there.

Q. Does SolarCity only provide service through SSAs?

A. No. SolarCity uses SSAs currently only for schools, nonprofits and governmental entities. It is Staff's understanding that SolarCity provides services to residential customers and others through PPAs. In response to STF 4.11, SolarCity states that it has utilized cash sales, Solar Leases and Solar Services Agreements to install those systems. The estimated total load for Arizona is 2,067 kW.

Q. How does the federal stimulus program affect the structure of any transaction between SolarCity and the Schools?

A. SolarCity has explained that non-profit entities, such as schools, cannot directly benefit from tax incentives and must, therefore, make use of a third-party who can make use of the tax incentives and pass the savings on to the school district. SolarCity also explains that should the School District lease or own the solar system, it would be considered the "user" of the system by the IRS and subsequently not be eligible for tax incentives. SolarCity explains that the SSAs are designed to comply with the tax incentive requirements. In response to STF 4-16, SolarCity claims that under the American Recovery and Renewal Act ("ARRA") Federal Stimulus program, Arizona has been allocated approximately $30 million for school improvements and school energy efficiency projects.

Q. What are the available tax incentives for solar systems and when do they expire?

A. The following information was provided in the testimony of SolarCity Witness Lyndon Rives (at Q. 12):

- 30% investment tax credit which runs through December 31, 2016 and then is reduced to 10%.
- 50% first year bonus depreciation is part of the American Recovery and Renewal Act of 2009 and it expires on December 31, 2009.

- Modified Accelerated Cost Recovery system ("MACRS") depreciation – currently not scheduled for expiration.

Company witness Rives (at Q. 13) explains that non-profit entities are tax exempt and thus cannot directly benefit from tax incentives. He also states that the IRS rules make it very clear that a transaction such as an SSA is the only way for a non-profit entity to obtain the benefits of solar energy cost effectively because it allows a third party to capitalize on the available tax incentives. (at Q. 14)

Q. As you stated earlier, SolarCity considers an SSA to be a financing arrangement. Please discuss Staff's view of the SSA in regard to financing.

A. **First, it is important to look at a definition of "financing."**

Q. Is there a standard definition for "financing"?

A. Most commonly, financing is used to describe financial methods used to obtain a house or car when not purchased outright. In this context, financing is understood to mean payments for principal and interest with a goal of eventual ownership. The term "financing" would not appear to describe what would occur under an SSA.

Q. Is an SSA a financing vehicle for the schools?

A. No. It does not appear that the SSAs include payments for principal and interest with a goal of eventual ownership. Furthermore, the Application does not characterize the SSA in standard financing terms as a lease with the option to purchase. The Application states that a lease cannot be used for SSAs with non-profits: "Other commercial and residential solar installations can be made financially feasible through a lease; however the tax-code makes this impossible for non-profits (see Exhibit "C")."[5]

[5] Application, at 13, lines 18-19.

Q. Is the SSA a lease whereby SolarCity is leasing the generating equipment to the schools?

A. The SSA has a number of features similar to leasing arrangements, but it is definitely not a lease. Mr. Rives explains that a lease or sale of the system to the nonprofit is not possible: "If a non-profit entity is the lessee or owner of a solar system then they are considered the 'user' of the system, and the IRS will not allow tax credits to be taken for that system." (at Q. 14.)

Q. What do their advertising materials say about what they do?

A. SolarCity has communicated to Staff that it has not prepared any literature to promote SSAs in the Arizona market. It has provided an example of literature used to promote Purchase Power Agreements ("PPAs") in other states. The PPAs advertising literature describes the PPAs in a way that suggests many similarities to the SSAs that are the subject of the Application. The PPA literature also makes reference to the purchase of electricity by the customer.

Q. Who owns the equipment?

A. As stated previously, SolarCity would own the SSA equipment. At certain intervals, the School District could exercise the option to purchase the equipment. The SSA contracts do not result in the eventual ownership of the equipment by the School District unless it exercises the purchase option.

Q. Why is determining whether the SSA can accurately be described as a financing vehicle for the schools important to the question raised by SolarCity's Application?

A. While each case would need to be looked at on an individual basis, were an SSA clearly to provide schools with ownership of solar equipment and were payments made to SolarCity

clearly meant as payment for the solar equipment, one might reasonably conclude that the sale of electricity is merely incidental to the SSA. But, the Agreement is not structured this way.

V. IS SOLARCITY'S PROVISION OF ELECTRICITY INCIDENTAL TO THE PURPOSE OF THE SSAs?

Q. What position does SolarCity take in regard to the significance of the production of electricity by the solar panels that would be installed under an SSA?

A. SolarCity views the production of electricity as being only incidental to the SSA. SolarCity views and characterizes SSAs as financing mechanisms that enable schools to obtain solar panels for the production of electricity. SolarCity claims that the provision of electricity is not its business objective in the SSA arrangement. In fact, SolarCity states that the per-kWh payments specified in the SSA are not payments for electricity, but are instead associated with the equipment and related maintenance thereof. These positions can be seen in the Application as follows:

> While the solar panel systems that Solarcity designs, finances, installs, and operates may be used by the schools to produce electricity, the SSA arrangement in the context of a non-profit entity is fundamentally a financing tool; the fact that a commodity is produced is merely incidental to the purpose of the SSA for a non-profit.[6]
>
> The SSA at issue in this Application makes it clear that Solarcity is in the business of furnishing equipment and ongoing maintenance thereof to the School District and not "electricity for light, fuel, or power." In fact, the specific language of the SSA itself indicates that SolarCity actually never really owns the electricity that its solar equipment creates. The SSA states that, ". . .Purchaser will take title to all electric energy that the System generates from the moment the System produces such energy.. ." SSA, at Exhibit 7, paragraph 4(a) (see Exhibit "B").[7]

[6] Application, at 13, lines 9-12.
[7] Application, at 8, lines 7-8.

> The Customer makes payments to SolarCity for the equipment and related maintenance thereof, and such payments are calculated in relation to the amount of electricity the system produces;[8]

Q. Does Staff agree that the production of electricity is incidental to the SSA?

A. No, not at all. Staff believes that there are two key factors that are important to determining whether the production of electricity is incidental to the SSA: 1) Whether the SSA can accurately be described as merely a means for the schools to finance the acquisition of solar generating equipment, and, 2) whether the agreement primarily provides for the provision of electricity. Staff believes that the answer to the first question is "No;" and that the answer to the second question is "Yes".

Q. Is it clear that the SSA was structured so that the provision of electricity would be the primary purpose of the contract?

A. Yes, I believe that it is. The evidence suggests that the SSAs were intentionally structured to be a contract for the sale of electricity. While SolarCity argues that the agreements are not for the sale of electricity, this is belied by the Solar Energy Industries Association's ("SEIA") Guide to Federal Tax Incentives for Solar Energy, Version 3.0, Released May 21, 2009, which is attached to SolarCity witness' Lyndon Rives testimony. In order to take advantage of the federal tax incentives, the SEIA 1.1.3 states:

> The key when dealing with such an entity [nonprofits] is to sign a contract merely to sell it electricity. Someone who merely buys electricity from solar equipment owned by someone else is not considered to "use" the equipment. Care should be taken to make sure the contract is not characterized by the IRS as a lease of the solar equipment in substance even though it looks in form like a power contract.

[8] Application, at 6, lines 25-27.

Q. Is an SSA a financing vehicle that provides a means for the schools to obtain an ownership interest in solar panels rather than an agreement for the provision of electricity?

A. No. The intent apparently was not to structure it as a financing, because the nonprofit would not be able to obtain the tax benefits then. Again, this is clear from the SEIA discussion at 1.1.3:

> Equipment must be used in the United States to qualify for a commercial solar tax credit. In addition, commercial solar tax credits cannot be claimed on equipment that is "used" by someone who is not subject to U.S. income taxes.
>
> Thus, "use' of the equipment by a school, municipal utility, government agency, charity or other tax-exempt organization (unless the equipment is used in a taxable side business) or in some cases by an electric cooperative will rule out a credit on the equipment. This means that solar equipment cannot be leased to such an entity. A lessee "uses" the equipment it is leasing. However, a lease with a term of less than six months does not count as a "use." The credit is calculated in the year equipment is first put into service. Ineligible use of the equipment at any time during the first five years would cause part of the tax credit claimed to be recaptured.

Thus, the SSAs could not be structured as "mere financing arrangements" or SolarCity would not be eligible for the various tax incentives.

It is clear that, by the terms of the SSAs, SolarCity will own, operate and maintain all of the solar electric generating equipment. What the School District receives under the SSAs is solar-generated electricity at a constant, known, and contractual price.

SolarCity states that the SSAs were set up this way to provide a means for the schools to obtain solar panels with no upfront costs. This may be true. But, being able to capitalize on the various tax incentives meant in turn that the agreement had to be structured as a

sale of electricity. And, that is exactly what the SSA is: an agreement for the sale of electricity.

Various provisions in the agreement support Staff's view of the overall purpose of the Agreement, in addition to the SEIA. The terms of the SSAs provide that SolarCity will own the panels and the associated equipment, and that the schools may never own the solar panels. While the Agreement contains an option to purchase, it cannot be exercised for at least six (6) years, which was again apparently done so that SolarCity would not lose any part of the tax credit to be claimed. What is clear is that the primary benefit or commodity the schools obtain through the SSAs is electricity.

Q. Are there other provisions in the actual agreements and Application that actually support Staff's opinion that the SSAs are primarily a contract to provide electricity?

A. Yes. There are several references to the purchase of electricity at various places in the SSAs and Application. The following provisions support Staff's view:

- The Agreement, (Application Ex. B, hereinafter referred to as "Agreement") at page 4 under the heading Monthly Charges states "...Purchaser *shall purchase all such electric energy* as and when produced by the System..."(Emphasis added).
- Prior to the amendment of August 5, 2009, the Agreement at page 5 under the heading Environmental Attributes and Environmental Incentives stated, "...and *Purchaser's purchase of electricity under this Agreement* does not include Environmental Attributes..."(Emphasis added).
- The Agreement at page 8 under the heading Outages states, "Purchaser shall be permitted to be off line for two (2) full twenty-four (24) hour days (each, a "Scheduled Outage") per calendar year during the Term, during which days

> *Purchaser shall not be obligated to accept or pay for electricity* from the System…"(Emphasis added).

Q. Are there other provisions that support Staff's view that this is not primarily a financing arrangement?

A. If this were a financing arrangement, one would expect that the School Districts would take ownership of the solar panels at some time. However, the SSAs do not provide that the School District will own the solar panels. Instead, the SSAs provide an option for the School District to purchase the panels at the end of years 6 and 10 of the SSA term (year 15) (See Lyndon Rive testimony, Q. 18) and:

> **Option to Purchase**. At the end of the sixth (6th) and tenth (10th) Contract Years and at the end of the Initial Term and each additional Term, so long as Purchaser is not in default under this Agreement, Purchaser may purchase the System from Seller on any such date for a purchase price equal to (i) with respect to an option exercised at the end of the sixth (6th) or tenth (10th) Contract Years or at the end of the Initial Term, the greater of (A) the amount set forth at such time in the Purchase Option Price schedule in Exhibit 1, and (B) the Fair Market Value of the System, and (ii) with respect to an option exercised at the end of an Additional Term, the Fair Market Value of the System. The "Fair Market Value" of the System shall be determined by mutual agreement of Purchaser and Seller; provided, however, if Purchaser and Seller cannot agree to a Fair Market Value within thirty (30) days after Purchaser has exercised its option, the Parties shall select a nationally recognized independent appraiser with experience and expertise in the solar photovoltaic industry to determine the Fair Market Value of the System.[9]

The following provision allows the School Districts to terminate the SSAs at any time. SolarCity would then remove the panels.

> **Removal of System at Expiration** Upon the expiration or earlier termination of this Agreement (provided Purchaser does not exercise its purchase option), Seller shall, at its expense, remove all of its tangible property comprising the System from the Facility on a mutually convenient date but in no event later than ninety (90) days after the

[9] Agreement, application Ex. B at 13.

> expiration of the Term. The Facility shall be returned to its original condition, except for System mounting pads or other support structures, which may be left in place, and ordinary wear and tear. In no case shall Seller's removal of the System affect the integrity of Purchaser's roof, which shall be as leak proof as it was prior to removal of the System.[10]

There is also an Early Termination provision which was discussed by SolarCity witness Lyndon Rives (Q. 19):

> **The SSA contains a table of "termination values"; please explain these and how they differ from the buy-out amounts?** The termination values are what the customer pays if they breach the contract. These amounts allow SolarCity to be made whole if the customer does not live up to their end of the bargain. These amounts are completely different from the buy-out option amounts which can be exercised at the specified times if the customer is in good standing under the SSA.

All of these provisions lend support to the view that the contract was set up as one for the sale of power.

Q. What other contractual provision strongly supports the view that the contract was set up as a sale of electricity?

A. One of the most significant provisions which support Staff's view is the provision which specifies payment on a per-kWh basis.

Q. How do all of these passages relate to the question of determining whether the provision of electricity in the context of the SSAs is incidental to some other function?

A. When all of these provisions are read as a whole, and the intent of the SSA is analyzed, the SSAs are clearly not a means for the School District to primarily finance its ownership of the solar panels. Under SSA terms, SolarCity will own the panels for at least a period of 6 years, done apparently for tax purposes. SolarCity will charge the School District for

[10] Application, Ex. B at 10.

electricity on a per-kWh rate during that time period, so that the Agreement is one for the purchase of power and not the sale or use of equipment. SolarCity may then sell the system to the School District at the Fair Market Value of the System, if the School District elects that option, but only at the end of 6 years, 10 years, or the end of the SSA. Generally, financings, such as the financing of a car or house, include payments of both interest and principal calculated to lead to eventual ownership. One might readily conclude that the per-kWh payments provided for in the SSAs were purposely structured as payments for electricity, rather than as a financing of the solar equipment, so that SolarCity would be eligible for all of the various tax incentives and could pass those through to the School District, which otherwise would not qualify.

Q. What does Staff conclude in regard to whether the provision of electricity in the context of the SSA is incidental in nature?

A. Staff concludes that the provision of electricity under the SSAs is not incidental in nature, but would instead appear to be the primary purpose of the agreements.

VI. OTHER FACTS USED TO DETERMINE PUBLIC SERVICE CORPORATION STATUS

Q. What other facts were considered by Staff?

A. It is my understanding that the *Serv-Yu* factors, which are referred to in SolarCity's Application, identify facts that are useful when analyzing whether an entity is engaging in provision of service as a public service corporation. The factors are as follows:

- What the corporation actually does,
- Dedication to public use,
- Articles of incorporation, authorization, and purposes,
- Dealing with the service of a commodity in which the public has been generally held to have an interest,
- Monopolizing or intending to monopolize the territory with a public service commodity,

- Acceptance of substantially all requests for service,
- Service under contracts and reserving the right to discriminate is not always controlling, and
- Actual or potential competition with other corporations whose business is clothed with public interest.

Q. Did SolarCity list the Serv-Yu factors in its Application?

A. Yes. SolarCity discussed the Serv-Yu factors as evidence in support of a conclusion that it would not be a public service corporation when operating through SSAs.

Q. Does Staff agree with the conclusions SolarCity makes in the Application in regard to application of the Serv-Yu factors?

A. No. Staff's conclusions in regard to application of the Serv-Yu factors are discussed in this section.

Q. Please discuss the relevant facts in the context of the SolarCity SSA.

A. I will address facts that the Commission should consider under each of these prongs. The legal significance of these facts will be discussed in the briefs.

1) <u>What the corporation actually does.</u>

Q. What does Solar City actually do?

A. SolarCity witness Rive states first that "SolarCity is a full-service solar power company that provides design, financing, installation and monitoring services." Testimony at 1. He goes on to state that SolarCity finances, designs, constructs, owns, operates and maintains the solar system for the benefit of the customer." Testimony at 2. While the Application characterizes the SSAs that SolarCity proposes for schools, governments, and non-profits in Arizona as financing arrangements, the agreements as a whole are structured as agreements for the provision of solar electricity. The Application and agreements in fact refer to the sale or purchase of electricity. The Application states, "The Customer

becomes the owner of all electricity produced the moment the electricity is produced.[11]" The payments made by customers to SolarCity are expressed on a per kWh basis. The Application further states, "The Customer makes payments to SolarCity for the equipment and related maintenance thereof, **and such payments are calculated in relation to the amount of electricity the system produces**."[12] [Emphasis added].

SolarCity states the following in its Application:

> However, the solar facility will not fulfill 100% of the customer's electricity needs, which will necessitate the customer remaining connected to the public utility grid in order to compensate for any electricity supply shortfalls. As such, Solarcity is not a "critical link" in the chain of electricity generation nor does it provide service to a large segment of the population. Rather, Solarcity provides an optional service to a limited customer base.[13]

Implicit in this statement is that a SolarCity solar facility meets some part of a customer's electricity needs. While SolarCity may characterize the SSA as a financing arrangement, it is more clearly intended as a vehicle for the customer to obtain lower cost electricity, by offsetting the cost of electricity provided by APS and SRP, with the lower cost electricity produced by SolarCity's solar panels. The customer will pay SolarCity on a per-kWh basis for each kWh produced by the solar panels.

A given electron that would flow through to the school cannot be distinguished as emanating either from the SolarCity solar panel or from the Incumbent Utility unless either the utility or solar panels were meeting 100 percent of the school's load at the time. While there would be some differences between the manner in which SolarCity and the

[11] Application, at 6, lines 20-21.
[12] Application, at 6, lines 25-27.
[13] Application, at 11, lines 20-25.

local utilities, Arizona Public Service and Salt River Project, would provide electricity to the Scottsdale Unified School District, there are a number of similarities. Were the SSAs to function as planned, SolarCity and the Incumbent Utilities both own their respective generation facilities that would provide electricity to the schools and both would bill the schools, at least in part, on a per-kWh basis.

2) <u>Dedication to public use.</u>

Q. Is the provision of solar electricity a service or commodity that the public has an interest in?

A. This factor looks at whether the company is dealing with the service of a commodity in which the public has generally been held to have an interest. Electricity is a commodity in which the public has generally been held to have an interest. When the SSAs are considered in their entirety, it is clear that their fundamental purpose is to provide electricity.

A devotion to public use also means that the public generally, in so far as it is practicable, has the right to enjoy service from the facilities. The SSAs envision the installation of solar panels that would have a physical connection to the grid by way of a bi-directional meter. Electricity generated in excess of the schools' own need at a given time would flow through the grid and could be available for public use. While this event may be infrequent, it would occur at the time of net production of electricity.

In the Application, SolarCity claims that the solar electricity equipment is dedicated to the individual school, non-profit, or government entity and that generation and consumption takes place entirely on the customer's private property on the customer's side of the meter.

SolarCity argues that in this fashion it dedicates SolarCity's private property only to the individual customer's use rather than the public.

However, the class of end-users that SolarCity has chosen to serve constitutes a significant portion of the general public. Nor is it important that the generation equipment is located on the end-user's premises since the generation equipment is not owned by the customer and it utilizes a bidirectional meter that will make excess capacity available to the grid for use by the general public. In response to STF 2.6, SolarCity states:

> Any excess electricity will be physically supplied to the grid in compliance with the applicable utility and/or ACC rules for interconnection. Excess electricity will also be subject to and governed by the applicable ACC net-metering rules.

While SolarCity argues that it does not provide electricity, when the SSA contracts are considered as a whole, along with the SEIA, Staff concludes that they are more than a mere financing mechanism and that they were instead intended as provisions for the furnishing and sale of electricity.

3) <u>Articles of Incorporation, authorization, and purposes.</u>

Q. What does SolarCity's Articles of Incorporation, authorization and purpose provide?

A. SolarCity is incorporated in the State of Delaware and has foreign authority to transact business in Arizona. When filing with the Commission for foreign authority to transact business, SolarCity also filed its Articles of Incorporation from Delaware. SolarCity's Articles of Incorporation from Delaware indicate in Article III that "The purpose of the Corporation is to engage in any lawful act or activity for which corporations may be

organized under General Corporations Law of Delaware." Use of nonspecific language such as this is not uncommon in Articles of Incorporation.

Q. Was any other information related to SolarCity's business included in its Application for Authority to Transact Business in Arizona?

A. Yes, but not much. Arizona's Application for Authority to Transact Business in Arizona includes a question, question number 10, which asks applicants to state "The character of business the foreign corporation initially intends to conduct in Arizona..." SolarCity has responded "Sales and Installation of PV Solar Systems."

None of the incorporating documents reviewed by Staff explicitly state that SolarCity's purpose is to conduct the business of a public service corporation. However, Staff would note that at the same time, the purpose language in the Articles of Incorporation does not preclude SolarCity from conducting the business of a public service corporation either.

4) Dealing with the service of a commodity in which the public has generally been held to have an interest.

Q. Does SolarCity deal with the service of a commodity in which the public has an interest?

A. It would be difficult to conclude that the electricity generated under an SSA is different than electricity provided by the incumbent utilities, and not a commodity in which the general public has been held to have an interest. Certainly, the electricity generated from a SolarCity solar panel will emanate entirely from a renewable source, while electricity supplied from either APS or SRP will likely be generated in part from sources that are non-renewable; however, the physical properties of the electricity from the Incumbent Utility will be the same as that generated from the SolarCity solar panel. As such, energy

provided through a SolarCity SSA is a commodity that is comparable to energy provided by an Incumbent Utility.

Q. What does the Application say on this matter?

A. SolarCity argues that the solar panel systems may be used by schools to produce electricity, but that the SSA is fundamentally a financing tool. SolarCity also states that the production of a commodity (electricity) is merely incidental to the purpose of the SSA for a non-profit.[14]

Q. What is Staff's response to this assertion?

A. When the SSAs are considered in their entirety, it is clear that they are not mere financing instruments but they extend to the provision of electricity. Electricity is a commodity in which the public has generally been held to have an interest.

5) <u>Monopolizing or intending to monopolize the territory with a public service commodity</u>.

Q. Does Staff believe that SolarCity intends to monopolize the territories in which it operates with a public service commodity?

A. No. SolarCity likely does not intend to monopolize a territory with a public service commodity. The Application includes a list of characteristics of SSAs with schools, non-profits, and government agencies. One of the characteristics is: "While the electricity that the solar panel system produces results in a reduction of the customer's overall demand from the electric utility, the customer must remain connected to the utility grid.[15]" It is necessary that customers retain the ability to receive utility service for a number of reasons. Photovoltaic panels do not generate energy when the sun goes down and can

[14] Application. at 13, lines 10-12.
[15] Application, at 7, lines 3-5.

have a reduced ability to generate energy as a result of clouds or other meteorological conditions. Furthermore, photovoltaic panels often produce enough energy to meet only a portion of a customer's total electrical needs. While SolarCity is a for-profit entity and will likely endeavor to obtain as many customers as possible, there is no indication that its business model includes a monopolization of the provision of electricity in any given service territory.

Q. Are there other factors that would reduce the likelihood that SolarCity will monopolize a territory with a public service commodity?

A. Yes. SolarCity may very well have to compete with other SSA providers. The School District's selection of SolarCity as an SSA provider was made through a request-for-proposal process that included multiple applicants.

Q. What does the Application say about this factor?

A. SolarCity states that monopolization is not its intention and that it will be necessary for customers to remain connected to the traditional utility grid because the solar panel system output will not be sufficient to meet the customer's overall energy requirement.[16]

Staff agrees with SolarCity's assertion that it does not intend to achieve, nor will it be likely to obtain, a monopoly position with respect to provision of electricity.

6) **<u>Acceptance of substantially all requests for service.</u>**

[16] Application at 14, lines 3-12.

Q. Does SolarCity intend to accept substantially all requests for service?

A. Based on the Application, SolarCity plans to serve schools, governmental entities, and other non-profits. Staff believes that SolarCity intends to offer its products and services broadly, or publicly, rather than to a limited scope of customers. SolarCity's business plan in Arizona is likely not isolated to the two school applications that are the subject of the Application. SolarCity's website explains that "SolarCity was founded with the mission to help millions of homeowners and businesses adopt solar power, protect themselves from rising electricity costs and protect their environment from polluting power sources."[17] Similarly, the Application says, "The company's mission is to help millions of homeowners, community organizations and businesses adopt solar power by lowering or eliminating the upfront costs."[18] SolarCity's business plan apparently considers widespread expansion. On the matter of growth the website also explains, "Founded in 2006, SolarCity continues to grow, and now serves more than 500 communities in California, Arizona and Oregon. If our services are not available in your area yet, we'll see you soon. We plan to expand to 5-10 additional states in 2010 and be America's leading provider of affordable, clean power for many years to come."[19]

SolarCity's business goal is to serve millions of customers and to subsequently grow to service a substantial part of the public. Furthermore, with respect to SSAs, they will be offered to a substantial portion of the public, e.g. schools, governmental entities and other non-profit entities. In the context of this scope of service, SolarCity's services are affected with a public interest.

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[17] http://www.solarcity.com/media-center/company-profile.aspx.
[18] Application at 2-3.
[19] http://www.solarcity.com/media-center/company-profile.aspx.

Q. What does the Application say in regard to SolarCity's accepting substantially all requests for service?

A. In the Application, SolarCity states that it will not accept every request for service. SolarCity states that it will evaluate each potential customer on the basis of building and property orientation and land use and zoning rights affecting the customer's private property. SolarCity also states that, because the SSA will only be available to a small distinct subset of potential customers, regulation is not appropriate.[20]

Q. What is Staff's response to this assertion?

A. Staff would point out that SolarCity has not provided evidence that the number of potential customers is a small distinct subset of potential customers. To the contrary, SolarCity appears to seek this adjudication for the specific purpose of serving not only other schools but also non-profit entities and government institutions.

7) <u>Service under contracts and reserving the right to discriminate is not always controlling.</u>

Q. Is it Staff's understanding that SolarCity will provide service pursuant to contract?

A. The Application states that SolarCity will not be accepting requests for service from the general public and that SolarCity utilizes very specific and detailed contracts for service.[21] At the same time, the Application also states, "The company's mission is to help millions of homeowners, community organizations and businesses adopt solar power by lowering or eliminating the upfront costs."[22]

[20] Application, at 14, lines 17-26.
[21] Application, at 16, lines 1-3.
[22] Application, at 2-3.

Given that SolarCity's goal is to acquire millions of customers, the number of customers that may actually not qualify for service by SolarCity may be de minimis. In addition, the SSAs utilized by SolarCity are designed to reach a significant portion of the general public: schools, nonprofits and governmental entities.

Q. What does the Application say in regard to the use of contracts to provide service?

A. SolarCity states that it would provide services through very detailed and specific agreements. SolarCity further states that the fact that individual contracts are required is a factor that weighs in favor of finding that the SSA in this instance does not require regulation.[23]

Q. What is Staff's response to this assertion?

A. Staff does not agree that the provision of service under specific agreements is dispositive of this issue. Staff believes that, in the case of the SolarCity SSAs, the possibility of exclusion of service is eclipsed by the wide solicitation that would accompany a business model that intends to provide service to millions and by the nature of the service that SolarCity intends to offer.

8) <u>Actual or potential competition with other corporations whose business is clothed with the public interest.</u>

Q. Will SolarCity compete with other corporations whose business is clothed with the public interest?

A. Yes. SolarCity SSAs would deliver electricity whose physical properties are substantially similar to that of the Incumbent Utilities. Electrons that would enter the service panels of the schools from either the SolarCity solar panel or from the Incumbent Utility would be

[23] Application, at 15, lines 1-7.

indistinguishable. Energy provided from the solar panel would displace energy required from the utility. Energy provided from the solar panel would, therefore, serve as an alternative to energy provided by the Incumbent Utility during the periods of time in which the solar panels are able to produce electricity. While it is apparently not SolarCity's intention to entirely supplant the need for service by an Incumbent Utility, it does appear that service provided by SolarCity through an SSA would compete with service provided by the Incumbent Utility during periods of time in which the solar panels are able to produce electricity.

Q. Are APS and SRP entities whose business is clothed with the public interest?

A. Yes.

Q. Did the school district perform a cost-benefit analysis to assess whether it would realize savings through a SolarCity SSA?

A. Yes. Furthermore, it is Staff's belief that performance of a cost-benefit analysis is an indication that the energy provided by SolarCity through SSAs would be an alternative to energy provided by the Incumbent Utilities and that competition would exist between SolarCity and the Incumbent Utilities as providers of energy during the hours that solar energy is capable of being produced.

Q. What does the Application say about whether SolarCity will compete with other utilities?

A. SolarCity states that it would provide a fundamentally different service than Incumbent Utilities as it does not propose to provide its customers with baseload electricity.

Q. What is Staff's response to this assertion?

A. Staff agrees that it will be necessary for SSA customers to retain service by their Incumbent Utilities. Staff agrees that customers would likely need to receive the bulk of their energy needs from their Incumbent Utilities. However, SolarCity's assertion that baseload electricity would be provided by the Incumbent Utility is an artificial distinction and really has no bearing on the question of whether SolarCity would be competing against the Incumbent Utilities. An electron entering into the electric panel at a school would be indistinguishable from an electron entering from the Incumbent Utility. Whether a given electron is generated by baseload or non-baseload facilities has little meaning as it is impossible to associate provided electricity with use by a given appliance at a school. Because the electrons themselves are indistinguishable, and because increased provision of energy from the solar panels would offset the provision of energy from the Incumbent Utility, SolarCity would compete with Incumbent Utilities.

Q. Has Staff compared some of the features that typically characterize the service of incumbent electric utilities compared to those SolarCity?

A. Yes.

Q. Please list some of these features that Staff believes are characteristics of the incumbent Utilities that are in common with SolarCity.

A. Both provide electricity from generation sources. Both sell electricity to retail customers on a per kWh basis. Both own, install and maintain their own facilities. Both install and read meters for use in billing customer's usage.

Q. Does Staff draw any conclusions from these similar characteristics?

A. Yes. Incumbent electric utilities and SolarCity SSAs have many of the same characteristics. Therefore, Staff believes that these facts support the conclusion that SolarCity would be a public service corporation in its provision of service through SSAs.

VII. IMPACT OF PROVIDING SERVICE AT WHOLESALE

Q. Are wholesale providers of electricity not public service corporations?

A. Not always.

Q. Is this example useful in consideration of the SolarCity Application?

A. Yes. Apparently SRP has represented to SolarCity that, if this transaction were structured as a wholesale sale of power, the Commission would lose its jurisdiction over the SSA. SolarCity has provided a proposed agreement it has been negotiating with SRP to the Staff in response to STF 7.3. In response to STF 7.6 (What governmental agencies does SolarCity believe would have jurisdiction over such an arrangement?) SolarCity states:

> The Federal Energy Regulatory Commission ("FERC") has jurisdiction over the sale of electric energy from SolarCity to SRP pursuant to Section 201 of the Federal Power Act ("FPA"). The solar panel system ("Facility") will be a "qualifying small power production facility" ("QF") as defined in Section 3(17)(C) of the FPA and Section 292.204 of the FERC's regulations under the Public Utility Regulatory Policies Act of 1978 ("PURPA"). Since the Facility will be a QF with a capacity of 20 MW or less, Solar City will be largely exempt from the Federal Power Act.

Q. Could SolarCity enter into an agreement with an Incumbent Utility to provide energy at wholesale to the Incumbent Utility so that it might be resold to schools, non-profits and governments?

A. As discussed, SolarCity is negotiating such an agreement with SRP. Staff is evaluating the proposed agreement between SRP and SolarCity and the School District at this time. Staff has not formulated an opinion on this question at this time.

VIII. OWNERSHIP OF RENEWABLE ENERGY CREDITS

Q. What are Renewable Energy Credits?

A. A "Renewable Energy Credit" ("REC") is a kind of accounting unit created to track kWh derived from an Eligible Renewable Energy Resource or kWh equivalent of Conventional Energy Resources displaced by Distributed Renewable Energy Resources as described in Arizona Administrative Code ("A.A.C.") Title 14, Article 18. The Commission's Renewable Energy Standard and Tariff rules require that certain public service corporations serving retail electric load in Arizona obtain RECs from Distributed Renewable Energy Resources. Distributed Renewable Energy Resources are applications of certain defined technologies that are located at a customer's premises and that displace Conventional Energy Resources that would otherwise be used to provide electricity to Arizona customers. An accounting of RECs is used to determine if a given utility has met the Distributed Renewable Energy Resources requirements contained in the Renewable Energy Standard and Tariff rules.

Q. How are RECs relevant to SolarCity's Application?

A. The SSAs between SolarCity and the Scottsdale Unified School District for Desert Mountain High School and Coronado High School specify that the Environmental Incentives and Environmental Attributes accrue to the Purchaser (Scottsdale Unified

School District). RECs are Environmental Attributes. This characteristic of the SSAs was set forth through the filing of an Amended Exhibit by SolarCity on August 5, 2009. It is necessary that the RECs accrue to the Purchaser rather than SolarCity in order for the Purchaser to transfer the RECs to Arizona Public Service Company ("APS") in order to satisfy a requirement of APS' Renewable Energy Standard and Tariff. APS' Renewable Energy Standard and Tariff Implementation Plan requires that APS receive RECs when it makes incentive payments for distributed generation. That requirement from the APS Renewable Energy Standard and Tariff Implementation Plan is as follows:

> 4.5 REC Ownership
> As part of APS's payment of a UFI, the utility will be given complete and irrevocable ownership of all RECs expected from system production for 20 years, the expected or planned effective life of the DE system. APS's payment of a PBI will assure APS complete and irrevocable ownership of the REC for the full duration of the PBI agreement. Renewable Energy Credits provided to APS as a result of a DE system installation will be applied towards APS' RES targets.

In a July 23, 2009 letter to the Docket, APS wrote the following on the matter of the need for APS to obtain ownership of RECs when an incentive payment is made for a distributed energy system:

> The mechanism through which APS pays an incentive to its customer, pursuant to the Renewable Energy Standard Rules, is an agreement with its customer that assures that the customer will provide all environmental attributes to the Company (APS) in exchange for the incentive.

Q. How do the Desert Mountain and Coronado contracts treat RECs?

A. The SSA contracts, as amended, designate the RECs as accruing to the Purchaser (Scottsdale Unified School District). This allows the RECs to be transferred to APS from the Purchaser and facilitates incentive payments from APS. As explained by SolarCity

witness Lyndon Rive (testimony at Q. 20), in exchange, the utility will pay SolarCity any applicable incentive rebate payments.

IX. OTHER CONSIDERATIONS

A. Tax Issues Raised by SolarCity

Q. What is Staff's comment about Item 10 of Lyndon Rive's testimony that includes the following question and response:

> **What services does SolarCity furnish under an SSA?**
> SolarCity finances, designs, constructs, owns, operates and maintains the solar system for the benefit of the customer.

A. This is likely true. But, it is also true that in order to use the available tax incentives, the SSA must be structured as a sale of electricity. As such, the Commission's oversight is directly implicated. SolarCity simply cannot represent the SSA to be a financing to achieve a certain result with the Commission, and then turn around and represent the same SSA as a sale of electricity to achieve yet a different result with the IRS. To be able to obtain the significant tax incentives, the parties' had to structure their agreement as a sale of electricity. Thus, to obtain one benefit, SolarCity may have given up another.

Q. What is Staff's comment about Item 15 of Lyndon Rive's testimony that includes the following question and response:

> **What is the primary purpose of an SSA?**
> The primary purpose of an SSA is to provide financing for the adoption of a solar system with zero up-front capital costs by allowing a third party to capitalize on available Federal tax incentives that would otherwise be lost.

A. Again, this is probably true to some extent. But, to get the tax benefits, they structured the agreement as one for the sale of electricity.

B. Impact of Regulation in Arizona

Q. SolarCity Witness Lyndon Rive expresses concern about the impact of regulation on the development of the solar industry in Arizona. What is Staff's response to this concern.

A. Item 25 from Lyndon Rive's testimony includes the following question and response:

> **What would be the likely effect of industry regulation in AZ on SolarCity and on the participation of 3rd party investors?**
> Regulation is likely to drive out numerous, if not all, solar providers from the State of Arizona. SolarCity's profits and its investor's returns would suffer causing them to look to other less expensive States for solar investment. The bottom line is that the customer, if they had any options left, would pay more and have far fewer providers to choose from. It would be devastating for the advancement of solar in Arizona.

It is speculative to say what other companies would do. More importantly, light-handed regulation is likely to have only nominal costs that would not produce negative results. Staff believes that regulation could be applied in this instance to encourage the development of this nascent industry.

Q. Does Staff believe it is possible to structure meaningful oversight while at the same time to encourage the development of this nascent industry?

A. Yes. As discussed below, Staff is recommending that minimal regulation be applied to the SSAs used by SolarCity, if the Commission were to conclude that SolarCity is a public service corporation.

Q. What responses does Staff have in regard to the testimony of Scottsdale Unified School District witness David Peterson?

A. Staff disagrees only with portions of the discussion contained in question and answer number 13 of David Peterson's testimony. Staff agrees with all other information contained in David Peterson's testimony.

Q. What information is included question and answer 13?

A. The question and answer are as follows:

> **Does the District feel that the proposed SSA arrangement requires oversight from the Commission to protect the Districts interests?**
> No. If we owned the system ourselves we would not be regulated. Our public interest is adequately protected by the RFP process and market competition. Regulation is likely against the public interest because it would increase costs and therefore decrease savings. Future responses would be limited due to regulation and prices quoted would be at a higher price due to the costs associated with regulation.

Q. On what parts of this question and answer would Staff comment?

A. Staff has not concluded that regulation would increase the costs of SSAs in a significant way. It is possible that a form of light-handed regulation could be structured with only nominal costs to SSA providers.

X. COMMISSION RULES AS APPLIED TO SOLAR CITY

Q. Does the Commission regulate all utilities in the same fashion and to the same degree?

A. No. The Commission regulates a variety of utility industries. They include electric utilities, gas utilities, water utilities, telephone utilities, and sewer utilities. Within each industry, there are different kinds of providers and different kinds of services that are offered. In the typical context, a public service corporation is engaged in providing a commodity that is fundamental to the public health and welfare, such as electric, gas, water, sewer, or telecommunications service. The public service corporation invests in the plant and facilities necessary to provide service, and often provides "bundled" services. Typically, a public service corporation operates in a monopoly context. However, not all public service corporations share each of these characteristics. For example, many competitive telecommunications providers such as resellers, competitive local exchange providers, Coin Operated Pay Telephones, and others are subject to regulation. These various telecommunications entities operate in a competitive context, yet are still subject to some level of Commission regulation.

Q. Could the Commission regulate SolarCity in a stream-lined fashion?

A. Yes.

Q. What method does Staff recommend that the Commission use for regulation of SolarCity should the Commission determine that SolarCity is functioning as a public service corporation when providing solar service to Arizona schools, governments, and non-profit entities?

A. Staff recommends that light-handed regulation apply to SolarCity in its provision of SSAs as Staff concludes that it would be functioning as a public service corporation under these circumstances, but would be providing service in a way that is different from traditional electric utilities. Although this proceeding is not the appropriate vehicle for developing the details of an appropriately light-handed regulatory treatment, certain examples from the telecommunications industry provide helpful starting points.

Q. Under Arizona statutes, should a public service company obtain a CC&N prior to operation?

A. Yes.

Q. Is Staff recommending that SolarCity receive a CC&N prior to operation?

A. No. However, SolarCity should apply for a CC&N. SolarCity would be allowed to operate pursuant to Commission-approved contracts until the Commission completes its review of the CC&N application.

Q. Is it Staff's view that SolarCity should be subject to other rules and regulations that apply to traditional electric utilities if found to be a public service corporation when providing service to schools, non-profits, and governments under SSAs?

A. It is not Staff's intention that every rule and regulation that applies to traditional electric utilities would also apply to SolarCity.

The Commission may consider waivers to rules as it deems appropriate in this matter should the Commission choose to do so.

Q. Would all of the energy supplied under an SSA be generated from renewable resources?

A. Yes.

Q. What is the purpose of the REST rules?

A. The REST rules promote the use of renewable energy, such as sun and wind power, in place of sources that are non-renewable in nature, such as natural gas, coal, oil, and uranium.

Q. Since SolarCity provides only renewable energy through SSAs, should the REST rules apply to SolarCity in its operation of SSAs?

A. No. Application of the REST rules to SolarCity would not result in the displacement of energy from non-renewable sources.

Q. Is Staff recommending that SolarCity be granted a waiver of the REST rules for its SSA operations?

A. If the Commission is inclined to grant a waiver of the REST rules for SolarCity's SSA operations, Staff is not opposed to such a waiver of the REST rules.

Q. Could there be other rules for which SolarCity should be granted a waiver?

A. Yes. SolarCity can recommend waivers of other rules within the CC&N proceeding.

Q. In the framework of light-handed regulation, will the Commission have the ability to oversee and account for the corresponding production of energy?

A. The Commission would have the ability to manage the proliferation of SSAs indirectly through the Commission's oversight of Renewable Energy Standard and Tariff ("REST") implementation plans. The SSAs proposed in the Application are dependent on incentives provided from incumbent utilities. In the case of Desert Mountain High School, incentives would be provided by APS. These incentives are made possible by APS' REST implementation plan. APS' REST implementation plan is filed annually with the Commission for its approval. The Commission may make use of the opportunity that arises with the annual filing of REST implementation plans to make adjustments to REST budgets, incentive levels, and to add or adjust provisions that relate to incentives made for distributed generation such as the SSAs. In this way the Commission may indirectly oversee and account for solar energy production through the SSAs.

Q. Why would the Energy Production of SSAs need to be taken into account?

A. Because this may impact the overall need for the Incumbent Utility's energy and the price authorized by the Commission for that energy, the Commission will likely want to be able to obtain accurate measures of its availability and use.

XI. SUMMARY OF STAFF CONCLUSIONS

Q. Please summarize Staff's conclusions?

A. Based upon the evidence, Staff's conclusions are as follows:

- Through its contracts with nonprofits, schools and governmental entities, SolarCity would provide electricity to the public for a profit.

- Staff believes that the SSAs have been structured as sales of electricity so that SolarCity and the schools could take advantage of federal tax incentives, which the schools otherwise did not qualify for.
- The provisions of the SSAs as a whole support Staff's position that the contracts are primarily for the sale of electricity to the schools.
- The contracts provide for the customer to pay SolarCity under the SSAs on a kWh basis.
- The facilities installed by SolarCity will be owned, operated, and maintained by SolarCity throughout the life of the contract unless the schools exercise an option to purchase the system at years 6 or 10 of the contract or at the end of the SSA's life, year 15 of the contract.
- The public has an interest in SolarCity's facilities in that the facilities are dedicated to supplying electricity to the public. In addition electricity generated in excess of the schools' own need at a given time would flow through the grid and could be available for public use.
- The electricity produced under an SSA is no different than electricity provided by the Incumbent Utilities, a commodity in which the general public has been held to have an interest.
- While SolarCity will provide its services through individual contract, this is not dispositive of the issue of whether it is functioning as a public utility. It is more the nature of the services it offers, and the fact that it offers its services to the public.
- SolarCity intends to serve a substantial portion of the public. SolarCity will compete with other public service corporations.

XII. SUMMARY OF STAFF RECOMMENDATIONS

Q. Please summarize Staff's recommendations.

A. Staff recommends the following:

- That should the Commission find that SolarCity is acting as a public service corporation, the Commission continue to require SolarCity to provide its special contracts or a tariff with a standard contract to the Commission for review and approval until the Commission approved a CC&N for SolarCity.
- That should the Commission find that SolarCity is acting as a public service corporation, SolarCity should be required to apply for a CC&N.
- That the Commission's findings in this matter apply only to SolarCity's SSAs for schools, nonprofits and governmental entities. Determinations on other contracts or sales should be made upon separate application.

Q. Does this conclude your Direct Testimony?

A. Yes, it does.

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thus hedging against future utility rate increases. Thus, if there are any rate increases over the next 15 years, it is a certainty that the SSA will provide the schools with lower long-term costs.

APS 1.13

In your Application, you note that the "solar panel systems that SolarCity designs, finances, installs and operates may be used by the schools to produce electricity, the SSA arrangement in the context of a non-profit entity is fundamentally a financing tool; the fact that a commodity is produced is merely incidental to the purpose of the SSA for a non-profit" (pg.13). In characterizing the nature of SolarCity's business, what percentage is comprised of design of solar systems? Financing solar systems? Installing solar systems? Operating solar systems? Is the production of solar energy the ultimate purpose for all these components?

SolarCity provides total package of the above services. Thus it is not possible or useful to attempt to allocate percentages to the variety of services provided. Ultimately, the purpose of these services is to make it financially feasible for the customer to utilize solar energy.

APS 1.14

Is SolarCity proposing any mechanisms to allow utilities to recover fixed costs associated with the delivery of electric energy that would no longer be collected due to a large quantity of energy being generated behind the meter? If so, please describe how SolarCity would propose that utilities could be compensated for declining energy sales due to the displacement.

No. SolarCity believes that this question is well outside the scope of these proceedings and has been addressed by the commission in other previous dockets regarding the RES targets.

APS 1.15

Solar resources on a large scale will need to be taken into consideration for a utility's resource planning purposes. Will SolarCity agree to provide the Commission and/or the utilities with forecast information to facilitate near-term and long-term resource planning? If so, what types of information will SolarCity provide and what type of reporting mechanism does SolarCity propose?

Yes. SolarCity is willing to work with APS to determine and provide information necessary for APS's resource planning.

PREPARED DIRECT TESTIMONY
OF
SUNPOWER CORPORATION WITNESS
H.M. IRVIN, III.
IN
DOCKET NO. E-20690A-09-0346

EXHIBIT
SunPower 1
ADMITTED

Q.1 Please state your name, business address and position with SunPower Corporation ("SunPower").

A. 1 I am H. M. Irvin, III. My business address is 1414 Harbour Way South, Richmond, California. I serve as the Managing Director of Structured Finance for SunPower.

Q.2 Please describe SunPower's business interests and activities in general.

A.2 A comprehensive description of SunPower's business interests and activities is set forth in Section II of SunPower's August 4, 2009 Application for Leave to Intervene in this proceeding. Accordingly, and in the interest of brevity, I will not repeat that description in detail at this time, and instead will provide the following summary.

SunPower is a manufacturer of the world's highest efficiency photovoltaic solar energy cells and modules.

We sell our cells and modules into domestic and international markets, for application in residential, commercial, governmental and utility settings.

Our company is capable of project development, including site acquisition, system financing, system design and engineering, equipment procurement, system construction, system commissioning and testing, long-term system maintenance and warranty fulfillment.

We sell our equipment (i) directly to end-users through a network of distributors and dealers, and (ii) to third-party owners who invest in large projects supported by power purchase agreements, under which these third-party owners (or investors) own the equipment for an extended period of time through an outright purchase, a partnership or a lease arrangement.

Q.3 Please describe your areas of responsibility in connection with your position at SunPower.

A.3 I procure investment capital for the solar electricity generating stations that SunPower builds in the United States and around the world.

In the United States, this specifically involves procuring investors who can fully utilize the tax benefits (IRS Section 48 "tax credits" and accelerated depreciation) that are

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employed as public policy incentives for renewable energy installations. The solar energy investment market relies on these investors, who in turn rely on highly predictable project cash flows (in addition to the tax attributes mentioned above) to obtain their return on investment.

My job is negotiate binding agreements with our customers (site owners or hosts) who are interested in procuring the benefits of solar generating equipment for their business. I label this activity "origination."

When those negotiations are complete, I then negotiate binding agreements with the previously mentioned third-party investors who are willing to own the equipment for an extended period of time through an outright purchase, a partnership, or a lease arrangement. I label this activity "placement."

Typical hosts include SunPower customers such as WalMart, Toyota, Target, Lowes, the US Air Force, the San Jose Technology Museum, and more than 400 others.

Typical investors include Wells Fargo Bank, Morgan Stanley, General Electric, Integrys and potentially dozens of other commercial banks, investment banks, commercial finance companies, or utilities with tax equity and expertise.

Q.4 Please describe the products and services that SunPower currently offers or intends to offer customers in Arizona.

A.4 In Arizona, we presently have a number of dealers who install our equipment at residential and small commercial sites.

We also intend to originate transactions with larger commercial and utility customers, using the third-party ownership structure previously described, so long as the regulatory and market environment in Arizona makes that feasible. I will discuss this point in more detail later in my testimony.

Q.5 I notice that in your previous responses to my questions, you have referred to commercial and residential customers as being among SunPower's market prospects in Arizona. Does the Company believe that it's activities in that regard conceivably could be impacted by a Commission decision in this Track 2 proceeding?

A.5 Yes. Although both (i) the July 2, 2009 SolarCity Corporation ("SolarCity") Application and (ii) the Commission's July 22, 2009 Procedural Order in this proceeding pose the central question to be resolved as whether SolarCity is a "public service corporation" under Arizona law when it enters into Solar Service Agreements with schools, non-profits and governmental entities, SunPower believes (i) that the scope of the ultimate underlying inquiry in reality is broader; and, (ii) that the question to be resolved should be stated differently, at least as to entities who conduct business like SunPower.

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Q.6 Please be more specific as to the Company's position in that regard.

A.6 There are several aspects as to the Company's position, which was developed following consultation with legal counsel. First, the Company does not believe that the identity or nature of the customer (or host) will determine how the ultimate underlying inquiry is to be resolved. Thus, it does not matter if the customer (or host) is a school, non-profit, governmental, commercial or residential entity. Second, the question of whether or not SolarCity, SunPower or any other entity offering solar products and/or services is a "public service corporation" under Arizona law is not the end of the inquiry. Third, and most importantly, in the event the solar services and products of a particular provider should be found to be a "public service corporation," then the inquiry must progress to an ultimate determination of whether the circumstances surrounding the business activities of that entity are of such a nature as to require or warrant regulation by the Commission. In that regard, SunPower believes that at the end of Track 2 in this proceeding, the Commission will conclude that (i) even if SunPower and other similarly situated solar products and/or service providers might technically fit the definition of a "public service corporation" under the Arizona Constitution, (ii) the circumstances surrounding their respective business activities are such that they neither require nor warrant regulation by the Commission.

My testimony in this proceeding, as well as that of SunPower witness Kevin Fox, is designed to address this last point, and to provide an evidentiary record which would support a Commission decision that regulation of SunPower and others similarly situated is unnecessary and inappropriate.

Q.7 Does SunPower, its customers (or hosts) or the third-party investors with whom it does business in any manner "dedicate to the public" the equipment and services which are provided?

A.7 No. The equipment and services in question are customer- (or host-) specific, and are designed to meet a particular need at a particular location. Each transaction has its own unique requirements, attributes and benefits for the contracting parties in question. There is not any dedication or commitment to the general public or a general public use.

Q.8 Does SunPower desire to serve all of the customers served by those electric utilities in whose service areas SunPower seeks to do business?

A.8 Not at all. As I have previously indicated, SunPower's solar products and services are customer- (or host-) specific, and typically they are designed to serve only a portion of the customer's (or host's) needs for electric service. In that regard, many electric utility customers have no need or desire for the types of products and services that SunPower offers, or their physical and/or economic circumstances are such that our products and services are not feasible in their particular circumstances.

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Q.9 Does SunPower believe that its current and contemplated business activities in Arizona are of such a nature as to represent actual or potential competition with local electrical utilities who are regulated by the Commission?

A.9 No, quite the contrary. Given the Commission's adoption of the Renewable Energy Standard Tariff ("REST") regulations, and the REST compliance obligations resulting from such adoption, SunPower believes its activities are complimentary and supplemental to the efforts of electric utilities subject to the REST regulations to satisfy and exceed their respective REST obligations. The economic reality is that there are only so many dollars available to a given electric utility to facilitate the utilization of solar energy within its service area, whether the technology be distributed generation or central station generation in nature. We believe that the supplemental provision of solar products and services by providers such as SunPower will, in effect, enable the electric utilities in question to experience broader utilization of solar technology within their respective service areas, thereby "stretching" the solar dollar and advancing the role of solar energy within the state of Arizona's energy future and lifestyle.

Q.10 Please describe the manner in which SunPower's business arrangement with its customer (or host) interfaces with or affects the customer's (or host's) relationship with the local electric utility in question.

A.10 The equipment SunPower sells and the systems it intends to develop and build all operate in a "grid-connected" mode, and are synchronized with grid voltage. This applies to the smallest residential installation now being installed, and to the largest proposed projects for our commercial, governmental, and utility customers.

SunPower solar systems do not eliminate utility customers for or relationships with the local electric utility, and can be instrumental in enabling the electric utility industry to reach state and national goals of increased renewable power generation, carbon reduction and reduced reliance on fossil fuel sources.

Q.11 Please describe the criteria and procedures SunPower utilizes in evaluating requests for service, and in deciding when to enter into a contractual relationship with a customer (or host).

A.11 Previously in this testimony, I used the terms "origination" and "placement" when describing the areas of responsibility associated with my position at SunPower. A reference to those terms is also appropriate in responding to this question.

In the "origination" phase, hosts are evaluated on several fronts. These include site adequacy, shading, orientation to due south, available space, current electricity usage, roof condition or soil conditions, ease of installation, etc. Hosts are also evaluated for their credit rating and ability to pay for our services.

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In the "placement" phase, investors for the third-party ownership model are evaluated on the basis of their experience in the solar market, available tax capacity, and the quality of their investment team and external advisors.

Depending upon the results of the evaluation(s), negotiations directed towards a firm contractual relationship may or may not proceed. Not all prospective customers (or hosts) have suitable circumstances for SunPower's solar products and services. Moreover, even when negotiations commence, they do not necessarily result in a contractual relationship. In that regard, it is important to remember that SunPower competes with other providers of solar products and services, and that that competition can be quite vigorous. So, the ultimate decision as to whether or not to enter into a contractual relationship with a prospective customer (or host) or a third-party financing entity is by no means solely within the discretion of SunPower.

Q.12 Does SunPower use third-party financing in connection with its business activities in other states?

A.12 Yes.

Q.13 If so, why and in what manner?

A.13 We employ a third-party ownership model in several states, with our commercial, governmental and utility customers (or hosts).

In the case of governmental and other non-profit entities, a third-party ownership model allows those organizations to access the benefits of solar generating equipment at attractive rates because the third-party can utilize tax benefits that are unavailable to a non-profit customer (or host).

In the case of for-profit entities, the third-party ownership model allows those organizations with insufficient tax capacity (or a desire to apply that capacity to other investments or business activities) to access the benefits of solar generating equipment at attractive rates.

In non-profit and for-profit situations alike, the third-party financing model preserves the cash and investment capital of the customer (or host) so that it can be employed in the primary activities of the organization.

Q.14 Does SunPower contemplate using third-party financing in connection with its business activities in Arizona?

A.14 Yes, so long as the legal and regulatory environment make such an approach feasible.

At its most fundamental level of analysis, a third-party financing model for solar is akin to a home mortgage or an automobile lease – the end customer (or host) enjoys the use of

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equipment and the various benefits of access to the solar equivalent of a home or car without being the owner or having to provide 100% of the purchase price of the asset up front. This represents a significant "plus" for many entities and individuals who would like to use solar energy technology.

In addition, allowing a regulatory environment permissive of third party financing structures will bring the benefits of renewable energy generation and services to the broadest group of Arizona citizens and businesses – and do so more quickly – than a reliance on direct purchase or self-financing arrangements.

This is in part because these facilities generate favorable tax attributes that investors value and can utilize, and in part because the balance sheets and purchasing capacity of Arizona citizens and businesses are limited in quantity and scope, as they are anywhere else in the world.

In doing so we further the public policy goals of the state and the nation in reducing emissions of green house gasses and reducing our reliance on foreign sources of energy or fossil fuel based generation.

Q.15 Does SunPower believe that requiring such third-party financing arrangements and/or entities to be subject to regulation by the Commission would discourage, if not preclude, the use of third-party financing in Arizona?

A.15 Yes.

Q.16 Is your answer the same, regardless of whether the form of regulation in question (i) required obtaining a certificate of convenience and necessity from the Commission, or (ii) only required that the service provider or financing contracts and rate(s) be subject to review and approval by the Commission as "special contracts"?

A.16 Yes.

Q.17 Why?

A.17 The mechanics of a project financing rely on a degree of certainty about the stream of future cash flows. Again, think of a fixed rate mortgage or a car lease – the payment stream to the owner/investor is fixed on the front-end of the transaction, and the decision as to whether to invest funds available for investing in that manner is based upon that foreknowledge and certainty.

A regulatory situation where such contracts for services (electricity, maintenance, output monitoring, warranty of system components) either (i) would be subject to the requirement of prior review and approval by the Commission or (ii) could subsequently be "reopened" by the Commission and subject to repricing and/or restructuring would

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have a chilling effect on the willingness of financial investors to participate in the arrangement.

The perceived risk of having contractual terms altered – terms freely entered into between willing participants under no compulsion to trade – by a regulatory party years after contract initiation is commercially unacceptable. In that regard, it is imperative to remember that these "tax equity" investors have opportunities to participate in other investment markets, such as low-income housing, heritage buildings, economic enterprise zones, and other renewable energy projects like wind, biomass, and landfill gas. They also have the option of renewable energy projects in other states where the prospect or fact of such regulation does not exist.

The cost to induce a financier to take such risk would be reflected in their required rate of return on the investment -- exactly as commercial debt trades at a premium in relation to US Treasury bonds -- and would be so high as to make the transaction infeasible.

Q.18 Please describe how SunPower's provider agreements enable the customer (or host site) to protect itself as to both its economic and service interests, so that there is no need for the Commission to perform a regulatory oversight role.

A.18 As previously noted, the customer (or host) is not compelled to enter into a transaction with SunPower or a third-party financier, and it also is accorded the customary contractual protections in the event SunPower or the investor fails to perform to industry or contractual standards.

The customer (or host) contracts typically include termination rights (for a fee), the ability to set off payments in the event of dispute, arbitration or other dispute resolution procedures, representations and warranties of the Parties, and default provisions with opportunity for "cure" periods.

This type of arrangement is widely utilized in other states and jurisdictions; and, there is a body of industry experts, trade associations, and professional service providers (legal, accounting, tax) who can advise and assist customers (or hosts) in their determinations and negotiations with providers such as SunPower.

Q.19 Based upon the testimony provided by or on behalf of SunPower in this proceeding, does SunPower believe that the Commission can and should issue a decision either (i) concluding that SunPower is not a "public service corporation" under Arizona law; or, alternatively, (ii) concluding that, if SunPower meets the definition of a "public service corporation" under Arizona law, then it's circumstances and operating practices are not such as to require regulation of either SunPower or its third-party financing entities by the Commission?

A.19 Yes, that is the opinion of the company, based upon consultation with counsel.

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Q.20 Does that complete your prepared Direct Testimony?

A.20 Yes, it does.

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PREPARED DIRECT TESTIMONY
OF
SUNPOWER CORPORATION WITNESS
KEVIN T. FOX
IN
DOCKET NO. E-20690A-09-0346

EXHIBIT
SunPower 2
ADMITTED

Q1: Please state your name, profession, business address and education.

A1: My name is Kevin T. Fox. I am a partner at the law firm Keyes & Fox, LLP. My business address is 5727 Keith Avenue, Oakland, California 94618. I hold a B.S. degree in Environmental Policy Analysis and Planning with an emphasis on Energy Policy from the University of California, Davis. I also hold a J.D. degree from the University of California, Berkeley. Further details about my background are included in the attached resume.

Q2: On whose behalf are you testifying?

A2: I am testifying as a representative of the Interstate Renewable Energy Council ("IREC") on behalf of the Sun Power Corporation. My firm, Keyes & Fox, LLP, represents IREC in state workshops, proceedings and rulemakings focused on interconnection, net metering and financing of distributed renewable energy technologies such as solar photovoltaics ("PV"). My firm has represented IREC in over 29 proceedings before over twenty state public utility commissions during the past two years.

Q3: Have you appeared before this Commission on other occasions?

A3: Yes. I represented IREC in the Commission's net metering rulemaking, Docket No. RE-00000A-07-0608, and I represent IREC in Docket No. E-20633A-08-0513, The Application of the Solar Alliance for a Declaratory Order That Providers of Certain Solar Service Agreements Would Not Be Public Service Corporations.

Q4: Do you have professional experience drafting and negotiating solar service agreements?

A4: Yes. Prior to the formation of my current law firm, Keyes & Fox, LLP, I worked in the Energy and Clean Technology Practice of Wilson Sonsini Goodrich & Rosati P.C.. Prior to that, I worked in the Renewable Energy practice group at Stoel Rives LLP. While at those firms, my practice was divided between energy regulatory work and project finance and development work. With regard to the latter, I had an opportunity to draft and negotiate a number of solar service agreements (SSAs) and power purchase agreements (PPAs), which I will refer to in this testimony as SSAs. I also had the opportunity to review a number of SSA agreements on behalf of investors interested in investing in companies that provide SSAs.

Q5: Please describe your testimony.

A5: There are a number of important issues that I address in my testimony. I begin by explaining IREC's interest in SSAs and its background in addressing regulatory issues related to SSA provision in other states. I also explain why I believe it is important for the

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Commission to resolve this issue in Arizona at this time. Next, I discuss why SSAs are an important financing tool for investing in solar generation and why I believe regulation of SSA providers would have a detrimental impact on solar development in Arizona. I conclude my testimony with a discussion of why I believe it is necessary for SSA services to be priced on a per-kilowatt-hour basis.

Q6: You mentioned that you represent IREC in state proceedings focused on financing of renewable distributed technologies such as PV. In which states has IREC been active on the issue of regulation of SSA providers?

A6: I have personally represented IREC in regulatory proceedings addressing this issue in Oregon, Arizona and Massachusetts. Other attorneys at my firm have worked on this issue on behalf of IREC in Nevada, Colorado and New Mexico.

Q7: Why has IREC decided to focus on regulation of SSAs in these states?

A7: IREC directs its efforts where they will have the greatest potential to expand market opportunities for PV and other renewable distributed generation. Typically, that means focusing resources on states that have put in place key policy support elements which foster growth for onsite renewable generation. Key policy support elements include net metering rules, interconnection procedures, and incentive programs that close the gap between solar generation costs and prevailing electric utility rates. Once these key policy support elements are in place, IREC believes it is important to ensure that customers have a full range of financing methods available to facilitate investment in solar generation.

Q8: How does IREC determine which states have put in place key policy support elements to support PV market growth?

A8: Perhaps the clearest way to determine which markets have moved key policy support elements in place is by looking at which states have the largest amount of installed PV. Table 1 contains data collected and published by IREC. It ranks the top 10 states based on cumulative installed grid-connected PV capacity through 2008. With the exception of New Mexico, all of the states where IREC has focused its efforts in addressing the regulatory status of SSA providers, including Arizona, appear on this list.

Table 1

	MW(DC)	Market Share
1. California	528	67%
2. New Jersey	70	9%
3. Colorado	36	5%
4. Nevada	34	4%
5. Arizona	25	3%
6. New York	22	3%
7. Hawaii	14	2%
8. Connecticut	9	1%

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9. Oregon	8	1%
10. Massachusetts	8	1%
All Other States	39	5%
Total	792	

Source: Sherwood, L., U.S. Solar Market Trends 2008, IREC, p. 7 (July 2009), available at: http://www.irecusa.org/fileadmin/user_upload/NationalOutreachDocs/SolarTrendsReports/IREC_Solar_Market_Trends_Report_2008.pdf

Q9: Have public utility commissions in any of these states reached a decision on the regulatory status of SSA providers?

A9: Yes. Public utility commissions in Colorado, Hawaii, Massachusetts, Oregon and Nevada have all determined that it would be inappropriate to regulate SSA providers as public utilities. Legislatures in Colorado and Nevada subsequently codified the public utility commission decisions reached in these states.

Q10: Are you aware of any other states where SSA providers are not subject to regulation as a matter of practice or legislative action?

A10: Yes. California and New Jersey have allowed SSA use without regulation for some time. In fact, the use of SSAs has facilitated the installation of over 125 MW of solar in California. Both states have explicit statutory exemptions that ensure onsite systems are not subject to public utility regulation. I am also aware of SSA use without regulation in Connecticut. . I am not aware of the status of SSA use in New York. That state has struggled with putting the right policy support in place to support solar PV market growth, so there has not been occasion to bring the issue to resolution in that state. So, in sum, 8 of the top 10 states for installed PV capacity currently allow unregulated use of SSAs. The other two states are Arizona and New York. Obviously, this is an open issue in Arizona and it simply has not been looked into in New York, at least not that I am aware of.

Q11: Are you aware of any of states regulating SSA providers as public utilities?

A11: No.

Q12: Do you believe this is an important issue for the Commission to resolve at this time for Arizona?

A12: Yes, I do. The Commission has established a Renewable Energy Standard and Tariff ("REST") that requires in-state utilities to increase the percentage of energy supplied to customers from a variety of renewable resources, including distributed generation. To assist the utilities in meeting the distributed generation goals, the Commission has established an incentive program that many consider a model for other states. The Commission has also adopted strong net metering rules and provided guidance to utilities on interconnecting distributed generation resources. These policy decisions have created a solid foundation for solar PV market growth, however, they have not addressed one of the key obstacles to solar PV deployment – the large up-front investment that is required. SSAs are intended to address this obstacle and help bring solar further into the energy resource mainstream.

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Q13: Do you believe SSAs are an important option for helping customers finance solar PV investments?

A13: Absolutely. Most importantly, SSAs provide customers a means of financing the high up-front cost of a PV system. For example, in its July 2, 2009 Application, Solar City estimates its SSAs will help the Scottsdale School District avoid an up-front payment of over $10 million. That is money that is better spent on books, classrooms and teachers. In addition, SSAs provide an attractive bundle of services that are desirable to customers interested in investing in solar PV. In fact, SSAs have quickly become the preferred financing mechanism for non-residential PV installations. According to a recent study by Lawrence Berkeley National Laboratory, SSA agreements have grown from roughly 10% of the non-residential solar market in 2006 to an estimated 90% of the U.S. non-residential solar market in 2008.[1] Coupled with the fact that non-residential PV systems comprise an ever growing portion of aggregate installed capacity (nearly two-thirds of solar installations in 2007 alone), it is clear that SSA's have become an important, if not essential, part of facilitating non-residential customer investment in solar PV.

Q14: What types of customers are included in the non-residential market segment?

A14: The Bolinger Report identifies non-residential PV systems as systems being installed on the customer side of the meter at commercial, institutional, non-profit, or governmental properties.[2]

Q15: Are SSAs also important in the residential context?

A15: Yes. For example, I understand Sun Run, an intervener in this proceeding, offers residential SSAs in California and Massachusetts. Looking at California Solar Initiative data, it appears there has been significant demand for Sun Run's residential SSA product in California. Based upon information received from Sun Run, it is my understanding that Sun Run SSA systems represent approximately 12.5% of the California Solar Initiative market (which includes the regions of the three largest investor-owned utilities in California).

Q16: What makes SSAs a preferred means of financing solar PV investments?

A16: I believe there are two key reasons. First, SSA arrangements require an SSA provider to assume operational and financial risks that many solar customers do not want to take on directly. Second, from the customer perspective, SSAs provide a bundle of services that customers investing in solar PV find appealing.

Q17: What sorts of operational and financial risks do SSAs require SSA providers to take on that solar customers do not want to take on directly?

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[1] *See* Bolinger, Mark, "Financing Non-Residential Photovoltaic Projects: Options and Implications." Lawrence Berkeley National Laboratory. January 2009. LBNL-1410E, at p. 18 ("Bolinger Report").

[2] *See* Bolinger Report at p. 1.

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A17: The Bolinger Report summarizes these benefits nicely: "due to financial innovation [in reference to SSAs], non-residential entities interested in PV no longer face prohibitively high up-front costs, no longer need to be able to absorb Tax Benefits in order to make the economics pencil out, no longer need to be able to operate and maintain the system, and no longer need to accept the risk that a system does not perform as expected." These benefits also exist for SSAs in the residential context.

Q18: What bundle of services do SSAs provide that customers investing in solar PV find so appealing?

A18: The Solar City Application, Testimony of Solar City witness Rive, and Testimony of Sun Power witness Irvin do a nice job of discussing the array of services priced into an SSA. Based on the demand for SSA financing in markets where SSAs are offered, I do not think the value of SSA services can be underestimated in understanding customer preferences. Commercial, institutional, non-profit, governmental and residential customers are generally not familiar with the various solar PV technologies available to them and do not necessarily have the desire or competency to own and manage a solar energy system despite the fact that they want to invest in solar PV to green their power supply. These skills sets are simply not part of many people's core competency, which lies in running businesses, non-profit enterprises and government agencies. To gain this competency would cost both time and money, both of which could be better spent steering their enterprises through a tough economy.

Q19: Are there other financing mechanisms that would meet the same needs, for example a lease?

A19: No. I agree with Solar City witness Lyndon Rive that SSAs are the only means that allow tax-exempt entities like schools, government and non-profits to have access to and fully utilize available tax incentives and benefits. Given that these benefits can add up to nearly half the cost of a PV system, it is not surprising that Solar City witness Peterson would testify that without using SSAs, the Scottsdale Unified School District would not be able to invest in solar PV. For other customers, leasing can remove the high up-front cost of investing in solar, and can be structured in a manner that allows for efficient use of tax benefits, but leasing typically leaves the customer with performance risk and the responsibility to operate and maintain a system. The solid movement of customers towards SSAs in markets where they are offered shows that these last barriers to investment that are solved by SSAs are not minor. It appears many customers would prefer to shift operational and financial risk to an SSA provider to the maximum extent possible, which is what SSAs are intended to do. SSAs provide assurance to customers that payment is based entirely on system performance, and importantly, payment is based on kilowatt-hour production, a metric that allows SSA pricing to be easily compared against existing utility prices.

Q20: Do you agree with Solar City that the requested relief should be limited to schools, government and non-profit organizations?

A20: No. For the reasons previously discussed, I believe SSAs offer substantial benefits to residential and for-profit entities as well.

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Q21: If the Commission decides to regulate SSA providers, do you have an opinion as to whether SSAs will be offered in Arizona?

A21: Yes. I do not believe SSAs would be offered in Arizona. I believe regulation would stifle investor interest in making SSA financing available.

Q22: Why do you believe investors would not make SSA financing available?

A22: There is a fundamental difference in the risk profile of an SSA investment versus a traditional public utility investment. As indicated by Sun Power witness Irvin, a typical investor in an SSA financing is a large financial institution with significant taxable income that can be effectively offset by tax benefits associated with investment in solar PV assets. To ensure risk is sufficiently mitigated to make an SSA financing attractive to such an investor, a number of sophisticated, interlocking agreements must be put in place. One of the key documents within this suite of agreements is the SSA. The SSA establishes the revenue stream that is required to pay back an investment. In order for an investor to feel that risks associated with an SSA investment are sufficiently mitigated, there needs to be reasonable certainty regarding the income stream that will be generated by an SSA agreement. Regulation introduces a number of risks that undermine investor confidence as to whether projected revenue streams will materialize.

Q23: Is there anything in particular that is likely to unnerve investors?

A23: Two key concerns are with regard to initial contract approval by the Commission (for example the Commission's approval of the Solar City contracts in Phase 1 of this proceeding) and the Commission's ability to adjust rates of jurisdictional utilities. From the investor perspective, the former raises the risk that an expected revenue stream may never materialize and the latter raises the risk that revenue streams may be altered such that an investment becomes uneconomic.

Q24: What do you mean when you say there is a fundamental difference in the risk profile of an SSA investment versus a public service corporation investment?

A24: In a traditional public utility context, rates are set to allow regulated utilities an opportunity to earn a reasonable return on investment in property dedicated to public use. This means investors in public service corporations have a reasonable assurance that rates will be maintained at a level that allows an opportunity to earn a return on property dedicated to public use. This approach works well for monopoly utilities with designated service territories because they have a captive audience that generates a relatively predictable stream of revenue under approved rates.

Q25: In what ways do SSA providers operate in a different investment climate?

A25: SSA providers operate in a very different environment. Unlike public service corporations, competitive SSA providers do not have a captive audience of customers whose rates may be adjusted to ensure a SSA provider enjoys a reasonable return on investment. Instead, SSA providers negotiate a price for their services for each installation taking into account availability of incentives, financing rates, site-specific issues such as onsite shading, and

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competitive pressures such as prevailing public utility rates and competition from other providers. Also unlike public service corporations, SSA providers dedicate property to private use not public use, meaning there is no shared infrastructure. Taking these factors into account, the opportunity for an SSA investor to earn a rate of return on equipment dedicated to private use is dependent on a provider's ability to realize the revenue stream generated by the rate that was specifically negotiated for a particular installation. In this environment, investor confidence is diminished by anything that calls into question the ability to realize that revenue stream.

Q26: Given these practical considerations, what would likely be the result of a Commission determination that SSA providers are public service corporations?

A26: A decision that SSA providers are public service corporations would create an enormous amount of uncertainty regarding: (1) the threshold for initial contract approval, (2) the requirements for obtaining a CC&N, (3) the basis for determining which rates will be determined just and reasonable, (4) the possibility that contract rates or terms may be unsettled during the term of an SSA, and (5) the sort of regulatory compliance costs and obligations that may be applied to an SSA provider. Quite frankly, I cannot imagine any investor being interested in making SSA financing available with any, let alone all, of these open questions.

Q27: Do you have an opinion regarding the impact on solar PV development in Arizona if SSAs are not available?

A27: It is difficult to quantify the precise impact because there are no available examples of a state commission deciding to regulate SSA use. However, I believe the absence of this preferred financing mechanism could have a significant impact on the pace of solar market growth in Arizona. According to the Bolinger Report, SSAs were used to finance an estimated 90% of U.S. non-residential solar market investments in 2008. If this option is not available, it seems likely that many customers who would otherwise invest in solar using an SSA might simply chose not to invest in solar PV because they will continue to face the barriers that SSAs address and resolve. For non-residential customers this would likely be a very high percentage given that many such entities would lose the ability to fully utilize available federal tax incentives.

Q28: At the July 16, 2009 procedural conference in this docket, there was a discussion about the possibility of pursuing a "streamlined form of regulation." Do you believe this approach may offer a viable path forward?

A28: No, I do not. I have a number of concerns with that sort of approach. First, I believe Solar City makes a compelling case that regulation is inappropriate when policy considerations underlying the *Serv-Yu* decision are applied to circumstances surrounding SSAs. Sun Power witness Irvin has also addressed several of these in his testimony. Second, any decision to regulate is likely to create a number of uncertainties that may take a considerable amount of time to clarify through a rulemaking. Third, what is considered "regulation light" by the current Commission may be considered too light by a subsequent Commission, meaning ongoing uncertainty is created regardless of the level of regulation that would be put in place today. Finally, any form of regulation would be likely to

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introduce compliance costs that would serve to make solar options more expensive. I also do not think this sort of approach is necessary given that the Commission already exercises considerable control over SSA providers, and the manner in which they do business through its REST rules, net metering rules and interconnection standards.

Q29: Do you have an opinion as to what would happen to the investment money that is poised to flow into Arizona if the Commission decides to regulate SSA providers as public service corporations?

A29: I have previously identified the top 10 states for installed solar capacity. In my opinion, investment dollars and economic activity associated with SSA financing would likely flow to solar projects in the other 9 states as opposed to Arizona. This would amount to a significant loss of economic activity for Arizona. The California Public Utilities Commission has estimated that for every $1 of ratepayer-funded incentives, an additional $6 of private and federal funding is harnessed.[3] This has resulted in over $5 *billion* in investment, much of which was facilitated by SSA arrangements.[4] In addition, new PV manufacturing facilities are likely to locate in States with the most PV market activity. The inability to use SSAs in AZ could in turn lead to the loss in new manufacturing and associated "green collar" jobs.

Q30: Why are SSAs priced on a per-kWh basis?

A30: Pricing services on a per-kWh basis has a number of benefits from the customer perspective. First, SSA providers reinforce the fact that they bear the performance risk for a system, meaning customer payment is based on the useful solar energy provided by a PV system. Additionally, presenting the total cost of the services provided on a kWh basis allows customers who are not experts in solar energy to compare the cost in a metric they understand - $/kWh. The importance of per-kWh pricing can be seen in the Solar City contracts with the Scottsdale School District, which adjust contract pricing to reflect adjustments in incentive amounts. It helps customers understand the impact incentive levels have on solar prices when the two are both denominated in kWh. The importance can also be seen in the analysis of the Solar City contracts in Commission Order 71277. Staff, Solar City and the Scottsdale School District all used a comparison of $/kWh prices in conducting a cost comparison of Solar City contract pricing to otherwise applicable utility tariff rates.

Q31: Does this conclude your testimony?

A31: Yes, it does.

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[3] *See* California Solar Initiative: Staff Progress Report, California Public Utilities Commission (Jan. 2009), at p. 4.
[4] *See* Id.

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EDUCATION

UNIVERSITY OF CALIFORNIA, BERKELEY - BOALT HALL SCHOOL OF LAW
Juris Doctor, Certificate, Environmental Law (May 2005)

- Jurisprudence Award (Spring 2003)
- Ecology Law Quarterly, Associate Editor (Fall 2003)

UNIVERSITY OF CALIFORNIA, DAVIS
Bachelor of Science, Environmental Policy Analysis & Planning, Energy Policy Emphasis (June 2002)

- Graduated with Highest Honors
- Morris K. Udall National Environmental Policy Scholar (2000-2001)

PROFESSIONAL EXPERIENCE

KEYES & FOX LLP
Partner, OAKLAND, CALIFORNIA (2008 – present)

Represent clients in state utility commission rulemakings related to renewable energy policy development and implementation, including work on net metering rules, interconnection standards, community solar programs, feed-in tariffs and incentive programs; draft and review retail power purchase and sale agreements for distributed energy projects; advise clients on compliance with local regulatory requirements.

WILSON SONSINI GOODRICH & ROSATI PC
Project Finance & Clean Technology Associate, SAN FRANCISCO, CALIFORNIA (2007 – 2008)

Drafted and reviewed contracts for the purchase and sale of energy, renewable energy certificates and carbon financial instruments; drafted and reviewed project finance-related agreements; diligence of clean technology company business plans for regulatory compatibility and risk; advised clients regarding intellectual property terms in government grants; advised clients on compliance with state and federal energy regulatory requirements; provided regulatory advocacy before state public utility commissions.

STOEL RIVES LLP
Energy Associate, SAN FRANCISCO, CALIFORNIA (2004 – 2007)

Drafted and reviewed contracts for the purchase and sale of electricity, natural gas and renewable energy certificates; advised clients regarding state and federal energy regulatory compliance, including qualifying facility certifications, market-based rate tariffs, exempt wholesale generator certifications, and Federal Power Act Section 203 merger authorizations; provided regulatory advocacy before state public utility commissions; advised clients on transmission matters, including generator interconnections.

CALIFORNIA ATTORNEY GENERAL
Energy Task Force, OAKLAND, CALIFORNIA (2003 – 2004)

Conducted legal research and drafted memoranda in support of antitrust litigation arising from California's 2000-2001 electricity market failures; drafted discovery requests, briefs and motions; researched and drafted memoranda regarding federal and state commodities laws and unfair business practice laws.

CALIFORNIA ENERGY COMMISSION
Demand Analysis Division, SACRAMENTO, CALIFORNIA (2001 –2002)

Researched history of United States retail electricity pricing; organized a database of California electric utility rate schedules; maintained a website of California energy efficiency programs.

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ENERGY PUBLICATIONS AND PRESENTATIONS

- *What Utility Involvement in the Distributed Solar Market Means for the Future of the Solar Industry*, with Adam Browning, Renewable Energy World, available http://www.renewableenergyworld.com/rea/news/recolumnists/story?id=53735 (Oct. 2008)
- *Comparison of the Four Leading Small Generator Interconnection Procedures*, with Jason B. Keyes, Solar America Board for Codes and Standards, available www.solarabcs.org/interconnection (Oct. 2008)
- *Options for Selling Solar Distributed Generation to an Interconnected Utility in California*, presented at the annual conference of the American Solar Energy Society (May 2008)
- *Investing in California's Alternative Fuels Plan*, Energy Law 360, Portfolio Media Inc. (Jan. 4, 2008)
- *Leasing, Siting and Permitting Geothermal Energy Projects*, Lava Law: Legal Issues in Geothermal Energy Development (Stoel Rives, 2004–05).
- *Western Market Investigations: Developments in the Courts*, Spring 2006 ABA Sec. Pub. Util. L. Rep.
- *Western Market Investigations: Developments in the Courts*, Fall 2006 ABA Sec. Pub. Util. L. Rep.

BAR MEMBERSHIPS

OREGON, ADMITTED TO PRACTICE (2005)
CALIFORNIA, ADMITTED TO PRACTICE (2008)

SELECTED

SOLARCITY

DATA REQUEST

RESPONSES

EXHIBIT
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used to measure the benefit to the Purchaser under the SSA to establish a fair price for the equipment and services provided.

STF 1.5

Please reconcile the following statement with page 4 of Exhibit 7 that says "...and Purchaser shall purchase all such electric energy as and when produced by the system": Application page 8 "In fact, the specific language of the SSA itself indicates that SolarCity actually never really owns the electricity that its solar equipment creates."

As described in response to STF 1.4 above, the first half of the sentence that Staff quotes from page 4 of Exhibit 7 to the SSA (Exhibit B to the Application) is indispensible to this analysis. The first half of that sentence provides, "[t]he Purchaser and Seller agree that Purchaser will take title to all electric energy that the System generates from the moment the System produces such energy...." While the SSA speaks for itself, it is clear that the School District owns all energy generated the moment it is generated. In fact, the second half of the sentence –the portion Staff quotes in STF 1.4 and 1.5 above- goes on to provide that not only does the School District own all of the energy from the moment it is generated but that it does not have the option to refuse the energy once produced and must take all the energy, "as and when produced by the System."

STF 1.6

Please reconcile the $0.11 $/kWh contract price contained in Exhibit 1 with the following: Application page 6 "The customer becomes the owner of all electricity produced the moment the electricity is produced."

Application page 7 "The SSA at issue in this Application makes it clear that SolarCity is in the business of furnishing equipment and ongoing maintenance thereof to the School District and not "Electricity for light, fuel, or power."

Application page 8 "In fact, the specific language of the SSA itself indicates that SolarCity actually never really owns the electricity that its solar equipment creates."

There are inherent difficulties in pricing the services that SolarCity provides because most customers are unfamiliar with such services. SolarCity has found that customers are willing to pay an amount that they believe to be fair and representative of the benefit they receive. In SolarCity's professional opinion based on experience as an installer of rooftop solar around the Country it has found that pricing that relates to the pricing of power results in a fair compensation to SolarCity and an invoice that the customer understands and feels comfortable paying.

STF 1.7

SOLARCITY'S RESPONSE TO
ARIZONA CORPORATION COMMISSION
STAFF'S FIRST SET OF DATA REQUESTS

SOLARCITY CORPORATION
E-20690A-09-0346

JULY 23, 2009

STF 1.9

Referring to Application page 15 "SolarCity's Articles of Incorporation do not authorize it to act as a public utility."

Please cite the portion of the Articles that are the source of that statement.
Article III of the Articles of Incorporation provide that the company was formed without indicating it was being formed to act as a public utility and instead includes a boilerplate statement that the Company was formed merely to carryout "lawful" activities.

Additionally, is it possible that SolarCity could effectively function as a public utility, even if not by design or intention, in spite of this language in the Articles of Incorporation?
This inquiry calls for a legal conclusion and perhaps illustrates why the Serv-Yu court was careful to point out that such an examination is "not conclusive" but may instead "be considered in the determination of the ultimate question." Serv-Yu, 70 Ariz. At 238, 219 P.2d at 326.

What mechanism, if any, would be employed to ensure that SolarCity does not function as a public utility?
No new mechanism is needed to prevent SolarCity from acting as a public utility as the Corporation Commission is already empowered under Arizona law to enforce laws and to regulate any entity that acts as a public utility. The Commission has a long history of regulating entities identified as public utilities and there is no need for an additional mechanism to be employed to assure one company does not act improperly. As long as SolarCity is performing as described in the Application subject to the SSA or one that is substantially similar to the SSA attached to the Application as Exhibit B then SolarCity would not be acting as a public utility.

STF 1.10

Referring to Application page 16 "...SolarCity will not be accepting requests for service from the general public...'

Please describe what entities would be included and excluded and the criteria used in this determination? Who is the general public and who is not?
The Application indicates that SolarCity will only use the SSA attached to the Application as Exhibit B or a substantially similar SSA to serve schools, governmental and non-profit entities. As a result, services are not available to the general public and will only be available to these entities. The Application does not seek an adjudication as to service of any other entity types other than those enumerated in the Application.

SOLARCITY'S RESPONSE TO
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STF 2.1 **Please describe how the pricing structure developed, in particular with regard to the individual components and the basis for the pricing structure.**

SolarCity assesses all of the costs associated with building a project such as panels, inverters, design, labor, balance of system, permitting, regulatory, environmental, legal costs, and project finance. Then all of the associated benefits of the system are analyzed, which may include customer payments, rebates, tax credits, RECs (if any), host customer credit risk, cost of capital, timing of payments, etc. All of this is considered to arrive at the final price. SolarCity targets markets and customers who will benefit from switching some of their electricity bill to solar to either realize an immediate 10-15% savings, or, in other cases, to hedge against future cost increases and lock in their electricity prices.

STF 2.2 **Please explain how a pricing structure that is based on the amount of energy produced is consistent with the assertion on pages 7 and 8 that SolarCity is "in the business of furnishing equipment and ongoing maintenance and not electricity for light, fuel, or power" and the assertion on page 13 that the "SSA arrangement in the context of a non-profit entity is fundamentally a financing tool; the fact that a commodity is produced is merely incidental to the purpose of the SSA for a non-profit."**

In order for non-profit entities to be able to monetize Federal tax benefits for solar systems, the systems must be owned and "used" by a third party entity. The SSA financing structure was developed in part to specifically address this problem. If the non-profit is a lessee or owner of a system then they are considered the "user" and no tax benefits are available. However the IRS has stated that if the non-profit is simply paying the third party owner a fee based on the amount of power produced from the system, then the third party owner will be considered the "user" and thus can take advantage of available tax benefits (See SEIA Tax Manual § 1.1.3, attached hereto as Exhibit A). To further support this, the following is excerpted from the IRS instruction form regarding the investment tax credit (attached hereto as Exhibit B):

> *Investment credit property is any depreciable or amortizable property that qualifies for the rehabilitation credit,* ***energy credit****, qualifying advanced coal project credit, qualifying gasification*

> *project credit, or qualifying advanced energy project credit. You cannot claim a credit for property that is:*
>
> *• Used by a tax-exempt organization (other than a section 521 farmers' cooperative) unless the property is used mainly in an unrelated trade or business or is a qualified rehabilitated building leased by the organization;*

The SSAs at issue in the SolarCity application were structured to comply with these requirements. Therefore, they are primarily a financing mechanism. The fact that the pricing is based on the amount of energy produced does not contradict this assertion but rather is direct evidence of it. The IRS will simply not allow a different structure where the end user is a non-profit entity.

STF 2.3 **Please provide a complete description of the equipment that would be provided under the SSA.**

A typical system consists of: solar panels, mounting racks/rails and associated hardware, wiring, conduits, fuses, combiner boxes, and inverters.

STF 2.4 **How is this equipment interconnected with the customer's electrical system?**

Once the panels are in place, they are wired together and these wires are then run through a DC to AC inverter, a dedicated system breaker, and a separate system meter prior to connecting with the customers existing breaker and electrical system. At this point any electricity generated will enter the customers existing electrical system to meet the customer's demand. Any electricity generated beyond the customer's demand will be sent through the utility meter and into the utility grid pursuant to any applicable interconnection regulations and requirements and subject to net-metering rules.

STF 2.5 **How is this equipment interconnected with the local utility's distribution and transmission systems?**

All systems will be interconnected to the utility system in strict compliance with any applicable utility requirements and the ACC draft rules for interconnection.

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STF 2.6 **Please describe how any excess electricity would be supplied to the utility distribution system.**
Any excess electricity will be physically supplied to the grid in compliance with the applicable utility and/or ACC rules for interconnection. Excess electricity will also be subject to and governed by the applicable ACC net-metering rules and procedures.

STF 2.7 **If applicable, please describe how and in what form the payment for or buyback of excess energy would occur. Would these transactions be consistent with or different from the Commission's proposed net metering rules? Would the solar service agreements only stipulate the accrual of billing credits rather than payment by the utility for excess generation?**
Buyback and payment for excess electricity will be consistent with applicable ACC net-metering rules.

STF 2.8 **Who would receive the payment or buyback of excess energy?**
As stated in the Application and the SSA, the customer is the owner of all electricity from the moment it is generated by the systems. As such, the customer receives the benefit of any excess electricity credits or payments pursuant to the applicable net-metering rules. SolarCity has no ownership interest in the electricity, nor will they be a customer of the utility and therefore will not receive any payments or credits.

STF 2.9 **Please indicate what part of the SSA discusses the treatment of excess energy that flows to the grid.**
The SSA states that the electricity generated from the system is immediately and wholly owned by the customer, and as such any excess electricity is the customers and subject to the credits and payments from the customer's utility subject to the ACC net-metering rules. The SSA does not specifically address excess electricity because SolarCity has not interest in it or any payments or credits. Thus, any provision in the SSA addressing this or seeking to alter this arrangement would be unenforceable and void, and is therefore absent from the agreement.

STF 2.10 **On Page 12, lines 2-7, the Alliance says: "SolarCity has no intention of dedicating private property for a public use. On the contrary, the property that SolarCity provides is only dedicated to the individual school, non-profit organization or government entity on whose private**

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STF 2.17 **Would the energy produced under the contemplated solar service agreement displace load that would otherwise be met by regulated utilities?**

The systems provided by SolarCity will allow the customer to generate their own electricity and thus reduce their demand from the utility. This can be characterized as displacing utility load or as simply lowering the customers overall demand, much like dual-pane windows or energy efficient air-conditioners.

SIP 2.18 **Would the utility be required to maintain resource planning and capacity for the total projected needs of the SSA customer?**

SolarCity is not in a position to comment on the resource planning needs of a utility. Furthermore this is not directly relevant to the question at hand (whether SolarCity is a PSC when it enters into SSAs with non-profits), but rather goes towards the much bigger overall question of whether distributed solar generation is a desirable and appropriate goal for the utilities and Arizona in general. This overall question was addressed by the Commission when it adopted REST standards with specific distributed generation targets.

STF 2.19 **What controls might the Commission put in place to ensure that the proliferation of solar service agreements would not displace a quantity of utility-generated energy so large that Arizona utilities were financially harmed?**

SolarCity does not believe that the Commission has jurisdiction over these arrangements and therefore does not believe the Commission can or needs to place controls over the adoption of distributed generation. Furthermore as mentioned above in STF 2.18 this is a question that goes towards the adoption of distributed generation and not specifically to the question at hand. Finally, it is important to note that without the significant rebates offered by utilities in exchange for RECs (which allow the utilities to meet their REST standards), these systems would not be financially viable. Therefore if the utility has met its REST goals and REC needs, the proliferation of additional systems would be highly unlikely. In effect then, the Commission has already adopted an effective control over the proliferation of solar systems by establishing the REST standards, and specifically the distributed generation targets.

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STF 2.20 **How might the Commission evaluate and determine if the proliferation of solar service agreements was evolving to the extent that it was proving financially harmful to Arizona utilities?**
As mentioned, the Commission has set what it presumably believed to be reasonable and appropriate REST and distributed generation targets for the utilities. Because the financial feasibility of distributed generation solar projects is inherently dependent on the financial incentives provided by utility rebate payments (in exchange for RECs), it is highly unlikely that distributed solar will significantly exceed these targets and therefore it is highly unlikely that it will be financially harmful to the utilities. Nonetheless, the utilities rate case procedures provide an adequate and appropriate avenue for the utilities to inform the Commission if they are suffering financial harm and for the Commission to alleviate any issues.

STF 2.21 **Should the Commission approve the application and issue the proposed determination, would the Commission maintain sufficient authority to ensure that generation facilities installed under the solar service agreements functioned in a safe manner and were not harmful to the infrastructure that the systems interconnected with? If so, please describe what aspect of such a determination ensures that the Commission maintains such authority.**
The Commissions authority to regulate the interconnection of distributed generation solar systems with utility infrastructure is a sufficient and appropriate mechanism for ensuring the safety of the public and the utility infrastructure. All systems must be inspected and approved by both the utility and the jurisdictional building authority before they are interconnected or turned on.

STF 2.22 **Should the Commission make the proposed determination, would any limit to the size of an installed system, and consequently its potential for excess production, exist? If so, what limits would exist?**
Because the economic value of these systems to the end user is inherently linked to their ability to net-meter, it is not feasible to design a system larger than the net-metering rules allow. Currently the Commission caps system size at 125% of the customer's average load. Furthermore the size of these systems is generally limited by available roof space or land and as such provides a significantly lower percentage of the customer's average load.

majority of these parties have intervened in this Application, and SolarCity does not presume to speak for these parties.

STF 2.30 **Could customers entering into solar service agreements compel utilities to interconnect with their systems? If so, how?**
No. The systems provided by SolarCity can only be interconnected to the utility grid if they are in compliance with the utilities' and the ACC's applicable interconnection regulations and standards. The systems cannot be interconnected without utility approval.

STF 2.31 **What percentage of sales (in dollars) do you expect the schools, government and non-profit portion of the Arizona solar market served through SSAs to be?**
SolarCity's best estimate is that over the next 2 years, nearly 50% ($40M) of its Arizona revenue sales would be thru SSAs.

STF 2.32 **What is the relationship between the measurement of a Purchaser's solar kWh and "payment for the equipment and related maintenance?"**
For the end user, the true value of the system can only be measured by their reduction in utility demand and therefore costs. This is directly related to the amount of energy the system produces. Therefore the best way for the customer to place an accurate dollar amount on the value of the system and the services that SolarCity provides is to pay an amount that is based on the energy produced rather than arbitrarily fixed payment. With this pricing relationship, if a system produces lower than expected energy, for whatever reason, the customer can be assured they are not overpaying. Thus measurement of the customers kWh is directly tied to the value of the equipment and services provided by SolarCity.

STF 2.33 **Would SolarCity be opposed to a pricing structure that was not based on the amount of power generated?**
Yes. As discussed in STF 2.2 and 2.11 without this pricing structure the IRS will not allow the available tax benefits to be realized.

STF 2.34 **The Application includes 2008 Instructions for Form 3468 of the Department of Treasury Internal Revenue Service as a reference to the limitations imposed under the federal tax credit. Please cite exactly the provision of the Tax Code that prohibits a lessor from**

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STF 2.41 **Should the Commission conclude, from the perspective of regulatory treatment, that a purchase or lease option is comparable to an individual serving himself from his own water well, to what degree would this conclusion address the concerns that prompted SolarCity to file the application?**

Simply allowing purchase and lease options will not address this application in any way, as those options do not allow the entities at issue in this case to utilize available tax incentives. See response to STF 2.12.

STF 2.42 **Is adjudication by the Commission in this matter a preference, or would regulation impose a prohibitive impediment? If regulation would impose some prohibitive impediment, please describe it in detail.**

Any regulations (e.g. factfinding, reports, briefings, filings, etc.) lead to increased costs and business risk that ultimately will be born by the end user in the form of higher prices. The financial viability of solar in many instances is currently very tenuous. This is demonstrated by the fact that these installations rely heavily on tax incentives and utility rebates. Therefore, small increases in costs can easily make the difference between a project being financially feasible or not for the end user. This means few solar systems installed which directly translates to a loss of economies of scale for SolarCity which in turn translates to additional costs and higher prices for the customer. At some point these extra costs and lower sales volumes may cause SolarCity and other companies to invest their resources in growing in other states with lower regulatory burdens.

STF 2.43 **Does SolarCity envision receiving incentive payments under utilities' REST plans, in addition to the federal tax credits?**

Yes. As discussed above, these systems are only financially viable at this time with utility rebates. SolarCity is aware that they must transfer RECs associated with the system to the applicable utility to receive the rebates provide under the REST rules.

(1) Office Manager
(2) Construction Managers
(1) Project Manager
(1) Technical Sales Consultant
(8) Residential Solar Consultants (sales)
(1) Commercial Solar Consultant (sales)
(2) Site auditors
(1) Warehouse Manager
(1) Warehouse Assistant
(36) Installers
(57) Total

STF 4.3
Please describe all of Solar City's operations and/or activities of any nature in Arizona.

Activities:

- Residential and commercial PV sales
- Residential and commercial PV installations
- Office administration and management
- Technical sales
- Project management
- Warehouse management
- Site audits

STF 4.4
Please identify every state in which Solar City conducts any business or operations of any nature. For each state so identified, please describe Solar City's specific operations and activities therein.

SolarCity has operations in Arizona, California and Oregon. Activities consist of those described in the response to STF 4.3

In addition, SolarCity is exploring the possibility of doing business in New Jersey, New Mexico, and Texas where they are currently performing limited sales activities

STF 4.5
Please identify every state in which Solar City has entered into a Solar Services Agreement ("SSA") with a school, non-profit, or governmental entity. For each state so identified, please identify the number of such SSAs that have been entered therein and the load associated with each SSA.

STF 4.9
On page 2, lines 27-28, the Application states that "Solar City is a national leader in solar power system design, financing, installation, monitoring and related services." Please specifically describe and define the following terms as used in the above-quoted sentence:

a) solar power system design,

Means site specific engineering and design work. SolarCity employees visit a potential site and perform preliminary design work to optimize the size and placement of a potential solar system. Then, prior to actual construction, SolarCity employees perform detailed design engineering of the system as a precursor to installation and construction activities.

b) financing,

If a customer does not wish to pay cash for a system, SolarCity will provide the customer with the potential option of financing the installation via a lease or a Solar Services Agreement.

c) installation,

Installation is the actual physical work of placing a solar system on a customer's property, interconnecting it to the grid, and everything that is physically required for the system to begin producing energy.

d) monitoring, and

SolarCity provides customers with SolarGuard monitoring software and will remotely monitor the production of the system to ensure maximum efficiency to immediately identify possible maintenance issues. SolarGuard is included with Solar Lease and SSA deals and is an option for cash sales.

e) related services.

SolarCity provides all services related to the installation and operation of the system including permitting, maintenance of the system for the term of the agreement (if under an SSA or lease), billing, accounting, and any reporting requirements.

STF 4.10
On page 2, line 28 and page 3, line 1-2, the Application states that the "company's mission is to help millions of homeowners, community organizations and businesses

SOLARCITY CORPORATION'S RESPONSE TO:

ARIZONA CORPORATION COMMISSION
STAFF'S SIXTH SET OF DATA REQUESTS
DOCKET NO. E-20690A-09-0346

SEPTEMBER 18, 2009

Note: Information provided is sensitive and proprietary in nature and is only intended to be shared with the parties in this docket that have requested such information.

STF 6.1 **Exhibit A of SolarCity's pre-filed Witness testimony and exhibits filed on August 24th includes a diagram of equipment that includes a utility meter, but does not include a SolarCity meter dedicated to measurement of the output of the solar panel.**

Testimony of Ben Tarbell includes:
11. At what point is it possible to identify electricity that has been created in the facilities?
The energy created by the solar energy system is usable by the school as soon as it exits the inverter as AC electricity. The inverter output will metered separately from the building load.

The Application includes a contract with Coronado that on page 9 includes the following:
Metering. Electricity delivered to the Facility shall be measured by the SolarGuard monitoring system installed and maintained by Seller as part of the System.

a) **Will SolarCity's SSA facilities include a meter installed, maintained, and monitored by SolarCity for the purpose of measuring the output of the SSA panel generation?**

Yes, SolarCity will install, maintain, and monitor a meter that measures the solar energy system generation. This meter will send generation data to SolarCity via the Internet connection at the host facility.

b) **Will such a meter be located at some point between SolarCity's PV equipment and the customer's electric panel? If not, where?**

Yes, the meter will be installed such that it measures the output of the system at a point between the PV equipment and the interconnection point in the customer's electric panel.

c) **If there will be no such meter, how will SolarCity determine the production from the panel for purposes of calculating payments that make use of a per/kWh rate?**

N/A

There are hundreds of solar installers/integrators operating in Arizona. A simple Google search will yield a list of the most prominent competitors.

b. How long have these solar installers/integrators been doing business in Arizona?
SolarCity is not in a position to know how long each of its competitors has been operating; it does not keep track of such information.

c. How long has SolarCity been competing against each solar installer/integrator in Arizona?
SolarCity begun operations in June of 2006 and has been operating in Arizona since March of 2008. SolarCity is not in a position to know when its competitors began operating.

d. How long has SolarCity been competing against each solar installer/integrator in other states?
See response to 2.3 (c).

e. How many of these solar installers/integrators Mr. Rive alludes to in his Direct Testimony responded to the Requests for Proposals ("RFPs") the schools issued.
There were approximately 80 people in attendance at the initial bidder's conference. Approximately seven (7) companies officially responded to the RFP.

2.4 Regarding Mr. Rive's response to question 9 in his Direct Testimony:

a. Given that SolarCity is the "initial owner" of the system, does SolarCity receive the funds from the financing related to the initial cost of the system?

b. Does SolarCity provide any of its own funds to cover the cost of installation or are all of the funds used for installation received from third-party investors? Please explain in detail the source of funding for the installations at issue in this docket.

c. Does the financing for an SSA arrangement differ from installation to installation? If so, please describe how the financing differs.
SolarCity objects to these questions based on relevance. SolarCity's internal financial operations and its relationship with its investors is not relevant to the question of whether SolarCity is considered a public service corporation under Article 15 § 2 of the Arizona Constitution when it enters into Solar Services Agreements with a school, government or non-profit entity.

2.5 Regarding Mr. Rive's response to question 9 in his Direct Testimony, please describe the types of entities that participate in SSA arrangements as third party investors.
See response to 2.4.

SOLARCITY CORPORATION'S RESPONSE TO
TUCSON ELECTRIC POWER COMPANY
AND UNS ELECTRIC INC'S
SECOND SET OF DATA REQUESTS

DOCKET NO.: E-20690A-09-0346

OCTOBER 8, 2009

2.6 Regarding Mr. Rive's response to question 9 in his Direct Testimony, please describe whether the third-party investor:

a. Holds any ownership interest in the installed facilities. If so, what interest?

b. Participates in the installation, operation or maintenance of the installed systems.

c. Is guaranteed a minimum return on its investment. If so, what is the guaranteed rate of return? The estimated rate of return?
See response to 2.4.

2.7 Regarding Mr. Rive's response to question 9 in his Direct Testimony, please describe:

a. How does the third party investor provide capital for solar systems?

b. Is the funding from the third-party investor considered a loan to SolarCity? If not, please explain the nature of the third party investment.

c. Whether the third party investor receives a return on any capital provided for solar systems? If so, what is the rate of return?

d. When does the third party investor start receiving a return on any capital provided for solar systems?

e. To what extent does the third party investor receive any incentives provided by the utility and through the customer for any solar systems the third party invests in?

f. To what extent does the third party investor receive any of the tax credit?
See response to 2.4.

2.8 Regarding Mr. Rive's Direct Testimony, please confirm the following:

a. SolarCity will be the sole legal and beneficial owner of solar systems installed on customers' premises.
Yes.

b. SolarCity will maintain such ownership so that SolarCity can take advantage of federal tax incentives.

Yes.

c. SolarCity will operate and maintain the solar systems installed on customers' premises.
Yes.

d. The solar systems owned by SolarCity will deliver energy to customers for use by the customer.
The systems generate solar electricity which is owned by the customer the instant it is generated.

e. The customer will take possession of the energy at the delivery point as delineated in the respective Solar Service Agreement (SSA) (e.g. Exhibit 4 in the SSA).
No. The electricity is owned by the customer the instant it is generated.

f. SolarCity provides an option after six (6), ten (10), and fifteen (15) years in its Solar Service Agreements where customers could purchase solar systems.
Yes.

g. A lease arrangement would not work for SolarCity because it would not be the "user" of the solar system in order to claim the federal tax incentives.
A lease arrangement would not work because under a lease the school is considered the "user" for IRS purposes and thus no Federal tax incentives would apply.

h. The purpose of the Solar Services Agreement is to take advantage of the federal tax incentives so that the systems are cost effective, including the (1) 30% investment tax credit; (2) 50% first-year bonus depreciation under the American Recovery and Reinvestment Act ("ARRA") of 2009 expiring on December 31, 2009; and (3) Modified Accelerated Cost Recovery System ("MACRS") depreciation.
The purpose of the Solar Services Agreement is to provide an economically viable way for schools to adopt solar power with zero up-front costs. The ability of SolarCity to capitalize on the available tax incentives is necessary to be able to offer this zero down financing option.

i. Under the SSAs, customers will pay SolarCity on a monthly basis at a $/kWh rate (e.g. Scottsdale Unified School District will pay SolarCity $0.11 per kWh under its SSA).
Yes.

j. The customer under the SSA purchases the electricity from the solar system SolarCity installs, owns, operates, finances and maintains, so it is not considered to be the "user" of the solar system for federal taxation purposes.

No. The customer is the owner of the electricity from the moment it is generated as described in the terms of the Agreement. The pricing of the Agreement is based on the production of the system to conform to the IRS restrictions on "use" by a tax exempt entity.

k. SolarCity is able to bundle the tax credit and first-year bonus depreciation under ARRA to offer a lower price to customers.
Yes.

2.9 What other arrangements did SolarCity and/or the School Districts contemplate before deciding on the SSA as the form of arrangement. Why would those arrangements not be satisfactory to SolarCity and/or the School Districts?
None. There simply is no other way to structure the deal with a tax-exempt entity and still take advantage of Federal tax incentives. Any other structure would require a large capital expenditure by the school.

2.10 Regarding Mr. Rive's response to question 15 in his Direct Testimony, what is the specific use of the funds from the financing identified in the response? Who provides the funds for initial installation of the system?
SolarCity and its investors provide all the necessary funds to purchase and install the solar equipment thereby allowing the school to adopt solar with zero up-front costs.

2.11 After installation of the solar system, does SolarCity sell the system to a third-party investor? If so, please explain why.
See response to 2.4.

2.12 If SolarCity sells the solar system to a third-party investor, does SolarCity lease the system back from the third party investor? If so, please explain why.
See response to 2.4.

2.13 Please confirm that the School District does not "use" the installed system.
For purposes of IRS tax classification, the school will not be the "user" of the system; otherwise the IRS would consider the transaction a lease and would not allow Federal tax incentives to apply.

2.14 Please confirm that the School District does not lease the installed system.
The school does not "lease" the system for the purposes of IRS tax classification.

2.15 Please confirm that the owner of the installed system sells the electricity generated by the installed system to the School District.

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b. Does that estimated return include the incentives paid by APS? If not, what would be the return if they were included? If so, what would be the return if they were excluded?

c. Does that estimated return include the tax credits to be received by SolarCity? If not, what would be the return if they were included? If so, what would be the return if they were excluded?
See response to 2.4

2.19 For each of the following associated benefits, please describe how they are treated as a deduction from the capital costs for solar systems? If they are not a deduction from the capital costs, the please describe how these benefits offset capital costs and expenses in determining the pricing and the $/kWh in SSAs. Provide all supporting documentation that justifies the accounting treatment of these benefits when determining pricing and the $/kWh rate in SSAs.

a. Incentive Payments (e.g. the $0.187/kWh from Arizona Public Service Company)

b. 30% Investment Tax Credit

c. 50% Bonus Depreciation under the ARRA

d. MACRS
See response to 2.4

2.20 Please explain why the customer has the option to purchase the system after 6, 10 and 15 years. If a customer desired to purchase a solar system owned and used by SolarCity after 8 years, for example, please describe whether and how SolarCity would determine the purchase price for the solar system.
SolarCity does not offer a continuous buyout option because the IRS may then consider the transaction a purchase and thus disallow the Federal tax incentives based on the tax exempt status of the school.

2.21 In his Direct Testimony, responding to question 20, Mr. Rive states "[in] exchange, the utility will pay SolarCity any applicable incentive payments."

a. Please provide any agreement between APS and/or SRP and SolarCity that provides for payment of the incentives from APS/SRP to SolarCity.
Pursuant to discussions with APS and SRP, SolarCity amended their Solar Services Agreement to indicate that all Environmental Incentive payments would accrue to the school and in turn the

school would assign such payments to SolarCity. SolarCity docketed this amendment with the Commission and has attached a copy hereto as **Exhibit A**.

b. If no agreement exists, describe how the incentive payments are ultimately received by SolarCity, and the role the customer plays in the transfer of those incentives to SolarCity.
See response to 2.21 (a).

2.22 Exhibit C of Mr. Rive's Direct Testimony is a copy of IRS Code § 50 (b)(3), but Mr. Rive's Direct Testimony, responding to question 21, alludes to charts of how prices are affected by various rebates being included as Exhibit C.

a. Please provide the chart of how prices are affected by various rebates.

b. Please provide all supporting documentation, workpapers, spreadsheets in excel format, for determining how various rebates will affect the pricing of the system.

c. How often (e.g. once annually) can the $/kWh rate change if the incentives were to change over time (e.g. from $0.187 per kWh to $0.168 per kWh).
See response to 2.4

2.23 Regarding his response to question 24, Mr. Rive proclaims "SolarCity's investors are unwilling to invest on systems based on the risks and potential costs of regulation."

a. What does Mr. Rive mean when he states "based on the risks and potential costs of regulation?"
SolarCity believes that any level of regulation will add costs to its operations in Arizona in the form of administrative burdens and time delays and that any regulation will increase the risk of uncertainty due to the propensity for regulations to change based on the composition of the Commission. These additional costs and risks would translate to higher prices which has the potential to make the Arizona marketplace unsuitable for solar based on the low price of traditional electricity from public service corporations and therefore make Arizona an undesirable market for SolarCity and its investors.

b. What risks and potential costs do investors believe will manifest if SSA providers such as SolarCity are regulated as public service corporations in Arizona.
See response to 2.23 (a).

c. Please describe how regulatory lag factors into the risks and potential costs investors perceive.

2.25 Does SolarCity believe it provides a service that offsets the amount of kWh a customer needs from its incumbent utility such as APS or SRP? If not, explain why not.
Potentially. SolarCity provides the customer with the ability to generate a certain amount of their own clean electricity on-site. This could potentially lead to lower demand from their Public Service Corporation provider. However due to the adoption of the solar system, the customer may alternatively choose to increase its overall energy demand if so desired (i.e. lowering thermostats to a more comfortable level, or extending working hours), thus yielding no net offset of their demand from their incumbent utility.

2.26 Is the monthly charge SolarCity assesses against the customer based on the amount of energy consumed by the customer from the solar system installed by SolarCity? If not, explain why not.
No. The monthly charge is based on the amount of energy produced by the system, not the amount of energy consumed by the customer. This is a significant difference between SolarCity and a Public Service Corporation provider.

2.27 Please explain how capacity or demand factor affected the determination of the $/kWh for Desert Mountain and Coronado High Schools.
See response to 2.4.

2.28 Regarding David Peterson's pre-filed Direct Testimony, in response to question 5, please describe the two-step process the Scottsdale Unified School District used to select SolarCity. Please describe what it was about SolarCity's offer that made it the most attractive to the School District.
The Scottsdale Unified School District RFP is attached hereto as **Exhibit B**. SUSD informs us that from the initial respondents, SUSD selected three finalists to interview for the award. SUSD informs us that SolarCity was selected based on the strength of the interview, company experience, and because they offered the greatest overall package of benefits to the school in terms of costs, system quality, and the potential for integrated educational opportunities.

2.29 Please explain why the SSA is the only means by which the School District would be able to develop a solar system on school premises? What other means did the School District explore to reduce its up-front capital requirements for solar systems? Did the School District explore the availability of funding from the American Recovery and Reinvestment Act, through Arizona's State Energy Program or otherwise, to limit or reduce its up-front capital requirements. Please provide all supporting documentation that shows what means the School District explored besides an SSA.
The SSA financing arrangement is the only way for a tax exempt entity to capitalize on available Federal tax incentives thereby providing the school with the ability to adopt a solar system with no up-front costs. The school district tells us that it did explore the availability of ARRA

funding but determined that this would be an inefficient use of these funds as it would still not allow the school to capitalize on the very significant and valuable Federal tax incentives thereby translating to a prohibitively high cost of adopting solar. State of Arizona ARRA Dollars for Energy Projects is being administered by the School Facilities Board (SFB). The SFB is placing $5 Million into Solar Energy and it is only for the smallest districts in the State and will only take care of less than 15 school districts of the 226 districts.

2.30 What does the School District believe comprises the $-per-kWh charge it is being charged under the SSA with SolarCity?
The School District informs us that it believes that the $/ kWh price is comprised of the total value of the use of the system with no up-front payment and various buy-out options, the value of the services provided by SolarCity, a reasonable return for SolarCity and its investors and the system reporting and realtime information processing that will provide educational opportunities for both students and the public and the affected campuses.

2.31 What does the School District believe specifically factored into the determination of the $0.11-per-kWh charge it will be assessed by SolarCity?
See response to 2.30.

2.32 What does the School District believe it is paying for under the SSA?
The School District informs us that it believes it is paying for the use of a solar system with no up-front costs, the ability generate its own electricity, maintenance, and the option to purchase the system at certain points during the agreement for less than the total up-front value. The District believes that it is paying for a solar PV system that allows it to budget at a guaranteed set cost for the life of the agreement and that this mechanism allows it to reduce its carbon footprint.

2.33 What does the School District believe factored into the charge it is being assessed under APS' Schedule E-32 and the equivalent SRP schedule?
The School District informs us that it is not aware of what specifically comprises the rates it is assessed under APS and SRP rate schedules.

2.34 In response to question 13, Mr. Peterson also states "Regulation is likely against the public interest because it would increase costs and therefore decrease savings. Future responses would be limited due to regulation and prices quoted would be at a higher price due to the costs associated with regulation." Please describe what costs the School District believes would increase with regulation.
The School District informs us that it believes that any regulation would increase costs for solar providers due to increased administrative burdens and time delays. This in turn would lead to higher prices for the school which would make adopting solar no longer economically viable. At

the system and not the amount of electricity *consumed* by the customer. This is a significant difference from a Public Service Corporation provider.

2.40 Please provide a copy of SolarCity articles of incorporation, by-laws, and any other documents concerning SolarCity's corporate governance.
Attached as **Exhibit C**.

2.41 How many requests does SolarCity receive for its services? How many requests does SolarCity accept? How many requests does it deny? Please provide all supporting documentation for the responses.
SolarCity is in the process of compiling this information and will provide such information in additional testimony from Mr. Rive prior to the hearing date.

2.42 Does SolarCity believe it provides a service that is in the public interest to promote? If so, explain why. If not, explain why not.
SolarCity believes it is in the public interest to promote the adoption of renewable energy and that the Commission has chosen to do so through the adoption and implementation of its REST rules.

2.43 Does SolarCity believe the Commission's Renewable Energy Standard Tariff Rules ("REST Rules") are in the public interest? If so, does SolarCity benefit from the continuation of the REST Rules? If so, explain how SolarCity believes it benefits from the REST Rules.
SolarCity believes that the Commission's REST rules promote the adoption of renewable energy which is in the public interest. SolarCity benefits from these rules and their continuation by utilizing the REST incentive payments from Public Service Corporations to provide a lower price for solar equipment.

2.44 Does SolarCity believe its service is one that provides an alternative to those obtaining their energy needs from utilities such as Arizona Public Service Company and/or Salt River Project? If not, explain why not.
No. SolarCity does not seek to provide nor would it be able to provide 100% of a customer's electricity demand. SolarCity customers must remain connected to the grid and must receive continued service from their Public Service Corporation provider at all times. Therefore SolarCity's services are not an alternative to the services provided by the Public Service Corporations.

2.45 Does SolarCity believe the fact that it provides its services under the SSAs mean that it is not a public service corporation? If so, explain SolarCity's rationale for why providing service via SSAs makes it not a public service corporation?

SolarCity

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SolarCity Announces New Residential Solar Service in Oregon, Plans to Expand Local Operations

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SolarCity and Rabobank Announce Corridor of Solar-Powered Electric Vehicle Charging Stations

SolarCity Introduces Solar Lease to Customers of Nation's Largest Municipal Utility

SolarCity Introduces Affordable Solar Financing Option for Small, Medium and Large Businesses

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EXHIBIT
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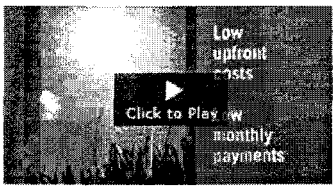
SolarLease

At SolarCity we believe clean solar energy should be affordable for everyone. That's why we created the groundbreaking solar lease option SolarLease™, a way for homeowners to go solar without any upfront cost and save money from day one.

Go Solar for $0 Down

Now you can afford to go solar without the high initial cost of installing a system. Instead of buying the equipment, you simply lease it. SolarLease is the most popular residential solar financing option in the country!



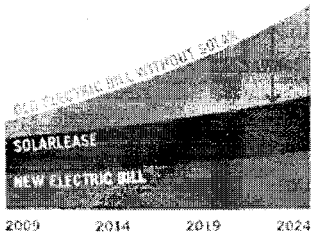
What's SolarLease

Save on Electricity Costs from Day One

With a SolarLease, you pay as you go, instead of all at once. The combination of your low monthly lease payment and smaller electricity bill is typically less than what you pay the utility company today. So you can start saving money from the very first day.

Savings Grow Every Year

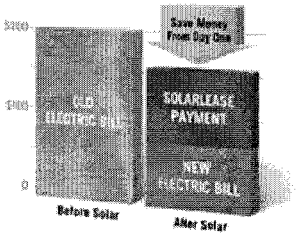
Your savings can grow over time as utility rates continue to increase. Historically, utility rates have increased over 5% every year. With SolarLease, you can lock in lower electricity rates for the term of your lease.



Smart Financial Investment

A SolarLease can be a better investment than purchasing your system with cash because you do not have a big upfront payment and can save your money for other opportunities. You save money every month on electricity bills so you can be cash flow positive from day one. In addition, you do not have to worry about unexpected repair costs because they are covered under a SolarLease.

Save on Electricity Every Month



For a typical 3-bedroom home with a current electricity bill of $200 per month, we might recommend a medium sized 4 kW solar system.

Your new solar system will generate enough electricity to offset what you are currently paying to the utility company from $200 down to $60 per month.

Your SolarLease payment would be $0 down and $110 per month. So you could actually save $30 per month from day one.

You can save $10,050 over the next 15 years, because you have locked in low price for solar electricity while utility rates continue to increase.

Calculate How Much You Can Save

Try our solar calculator to see how much you can save. It's easy and only takes a minute!

Calculate Savings ▸

"We've wanted to go solar for quite a long time. With SolarLease we can immediately get all the advantages of solar energy... without blowing our budget."

Don & Ginger Creevy

Includes Free Monitoring and Repair Service

With a SolarLease, you have peace of mind that your system will continue to perform beautifully for years to come. SolarLease includes SolarGuard® proactive monitoring for the full life of the lease. SolarGuard allows you and SolarCity to continuously monitor your system to ensure it is running smoothly and performing as expected.

In the unlikely event that your system underperforms, SolarCity will alert you and help to remedy the situation. We will send out a repair crew for free warrantee repairs over the life of the lease. This includes replacing a worn out part such as the inverter. The good news is that solar panels typically last up to 30 years or longer, and have few moving parts. So once systems are installed, they require little ongoing maintenance.

We Guarantee System Performance or We Will Pay You Back

We're so confident with our system installation and design that we guarantee your system will perform as promised or SolarCity will pay you the difference! Our guarantee considers normal weather variations and solar panel performance over time. We track your system performance through our SolarGuard monitoring service, so we know exactly how much energy it is producing every day, week, month and year!

Flexibility to Upgrade the System Later

When your SolarLease ends, the power is still in your hands. You can upgrade to a new system with the latest solar technology. You can also extend your lease in 5 year increments or simply have the panels removed for free.

If you sell your home before the end of the lease, you can transfer the lease to the new owners if they qualify with excellent credit, or you can prepay the lease and add it to your home asking price. A solar system will help differentiate your home from other properties on the market—new buyers are looking for green homes that are energy efficient and will help them save money on energy costs.

Financing Options

In some states and utility districts, SolarCity's financing plan is called PurePower. To qualify for financing, you need to have excellent credit (a FICO score of 700 or greater). SolarLease is not available in all areas.

ACCREDITED BUSINESS

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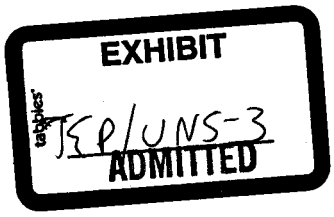

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SolarCity Introduces Affordable Solar Financing Option for Small, Medium and Large Businesses

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PurePower

With SolarCity's new PurePower™ service, you pay purely for the power you produce each month.

$0 to Go Solar

Now you can install a home solar system for $0 upfront cost, because you are not buying the solar equipment—you are just buying the solar power.

Pay as You Go

With PurePower service, you pay only for the solar electricity you produce each month. SolarCity combines all available government incentives into one low solar electricity rate.

You pay the same rate for your solar electricity as you currently pay your utility company today—so you can switch to clean solar power for no extra cost!

Plus, with PurePower you are locking in a low cost of electricity. No matter how much utility rates continue to increase, your solar electricity rate will be predictable for the long run.

Smart Financial Decision

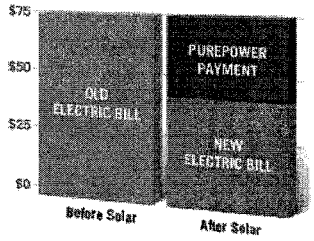
PurePower can be better than purchasing a solar system for $20,000+ because you can save your money for other opportunities. When you purchase a solar system, you are essentially pre-paying 30 years worth of electricity; but with PurePower service you pay as you go.

PurePower is a Power Purchase Agreement (PPA). A PPA is a financing plan commonly used in the solar industry by most businesses when they install a solar system, including Intel, Walmart and Whole Foods.

Free Maintenance and Monitoring Service

With PurePower, we install and maintain the equipment

PurePower Example
For a Typical 3 Bedroom Home



For a typical 3-bedroom home with a current electric bill of $75 per month, we might recommend a medium sized 3.5 kW solar system.

Your new solar system will generate enough electricity to offset what you are currently paying the utility company from $75 down to $45 per month.

Your solar payment would be $0 down and $30 per month. So you can switch to solar at no extra cost.

on your home, so you don't have to worry about ongoing maintenance costs. SolarCity owns the equipment and is responsible for repairs, such as inverter replacement.

PurePower includes SolarGuard® proactive monitoring for the full life of the term. SolarGuard allows you and SolarCity to continuously monitor your system to ensure it is running smoothly and performing as expected.

In the unlikely event that your system underperforms, we will alert you and help to diagnose the issue, and dispatch a repair crew, free of charge, if necessary. The good news is that solar panels typically last up to 30 years or longer, and have few moving parts. So once systems are installed, they require little ongoing maintenance.

Flexibility to Upgrade the System Later

PurePower is a very flexible way to go solar. Your solar advisor will help you determine how much electricity you want to offset. Then we will size your solar system to meet your objectives. Your payment will remain level and consistent throughout each year of the agreement.

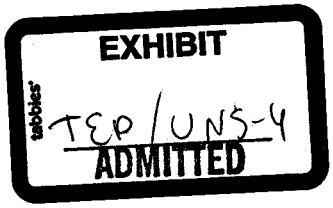
When your PurePower term ends, you have several good options including upgrading to a new system with the latest solar technology under a new PurePower agreement. You also have the option (but no obligation) to purchase the system at the end of the term for fair market value. Or you can ask SolarCity to remove your system for free.

If you sell your home before the end of the agreement, you can transfer the PurePower service to the new owners if they qualify with excellent credit, or you can prepay the expected solar electricity costs for the remainder of the term and add it to your home asking price. A solar system will help differentiate your home from other properties on the market—new buyers are looking for green homes that are energy efficient and will help them save money on energy costs.

Financing and Service Options

In some states and utility districts, SolarCity's financing plan is called SolarLease. PurePower is not available in all areas. To find out which plans are available in your area, go through our Solar Calculator.

To qualify for financing, you need to have excellent credit (a FICO score of 700 or greater).



Media Center

Press Releases

Press Contact:
Jonathan Bass | 650-963-5156 | jbass@solarcity.com

SolarCity Announces New Residential Solar Service in Oregon, Plans to Expand Local Operations

PurePower™ can enable Oregon homeowners to install solar power for no money down and a net cost of $0 each month

PORTLAND, Ore., Oct. 8, 2009—SolarCity®, a national leader in solar financing, design, installation, monitoring and related services, today announced a new residential solar service for Oregon homeowners. SolarCity's PurePower™ can enable Oregon homeowners to power their homes with solar electricity and pay the same rate they were previously charged for electricity from the utility company. PurePower pricing for a 3.5 kilowatt solar system in Oregon, appropriate for a typical three or four-bedroom home, would start at $30/month, with no upfront cost, on approved credit. This solar system would typically reduce the customer's electricity bill an equivalent amount, for a net cost of $0 each month. The service includes custom design and installation, SolarCity's SolarGuard® proactive monitoring service, repairs and maintenance.

"Financing has traditionally been a barrier to going green, and especially to going solar," said Portland Mayor Sam Adams. "This summer, we launched Clean Energy Works Portland, a program to remove up-front cost barriers so homeowners can do energy retrofits. Now, with SolarCity's innovative approach, Portlanders will have one more affordable way to reduce their emissions, save energy, and contribute to Portland's sustainability."

PurePower is a power purchase agreement (PPA) with a 10-year term, in which SolarCity installs, owns and maintains the solar system and the homeowner pays for the power it produces. With PurePower, SolarCity is delivering the same affordable financing model to homeowners that it provides to Oregon businesses.

"Oregon homeowners want clean power, but residential solar has not reached its full potential here due to upfront cost and complexity," said Lyndon Rive, CEO of SolarCity. "PurePower can allow Oregon homeowners to go solar at a $0 net cost. This is a simple solar option that makes clean power affordable and accessible for a large number of families."

SolarCity made PurePower available to Oregon homeowners this week. The company expects to hire 20 new employees in Oregon and move into a new facility to accommodate new residential demand, with new installations set to begin in March. PurePower will initially be available to Oregon homeowners in Portland and surrounding communities in areas served by Portland General Electric and Pacific Power. More information about PurePower is available online at www.solarcity.com/purepower.

Homeowners interested in PurePower can contact SolarCity directly at 1-888-SOL-CITY (1-888-765-2489) to speak with a solar advisor, or visit SolarCity online at www.solarcity.com/request. Candidates interested in available positions in Oregon can contact SolarCity via its online jobs form at www.solarcity.com/jobs.

About SolarCity

SolarCity—a national leader in solar power system design, financing, installation, monitoring and related services—was founded with the mission to help millions of homeowners and businesses adopt solar power, protect themselves from rising electricity costs and protect their environment from polluting power sources. The company's SolarLease™, PurePower™ and Commercial Power Purchase Agreement (PPA) options can make it possible for homeowners and businesses to switch to clean, solar power for less money than they currently pay for electricity. SolarCity currently serves more than 500 communities in California, Arizona and Oregon. Additional information about the company is available on the Web at www.solarcity.com.

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Photo Gallery

Video

News
SolarCity Announces New Residential Solar Service in Oregon, Plans to Expand Local Operations

SolarCity and U.S. Bank Expand Fund to Finance Solar Projects

SolarCity and Rabobank Announce Corridor of Solar-Powered Electric Vehicle Charging Stations

SolarCity Introduces Solar Lease to Customers of Nation's Largest Municipal Utility

SolarCity Introduces Affordable Solar Financing Option for Small, Medium and Large Businesses

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Press Contact:
Jonathan Bass | 650-963-5156 | jbass@solarcity.com

SolarCity Introduces Solar Lease to Customers of Nation's Largest Municipal Utility

SolarLease™ makes it possible for LADWP customers in Los Angeles area to adopt solar power for less than they previously paid for electricity, and save money from day one

CULVER CITY, Calif., July 27, 2009—SolarCity® today announced the availability of its award-winning solar leasing option (SolarLease™) to customers of Los Angeles Department of Water and Power (LADWP), the nation's largest municipal utility. SolarCity's lease combines with LADWP's generous solar rebates, among the highest of any U.S. utility, to make solar power as affordable for Los Angeles homeowners as anywhere in the nation. A SolarCity solar lease of a 4-kilowatt solar system, appropriate for a typical 3-bedroom home in Los Angeles, would start at $55 per month, with no money down, on approved credit.

LADWP provides more than 1.4 million customers in the Los Angeles area with electricity. Erik Solter, a homeowner in Canoga Park in the San Fernando Valley, is among the first group of LADWP customers to sign up for SolarLease. "I've always wanted to be greener but I've been waiting for an option that makes financial sense," says Solter. "With SolarCity's SolarLease I can adopt solar power for less than I used to pay for electricity and help LADWP conserve energy."

SolarCity's solar leasing option for LADWP customers is a 20-year lease with fixed monthly payments for the life of the lease, so savings increase over time if electricity rates rise. The first month's payment is due when the system is turned on. SolarCity's lease option includes financing, design, installation, a performance guarantee, the company's Web-based SolarGuard™ monitoring service, and repair service.

"LADWP and Mayor Villaraigosa are continually working to increase the use of solar power in Los Angeles," said Lyndon Rive, CEO of SolarCity. "More than 1,000 LADWP customers have already inquired about our solar lease option, and we're hiring 25 new installers in the Los Angeles area to help meet the demand."

LADWP customers interested in SolarCity's new lease option can estimate their solar lease payment and potential electricity savings online by using SolarCity's solar calculator, available at www.solarcity.com. The solar calculator incorporates information about LADWP rates, incentives, local weather and solar production to create a customized estimate for each customer. Interested LADWP homeowners can also contact the SolarCity directly at 1-888-SOL-CITY (1-888-765-2489) to speak with a solar advisor. CA CSLB 888104.

About SolarCity

SolarCity—a national leader in solar power system design, financing, installation, monitoring and related services—was founded with the mission to help millions of homeowners and businesses adopt solar power, protect themselves from rising electricity costs and protect their environment from polluting power sources. The company's SolarLease™, PurePower™ and Commercial Power Purchase Agreement (PPA) options can make it possible for homeowners and businesses to switch to clean, solar power for less money than they currently pay for electricity. SolarCity currently serves more than 500 communities in California, Arizona and Oregon. Additional information about the company is available on the Web at www.solarcity.com.

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BEFORE THE ARIZONA CORPORATION COMMISSION

KRISTIN K. MAYES, Chairman
GARY PIERCE
SANDRA D. KENNEDY
BOB STUMP
PAUL NEWMAN

IN THE MATTER OF THE APPLICATION OF SOLARCITY FOR A DETERMINATION THAT WHEN IT PROVIDES SOLAR SERVICE TO ARIZONA SCHOOLS, GOVERNMENTS, AND NON-PROFIT ENTITITES IT IS NOT ACTING AS A PUBLIC SERVICE CORPORATION PURSUANT TO ART. 15, SECTION 2 OF THE ARIZONA CONSTITUTION	Docket No. E-20690A-09-0346 **NOTICE OF FILING TESTIMONY OF WESTERN RESOURCE ADVOCATES**

Western Resource Advocates ("WRA"), through its undersigned counsel, hereby provides notice that it has this day filed the written testimony of David Berry in connection with the above-captioned matter.

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RESPECTFULLY SUBMITTED this 30th day of September, 2009.

ARIZONA CENTER FOR LAW IN THE PUBLIC INTEREST

By _____
Timothy M. Hogan
202 E. McDowell Rd., Suite 153
Phoenix, Arizona 85004
Attorneys for Western Resource Advocates

ORIGINAL and 13 COPIES of the foregoing filed this 30th day of September, 2009, with:

Docketing Supervisor
Docket Control
Arizona Corporation Commission
1200 W. Washington
Phoenix, AZ 85007

COPIES of the foregoing electronically served this 30th day of September, 2009 to:

All Parties of Record

BEFORE THE ARIZONA CORPORATION COMMISSION

COMMISSIONERS

KRISTIN K. MAYES, Chairman
GARY PIERCE
PAUL NEWMAN
SANDRA D. KENNEDY
BOB STUMP

IN THE MATTER OF THE APPLICATION OF SOLARCITY CORPORATION FOR A DETERMINATION THAT WHEN IT PROVIDES SOLAR SERVICE TO ARIZONA SCHOOLS, GOVERNMENTS, AND NON-PROFIT ENTITIES IT IS NOT ACTING AS A PUBLIC SERVICE CORPORATION PURSUANT TO ART. 15, SECTION 2 OF THE ARIZONA CONSTITUTION.	DOCKET NO. E-20690A-09-0346

Testimony of

David Berry

Western Resource Advocates

September 30, 2009

Testimony of David Berry
Docket No. E-20690A-09-0346

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Introduction

Q. Please state your name and business address.

A. My name is David Berry. My business address is P.O. Box 1064, Scottsdale, Arizona 85252-1064.

Q. By whom are you employed and in what capacity?

A. I am Senior Policy Advisor for Western Resource Advocates.

Q. Please describe Western Resource Advocates.

A. Founded in 1989, Western Resource Advocates (WRA) is a non-profit environmental law and policy organization dedicated to restoring and protecting the natural environment of the Interior American West. We have developed strategic programs in three areas: water, energy, and lands. We meet our goals in collaboration with other environmental and community groups and by developing solutions that are appropriate to the environmental, economic and cultural framework of the region. Western Resource Advocates has been involved in Arizona utility regulatory issues for about 20 years.

Q. What are your professional qualifications for presenting testimony in this docket?

A. Exhibit DB-1 summarizes my qualifications.

Q. What is the purpose of your testimony?

A. My testimony sets forth reasons that SolarCity is not a public service corporation when it offers solar service agreements.

SolarCity's Request

Q. What is SolarCity requesting in this docket?

A. SolarCity is requesting that the Commission find that, when SolarCity enters into a solar services agreement with a tax-exempt entity, SolarCity is not a public service corporation.

Q. SolarCity included in its filing a copy of its contract to provide solar services to the Scottsdale Unified School District. Please summarize the solar service agreement provided in SolarCity's application.

A. According to the contract included in its petition, SolarCity will provide the financing, design, development, and operation of a 399.6 kW (DC) photovoltaic (PV) system at Coronado High School. The PV system is expected to produce about 712,000 kWh per year. The customer pays $0.11 per kWh for electricity generated by the PV system over a 15 year period. The parties may agree to extend the term of the contract. The customer also has the option to purchase the PV system at specified times. The customer takes title to the electricity the instant it is generated. A second similar contract for Desert Mountain High School is described in Staff's memorandum filed in this docket on August 14, 2009. The Desert Mountain project is 968 kW.

Q. Would other solar service agreements with other customers be priced the same way?

A. Broadly speaking, yes. However, the specific price would reflect the cost of the system, the applicability of various tax incentives, the amount of the utility incentive, and perhaps other factors. The price may or may not be the same in every year, but the contract would specify the price in each year or the formula for calculating the price in each year.

Q. From the perspective of the purchaser, what benefits do solar service agreements provide?

A. Distributed solar energy projects provide economic benefits and environmental benefits.

The two contracts described in Staff's memorandum provide hedges against uncertain future rate increases by SRP or APS. The hedging aspect of the solar service agreements is evident when examining the spreadsheet attachments in Staff's August 14, 2009 filing in this docket. Future utility prices over the multi-year contract period are uncertain but the solar service agreements have a fixed price. The schools and SolarCity prepared analyses of the solar energy price under assumptions about future utility rates and the schools concluded that a fixed price of $0.11 per kWh for solar energy was an acceptable hedge against future utility rate increases. More generally, Mayor Gordon's letter filed in this docket on September 8, 2009 recognizes the hedge value of solar service agreements.

Solar service agreements enable the consumer to obtain electricity from photovoltaic or other solar resources. These resources typically emit no pollutants into the atmosphere in contrast to power generated from coal or gas-fired generators by utilities. Moreover, solar resources located on the customer's premises require little or no water in contrast to typical

utility steam generation technologies. Thus, the consumer can meet part of his or her demand for electricity with clean energy resources.

Market for Distributed Photovoltaic Systems

Q. How much photovoltaic generation capacity is there in Arizona and in other states?

A. The table below compares Arizona photovoltaic installations with those in other southwestern states and the US.[1] Note that some of the installations are not at customer sites but are central station projects that provide power directly to a utility. As of the end of 2008, there were about 25 MW of photovoltaic installations in Arizona, of which 6.4 MW were installed in 2008. The average nonresidential photovoltaic installation in 2008 was about 110 kW and the average residential installation was about 4.9 kW.[2]

State	Total Grid Connected Photovoltaic Installed Capacity 2008 (MW DC)	Grid Connected Photovoltaic Capacity Additions in 2008 (MW DC)
Arizona	25.3	6.4
New Mexico	1.0	0.6
Colorado	35.7	21.7
Utah	0.2	-
Nevada	34.2	14.9
California	528.3	178.7
US	**792**	**289.8**

Q. Please compare the agreement SolarCity proposes to offer and distributed energy services offered through other types of arrangements.

A. In the solar energy industry, services from distributed solar energy projects may be offered to customers in a variety of ways. For example, the customer may simply purchase the equipment, perhaps with financing. Or the customer could lease the solar energy equipment. Or a customer may enter into a purchased power agreement with a seller. The Lawrence Berkeley National Laboratory defines a purchased power agreement as a third-party ownership structure in which the site host neither owns nor leases the PV system, but instead agrees to buy all of the electricity generated by the system for a specified term.[3] The solar service agreement offered by SolarCity is a purchased power agreement.

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[1] Larry Sherwood, *U.S. Solar Market Trends 2008*, Interstate Renewable Energy Council, July 2009, pp. 7 & 16.

[2] Larry Sherwood, *U.S. Solar Market Trends 2008*, Interstate Renewable Energy Council, July 2009, p. 5.

[3] Mark Bolinger, *Financing Non-Residential Photovoltaic Projects: Options and Implications*, Lawrence Berkeley National Laboratory, LBNL-1410E, January 2009, p. 17.

In each of these cases, and in variations on them, the technology and equipment are the same. The differences arise from payment and ownership arrangements. Customers may or may not purchase maintenance service from the seller.

Q. Are purchased power agreements widely used in the solar industry?

A. Yes. According to the Interstate Renewable Energy Council (IREC), nearly all of the larger installations and many medium size non-residential installations use purchased power agreements and at least one company offers purchased power agreements for residential customers.[4]

Q. Does the Commission typically regulate the price of distributed energy equipment purchased by a customer, such as a rooftop PV system?

A. No. Many homeowners and businesses have purchased rooftop PV systems throughout Arizona and, to my knowledge, the Commission has not attempted to regulate the price of this equipment.

Distributed Solar Energy Systems and the Commission's Renewable Energy Standard

Q. How does this case relate to the Commission's policies regarding renewable energy?

A. The Commission's Renewable Energy Standard (A.A.C. R14-2-1801 *et seq.*) requires electric utilities to meet certain goals regarding central station and distributed renewable energy production. The type of financial arrangement used by SolarCity is an attractive approach for installing distributed photovoltaic energy projects on the premises of tax exempt entities such as schools, nonprofit organizations, and government agencies. Purchased power agreements for distributed solar energy would help utilities meet their distributed energy requirements under the Renewable Energy Standard.

However, Mr. Rive testified (response to question 25) that regulation is likely to drive out numerous, if not all, solar energy providers from Arizona. Mr. Rive states that SolarCity's profits and its investors' returns would suffer, causing them to look outside Arizona for investments. Customers would then have to evaluate other, less financially favorable, ways of obtaining solar energy on their premises. Consequently, it will be more difficult or more

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[4] Larry Sherwood, *U.S. Solar Market Trends 2008*, Interstate Renewable Energy Council, July 2009, p. 4.

expensive for utilities to meet their distributed energy requirements for renewable resources under the Renewable Energy Standard.

Q. Please explain why it would be more difficult or expensive for utilities to meet their distributed renewable energy requirements.

A. Solar service agreements are attractive because they provide financing for the customer who then does not have to pay for the distributed renewable energy facility up-front. Moreover, for those customers who would not be eligible for tax incentives (such as public schools), the solar service agreements provided by SolarCity incorporate the effects of the tax incentives and lower the cost to the customer. In the absence of solar service agreements, customers will have to look to other ways to acquire on-site renewable energy such as an outright purchase of the facility, leasing, or finding alternative financing.[5] These options are likely to either require large up-front payments which make distributed renewable energy less attractive, or may not have such favorable payment structures because they do not incorporate the effects of tax incentives. Consequently, the higher cost of distributed renewable energy projects will reduce the quantity of distributed renewable energy projects purchased. To offset the decline in demand, utilities will have to offer larger incentives to meet their renewable energy requirements.

Solar Service Agreements and Public Service Corporations

Q. Does the fact that SolarCity charges per kWh for photovoltaic energy mean that it is a public service corporation?

A. No. The Corporation Commission typically sets rates per kWh consumed but there is no requirement that it do so. It could set rates based on expected demand and authorize only a monthly service charge, for example. Street lighting service is often provided in this way. As another example, landline phone service in Arizona is typically priced as a monthly service charge unrelated to the minutes of calling. Looking at how SolarCity structures charges for its service is irrelevant to whether it is a public service corporation. Charging for service tells us nothing about whether a company is a public service corporation -- all suppliers charge for their services, regardless of what industry they are in.

[5] Financing the project would likely involve payments to the lender regardless of how well the project performs. This contrasts with solar service agreements in which payments depend on the performance of the distributed energy system.

Q. What factors should be considered in determining whether SolarCity is a public service corporation?

A. I reviewed the factors considered in previous disputes about whether a company is a public service corporation.[6] My review considered economic and related factors and was not a legal review. Factors to be considered in determining whether a company is a public service corporation are: dedication of private property to public use, a public interest in the service, the essential nature of the service, monopoly pricing, the presence of uninformed customers, and an obligation to serve all or nearly all requests for service.

Use of solar service agreements does not imply that the provider is a public service corporation as explained below.

- ***Absence of dedication of private property to public use.*** The public does not use a photovoltaic system installed on a customer's property. A customer-sited solar energy facility primarily serves only that customer and may only incidentally sell excess generation back to the utility.

- ***Absence of a public interest in customer-sited distributed energy projects.*** A characteristic of a public service corporation is that its activities require governmental control of its rates, charges and methods of operation. There is a long history of public interest in the production and sale of electricity from central station generation resources and in the transmission and distribution of that electricity. However, there is little public interest when an individual customer obtains some of his or her electricity via a generation facility located at the customer's premises. The service affects only the customer on whose premises the distributed energy project is located. The service is provided primarily for the benefit of the property owner, not for the general public.[7] Thus, no governmental control of the price and method of operation is required.

- ***Non-essential nature of the service.*** Regulation of public service corporations is intended to preserve and promote those services which are indispensable to large segments of the population. While furnishing electricity through a network of generators, transmission facilities, and distribution facilities may be regarded as an

[6] The cases I reviewed are: Trico Electric Cooperative v. Corporation Commission, 86 Ariz. 27; 339 P. 2d 1046; 1959. General Alarm v. Underdown, 76 Ariz. 235; 262 P. 2d 671; 1953. Natural Gas Service Co. v. Serv-Yu Cooperative, 70 Ariz. 235; 219 P. 2d 324; 1950. Southwest Gas Corp. v. Arizona Corporation Commission, 169 Ariz. 279, 818 P. 2d 714 (App. 1991). Phelps Dodge Corp. v. Ariz. Elec. Power Coop., Inc., 207 Ariz. 95, 83 P. 3d 573 (App. 2004). Southwest Transmission Cooperative v. Arizona Corporation Commission (1 CA-CV 05-0369, 2006).

[7] Environmental benefits would also affect others.

essential service, a grid-connected consumer does not have to obtain solar electric services provided by facilities located on-site in order to function. Rather than seeking essential services, that customer could be seeking a hedge against higher utility rates or seeking energy resources with little or no environmental impact.

- ***Absence of a monopoly.*** A fundamental reason for regulating the sale of electricity to retail consumers is that the sellers have been considered to be "natural monopolies." A natural monopoly occurs when one firm can supply all the demand in a market at a price lower than two or more firms can. This situation can arise from economies of scale.[8] In the case at hand, there are multiple companies marketing and supplying distributed generation from renewable energy resources. SolarCity is one such company. These companies operate in regional, national, or international markets and compete with each other.[9] They are not in a position to monopolize the Arizona market in distributed generation or central station generation and there are no large barriers to entry into the market, except perhaps the threat of rate regulation. There is no evidence that competition might lead to abuse detrimental to the public interest that could be remedied by rate regulation.

- ***Informed customers.*** One reason for regulation of public service corporations may be that consumers are uninformed. In this instance, school district managers, government agencies, and other tax exempt entities are, in general, capable of comparing options for distributed energy resources as well as the many other inputs into their activities. The school district managers entering into the solar service agreements with SolarCity conducted their own analyses of the benefits of the solar service agreements. There is no reason to suppose that they need regulatory assistance in bargaining with competing suppliers of distributed energy facilities.

- ***No obligation to serve.*** SolarCity is not obligated to serve all potential customers. Mr. Rive states (response to question 23) that not every consumer is a suitable candidate for a solar service agreement. For example, some consumers may not

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[8] Recently, some states have opened the market for retail sales of electricity to competition.

[9] Other companies operating in Arizona include the following: American Solar Electric (http://www.americanpv.com); SPG Solar (http://www.renewableenergyworld.com/rea/partner/spg-solar-inc-1452/news/article/2009/04/spg-solar-expands-operations-into-arizona); Dependable Solar (http://www.dependablesolarproducts.com); Wilson Electric Solar Division (http://www.wilsonelectric.net/solar.htm); and PerfectPower Inc. (http://www.perfectpowernetwork.com). SunRun offers a solar lease for Arizona residential customers and offers monitoring, maintenance, repairs, insurance and performance guarantees (http://www.renewableenergyworld.com/rea/news/article/2009/04/sunrun-comes-to-arizona). SunRun also offers purchased power agreements (http://www.sunrunhome.com/learn_about_solar/solar_financing/). These companies may or may not offer solar service agreements but they are all in the distributed solar energy business.

have sufficient space in which to install a solar energy system, or the site may receive little direct sunlight, or a building may not be structurally suitable for a solar energy system, or the customer's credit may be unacceptable to SolarCity, and so forth. Moreover, a seller of solar energy services may choose, as a business decision, to market only to certain types of customers, such as high income residential customers, builders of new homes, customers in a particular industry, etc., and not to all potential customers.

Q. If a customer were to purchase outright a photovoltaic system like those located on the two schools in this case, how would you view the factors set forth above?

A. The analysis of the factors would be the same – there would be no dedication of private property to a public use; there would be no public interest in the customer's PV system; the service would be non-essential, instead providing environmental benefits and a hedge against long term utility rate increases; there would be no monopoly of supply; customers would be informed about their choices by conducting their own analyses; and the seller of the PV systems would have no obligation to sell the equipment to all potential buyers. In this case the transaction is not subject to rate regulation but the distributed renewable energy facility is the same as when a solar service agreement is used.

The Regulatory Process Applied to SolarCity

Q. If the Commission regulates solar service agreements, how would that regulation likely proceed?

A. Assuming SolarCity provides solar service agreements subject to rate regulation, several regulatory activities would typically take place, including the following:

- **Obtaining a CC&N:** SolarCity would have to obtain a Certificate of Convenience and Necessity (CC&N). A.A.C. R14-2-202 sets forth the requirements for filing for a CC&N. These requirements include submitting proposed rates, financial information, a description of the service territory, and estimated number of customers to be served each year for the first five years. Moreover, SolarCity would have to obtain permission from the Commission to discontinue or abandon its service (A.A.C. R14-2-202B).

- **Filing of Rate Cases:** Filing requirements for rate cases are set forth in A.A.C. R14-2-103 and go on for approximately 50 pages.

  - ✓ **Finding of fair value:** SolarCity's rates would have to be set on the basis of a finding of fair value. Under the Phelps Dodge decision, the Arizona Constitution requires the Commission to determine the fair value of Arizona property owned by a public

service corporation and consider that determination in establishing just and reasonable rates, even in competitive markets. Although the Commission may set a range of just and reasonable rates within which public service corporations can compete, the Commission cannot carry out its constitutional mandate by allowing competitive market forces to exclusively determine what is a just and reasonable rate (paragraphs 152, 153).

- ✓ **Determination of rate base:** If SolarCity offered regulated service, its "rate base" could change dramatically in a short period of time due to additional installations and changing technology. This would seem to necessitate frequent rate cases.

- ✓ **Authorization of a rate of return:** If SolarCity offered regulated service, the Commission would set rates based on an authorized rate of return which might be less than SolarCity could earn in an unregulated competitive market in another state. SolarCity might consider discontinuing new solar service agreements in Arizona if profits were limited relative to other states.

- **Reporting:** SolarCity would have to submit reports and plans required by the Commission.

- **Renewable Energy Standard:** SolarCity would be subject to the Renewable Energy Standard as a public service corporation serving retail electric load in Arizona. The standard exempts Utility Distribution Companies with more than half their customers located outside Arizona. A Utility Distribution Company is a public service corporation that operates, constructs, or maintains an electric distribution system for delivery of power to retail consumers. SolarCity is not a Utility Distribution Company as it has no distribution system serving multiple customers, so it cannot be exempted. Consequently, SolarCity would have to divide its business between residential and nonresidential customers as prescribed in the renewable energy standard.

Recommendation

Q. What is your recommendation in this matter?

A. I recommend that the Commission conclude that when a company uses purchased power agreements for distributed generation from renewable resources, such as solar service agreements, it is not acting as a public service corporation. That company is instead providing a hedging service to individual customers, not to the public at large, and is creating environmental benefits as a result of individual customers' decisions.

The service provided under a solar service agreement has no attributes of services furnished by a traditional public service corporation. There is no dedication of private property to public use, there is no public interest in the service which is provided for the benefit of the customer on whose property the distributed energy system is located, the service is not essential, the market is competitive and is not subject to monopoly pricing, customers are well informed, and there is no obligation to serve all or nearly all requests for service.

Additionally, there is a mismatch between the purpose and conduct of regulation and the market for distributed solar energy. For a provider of purchased power agreements for distributed generation, such as SolarCity, to go through an expensive and complex regulatory process to provide an individual customer with a hedge against uncertain future utility rates and to provide environmental benefits is needlessly burdensome and unreasonably intrusive.

Finally, rate regulation is counterproductive. SolarCity indicates that rate regulation required for public service corporations would likely diminish the use of solar service agreements and reduce the range of options available to consumers for obtaining solar energy on their premises. The result would be more expensive options for consumers in many cases. If the Commission desires to encourage distributed renewable energy projects under these circumstances, it would likely have to authorize utilities to offer larger incentives for distributed energy projects.

Q. Does this conclude your testimony?

A. Yes.

Exhibit DB-1
Qualifications of David Berry

Experience

Western Resource Advocates (Scottsdale, AZ), Senior Policy Advisor (2001 – present).
Navigant Consulting, Inc. (Phoenix, AZ), Senior Engagement Manager (1997-2001).
Arizona Corporation Commission (Phoenix, AZ), Chief Economist and Chief, Economics and Research (1985 – 1996).
Boston University Department of Urban Affairs and Planning, Lecturer (1981-1985).
Abt Associates, Inc. (Cambridge, MA), Senior Analyst (1979-1985).
University of Illinois Department of Urban and Regional Planning, Visiting Assistant Professor (1977-1979).
University of Pennsylvania Regional Science Department, Lecturer (1974 –1977).
Regional Science Research Institute (Philadelphia, PA), Research Associate (1972-1977).
U.S. Army (1969-1971).

Education

Ph.D. Regional Science, University of Pennsylvania
MA Regional Science, University of Pennsylvania
BA Geography, Syracuse University

Selected Articles & Papers

"Innovation and the Price of Wind Energy in the US," *Energy Policy* (forthcoming).
"The Impact of Energy Efficiency Programs on the Growth of Electricity Sales," *Energy Policy*, vol. 36 (September 2008): 3620-3625.
"Carbon Risk: Decentralized Risk Management Policy in the US Electric Industry," *Local Environment*, vol. 10. no. 3 (June 2005): 299-307.
"Renewable Energy as a Natural Gas Price Hedge: The Case of Wind," *Energy Policy*, vol. 33, no. 6 (April 2005): 799-807.
"The Market for Tradable Renewable Energy Credits," *Ecological Economics*, vol. 42, no. 3 (September 2002): 369-379.
(with Barbara Keene) "Contracting for Power," *Business Economics*, vol. 30 no. 4 (October 1995): 51-54.
(with Kim Clark) "House Characteristics and the Effectiveness of Energy Conservation Measures," *Journal of the American Planning Association*, vol. 61 (Summer 1995) 386-395.
"The Structure of Electric Utility Least Cost Planning," *Journal of Economic Issues*, vol. 26 (September 1992) 769-789.
"U. S. Cogeneration Policy in Transition," *Energy Policy*, vol. 17 (October 1989) 471-484.
"The Geographic Distribution of Governmental Powers: The Case of Regulation," *Professional Geographer*, vol. 39 (1987) 428-437.

(with J. Andrew Stoeckle) "Decentralization of Risk Management: The Case of Drinking Water," *Journal of Environmental Management*, vol. 22 (1986) 373-388.

(with Stephanie Wilson) "Untapped Labor in the Midwest," in Barry Checkoway and Carl Patton, eds., *The Metropolitan Midwest*, Urbana: University of Illinois Press (1985).

"The Impact of Municipal Water Quality Improvements on Household Water Bills," *Water International*, vol. 10 (1985) 146-150.

"Threats to American Cropland: Urbanization and Soil Erosion," in R. Platt and G. Macinko, eds., *Beyond the Urban Fringe*, Minneapolis: University of Minnesota Press (1983).

"Population Redistribution and Conflicts in Land Use: A Midwestern Perspective," in C. Roseman et al. eds., *Population Redistribution in the Midwest*, Ames, Iowa: North Central Regional Center for Rural Development, Iowa State University (1982).

"The Sensitivity of Dairying to Urbanization: A Study of Northeastern Illinois," *Professional Geographer*, vol. 31 (May 1979) 170-179.

(with Susan Rees) "Location Decisions and Urban Revival: The East St. Louis Riverfront," *Geographical Perspectives*, no. 44 (Fall 1979) 15-29.

"Effects of Urbanization on Agricultural Activities," *Growth and Change*, vol. 9 (July 1978) 2-8.

(with Robert E. Coughlin and Thomas Plaut) "Differential Assessment of Real Property as an Incentive to Open Space Preservation and Farmland Retention," *National Tax Journal*, vol. 31 (June 1978) 165-179.

(with Thomas Plaut) "Retaining Agricultural Activities Under Urban Pressures," *Policy Sciences*, vol. 9 (April 1978) 153-178.

(with Gene Steiker) "An Economic Analysis of Transfer of Development Rights," *Natural Resources Journal*, vol. 17 (January 1977) 55-80.

"Preservation of Open Space and the Concept of Value," *American Journal of Economics and Sociology*, vol. 35 (April 1976) 113-124.

(with Gene Steiker) "The Concept of Justice in Regional Planning," *Journal of the American Institute of Planners*, vol. 40 (November 1974) 414-421.

Recent Reports

Investment Risk of New Coal-Fired Power Plants, Western Resource Advocates, 2008.

A Clean Electric Energy Strategy for Arizona, Western Resource Advocates, 2007.

(with others) *Using Natural Gas More Efficiently*, Western Resource Advocates, 2005.

(with John Nielsen, Ron Lehr, Susan Innis, et al.) *A Balanced Energy Plan for the Interior West*, Western Resource Advocates, 2004.

Testimony and Public Comment Before:

Maine Land Use Regulation Commission
Arizona Corporation Commission
New Mexico Public Regulation Commission
Public Utilities Commission of Nevada