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BEFORE THE ARIZONA CORPORATION COMMISSION

COMMISSIONERS

KRISTIN K. MAYES, Chairman
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Arizona Corporation Commission

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ARIZONA CORPORATION COMMISSION
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IN THE MATTER OF THE APPLICATION
OF ARIZONA PUBLIC SERVICE
COMPANY FOR APPROVAL OF ITS 2010
RENEWABLE ENERGY STANDARD
IMPLEMENTATION PLAN AND
DISTRIBUTED ENERGY
ADMINISTRATIVE PLAN AND REQUEST
FOR RESET OF RENEWABLE ENERGY
ADJUSTOR

DOCKET NO. E-01345A-09-0338

**SUPPLEMENTAL FILING TO 2010
IMPLEMENTATION PLAN**

With this filing, Arizona Public Service Company ("APS" or "Company") is supplementing its 2010 Implementation Plan ("2010 Plan") in response to the Arizona Corporation Commission ("Commission") Decision No. 71275, which was issued September 17, 2009.¹ In compliance with that Decision, APS is submitting proposals that expand and enhance the Company's residential distributed energy ("DE") program offerings and is providing a marketing plan designed to increase participation in the Company's residential DE programs. The new programs include the establishment of a Qualified Contractor Program to facilitate the quality of customers' renewable energy installations and improve Renewable Energy Standard ("RES") program efficiencies. Additionally, APS is partnering with an experienced third party to develop an independent, Arizona based, non-profit marketing organization that would create a statewide customer education and outreach program, and the Company is proposing a "call to action" marketing initiative for residential customers that would offer promotional incentives for the installation of photovoltaic ("PV")

¹ APS's original 2010 Plan was filed on July 1, 2009.

1 systems or solar water heaters. The Company is also collaborating with banks and other
2 lending institutions to develop programs to incent lenders to offer financing for residential
3 renewable energy projects. Due to time constraints, some of the details of the proposed
4 programs are still under development.

5 To assist schools, municipalities, and other governmental entities, APS has created a
6 separate Schools and Governmental Program, and proposed two approaches for these
7 projects, as ordered by the Commission in Decision No. 71275.

8 As part of this supplemental filing, APS is also introducing the AZ Sun Program, a
9 proposal that supports the Company's renewable generation strategy, and will facilitate the
10 timely development of solar generation resources through utility ownership.

11 The Company is seeking additional funding of \$1.2 million for 2010 to support the
12 execution of these new and expanded programs, for a total of \$86.7 million. The additional
13 funding would add approximately \$0.05 cents to the monthly caps for residential customers
14 proposed in the 2010 Plan.

15 APS submits the following for Commission approval: a Revised 2010 Plan (attached
16 as Exhibit A); a Revised Distributed Energy Administration Plan ("DEAP") (attached as
17 Exhibit B); and a Revised Renewable Energy Adjustor Rate Schedule (attached as Exhibit
18 C).² The DEAP reflects modifications that were approved by the Commission in Decision
19 No. 71275, and includes the proposals made in this filing.

20 **I. PROPOSALS THAT TARGET RESIDENTIAL RENEWABLE PROJECTS**

21 APS has explored a number of approaches to educate customers regarding the benefits
22 of renewable energy, to motivate them to acquire these resources, and to assist customers in
23 financing those systems. APS believes its proposed programs, as described below, will
24 provide the support necessary to increase participation in residential DE programs.

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28 ² For the convenience of the reader, the Company has attached redlined versions of the 2010 Plan, the DEAP,
and the Renewable Energy Adjustor Rate Schedule as Exhibit F.

1 **A. Statewide Marketing/Outreach Program**

2 APS has long been a supporter of cooperative advertising with solar providers, and
3 believes that it is a constructive means to raise consumer awareness and increase the
4 production of renewable energy. In reviewing effective marketing initiatives in other states
5 that have targeted residential customers, APS became aware that multiple states have
6 employed customer education and marketing initiatives on a statewide basis, and that several
7 of the successful statewide initiatives were energized by third-party programs that partnered
8 with state agencies, non-profits, utilities and stakeholders.

9 There is substantial research that documents the effectiveness of community-based
10 marketing, and APS believes that a non-profit third party with the expertise to effectively
11 target and educate specific communities about the benefits of DE projects within Arizona will
12 increase homeowners' participation in these programs. To implement such an approach, APS
13 will collaborate with SmartPower, a national award-winning, non-profit marketing
14 organization that specializes in clean energy and energy efficiency. APS believes that
15 SmartPower has the expertise to effectively move customers from awareness about renewable
16 energy to taking action, by engaging residential customers in community-based participatory
17 marketing. Together with SmartPower, APS intends to establish an Arizona-based non-profit
18 organization in an effort to increase residential DE projects in Arizona. During 2010, APS
19 will work to create programs with a focus on community outreach.

20 **B. Qualified Contractor Program**

21 Within the last few years, Arizona has experienced significant growth in the number of
22 local contractors offering and installing renewable technologies. While this growth is a sign
23 that the demand for renewable technologies is increasing, stakeholders and customers alike
24 have concerns regarding the qualifications and expertise of these contractors. To address
25 these issues, APS is developing a Qualified Contractors Program, which is planned to
26 commence in the first quarter of 2010.

27 The primary goals of this program are to assure the quality of the renewable
28 installations, increase overall customer satisfaction, and improve program efficiencies. The

1 program is currently designed to serve two technology segments: solar electric and solar
2 thermal system installations. Participants would be required to complete a training
3 curriculum (including technical, administrative, rates, customer service, and ethics courses),
4 meet inspection/commissioning standards, have adequate Better Business Bureau ratings and
5 customer satisfaction levels, and agree to a formal dispute resolution process. APS has been
6 collaborating with industry stakeholders as to the program concept/design, training
7 curriculum, and technical content. The Company's efforts in the development of this new
8 program have included a broad range of stakeholders, both technical and programmatic. APS
9 will invite all installers currently working with its program to enroll in the certification
10 program.

11 Benefits for qualified contractors participating in this accreditation program include
12 increased overall training, a formal referral process, co-operative marketing/advertising, and
13 streamlined administrative processes. APS believes this program will play an important role
14 in encouraging customers to install DE systems, because in knowing that a contractor is
15 "qualified", customers can be more comfortable in choosing an installer for their renewable
16 system, thus creating greater transparency within the process.

17 **C. Promotional Incentives**

18 APS is proposing a promotional incentive initiative for residential customers.
19 Designed to motivate customers to take action sooner rather than later, this program offers
20 residential customers a supplemental financial incentive, in addition to the standard incentive,
21 for the installation of PV systems or solar water heaters. These promotional incentives would
22 be offered on a first-come, first-served basis to a limited number of residential customers who
23 install qualifying facilities within the prescribed timeframe. The objective of this program is
24 to create increased urgency around the call to action. The Company would kick-off the
25 marketing initiative during the first quarter of 2010, and anticipates that by adding additional
26 promotional incentives, the Company can create momentum that will carry through the end of
27 2010 and beyond. Funding for these promotional incentives is included in the 2010 Plan
28 marketing budget.

1 **D. Financing Assistance for Residential Renewable Energy Projects**

2 APS recognizes that a significant barrier for homeowners in the installation of
3 distributed renewable energy systems is the upfront costs of such a system. The Company is
4 committed to increasing the participation in the residential DE program, and is assessing
5 potential solutions to help reduce or eliminate financial barriers associated with the upfront
6 costs for residential customers. The Company is currently surveying lending institutions to
7 assess how best to model financial incentives to encourage loans for residential DE projects.
8 APS has also identified state and federal legal impediments that may hinder APS from
9 establishing consumer loans for customers. At the time of this filing, the details of APS's
10 program to create financing incentives are not yet fully developed. APS is currently working
11 with banks, lending institutions, and other stakeholders to develop the program details.
12 Similar to the approach with homebuilders in the Company's Solar Homes Program, APS
13 believes that increasing the kinds and numbers of entities vested in the installation of DE
14 systems will increase the long-term sustainability and success of the DE programs.

15 APS has assessed the potential for developing a revolving loan fund to assist
16 homeowners with these costs. From a general business perspective, consumer lending
17 involves default risks, finance challenges and administrative processes that the Company
18 currently does not have in place. From a legal perspective, there are significant statutory and
19 regulatory mandates that must be addressed. (There is further discussion of the legal
20 requirements for consumer lending in Section IV.) Because of these challenges, APS
21 believes that working with third parties to provide financing to residential customers for
22 renewable projects is a more feasible and cost-effective approach at this time. APS will
23 continue to evaluate financing options and pursue one or more options when an acceptable
24 solution is available.

25 **E. Residential Feed-In Tariff and/or Production Based Incentives**

26 A well-documented obstacle to the increased deployment of renewable energy is the
27 capital cost of a renewable energy system. APS is evaluating whether the option of a feed-in
28 tariff and/or a residential production based incentive ("PBI") would increase the number of

1 DE systems installed on residences. Generally, feed-in tariffs are incentive structures that
2 encourage the adoption of renewable energy because the utility will buy the renewable power
3 at above-market rates, which would be set by the Commission. The cost of acquiring power
4 through a feed-in tariff would then be collected from all APS customers through a specific
5 surcharge. Feed-in tariff programs are usually very similar to PBIs, which also provide
6 incentives over time, based on the production of a renewable system where the utility receives
7 the environmental attributes, including the Renewable Energy Credits (“RECs”) associated
8 with the renewable energy produced by the system.

9 In determining whether a feed-in tariff program or a residential PBI could be designed
10 to complement APS’s current renewable program, the Company had discussions with
11 stakeholders, including installers, solar developers, and renewable energy advocates. At this
12 time, the consensus of those parties was that neither a feed-in tariff nor a residential PBI
13 directly overcome residential customers’ biggest obstacle – the upfront costs to install a
14 system. As a result, APS has deferred developing a residential feed-in tariff and a residential
15 PBI, and has instead focused efforts on the development of the other programs proposed in
16 this filing. The Company will participate in the proposed Commission workshop addressing
17 feed-in tariffs,³ and will continue to work with stakeholders to determine when a feed-in tariff
18 and/or a residential PBI offering might best serve to increase market participation, and the
19 market segment for which such a tariff might be most effective.

20 **II. MARKETING PLAN TARGETING RESIDENTIAL CUSTOMERS**

21 APS recognizes that while interest in APS’s residential DE program has increased over
22 the past year, despite a challenging economic climate, the participation in this program has
23 not been sufficient to meet the residential DE targets. Therefore, the primary focus of APS’s
24 2010 marketing efforts will be on the residential market.

25 To explore effective marketing initiatives specifically targeted toward residential
26 customers, the Company met with stakeholders to discuss outreach techniques, advertising

27
28 ³ See Chairman Kristin K. Mayes’ October 13, 2009 letter to the Commissioners proposing workshops to address the implementation of a statewide feed-in tariff (Docket No. E-01345A-08-0172).

1 media options, and opportunities for collaboration. Taking into consideration those
2 discussions, APS has developed marketing initiatives and strategies focused on increasing
3 awareness of solar energy and APS's solar incentive programs, and creating a "call to action"
4 for residential customers. APS is committed to improving its residential program
5 participation through the programs designed to increase market penetration described in this
6 filing, and with the enhancement of marketing, outreach and education efforts. In order to
7 meet the objectives, APS is proposing significant enhancements to its marketing plan in 2010.
8 APS's 2010 Marketing Plan is attached as Exhibit D.

9 Through these efforts, APS will seek to address concerns to overcome key barriers that
10 prevent customers from installing renewable energy products. Based on APS's recent market
11 research, consumers have concerns regarding the financial and economic considerations of
12 installing renewable systems, particularly the substantial upfront costs that still exist after tax
13 credits and incentives.

14 The 2010 Marketing Plan outlines five primary strategies to increase awareness within
15 the residential market and drive product adoption. First, APS will focus on introducing new
16 programs to address upfront costs and financing, seek new and innovative ways to motivate
17 consumers to consider solar, and help consumers identify a qualified installer. Second, APS
18 will refine its advertising to strengthen the call to action and motivate customers to conduct
19 further research at the Company's website (aps.com), contact installers for project estimates,
20 and, ultimately, acquire a renewable energy system. Third, APS will work to create an
21 organization dedicated to raising awareness for distributed renewable energy within Arizona
22 and, specifically, within APS communities. Fourth, APS will continue to build on successful
23 strategies, such as building additional facets on APS's website, in order to make the decision
24 and purchase process easier for customers. Fifth, APS will identify new ways to collaborate
25 with the installer community to increase knowledge, awareness and action. To support the
26 execution of new and expanded residential programs, APS's broadened residential marketing
27 initiatives will increase the cost of the 2010 marketing by \$1.2 million.

28

1 **III. SCHOOLS AND GOVERNMENTAL PROGRAM**

2 In Decision No. 71275, the Commission directed APS to provide a proposal that would
3 create a separate DE category for schools, municipalities and other governmental entities to
4 ensure that these institutions were not “crowded out” of RES incentive funding by other
5 commercial projects, and to make certain that these entities would be able to take advantage
6 of federal stimulus funding. Additionally, the Company was required to address the potential
7 funding for this category in two different ways: 1) with funding coming from the commercial
8 (non-residential) portion of the Company’s DE program (“Commercial Proposal”); and 2)
9 with funding coming from the annual five percent incremental increase in the DE component
10 (“Overall DE Proposal”).⁴

11 The proposed Schools and Government Program offers schools and governmental
12 entities PBIs for the installation of qualifying non-residential technologies. Within this
13 program, PV systems would be capped at 300 kilowatts per meter, or a lifetime commitment
14 authorization of \$1.5 million per interconnected meter for other qualifying technologies.
15 Larger systems would continue to be eligible under APS’s other programs for non-residential
16 installations. Under both funding proposals, the program was developed to produce over
17 4,500 megawatt hours annually.

18 Under the Commercial Proposal, the Schools and Government Program would be a
19 subset of the current non-residential DE category. As such, no additional funding above that
20 proposed in APS’s 2010 Plan, filed July 1, 2009 (“July Filing”), would be required. Rather,
21 the funding necessary to support this program would be drawn from an allocation within the
22 annually increasing lifetime PBI authorization of \$100 million requested in the July Filing.
23 Based on the program requirements detailed above, the Commercial Proposal allocates
24 approximately \$750,000 in annual PBI payments, and would require a lifetime commitment
25 authorization of \$15 million for each year of its implementation. Because the Commercial
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27

28 ⁴ See Decision No. 71275 (Sept. 17, 2009) at 14-15.

1 Proposal is a subset of the existing non-residential DE program, and no additional funding is
2 required, it has been included in the Company's Implementation Plan.

3 To achieve the same 4,500 annual megawatt hours described above, the Overall DE
4 Proposal would create a third category within the RES requirement for distributed generation
5 for schools and governmental entities. Creation of this new category would have the effect of
6 reducing both the residential and non-residential DE categories by 2,250 annual megawatt
7 hours. If this funding option is adopted by the Commission, APS will make conforming
8 changes to its Implementation Plan and DEAP.

9 Once the proposal and funding option is approved by the Commission, APS will work
10 with the Schools Facilities Board and through its customer representatives to inform schools
11 and state and local government agencies of this program.

12 Additionally, in Decision No. 71275, the Commission granted APS authority to
13 allocate up to \$20 million of the 2009 residential DE budget to the funding of school projects,
14 and ordered that the RECs resulting from those school installations count towards the non-
15 residential DE requirements. This created a \$20 million shortfall in the residential DE
16 budget. APS has not requested additional funding to meet this shortfall because the Company
17 believes the \$44.1 million requested in the 2010 Plan is sufficient to meet residential demand
18 for incentives in 2010. Should customer demand exceed the funding available to support
19 residential DE incentive, APS will promptly notify the Commission and make
20 recommendations for additional funding needed to fully achieve the residential DE
21 requirement.

22 **IV. LEGAL CHALLENGES FOR CONSUMER LENDING**

23 At the September 9, 2009 Open Meeting, the Commission inquired of APS as to
24 whether the Company would be able to finance loans to residential customers as a means of
25 promoting the installation of solar panels and similar technology. In response, APS indicated
26 that it would research the legal requirements that would apply if the Company sought to do
27 so. The following provides an overview of those requirements.

28

1 Although providing consumer loans to residential customers to provide the initial
2 investment for solar installations would not subject the Company to banking regulations,⁵
3 such practice could fall within the statutory definition of “consumer lending,” thus requiring
4 APS to abide by the consumer lending laws set forth in A.R.S. § 6-601 *et seq.* To the extent
5 that the financing would be for \$10,000 or less,⁶ APS would be required to become a licensed
6 consumer lender.⁷ To obtain this license, APS would have to apply with the Arizona
7 Department of Financial Institutions.⁸ These consumer loans would be subject to statutory
8 requirements covering disclosures, finance charges, fees, scheduled terms and insurance.⁹
9 Because APS is not currently engaged in “consumer lending,” these obligations would
10 increase program costs.

11 Also, depending upon whether solar panels are a “fixture” or an “improvement,” APS
12 may be required to obtain a mortgage license for either residential or commercial property
13 before it could finance the installations.¹⁰ If a solar panel is a fixture and, therefore, part of
14 the underlying real property, APS would likely need to apply for and receive a mortgage
15 license.¹¹ Although APS has not uncovered any case specifically dealing with solar panel
16 installations, the Arizona Court of Appeals has upheld that a solar water-heating system,
17 which is arguably a property feature analogous to solar panels, is a “fixture.” *See Energy*
18 *Control Servs., Inc. v. Ariz. Dept. Econ. Sec.*, 135 Ariz. 20, 658 P.2d 820 (App. 1983). Were
19 this ruling to extend to solar installations, APS would need a mortgage license to lien the
20 panels.

21 In addition, APS would likely have to comply with Regulation Z of the federal Truth
22 in Lending Act.¹² Regulation Z applies to regular offers of credit to consumers that are

23 ⁵ See A.R.S. § 6-201(B) (a person is not in the “banking business” unless it is “engaged in the business of
24 receiving money on deposit subject to payment by check or any other form of order or request or on
25 presentation of a certificate of deposit or any other evidence of debt”).

26 ⁶ Loans for \$10,000 or less are considered “consumer loans.” A.R.S. § 6-601(7).

27 ⁷ A.R.S. § 6-603.

28 ⁸ *Id.*

⁹ A.R.S. § 6-631 *et seq.*

¹⁰ See A.R.S. § 6-941 *et seq.*

¹¹ See A.R.S. § 47-9334.

¹² 15 U.S.C. § 1601 *et seq.*; 12 C.F.R. Part 226.

1 subject to a finance charge, or payable over more than four installments, and that are used to
2 purchase personal, family or household items.¹³ When a public utility finances “durable
3 goods or home improvements,” the utility is not exempt from the applicable regulations.¹⁴
4 The closed-end credit regulations cover, among other things, the content of disclosures, the
5 annual percentage rate and advertising.¹⁵

6 While neither Arizona nor federal regulations likely prohibit APS from offering
7 financing for solar panels to its customers, to do so presents a number of significant legal
8 challenges, administrative difficulties, and additional costs. Also, it could require APS to
9 divert financial resources it needs for daily operations and to fund its capital program to
10 initiate these loans. Finally, were APS to offer financing to its customers directly rather than
11 through a third-party lender, any such program would have to be designed so that all costs of
12 operating the program (including financing, collection, and bad debt expenses) would be
13 recovered by the Company.

14 **V. AZ SUN PROGRAM**

15 The AZ Sun Program is a new and important component of APS’s overall renewable
16 strategy that will focus on accelerating the development and commercial operation of solar
17 generation resources through utility ownership. APS began its renewable program with
18 utility ownership, but in the last few years has relied upon Purchase Power Agreements
19 (“PPAs”) to acquire renewable resources. This is partially a function of the fact that utilities
20 were prohibited from taking the Investment Tax Credit on renewable generation investments,
21 making utility ownership less attractive from a ratepayer perspective. The federal tax laws
22 enacted on October 3, 2008 as a part of the Emergency Economic Stabilization Act of 2008
23 removed this prohibition. Combined with the fact that some developers are having difficulty
24 in the current markets arranging financing for their projects, even with an executed PPA, the
25 Company believes that adding utility-owned projects to create a more diversified approach to
26

27 ¹³ 12 C.F.R. § 226.1(c)(1).

28 ¹⁴ 12 C.F.R. § 226.3(c).

¹⁵ 12 C.F.R. § 226.17 *et seq.*

1 renewable energy acquisition is appropriate. The AZ Sun Program will expand APS's
2 procurement approach by undertaking the development of utility-owned renewable projects in
3 order to finance these projects with its corporate balance sheet. Under this proposed program,
4 beginning in 2010 and continuing through 2014, the Company plans to invest the capital
5 needed to develop 100 megawatts of solar resources. APS expects to acquire these resources
6 through one or more competitive procurement processes beginning in 2010. The Company
7 has forecasted to develop 25 megawatts a year in each of 2011, 2012, 2013 and 2014. APS
8 may accelerate development of this capacity, if commercially reasonable, and if able to
9 achieve the desired diversification of both developer and system impact risks.

10 The AZ Sun Program, as proposed, stipulates a capital investment of approximately
11 \$500 million from 2010 thru 2014, based on the installation of 100 megawatts and an average
12 solar PV capital cost of \$5.00/watt. The revenue requirement that APS proposes to recover
13 through the RES adjustor for each 25 megawatt increment is forecasted to be \$16.1 million in
14 the first year of operation, \$5.2 million in the last year, and a total of \$256 million over the
15 thirty-year life of the project. The cost of the actual systems deployed will be based on
16 competitive procurement processes, and will most likely vary with the size of the system, as
17 smaller size systems tend to be greater on a per watt basis, while larger sized systems cost less
18 due to economies of scale of the individual project.¹⁶

19 APS is proposing that the cost of ownership or revenue requirement for the AZ Sun
20 Program, including depreciation, property taxes, income taxes, operating and maintenance
21 expenses, and financing costs using the then-currently authorized cost of capital, would be
22
23

24 ¹⁶ This capital cost is consistent with the expected solar PV cost in other jurisdictions that have approved or are
25 reviewing programs that are similar to APS's AZ Sun Program. For example, Pacific Gas and Electric's
26 proposed PV Program, a 250-megawatt primarily ground-mounted solar photovoltaic utility ownership
27 program, is expected to have a capital cost of \$4.28/watt. See Application of Pacific Gas and Electric
28 Company to Implement its Photovoltaic Program, filed February 24, 2009 in Docket No. A09-02-019.
Similarly, the capital cost of Duke Energy Carolinas' approved 10 MW ground and rooftop mounted solar
photovoltaic utility ownership program is expected to be \$5.00/watt. See North Carolina Utilities Commission
Order Granting Certificate of Public Convenience and Necessity with Conditions in Docket No. E-7, Sub 856,
dated December 31, 2008.

1 recovered through the RES adjustor until the investment is included in base rates or other
2 recovery mechanism.

3 APS proposes that the Commission authorize APS to invest up to \$500 million of
4 capital to develop 100 megawatts of solar PV between 2010 and 2014, with APS seeking to
5 develop the maximum amount of megawatts possible through competitive procurement
6 processes. Explicit support for the investment and assurance of cost recovery in this docket
7 will provide the commitment necessary for APS to attract viable projects and successfully
8 arrange the financing necessary for this program to be successful. A detailed discussion of
9 the proposed program is attached as Exhibit E.

10 **VI. CONCLUSION**

11 Based on the discussion above, APS requests that the Commission, in addition to
12 granting the specific approvals requested in the Company's July Filing, determine that:

- 13 1. The supplemental programs described in the APS Revised 2010 Plan are
14 approved;
- 15 2. APS's Revised 2010 Distributed Energy Administration Plan is approved;
- 16 3. APS is authorized to invest up to \$500 million of capital to develop 100
17 megawatts of solar PV generation capacity between 2010 and 2014, with the full cost of
18 ownership recovered through the RES adjustor until the cost is included in base rates or other
19 recovery mechanism; and
- 20 5. APS's Revised Renewable Energy Standard Adjustor Rate Schedule is
21 approved.

22 RESPECTFULLY SUBMITTED this 16th day of October, 2009.

23 PINNACLE WEST CAPITAL CORPORATION
24 LAW DEPARTMENT

25
26 By: 

27 Deborah R. Scott

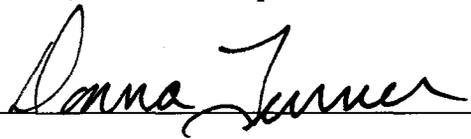
28 Attorney for Arizona Public Service Company

1 ORIGINAL and thirteen (13) copies
2 of the foregoing filed this 16th day of
3 October, 2009, with:

3 Docket Control
4 ARIZONA CORPORATION COMMISSION
5 1200 West Washington Street
6 Phoenix, Arizona 85007

6 COPY of the foregoing mailed/delivered this
7 16th day of October, 2009 to:

8 *See attached list of parties.*

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Copies of the foregoing hand delivered or emailed
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EXHIBIT A

EXHIBIT A

**APS RES Implementation Plan 2010 to 2014
October 16, 2009**



Arizona Public Service Company

**Arizona Public Service
Renewable Energy Standard
Revised Implementation Plan
2010 to 2014**

October 16, 2009

EXHIBIT A

APS RES Implementation Plan 2010 to 2014 October 16, 2009

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October 16, 2009**

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EXHIBIT A

**APS RES Implementation Plan 2010 to 2014
October 16, 2009**

ATTACHED EXHIBITS

- Exhibit 1A 2010 Implementation Plan Overview
- Exhibit 1B RES Program Summary
- Exhibit 2A RES Budget Summary
- Exhibit 2B 2008 APS RES Budget Rollover
- Exhibit 3A Existing and Planned Generation - Energy
- Exhibit 3B Existing and Planned Generation - Capacity
- Exhibit 3C Renewable Purchases and Generation RES Costs (Dollars)
- Exhibit 3D Renewable Purchases and Generation RES Costs (Dollars per MWH)
- Exhibit 3E AZ Sun Program Sample Revenue Requirement
- Exhibit 4A Distributed Energy Incentive Budget Detail (Dollars)
- Exhibit 4B Distributed Energy Budget Detail (Energy)
- Exhibit 4C PBI Commitment
- Exhibit 5A Distributed Energy Program Assumptions and Planning Inputs
- Exhibit 5B Distributed Energy Projected Program Outcomes
- Exhibit 5C Distributed Energy Projected Outcomes by Technology

EXHIBIT A

APS RES Implementation Plan 2010 to 2014 October 16, 2009

1. EXECUTIVE SUMMARY

Arizona Public Service Company (“APS” or “Company”) has prepared this Implementation Plan (“Plan”) for the five-year period of 2010 to 2014 in compliance with the Renewable Energy Standard and Tariff Rules (“RES”)¹, which requires the filing of an annual plan describing how utilities intend to comply with the rule requirements for the next five years. This Plan describes the renewable energy resources that may be added during the next five years, the estimated customer funding and surcharge amounts required to acquire those resources, and a budget that allocates specific funding. The current RES requirement is 2.50% of total retail sales in 2010, and the rules prescribe that 20% of that requirement is to come from distributed energy solutions. The Company’s Plan is also consistent with APS’s planning goals and resource acquisition plans described in the Company’s Resource Plan Report (“RPR”) filed with the Commission on January 29, 2009.²

This document revises the Implementation Plan originally filed by APS on July 1, 2009 (the “July Filing”) and includes provisions incorporated in conformance with orders described by Decision No. 71275³. This amendment also includes revisions to select strategies and programs based upon developing market conditions.

Decision No. 71275 directed APS to review its residential offerings and propose programs in its 2010 Implementation Plan with a focus on increasing participation in residential distributed energy (“DE”) programs. Decision No. 71275 also granted APS authority to allocate up to \$20 million of its 2009 residential DE budget to the funding of school projects, with RECs counting towards the non-residential DE target. To reach full residential DE compliance in the future, additional funding may be required. If necessary, APS will file an application with the Commission for additional funding at that time. This amended Implementation Plan does not propose an increase to the incentive budget from that originally proposed in the July Filing.

As part of this plan, APS is proposing the AZ Sun program which is designed to increase APS’s solar renewable generation portfolio, with the goal of developing 100 megawatts of utility scale generating facilities.

In addition, in a letter dated September 29, 2009, Starwood Energy Group Global, LLC provided notice to APS that it was terminating the long-term purchase power agreement for Starwood Solar I, a 290 megawatt concentrating solar power plant.

As a separate document, the Company is filing its updated Distributed Energy Administration Plan (“DEAP”). The DEAP describes the participation process for a wide range of customers, presents incentive levels, and discusses eligible technologies and system requirements, all of which together will provide a program that APS believes will encourage customer participation.

¹ A.A.C. R14-2-1801, *et. seq.*

² Docket No. E-01345A-09-0037.

³ Docket No. E-01345A-09-0263

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In this filing, APS has made only minor adjustments to the DEAP that was approved as part of the 2009 Implementation Plan.⁴

The Implementation Plan and the DEAP are similar to the plans filed for 2009.⁵ A few key program elements reflected in this Plan are provided below:

- To assist APS in achieving its renewable energy goals, the Company has developed the AZ Sun program which will result in the installation of 100 megawatts of utility-scale ground-mounted solar photovoltaic resources, in increments, at targeted locations in its service territory over the Implementation Plan timeframe.
- APS will launch a Qualified Contractors Program in 2010. The primary goal of this program is to increase overall customer satisfaction, improve program efficiencies, and work to ensure the consistent quality of end-use customers' installations.
- To enhance interest and awareness in residential DE by working within communities and extending the reach of APS's marketing efforts, APS is working to establish an Arizona based non-profit organization focused on driving increased participation in APS's distributed renewable energy programs.
- APS will introduce a program designed to encourage lending institutions to create programs that will help customers overcome the obstacles with up-front financing.
- To help assume an equitable distribution of RES funds aimed at incenting distributed energy installations, and in order to assist schools and governmental (state and local) entities that are at an economic disadvantage, APS proposes a separate Schools and Governmental Program.
- To drive a deliberate call to action and to increase the momentum in APS's residential programs, APS will offer promotional incentives/rebates to residential customers for the installation of photovoltaic ("PV") systems or Solar Water Heaters ("SWH"), in addition to the up-front incentives collected through the RES.
- APS's successful Distributed Public Assistance Program ("DPAP") will be expanded to meet the needs of limited income, school, non-profit, and governmental customers.
- APS anticipates project selection for its Small Generation Pilot Program, with some projects expected to come on line as early as the fourth quarter of 2010. The Small Generation Pilot Program aims to simplify the Request for Proposal ("RFP") and contracting processes for small renewable generators and provide APS with valuable small renewable generation through the Plan period.

⁴ Decision No. 70654 (December 12, 2008).

⁵ Docket No. E-01345A-08-0331, filed July 1, 2008 and supplemented October 10, 2008.

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- APS also anticipates selection and implementation of projects resulting from the DE RFP. The DE RFP was designed to increase the number of distributed installations, and will do so at a substantial cost savings over normal DE incentives. With the addition of projects selected from the DE RFP, APS will exceed the non-residential RES DE targets for each year described in this Plan.
- APS will move forward with the execution of its Solar Homes program for homebuilders to promote the development of communities that incorporate energy efficient and solar technologies in home design and construction.
- APS will continue to procure a mix of solar, wind, geothermal, and biomass/biogas renewable resources seeking to exceed compliance with the RES requirements through the Plan period.
- Upon Commission approval, APS will implement the Company's proposed Community Power Project – Flagstaff Pilot. The program application is currently pending at the Commission.⁶ The Pilot would provide Flagstaff-area customers with DE systems including photovoltaic (“PV”) arrays, solar water heaters, and small scale wind turbines.
- In order to expand the non-residential DE program beyond near-term RES compliance, APS proposes annual increases in the lifetime contract authorization for Performance Based Incentive (“PBI”) commitments to support customer installations under the program on an annual basis and for projects proposed as part of the Company's DE RFP.⁷ In addition, APS proposes additional modifications to its non-residential distributed program to increase program efficiency. The proposed changes include updates to project eligibility and program administration.
- APS will enhance its research, development, commercialization and integration program, including the acceleration of the development and deployment of renewable resources for the benefit of APS customers.

APS currently estimates the cost of its RES related projects and programs to be \$86.7 million in 2010 and increasing to an annual cost of \$217.9 million by 2014, with a five year total of \$778.9 million. The peak annual cost in this five-year planning window is 2014 at \$217.9 million, due primarily to the expanded DE program and the new large renewable generation project⁸

⁶ Docket No. E-01345A-09-0227 (May 11, 2009).

⁷ In a separate application (Docket No. E-01345A-09-0263), APS filed for approval of a \$220 million authorization in lifetime Performance Based Incentive contract commitments through 2009. On September 3, 2009, the Commission granted APS this authorization in Decision No. 71254. The proposed budget in this Plan includes the \$220 million.

⁸ Solana and Starwood are concentrating solar power (“CSP”) projects and were both included in APS's July Filing. The Solana project was approved in Decision No. 70531. On September 30, 2009, APS announced it had received notice from Starwood Energy Group Global, LLC that it was terminating the long-term purchase power agreement

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generating approximately 280 MW during its first full year in 2014, and the introduction of, and full deployment of, the AZ Sun program.

RES funding is intended to cover the cost of utility scale renewable generation in excess of the cost of conventional resource alternatives, incentive payments for DE resources, marketing expenses, and program implementation and administration costs. The costs for renewable generation collected through the RES adjustor during 2010 are partly based on APS's existing contracts and APS's small generation RFP. These contracts, if brought to fruition, will enable APS to meet and exceed renewable generation and total RES energy targets in 2010. Additional projects will be required for APS compliance with RES targets in the four subsequent years of this planning period. The costs for DE incentives and the program budget are based on incentives developed as part of the Commission Staff's Uniform Credit Purchase Program ("UCPP") working group, preliminary results from APS's DE RFP and APS's best estimations of market penetration for the various technologies available to consumers.

At this time, APS is requesting adjustor funding of \$80.7 million for 2010 (the adjustor is currently designed to collect approximately \$72.4 million annually). The requested adjustor amount, along with the \$6 million collected in base rates, would total the \$86.7 million of funding needed to meet the requirement.

for Starwood Solar I, the 290-megawatt CSP. On October 6, 2009 APS filed to withdraw the Starwood application in Docket No. E-01345A-09-0261.

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2. INTRODUCTION

A. Renewable Energy Requirements

APS has prepared this Implementation Plan for the five year period 2010-2014 in compliance with the RES Rules. The RES requires that affected utilities satisfy an annual renewable energy requirement by providing a percentage of their electric retail sales from renewable resources. The required percentage for the current implementation period begins at 2.50% in 2010 and increases to 4.50% in 2014.⁹ That minimum percentage increases to 15% of the utility's retail sales by the year 2025.¹⁰

This rule defines renewable resources as: 1) "renewable generation" projects that are constructed solely to export their energy production to the utility; and 2) DE that is a renewable resource application installed at the customer premises and used to displace customer energy consumption.¹¹ As part of the RES, the energy generated or displaced by DE is applied towards the percentage of the utility's distributed renewable energy requirement.¹² For both Renewable Generation and DE, the unit used to track kilowatt-hours ("kWh") derived from renewable resources for purposes of compliance with the RES is the Renewable Energy Credit ("REC"), where one kWh equals one REC.¹³

The RES requires regulated utilities to file an Implementation Plan each year for review and approval by the Arizona Corporation Commission ("ACC" or "Commission").¹⁴ The Plan must describe the procurement of renewable energy resources for the next five calendar years that will meet the requirements of the RES.¹⁵ This description must identify the considered technologies, the expected schedule for the resource incorporation on a year-by-year basis, and a description of the kilowatts ("kW") and kWh that are expected to be added to the APS portfolio by the incorporation of those resources.¹⁶ The RES provides that reasonable and prudent costs incurred to comply with the RES Rules are recoverable.¹⁷ Further, the RES provides that implementation of the approved Plan by the utility shall serve to measure the utility's compliance with the RES.¹⁸ With Commission approval of APS's Plan; APS anticipates exceeding compliance with the RES

⁹ A.A.C. R14-2-1804(B).

¹⁰ *Id.*

¹¹ A.A.C. R14-2-1802(B).

¹² A.A.C. R14-2-1805(B).

¹³ "Renewable Energy Credit" means the unit created to track kWh derived from an Eligible Renewable Resource of kWh equivalent of Conventional Energy Resource displaced by Distributed Renewable Resources. A.A.C. R14-2-1801(N).

¹⁴ A.A.C. R14-2-1813(A).

¹⁵ A.A.C. R14-2-1813(B).

¹⁶ *Id.*

¹⁷ *See*, A.A.C. R14-2-1808.

¹⁸ A.A.C. R14-2-1815(C).

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renewable energy requirement in each year of the Plan period. Attached as Exhibit 1B is a summary of the APS targets, energy requirements, and program budget.

B. Renewable Generation Challenges and Risks

In developing this Plan, APS evaluated renewable resources available for procurement in the next one to two years (“the near-term”), as well as those anticipated to become available over the remainder of the five-year period covered by this Plan and beyond (“the longer-term”). Although there exists uncertainty in the specific details of many of those renewable resources, APS believes it has chosen a strategy that will meet or exceed the renewable generation and total RES energy targets, assuming all existing and planned facilities come to fruition.

APS’s implementation strategy for achieving compliance with RES targets for the years 2010-2014 are detailed in this Plan. The Plan and the resulting renewable energy goals do not come without some risk related to meeting the renewable resource targets. Inasmuch as those risks are currently definable and quantifiable, they are identified and discussed in this Plan. Those risks include issues such as: the availability, level and consistency of federal, state and local incentives; availability of renewable energy projects executed by financially and technically sound developers; adequate transmission resources to deliver new resources to APS load; renewable energy projects matching APS’s anticipated cost profiles; and the timing of new resource availability.

The timely delivery of energy from renewable resources is critical to APS’s compliance with the RES energy targets, and development of these types of projects typically requires between one to three years. Experience across the nation indicates renewable generation projects suffer from high levels of project failure, broadly summarized as the inability to meet contract energy delivery dates. These failures and delays can be attributed to a broad range of issues, but are generally due to the relatively emergent nature of renewable resource markets and the current national and global economic climate. APS’s experience, both with renewable energy projects and with conventional energy technologies, suggests that careful project screening can reduce, but not eliminate, some of the risk associated with project failures.

C. Distributed Energy Targets

The RES requires that affected utilities satisfy a percentage of the annual renewable energy requirement through the addition of DE resources. The required percentage for the current implementation period is 20% of the total requirement in 2010 and increases to 30% by 2012.¹⁹ That percentage remains at 30% of the total renewable energy requirement through 2025.

In the time since approval of APS’s first RES Implementation Plan in 2008, the Company has gained considerable experience with and understanding of the opportunities and challenges associated with deployment of DE at the scale required under the RES. Through this Plan, APS is initiating the opportunity to exceed the non-residential DE target described in the RES.

¹⁹ A.A.C. R14-2-1805(B).

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Further, APS believes it has identified a means by which to provide non-residential customers continued opportunity to receive incentives for the installation of DE systems while also benefitting from program cost reduction over the period described in this Plan. As part of APS's ongoing efforts to increase the penetration of DE to meet the RES DE targets at a lower cost than APS's current Implementation Plan, the Company issued its DE RFP in August 2008.

APS recognizes that DE is an important component of the RES requirement. Therefore, as part of this Plan, APS proposes a funding level believed necessary for compliance with the residential DE target and sufficient to exceed the non-residential target in each year of this Plan. APS continues to work toward meeting the residential DE target and has developed programs and strategies for increasing residential system installation. APS has also continued to aggressively market the residential DE programs. However, to date, residential customer participation in the program is not sufficient to meet the residential DE target. Even with availability of significant incentives, customers must still provide significant personal funding to install DE systems on their homes. Today, the typical 3 kW residential distributed PV system costs more than \$23,000 to install, attracts about \$15,000 in government and utility incentives, and requires a customer investment of about \$8,000. While residential DE programs have grown dramatically in the months since Commission approval of APS's first Implementation Plan, further increasing customer participation will prove challenging in the current economic climate. Nevertheless, APS is dedicated to increasing participation in the residential DE program and is determined to provide solutions that will work to reduce or eliminate the financial barriers associated with the up-front costs for residential customers.

During the second quarter of 2009, APS became aware that a number of reservation requests from schools were expected in the coming months and that those requests would likely not be funded, due in part to the overwhelming interest in the PBI program. At the same time, APS's residential DE program was not receiving requests for incentives at a sufficient pace to commit all funds that have been allocated for that purpose in 2009. In Decision No. 71275, the Commission granted APS authority to allocate up to \$20 million of the 2009 residential DE budget to the funding of school projects. The RECs resulting from those school installations will count towards the non-residential DE target.

APS's RES Implementation Plan forecasts the number of kW of customer installed capacity needed to meet the residential DE RES requirement and, in turn, APS calculates the level of incentive dollars required to support that amount of capacity. Since a portion of the funds collected to fulfill the residential DE requirement was used for installations at schools, and since the RECs are applied towards the non-residential target, residential funds may need to be increased above that originally forecasted as of part the 2009 Implementation Plan filed on July 1, 2008, to achieve full residential distributed energy compliance in the future. Specifically, should customer demand for incentives increase to support reaching APS's compliance target, APS may require an increase in the RES surcharge. Additionally, a reduction in incentive amounts over time may decrease the amount needed to achieve full compliance. To date, residential customer participation in the program has not been sufficient to meet the residential

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distributed energy target. If necessary, APS will file an application with the Commission for additional funding at that time.

Assumptions used to build the DE program budget are based on incentives developed as part of Commission Staff's UCPP working group, previous year program installations and reservations under APS's Renewable Energy Incentive program ("REIP"), project sales and development time frames, variations in the levels of technology maturity, and availability of equipment for installation. The proposed DE incentive budget and the incentive budget allocation are designed to achieve the residential DE target and provides for exceeding the non-residential DE target for the full five years described in the Plan. If the DE program assumptions prove to be correct, the 2010 cost for this component of the Plan is estimated to be approximately \$73.0 million. This amount escalates to approximately \$117.0 million in 2012. It is expected that 2012 will be the peak cost year in this five-year planning window because that is the last year the DE requirement ramps up relative to the total RES requirement. After 2012, the increases to the requirement are based on the growth of the overall RES requirement and retail sales increases.

D. Required Program Funding

The Plan proposed by the Company is estimated to cost a total of \$778.9 million over the five-year Plan period. The budget summary can be found in Exhibit 2A. This Plan is anticipated to result in APS exceeding compliance with the overall RES requirements in each year. The cost for 2010 is estimated to be approximately \$86.7 million and increases to \$217.9 million in 2014. The increase in costs is mainly driven by increasing energy targets, large solar generating projects becoming operational, and DE program expansion. In this Plan, APS is requesting an adjustor to recover only the estimated 2010 costs of approximately \$80.7 million, resulting in an \$8.3 million increase over the \$72.4 million currently collected on an annualized basis. The requested adjustor amount, along with the \$6 million collected in base rates, would total the \$86.7 million of funding needed to meet the requirement. In each succeeding year, as part of its Implementation Plan, APS will continue to request a reset of the adjustor to collect the estimated costs for the following calendar year. Current estimates for each of those years can be seen in Exhibit 2A.

Certain exhibits contained in this Plan include pricing estimates made by APS in development of the program costs. Some of the pricing included in this Plan is from existing competitively confidential contracts. The price estimates are necessary to allow APS to provide the information sought by the Commission as part of the Implementation Plan. APS believes it is in the best interest of customers and the Company to ensure that future suppliers of renewable resources compete for the right to supply renewable energy without a pre-conceived notion of the pricing assumptions or competitively confidential pricing in this plan. Therefore, APS has submitted a redacted version of that confidential information in Exhibit 3C and 3D and will provide Staff the competitively confidential information pursuant to an executed Protective Agreement.

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This Plan makes reasonable assumptions concerning renewable energy resources, and as APS gains more experience with renewable resources, future Plans will account for the realities APS encounters in the actual implementation of the RES.

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3. APS 2010 IMPLEMENTATION PLAN

A. Energy

The RES identifies the minimum annual percentage of a utility's retail sales that must be obtained from renewable resources. The 2010 target is 2.50% of retail sales. The renewable resource targets required to meet APS's targets for each year are detailed in Exhibit 1B. The targets detailed by the RES are described in two categories, renewable generation and DE resources.

Renewable generation is represented by projects that export their energy production to the utility. These projects are typically large-scale facilities that use renewable resources such as wind, solar, geothermal, biomass, and biogas to generate electricity. Energy produced from those resources is delivered through the transmission and distribution systems and, ultimately, to the utility's customers.

DE resources are represented by technology applications that are physically installed on the customer's property. Those applications are typically specifically designed for the distributed setting. Distributed applications under the RES include a wide range of technologies; today those technologies are most frequently represented by PV and solar water heating systems. DE resources can be tied to the existing APS distribution system or can be installed as a remote application, independent of the APS distribution system.

B. Capacity

The RES targets are energy based (kWh), with no capacity (kW) requirements. However, the Plan utilizes generation capacity assumptions to forecast compliance with the energy targets. When equating energy targets to planned capacity levels, it is important to recognize that the capacity factors²⁰ for various renewable generation technologies vary significantly. Some technologies, such as geothermal and biomass, are very predictable and can produce at capacity factors near 80-90%, similar to conventional base load generation. Some renewable generation technologies, such as solar, are predictable, but have inherently low capacity factors of 15-30%, driven by the daily availability of solar radiation. Other renewable generation technologies, such as wind, are less predictable on a real-time basis. However, wind will generally produce capacity factors in the range of 25-40% annually, depending on the characteristics of the wind resource in a given location.

²⁰ Capacity factor is a value used to express the average production level of a generating unit over a given period of time. Capacity factor is expressed as a percentage of the maximum possible production if the generating unit had operated at its maximum capacity rating for all hours during the period. For example, a generating facility which operates at an average of 60% of its maximum capacity over a measured period has a capacity factor of 60% for that period.

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The balance of the technologies employed is critical and the ultimate balance of the technology portfolio will dictate the additional capacity required to achieve the energy targets. Exhibit 3B provides the level of capacity for the specific mixture of technologies assumed in this Plan for the coming five years. Targeted additions described in Exhibit 3B are not intended to be an exact representation of the resources APS intends to acquire, but merely an example of a potential resource mix based on APS's current resource strategy. The economics of a particular resource or technology will ultimately determine the extent to which any one technology is employed as part of the overall portfolio.

C. Renewable Generation

The Plan was designed with sufficient flexibility to provide the best opportunity to meet or exceed RES targets in a cost effective manner. The Plan provides descriptions of the current projects under contract, as well as the expected resource additions over the next five years. The renewable resources contemplated under this Plan are consistent with APS's short and long-term planning goals and resource acquisition plans described in the Company's RPR.²¹

i. Existing Renewable Generation

As shown in Exhibit 3B, APS is anticipating renewable generation capacity of 244 MW by the end of 2010. Of that capacity, 218 MW are from Purchased Power Agreements ("PPA") for projects currently operating or anticipated to be completed in 2010, 6 MW are from APS-owned solar facilities, and 20 MW are estimated from the APS proposed Small Generation Program discussed later in this Plan.

ii. Renewable Generation Procurement Plan and Process

The energy required to meet the APS targets and the allocation established to support anticipated demand for the Green Power rates²² in each of the next five years is outlined in Exhibit 1B. In general, two to five years is required from the initiation of an RFP to the point at which energy can flow into the APS system from a new renewable generation project. The majority of that time is required for development and construction.

APS has anticipated the need for additional energy output from renewable resources in 2010 and beyond. Accordingly, APS implemented two separate competitive procurement processes in 2008, seeking additional renewable energy including distributed resources with commercial operation dates ranging from 2010 to 2014. In 2009, APS issued its renewable small generation RFP with a commercial operation date of 2011. The competitive procurement processes will continue to consist of, but not be limited to, the issuance of RFPs, negotiated bilateral supply

²¹ Docket No. E-01345A-09-0037 (January 29, 2009).

²² Current Green Power rate schedules GPS-1 and GPS-2 were approved by the Commission in Decision No. 69663. They were created to allow customers to purchase a portion of their energy usage from renewable resources. These purchases do not count toward RES targets. Revisions to GPS-1 and GPS-2 and the new Green Power rate schedule GPS-3 were approved by the Commission on September 17, 2009 in Decision No. 71276.

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contracts, and other strategies for obtaining long-term renewable resources. Implementing an effective competitive procurement process will ensure a fair and unbiased procedure that will efficiently incorporate a full range of renewable resource alternatives from the marketplace. APS expects to continue engaging the market and seeking cost effective projects over the next few years.

In the evaluation of bids submitted during the competitive procurement process, analysis of proposals will include an evaluation of: energy production; capacity value; deliverability; technical characteristics; operational performance; reliability; efficiency; credit; and respondent experience. The procurement and project selection procedure employed by APS has been documented and certified by an independent auditor as required by the RES.²³

The AZ Sun program is a new component of the Company's RES Implementation Plan, in which APS will invest \$500 million of capital to develop 100 MWs of utility-owned solar generation facilities beginning in 2010 through 2014. APS anticipates the solar facilities will take the form of ground mounted solar photovoltaic ("PV") systems. The AZ Sun program, if approved, will provide diversification of APS's renewable portfolio that today consists primarily of Power Purchase Agreements ("PPAs") to include more utility-owned renewable resources. Acquisition of solar resources through the AZ Sun program is consistent with the Company's resource plan²⁴ and will play an important part in the ability of APS to meet its Renewable Energy Standard ("RES") requirements of 15% of retail sales from renewable resources by 2025.

This Plan attempts to fully acknowledge the reality that PPAs and project development methods will not necessarily conform to required delivery schedules and planned quantities. Renewable generation projects, like other generation projects, may be delayed or fail to achieve scheduled commercial operation.²⁵ APS also expects output from existing renewable projects to fluctuate from year to year. The tool used to manage these planning and output variances will be the banking of RECs. APS's initial renewable generation bank was established using RES-eligible energy procured prior to the effective dates of the RES rules, or August 14, 2007. After that date, changes to the REC bank are only expected to come from withdrawals to meet compliance or deposits from excess generation in any given year. APS uses a first-in, first-out approach to track the REC bank balance. In other words, withdrawals will be made from the oldest vintages first and will move to the next year after the oldest year has been exhausted.

iii. Identifying Renewable Generation Requirements

During the five years covered by this Plan, the renewable resource targets increase from 2.50% in 2010 to 4.50% in 2014. In the near-term, this Plan focuses on existing and planned renewable

²³ A.A.C. R14-2-1812(B)(6) requires "A description of the procedures for choosing Eligible Renewable Energy Resources and a certification from an independent auditor that those procedures are fair and unbiased and have been appropriately applied." Certification letters were filed as part of the RES Annual Compliance Report filed in Docket No. E-01345A-95-0491, on February 29, 2008, and in Docket No. E-01345A-07-0468 on April 1, 2009.

²⁴ Filed in Docket No. E-01345A-09-0037, January 20, 2009.

²⁵ For example, the commercial operation date for the Solana CSP project is now expected to be April 2013.

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resource projects to meet those targets. This Plan also contemplates that new renewable generation will be contracted and developed during the five-year period covered by this Plan. APS has based its program budget and energy procurement on several assumptions, which are discussed below. Details are competitively confidential and have been redacted. Those details will be provided to Staff pursuant to an executed Confidentiality Agreement.

1. Costs of Renewable Generation

For purposes of resource and budget planning, the costs of renewable generation are based on the portion of the renewable energy cost in a Power Purchase Agreement (“PPA”) that is above the market cost of comparable conventional generation.²⁶ For existing contracts, the percentage above APS’s cost for comparable generation was established at the time the contract was signed and the percentage is applied to the total contract cost for the planning year. For targeted future contracts, the price is estimated based on existing renewable generation contracts, recent market experience, and general trends observed in renewable generation project development. These percentages for future contracts will be re-evaluated during subsequent five-year planning periods. All renewable resource costs are described in terms of dollars per MWh above APS’s comparable conventional generation. For utility owned assets, APS is proposing to collect the revenue requirement associated with these assets through the RES adjustor until such time as it can be incorporated into traditional ratemaking methods.

The detailed cost assumptions used to develop the budget for procurement of these resources are included in Exhibits 3C and 3D. Because this information is competitively confidential, it will be provided to Staff pursuant to an executed Protective Agreement. It should also be noted that the existing contracts referenced in Exhibits 3C and 3D are long-term commitments that are either already in place or nearly finalized at the date of this Plan.

iv. AZ Sun Program

The AZ Sun program is a new component of the Company’s RES Implementation Plan, in which APS will invest \$500 million of capital to develop 100 MWs of utility-owned solar generation facilities beginning in 2010 through 2014. APS anticipates the solar facilities will take the form of ground mounted solar PV systems.

If approved, the AZ Sun program will provide diversification of APS’s renewable portfolio that today consists primarily of Power Purchase Agreements (“PPAs”) to include more utility-owned renewable resources. While both the Community Power Project (see section D.vii) and the AZ Sun program are focused on utility ownership, when combined with the Company’s overall Plan, APS will solicit and consider proposals that may result in either PPAs, as the Company has done historically, or utility ownership.

Through the AZ Sun program, beginning in 2010 and continuing through 2014, the Company plans to invest \$500 million of capital to develop 100 MWs of solar resources. APS expects to

²⁶ A.A.C. R14-2-1801(K) defines Market Cost of Comparable Conventional Generation.

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acquire these resources through competitive procurement processes beginning in 2010. The Company has forecasted to develop 25 MWs a year in each of 2011, 2012, 2013 and 2014. APS may accelerate development of this capacity if commercially reasonable to do so and if able to achieve desired diversification of both developer and system impact risks.

APS expects to procure primarily solar PV resources through the AZ Sun program; however, all PV technology types will be evaluated through the procurement processes, with consideration being given to cost, reliability and performance. The most beneficial technology for each individual location will be chosen.

The AZ Sun program may also include utility scale systems located on a customer's premise, thereby qualifying as a distributed energy project as discussed in the 2010 Implementation Plan.

As proposed, the AZ Sun program stipulates a capital investment of approximately \$500 million to be made beginning in 2010 through 2014 to develop 100 MW of solar generation capacity. This is based on an average solar PV capital cost of \$5.00/watt. The cost of the actual systems deployed will be based on competitive procurement processes, and will most likely vary with the size of the system, as smaller size systems tend to be greater on a per watt basis, while larger sized systems cost less due to economies of scale of the individual project. Approval of this Program will allow the Company to install these resources quickly and efficiently without additional regulatory approvals. The Company will report on the results of the AZ Sun program through its annual RES Compliance Report.

The revenue requirement that APS proposes to recover through the RES for each 25 MW increment is estimated to be \$16.1 million in the first year of operation, \$5.2 million in the last year, and \$256 million over the 30 year life of the project, based on an average capital cost of \$5.00/watt and other finance, tax and operating cost assumptions.

APS is proposing that revenue requirements for the AZ Sun program, including depreciation property taxes, income taxes, operating and maintenance expenses and a return using the then currently authorized cost of capital, would be recovered through the RES adjustor until the investment is included in base rates or other recovery mechanism. It is important to note that resources under this program are not likely to commence commercial operation until 2011. As such, the requested 2010 RES adjustor does not include any recovery for revenue requirements under the AZ Sun program. APS will include an updated budget for this program in its 2011 Implementation Plan as specific resources are identified.

v. *Small Generation Pilot Program*

Traditionally, a small renewable generation project developer's best opportunity to execute an agreement with APS was by bidding into an RFP. While this process works well for large projects, APS recognizes that this process may seem onerous for a small system developer. In the Company's 2009 RES Implementation Plan, APS received approval for a one-year Small

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Generation Pilot Program²⁷ for projects that produce less than 35,000 MWh per year. The program is available to all RES eligible technologies, but is limited to a total of 45,000 MWh per year. The 45,000 MWh maximum is further segregated into 10,000 MWh for solar and 35,000 MWh for all other RES eligible projects, although the exact mix of projects will depend on the response to the program.

APS began implementation of the Program in early 2009 and issued an RFP on March 25, 2009. In addition to the criteria mentioned above, APS also developed "Threshold Criteria" designed to provide local benefits similar to large scale renewable projects. To pass the initial screening, bidders were required to meet at least three of the following five criteria:

Criteria	APS Goal Criteria	Respondent Compliance Document or Information
1. Community Participation Partnerships	Community groups and residents to participate and benefit from a small renewable energy generation plant in their community.	Letter of interest from the community partner submitted with the RFP response.
2. School/Educational Partnerships	Encourage renewable energy educational opportunities for educators and students.	This could be accomplished with renewable energy curriculum, internships, physical location, or other respondent proposals. Letter of interest from the school or educational institution should be submitted with the RFP response.
3. Geographic Diversity - Defined as zip codes outside of the Metro Phoenix area.	Projects in diverse areas of APS service territory.	Include site zip code in the RFP response.
4. Job Creation	Support the creation of at least 2 renewable energy jobs.	Include number of construction and operating jobs in the RFP response.
5. Leverage Federal, State, or Local grants, contributions, or funding sources (other than Investment Tax Credit or Production Tax Credit).	Encourage participation of research or other public partners.	Letter of support or commitment from funding source.

A bidder's conference was held on April 16, 2009 to provide additional information and answer questions related to the RFP. More than one hundred people attended by phone or in person. A total of 30 bids were received on June 4, 2009, representing an array of renewable technologies including biogas, wind, and several solar technologies. APS has developed a short-list of finalists and plans to complete PPAs with the successful bidders by the end of 2009. The RFP requires the projects to be commercially operable no later than year-end 2011.

²⁷ Decision No. 70654 (December 18, 2008).

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Based on the current responses, APS believes the results of the RFP are promising, and will promote the development of small generation systems. While the selection process is not complete, initial results appear promising and APS anticipates issuing a second Small Generation RFP in 2011. APS will report additional results from the pilot in its 2009 RES Compliance Report. Initial assessment of the Small Generation Pilot suggests the approach will have a favorable impact on this market segment and should result in valuable project additions. APS believes a second Small Generation RFP may be appropriate as part of its 2011 Implementation Plan strategy.

D. Distributed Energy

APS recognizes the importance of DE resources as part of the Commission's comprehensive renewable energy objectives. Distributed resources have become an increasingly important part of APS's renewable energy strategy. APS has successfully implemented its REIP for nearly two years and overall APS has more than eight years of experience in implementing DE programs. As part of this Plan, APS seeks to implement new strategies to increase the penetration of DE within its service territory and to reduce the cost of achieving residential RES targets, and exceeding the non-residential RES targets.

As part of this Plan, APS proposes a funding level it believes necessary to meet the expected level of customer demand in the residential DE program. However, APS recognizes that should the residential DE program become fully subscribed in 2010, the Company may require additional funding as a result of the \$20 million reallocation from the residential program to the funding of school projects.²⁸ A reduction in incentive amounts over time may decrease the amount needed to achieve full compliance, and specifically will depend on the point in time when customer demand exceeds the currently available incentives. APS also proposes authorization for the lifetime of the contracts and the associated annual funding level that the Company believes will be sufficient to exceed the non-residential DE targets in each year of this Plan.

Interest in APS's residential DE program has increased over the past year, even with a challenging economic climate. Continued improvements in residential program implementation, successful marketing, outreach and education efforts, and further incorporation of the REIP into APS's broad-based technology infrastructure are working to manage more customer transactions more efficiently. As part of this plan, APS developed or expanded two key components of its residential programs: 1) the continued implementation of APS's residential DE incentive program; and 2) refinement and continuation of the Solar Homes Program, which is designed to drive energy efficient and solar home construction. In Decision No. 71275, APS was ordered to create proposals to increase participation in the residential DE program. APS is accelerating the deployment of, or developing, the following initiatives as part of this plan:

²⁸ Decision No. 71275

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- APS will launch a Qualified Contractors Program in 2010. The primary goal of this program is to increase overall customer satisfaction, improve program efficiencies, and work to ensure the consistent quality of end-use customers' installations.
- To enhance interest and awareness in residential DE by working within communities and extending the reach of APS's marketing efforts, APS will work to establish an Arizona based non-profit organization focused on driving increased participation in APS's distributed renewable energy programs.
- APS will introduce a program designed to encourage lending institutions to create programs that will help customers overcome the obstacles with up-front financing.
- To drive a deliberate call to action and to increase the momentum already present in APS's residential programs, APS will offer promotional incentives/rebates to residential customers for the installation of PV systems or SWH in addition to the up-front incentives collected through the RES.

APS views these programs as valuable components of the long-term success of a broadly successful residential program.

APS's non-residential DE program includes four components: 1) annual increases in the amount of \$100 million per year to the lifetime PBI commitment authorization with associated annual funding to allow customers the opportunity to install DE systems above and beyond what would be required for APS compliance with the RES targets; 2) the implementation of DE projects identified through the Company's 2008 DE RFP; 3) the continued support of agreements entered into through year-end 2009;²⁹ and 4) the continued funding of projects eligible as wholesale DE.

APS is also introducing a DE program for schools, municipalities and other government entities as part of its DE program expansion.³⁰ APS's Plan offers these entities PBIs for the installation of all RES qualifying non-residential technologies. APS's proposed program allocates \$15 million of the \$100 million annual growth in the lifetime PBI authorization described as part of APS's distributed program expansion. This program will not require additional funding above what APS proposed in its July Filing.

APS also plans expansion of the DPAP designed to provide additional financial support for residential customers who would not otherwise be able to afford residential DE systems.

As part of a separate application before the Commission, APS proposed the Community Power Project - Flagstaff Pilot.³¹ The Community Power Project represents an important step forward

²⁹ The Commission authorized approval on September 3, 2009 of a \$220 million authorization in lifetime Performance Based Incentive contract commitments through 2009 in Decision No. 71254.

³⁰ Decision No. 71275 required APS to propose a DE program designed to increase the participation at schools and government buildings.

³¹ Docket No. E-01345A-09-0227 (May 11, 2009).

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as both an opportunity for technical learning related to DE system interaction with APS's electric distribution system, and an outstanding opportunity to gain further insight into consumer interest in and interactions with DE technologies. The Community Power Project is included as part of this Plan.

Planning models, implementation strategies, and budgeting for the DE programs were all designed with specific consideration for the insight from the UCPP working group. In addition, APS relied on several years of experience with the REIP and ongoing dialogue with many industry stakeholders.

i. Enhancement of DE Programs

The following sections describe APS programs designed to increase market penetration within the residential sector. APS continues to develop and refine these strategies based on insight gained from program execution and with stakeholder input.

1. Solar Homes Program

In review of the DE program activity to date, nearly all participants are customers who have incorporated renewable technologies on existing facilities. From an end-user perspective, the most cost effective and convenient way of incorporating energy efficiency and renewable energy technology is at the time of initial design and construction.

As a result of today's economy, the local building market is depressed when compared to the explosive growth seen in the recent past. Potential homebuyers are becoming more informed, selective, and demanding in order to stretch their limited purchasing power. Homebuilders are looking for ways to differentiate their product, not only from their competition, but from the quality home that they had previously sold.

In response to this opportunity, APS launched the APS Energy Star and Solar Homes Program in April of 2009. The goal of the program is to increase the overall number of energy efficient homes being built that include renewable technologies in the most cost-effective way for end-use customers. The program will reward homebuilders for their commitment to developing communities with renewable technologies. In exchange for this commitment (homebuilders must offer renewable technologies as a standard feature across the community), the builder will receive a supplemental incentive and non-monetary benefits such as cooperative marketing, training, and technology assistance.

As part of this Plan, APS has included continued expansion of this effort with interested homebuilders. By 2013, based on current economic forecasts, APS anticipates that over 2,700 solar-equipped and solar-ready homes will be built as a result of this program. A recovery in the Arizona housing market could dramatically increase the number of solar homes resulting from this program. APS may offer promotional incentives in order to increase market share depending on results throughout the year.

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2. *Qualified Contractors Program*³²

Within the last few years, Arizona has experienced significant growth in the number of contractors offering and installing renewable technologies. While this growth is a sign that the demand for renewable technologies is increasing, stakeholders and customers have concerns regarding the qualifications and expertise of these contractors.

APS recognizes this issue and is therefore launching a Qualified Contractors Program in 2010. The primary goals of this program are to increase overall customer satisfaction with the DE purchase process, improve program operating and marketing efficiencies, and to ensure a consistent high quality installation.

The first phase of the program will be designed to serve two technology segments; solar electric and solar thermal system installations. Participating contractors will be required to complete a training curriculum including technical, administrative, utility rates, customer service, and ethics courses; meet inspection/commissioning standards; maintain Better Business Bureau ratings and customer satisfaction levels; and commit to formal dispute resolution services.

Participating qualified contractors will benefit from this program by receiving accreditations, a formal referral process, cooperative marketing/advertising, streamlined administrative processes, and increased overall training of staff.

APS believes this program will play a key role in its marketing strategy to transition from creating market awareness to enabling customers to take action. Upon completion of the qualified contractors list, APS's customers will have increased clarity and direction in choosing an installer for their renewable system. While not proposed as part of this Implementation Plan, it is APS's intention to ultimately require customers to use an APS qualified contractor to be eligible for renewable energy incentives.

3. *Financing Incentive for Residential Renewable Energy*

APS is dedicated to finding solutions that will help reduce or eliminate the financial barriers associated with the up-front costs of installing residential DE systems. It is apparent that innovative financing is becoming more readily available as renewable programs mature across the country. In 2008, APS partnered with the non-profit Electric & Gas Industries Association ("EGIA") to provide financing options for customers to install residential DE systems. The program was positively received by APS's customers; however, GE Money, the funding source of the GEOSmart program, discontinued their unsecured installment loan (APS's program) due to economic conditions in October 2008. APS is actively pursuing other mechanisms to offer residential customers additional financing options. The Company is collaborating with banks and other lending institutions to create options that will help customers overcome the obstacle of up-front installation costs. APS believes that, like home builders within the Solar Homes program,

³² The Qualified Contractors Program will also impact and benefit non-residential installations.

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incentive mechanisms designed to encourage lending institutions to make funds available and create programs for DE installations will have a broad and long lasting effect.

Once fully developed, this program will be available to all lending institutions. As in its other cooperative marketing efforts, APS believes this approach will vest additional entities in the promotion of distributed renewable energy that will extend the reach of APS's own marketing and outreach efforts. This effort will also raise awareness of the availability of DE financing options.

4. Promotional Incentives/Rebates

APS is preparing a marketing initiative with a specific call to action. The initiative will offer promotional incentives to residential customers for the installation of PV systems or SWH in addition to the already available up-front incentives ("UFI"). APS anticipates that by temporarily adding limited additional incentives, the Company can create momentum that will carry through the end of 2010 and beyond. APS believes that the promotional incentives will not only affect purchase decisions, but will also serve to increase understanding of APS's standard incentive offerings.

To preserve the effectiveness of the promotion and minimize adverse market behavior, the details of the promotional incentives and their specific timing are not included in this plan.

ii Expansion of the DE Program Beyond Compliance

The combination of the success of APS's non-residential DE program in 2009 and the success of the DE RFP have resulted in commitments for non-residential DE resources to comply with the RES target for each year of this Plan. APS recognizes our customers' interest in continuing to install increasing amounts of DE technologies. APS also recognizes the Commission's continued support for developing renewable energy strategies that exceed the targets established in the RES. Therefore, as part of this Plan, APS proposes an expansion of the non-residential DE program that will result in energy beyond that required for near-term compliance. In addition, the expansion is designed to continue development of customer-sited DE projects.

The expanded program includes two fundamental pieces: 1) annual increases to the lifetime PBI authorization to continue to facilitate large, medium, and schools and governmental customer installations; and 2) an annual budget for non-residential Up Front Incentives ("UFI") to continue to facilitate smaller or generally lower cost customer installations. The increased lifetime PBI commitment authorization is accompanied by a forecast of the annual funding requirement necessary to meet incentive payments resulting from the energy produced in each budget year. The annual funding required for DE Incentives are included in Exhibit 4A. In addition, the detailed interaction between annual funding and the lifetime PBI commitment authorization is included in Exhibit 4C.

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With specific experience from APS's REIP and based upon dialogue with customers and other stakeholders,³³ the expanded non-residential program will allocate the annual \$100 million increase in the lifetime PBI to three areas: \$65 million for large projects, and \$20 million for medium projects, and \$15 million for schools and governmental program as defined below.

Large Project: any electricity producing project whose inverter(s) or generator(s) is rated greater than 100 kWac or any project whose lifetime incentive commitment is greater than \$2.5 million. Incentives will be capped for electric producing systems at a capacity size of 2,000 kWac per interconnection point; actual system size is not limited under this program although all other interconnection and program requirements remain applicable.

Medium Project: any electricity producing project whose inverter(s) or generator(s) is rated 100 kWac³⁴ or less, or any project whose lifetime incentive commitment is less than \$2.5 million, and does not qualify for an up-front incentive.

Schools and Governmental Program: designed to assist publicly funded (K-12) schools and state/local governmental facilities. Projects are open to all RES qualifying technologies, however, are limited to 300 kWac per interconnected meter for generating technologies or Lifetime Project Commitment of \$1.5 million, per interconnected meter for other qualifying technologies. Projects that qualify as a Small Project do not qualify under this program. Projects larger than the above mentioned limits will be required to participate in the standard program as a Large Project.

All eligible projects will be required to conform to the provisions of the APS DEAP. A limited number of modifications have been made to accommodate to the goal of increasing competition among Large and Medium projects' incentive funding and thereby reducing incentive costs. A description of the DEAP and a summary of included enhancements are provided in Section 3.D(vi).

iii Distributed Energy RFP

On August 14, 2008, APS issued an RFP for DE Resources ("DE RFP"). Through the DE RFP, APS sought to increase the quantity of DE resources to assist in compliance with the RES Rules and to lower costs of DE resources relative to that forecast through continued implementation of the current incentive programs. To facilitate this goal, APS considered offers that phase-in over several years and introduce alternative and potentially cost-saving methods for providing

³³ On June 2, 2009, APS held a 2010 Renewable Energy Standard Implementation Plan stakeholder meeting focused on the status of the non-residential DE program. APS informed stakeholders that participation in the non-residential program had exceeded expectations, which presented challenges for the Company in the acceptance of PBI reservation under the existing Commission approved lifetime PBI commitment authorization of \$77 million. Options to reduce costs without diluting the amount of distributed renewable energy generated were discussed with stakeholders. APS is using stakeholder input to further refine its DE program.

³⁴ Solar nameplate capacity is commonly designated in dc (direct current), while utility operations and services are provided in ac (alternating current).

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customers choices related to DE. Bids submitted under the DE RFP were due on October 17, 2008.³⁵

APS received submittals from 12 separate entities, representing 22 distinct proposals. The proposals submitted were principally focused on PV installations for non-residential customers. After performing the initial screening process to determine bid conformance, APS was presented with 12 projects for consideration that aggregated to more than 400 MWdc³⁶ and 400,000 MWh/yr of DE projects. From these projects, the Company reviewed the details of each proposal and the economics relative to the REIP. All proposals that represented a reduced cost compared to funding the same projects through the REIP were short-listed for further discussions. These short-listed projects were subjected to a more thorough economic evaluation. APS selected only a portion of the proposed projects, first in an effort to gain additional and specific experience with these types of DE transactions and second in an effort to preserve opportunities for customer projects under other DE programs. In addition, APS began a direct dialogue with the customers identified by the bidders to determine the extent of their interest in installed DE systems as described in bids submitted to the DE RFP.³⁷ APS has entered into contract negotiations with several counterparties that will provide over 130,000 MWh/yr of DE projects (when fully deployed) at a significantly reduced cost when compared to the REIP. This total quantity represents a little more than one-quarter of APS's 2014 DE requirement. Two new DE transaction types were proposed among the bids under negotiation. APS believes that each DE transaction type results in customer-sited projects that are qualified to meet the RES DE targets. Those transaction types are described below.

1. Customer Aggregation Model

This model would produce a negotiated arrangement between APS and a third-party developer for a specified amount of DE. The developer will have the ability to phase in projects over several years and will have the ability to determine the optimal mix of customer installations and technologies needed to meet their fixed REC price to APS in accordance with the contract. This contract type leverages a third party's expertise in partnership development and site selection to derive DE outcomes at a predetermined price. Benefits to the APS program include: dramatically reduced REC costs; contractual controls over system and installation performance; and increased implementation efficiency.

2. REC and Energy Contract Model

In the REC and Energy Contract Model, APS and the DE developer enter into an agreement to meet the specific needs of large customers. Under this model, the developer would site the PV system at a customer's facility. APS would purchase all of the energy and the associated RECs generated by the system, then APS and the customer would enter into a separate agreement for the customer to purchase all of the energy from the DE system. Those contractual rate

³⁵ APS engaged Merrimack Energy Group, Inc., to act as Independent Auditor for this RFP.

³⁶ Solar nameplate capacity is commonly designated in dc (direct current), while utility operations and services are provided in ac (alternating current).

³⁷ The vast majority of conforming bids were submitted by project developers who identified either specific customer sites or potential market segments.

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agreements will require separate approval from the ACC. This model provides a more economic way to integrate solar power for very large energy users. APS believes that this model, while different from the standard approach where APS purchases only the RECs, qualifies in contributing to the DE target under the RES.

In aggregate, when compared to the current cost of the non-residential DE program, the results of the DE RFP are projected to reduce program costs for RECs by approximately 50 percent

iv. *Distributed Public Assistance Program*

As part of its 2009 Implementation Plan, APS began working to deploy DPAP funds in support of DE installations for limited income customers. APS proposes an increase in the budget by \$200,000 resulting in an overall proposed budget of \$500,000 to continue the development of the DPAP to meet the unique needs of our limited income, school, non-profit, and governmental customers. Because these customers may have limited financial means and relatively low or non-existent taxable income to be offset by tax credits, the standard REIP is not likely to meet the needs of these customers. Where available, APS will use other customer and non-customer funds to leverage overall program results and reach additional customer segments.

There are a number of concepts APS intends to expand upon, to help increase the utilization of DE with feedback from stakeholders, community leaders, and organizations including:

- Larger incentives. Because many of these customers have little or no tax liability, a standard incentive leaves them paying a larger portion of the total cost to install renewable systems than someone who could take advantage of tax credits. Larger than standard incentives and increased incentive authorizations may be an appropriate way to level the playing field.
- Contributions. In limited instances, APS may provide for the complete installation of systems including PV, solar water heating, and daylighting.
- Administrative and technical requirements. To address the unique and lengthy approval processes most schools and governmental agencies use, APS may be able to extend the reservation timelines to meet the needs of those groups. APS will also determine if there are contracting terms and conditions that could be modified to assist all limited income, school, non-profit, and governmental customers.

v. *Anticipated Distributed Energy Program Outcomes*

In developing the anticipated program outcomes, a number of assumptions about technologies and customer preferences were required. The assumptions included the anticipated number of projects by technology and the anticipated energy contribution from each DE project. Anticipated energy contribution was described by assumptions about average project size and average project production. The detailed assumptions were required for purposes of budget and planning; they are not intended to reflect allocations, funding authorization, or preference for any one technology. The assumptions are detailed in Exhibit 5A.

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Incentives were drawn from the draft UCPP working group efforts and are included in the APS DEAP. The DEAP, generally described below, details different incentive types for use in the DE program. For planning purposes, assumptions about customer preference for the variety of incentive alternative were required.

APS's proposed DE budget and anticipated resulting energy are described in Exhibits 4A and 4B. The lifetime authorization for commitments under the non-residential program is described in Exhibit 4C. The actual results of program implementation are likely to differ from those anticipated by APS's planning efforts as customers learn more about the variety of technologies and applications available as a result of APS's program marketing, advertising, and partnership development efforts.

Planning assumptions for the residential DE program are described in Exhibit 5A. Projections for the resulting installations under the residential DE program are described in Exhibit 5C.

vi. *Key Tenets of the Proposed Distributed Energy Administration Plan*

APS's DE program is detailed in the DEAP. While the DEAP is substantially the same as the version approved in Decision No. 70654, there have been some enhancements designed to improve clarity and customer service. In addition, the DEAP has been updated to reflect APS's approach for the implementation of a non-residential program that exceeds RES compliance targets. Those enhancements are discussed in a following section. Below are several key tenets of APS's program as described in the proposed DEAP:

1. Administration

Project funding is not guaranteed until the customer receives a reservation confirmation from APS for each project. To receive a reservation and an incentive, applicants must follow the established reservation, installation, and inspection procedures.

2. Equipment and Installation Requirements

Systems will be required to adhere to generally accepted industry standards, federal, state and local codes, all applicable regulatory requirements, and manufacturer recommendations for installation and operation. Systems must be installed by an Arizona-licensed contractor with an active certification for the technology being installed, and must conform to APS interconnection requirements, if applicable.

3. Incentives

In the development of APS's distributed incentives, APS used the approach developed by the UCPP working group. Incentives are designed to defray some of the costs of a system designed to offset a typical load of a customer. Systems qualifying for DE incentives cannot qualify for other utility incentives.

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Residential – Customers for residential incentives can apply for a one-time payment based on the DE system’s capacity or based on the first year estimated savings provided by the DE system, dependent on the technology application. This type of incentive is referred to as an Up-Front Incentive (“UFI”).

Non-Residential – Non-residential customers will either receive a UFI or a PBI, an incentive based on system production, which is paid over time. Projects receiving PBI are paid based on system energy output rather than on system capacity. Projects with a total incentive value of \$75,000 or less (calculated as the present value of the total of incentive payments) will receive a one-time capacity based incentive; all others will receive incentives based on production.

For installations receiving a UFI, the incentive amount is predetermined by the capacity or energy savings of the system. Customers who request a PBI for a DE system have the latitude to propose an incentive appropriate for their project; the PBI incentive matrix describes the maximum available incentive level. The non-residential program expansion described in this Plan is designed to better leverage that flexibility in hopes of driving down project incentive levels.

4. Market-Driven Projects

Projects that fall outside of the standard administrative, equipment, or incentive requirements for DEAP projects or projects that are solicited by APS to achieve specific program goals may be eligible for incentives as market-driven projects. These projects must be comparable to conforming projects in financial efficiency to be considered for incentives.

5. Customer Self-Direct

As set forth in APS’s approved Adjustment Schedule SDR,³⁸ eligible customers are required to declare the amount of the self-directed funding requested by March 31st each year. These projects must be comparable to conforming projects in financial efficiency to be considered for incentives. The amount of funds allocated to customer self-directed projects will be disclosed in this Plan for the next program year. As noted in Exhibit 2A to this Plan, APS has not received any requests for self-direction to date.

6. DEAP Enhancements

After beginning the process of implementing the DE incentive program that was approved by the Commission in Decision No. 70654 (December 18, 2008), APS discovered a number of minor issues that require a modification to the DEAP. These modifications are designed to improve customer service and eliminate any issues that might limit customer participation or satisfaction. In addition, modifications have been made to accommodate APS’s proposed non-residential program expansion.

³⁸ Adjustment Schedule SDR, Self-Directed Renewable Resources, was approved by the Commission in Decision No. 70313.

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- APS simplified the methodology for calculating the UFI for small wind generators. The change eliminates the compounding effect of applying inverter efficiency more than once in the calculation. By making this change, the calculation more accurately reflects the true output of the system.
- APS has seen increased customer interest in geothermal applications. APS included equipment qualifications and installation guidelines to better assist interested parties in the proper design and installation of geothermal heating and cooling systems. By using equipment standards consistent with the federal tax credit requirements, along with an incentive based on annual energy savings, the program more accurately reflects industry standards in the design, and installation of systems, as well as ensuring that customers receive system appropriate incentives.
- In expanding the Non-Residential DE Program, APS described projects in four different categories: Large Projects, Medium Projects, Small, and School and Governmental Projects. Large Projects will be eligible for PBI, with semi-annual nomination periods. Medium Projects will be eligible for PBI, with six, bi-monthly nomination periods. Small Projects will be eligible for UFI, and School and Governmental Projects will be eligible for a PBI on a first-come, first reserved basis.
- Increased requests for non-residential incentives have placed demands on incentive funds in excess of total availability. The need to qualify and contractually bind applicants in a timely manner has become critical, such that, timely execution of a Credit Purchase Agreement (“CPA”) has become important to the effective administration of incentive funds and the PBI authorization. To improve equitability of incentive fund implementation, APS has reduced the time allowed for a customer to execute a CPA from 60 days to 30 days from notification of funding. APS will also require an executed contract between the customer and the developer to be submitted within 30 days of notification of funding to retain the funding reservation.

vii. Community Power Project – Flagstaff Pilot

The Community Power Project - Flagstaff Pilot (“Community Power Project”)³⁹ will provide renewable energy from APS-owned DE systems to customers in a limited geographical area located in Flagstaff, Arizona. This pilot program will help APS gain valuable experience regarding the impact of DE systems on the distribution grid, and has the potential to increase DE deployment in APS’s service territory. As such, the Community Power Project will help facilitate the Company’s compliance with the distributed renewable energy requirements of the RES Rules. As part of the Community Power Project, APS proposes placing distributed renewable energy resources, including PV arrays, solar water heaters, and small-scale wind turbines, on approximately 250 homes and businesses in a limited distribution area. The Community Power Project will provide customers with a convenient solar opportunity: the benefits of a DE system, without the economic obligations of capital investments, or the cost and inconvenience of operating and maintaining the system.

³⁹ Filed for Commission approval in Docket No. E-01345A-09-0227 (May 11, 2009).

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As part of the Community Power Project, APS will also study significant information regarding distributed renewable energy systems. By utilizing smart grid technologies also being installed by APS in the area, the Company will study the impact of renewable energy systems on the distribution feeder, the energy and capacity impact of distributed PV deployments, the impacts of system availability, and the impact of environmental factors (such as weather) on the aggregated PV systems and the connected energy delivery system. Additionally, APS believes the Community Power Project will provide a better understanding of the reliability of renewable energy systems, as well as the life cycle costs for both residential and commercial applications. The information obtained from the Community Power Project should enable APS to deploy distributed renewable energy more effectively in the future.

If the Community Power Project is approved, deployment, carrying, and ongoing costs for the project through 2012 will be paid using funds that rolled over from the 2008 RES budget, as illustrated in Exhibit 2B.

viii. Distributed Energy Incentive Budgets

The proposed DE incentive budget for the five-year planning window is described in Exhibit 4A. The incentive budget is designed to result in sufficient residential DE installations to achieve the RES target.⁴⁰ The incentive budget for the non-residential program is sufficient to exceed the RES target. Annual changes in program budget are designed to accommodate an increase in the DE energy target, both as an increasing fraction of the total RES requirement and as the requirement itself increases. The incentive matrices incorporated as part of the DEAP describe incentive reductions every two years of the program. Those planned reductions were designed by the UCPP working group in an attempt to reflect the anticipation that DE technologies will decline in cost as market penetration and product availability increase. In 2010, the allocation for residential DE incentives is \$44.1 million.

The incentive budget for the non-residential DE program is expected to result in sufficient DE installations to exceed the RES targets in each year of this Plan. The budget can generally be divided into three areas 1) funds necessary to meet PBI obligation entered into through year-end 2009,⁴¹ 2) funds necessary to meet contract obligations for contracts entered into as part of the DE RFP, and 3) funds for expanding the non-residential program beyond that required strictly for near-term compliance. In sum, these commitments to customers' incentives are \$18.2 million in 2010.

1. Performance-Based Incentives - Lifetime Contract Commitment Authorization

In Commission Decision No. 70654, the Commission approved APS's 2009 RES Implementation Plan.⁴² In that Decision, the Commission approved recovery of the cost of incentive payments to meet APS's contractual obligation for PBI paid to customers for non-

⁴⁰ A.A.C. R14-2-1805(D).

⁴¹ APS filed for approval of authorizations for lifetime PBI contract commitments through 2009 in Docket No. E-01345A-09-09-0263 (May 26, 2009).

⁴² Docket No. E-01345A-08-0331 (December 18, 2008).

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residential distributed renewable energy projects up to \$77 million over the lifetime of the contracts. During 2009, APS experienced an unexpectedly large number of reservations for distributed projects under the program. As a result of the surge in customer requests for PBI reservations, APS requested and received approval to increase the lifetime authorization for PBI commitments to \$220 million.⁴³

As part of this Plan, APS has developed its expansion of the non-residential DE program around an annually increasing lifetime PBI authorization. Specifically, in each year of the Plan, APS proposes increasing the lifetime PBI authorization by \$100 million. APS anticipates that the increased funding under the lifetime PBI commitment will result in a growing number of increasingly cost-effective customer DE installations.

APS's proposed schools and governmental program will be a separate allocation within the requested annually increasing lifetime PBI authorization of \$100 million. The schools and governmental program does not increase the lifetime authorization above that originally proposed as part of the July Filing.

APS views projects resulting from the DE RFP as substantially the same as commitments under the PBI program. As a result, the Company has included those commitments in its calculation of lifetime PBI authorization. In 2010, the lifetime PBI authorization necessary to implement those projects and program described by this Plan is \$570 million, with \$250 million required for the DE RFP. Details of the requested PBI commitment authorization for all of the years described in this Plan are included in Exhibit 4C.

2. Customer Self-directed Funding

The DEAP describes potential funding for customer self-directed projects. As part of the DEAP, a budgetary earmark is required to fund projects meeting the criteria of customer self-directed projects. As of the March 31, 2009 deadline, APS had not received any requests for self-direction; therefore, no allocation was established.

3. Budgeting Assumptions and Flexibility

As previously described in this Plan, the annual funding level for DE incentives was established based on the estimates of the energy needed for compliance, anticipated consumer demand, project sales and development time frames, variations in the levels of technology maturity, and availability of equipment for installation. In the event that funds collected for use in the DE incentive program are not fully subscribed in a program year, those funds will be applied to the next program year. To continue to adapt to customer demand and market changes, APS will continue to implement the incentive budget flexibility granted in Decision No. 70313. In that Decision, APS was granted the ability to reallocate up to 20 percent of the incentive budget to match customer demand.

⁴³ See Decision No. 71254

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Decision No. 71275 directed APS to review its residential offerings and propose programs in its 2010 Implementation Plan with a focus on increasing participation in residential DE programs. Decision No. 71275 also granted APS authority to allocate up to \$20 million of its 2009 residential DE budget to the funding of school projects, with RECs counting towards non-residential DE targets. To reach full residential DE compliance in the future, additional funding may be required. If necessary, APS will file an application with the Commission for additional funding at that time. This amended Implementation Plan does not propose an increase the incentive budget from that originally proposed in the July Filing.

ix. *Marketing, Advertising and Partnership Development*

APS's marketing effort for 2010 will build on the marketing activities of 2009 to continue advancing the primary goals including:

1. Creating an increased awareness of the APS Renewable Energy programs available to customers;
2. Promoting and developing educational curriculum and consumer education pieces about DE through specific written materials, events, and APS's website;
3. Increasing the understanding and participation among vendors and other stakeholders;
4. Deliver messages that will motivate APS customers to adopt renewable energy technologies;
5. Positioning the APS REIP as a beneficial choice customers can make to address the growing energy needs and environmental concerns that face Arizona;
6. Increase awareness and create a call to action to the residential customers regarding APS's distributed generation program.

The key objectives of the marketing plan are 1) to motivate APS customers to become more aware of, and build a comfort level with, distributed renewable energy technology; 2) to help customers recognize the ability DE has to meet their individual energy goals as well as those of Arizona; and 3) to help move them to action through taking advantage of available renewable energy incentives. To accomplish these objectives, the marketing plan incorporates a combination of compelling messages, critical program partners, community outreach, and an effective and convincing use of media, both placed and earned.

The marketing plan includes a variety of important strategies and tactics to accomplish the program goals including the following:

- Identify, evaluate and refine messages to address adoption barriers for residential customers, builders, and commercial customers.
- Continue a media relations plan that includes mass media to raise visibility of renewable DE alternatives and motivate APS customers to move along the path of adopting those technologies.
- Continue to use and refine direct marketing to motivate APS customers.

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- Continue to cultivate contractor alliances via co-op advertising programs.
- Continue to educate customers about DE through events, seminars, workshops, and the APS website.
- Continue to create strategic alliances to increase exposure of APS DE messages to various targeted audiences.
- Optimize the APS website as an information resource for customers, installers and other stakeholders. Leverage ongoing opportunities to enhance the website based on customer and stakeholder feedback.
- Leverage online advertising and communications. Look for opportunities to incorporate social media tactics into the marketing mix.
- Create sales tools and marketing materials to support both residential and non-residential customer acquisition (e.g. as installers and home builders).
- Launch a Qualified Contractors Program in 2010. The primary goal of this program is to increase overall customer satisfaction, improve program efficiencies, and work to ensure the consistent quality of end-use customers' installations.
- Enhance interest and awareness in residential DE by working within communities and extending the reach of APS's marketing efforts, APS will work to establish an Arizona based non-profit organization focused on driving increased participation in APS's DE programs.
- Introduce a program designed to encourage lending institutions to create programs that will help customers overcome obstacles with up-front financing.
- Drive a deliberate call to action to increase the momentum already present in APS's residential programs by offering a promotional incentive/rebate to residential customers for the installation of PV systems or SWH in addition to the up-front incentives collected through the RES.
- Promote APS's Schools and Governmental Program.

Modifications to our communication strategies will be made to address changing market conditions and key learnings throughout the marketing process.

Each year of experience informs our market preparation for the coming year. APS will continue to review available data for customer program marketing budgets among other states and utilities, and consider the level of anticipated effort to create consumer demand based on the breadth of available technologies and the proposed DE incentive budget. The proposed annual budget for 2010 to 2014 is detailed in Exhibit 2A.

E. Implementation and Administration

In developing both a strategy and a budget for implementation of the RES, a logical separation was created between those elements required to support renewable generation and those elements required to support DE. Renewable generation involves expertise in utility scale renewable generation technologies, competitive procurement and evaluation processes, project siting, utility

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integration, and transmission and distribution related issues. The DE program is a mass market program that involves thousands of individual interactions requiring customer communication, interconnections, inspections, customer billing, and a sophisticated system to monitor REC production. Of course, certain resources are used to support both portions of the RES and they are characterized as such in the descriptions that follow.

i. Resources Required for the Renewable Generation Program

The renewable generation program requires subject-matter experts to identify those aspects of renewable generation procurement, engineering, and market analysis that are unique from those same areas in conventional energy operation, and to coordinate with the impacted operational areas of APS to seamlessly integrate renewable resource management into APS's standard business practices. The knowledge-area experts comprising the renewable generation administrative team include the personnel necessary to manage the program. Program management includes establishing policies and procedures, procuring renewable generation, handling contract administration and construction management, managing benchmarking and resource integration studies, and performing program monitoring and compliance reporting.

There are many APS personnel who support the program but are not part of the administrative team. Those employees are not included in the program costs; they are considered "non-incremental" because they are necessary to support the general operations of the Company and have responsibilities that are not directly related to the renewable generation program. This includes, but is not limited to, regulation and pricing, accounting, legal, contract administration, contract settlement, transmission planning, power and gas marketing, and resource planning.

ii. Resources Required for the DE Program

The implementation strategy for the DE program was developed with the following targets:

- Developing an accurate, efficient, and customer friendly process.
- Integrating the program processes into the general business operations.
- Creating a scalable process that responds to adjustments in the volume of program participation.
- Supporting the strategic marketing efforts of the program.

Accomplishing these objectives requires a considerable investment in program implementation. The DE program requires a substantial number of individual transactions and each transaction impacts numerous parts of APS's business infrastructure. As such, implementation costs for the DE programs are significant. Incorporation of projects from the DE RFP may provide opportunities to reduce the number of individual transactions APS is required to manage and the DE RFP can work to leverage APS's strengths in management of complex contract negotiations and contract management.

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1. Program Resources

The implementation team is comprised of the personnel necessary to execute the DE incentive program. This includes the fixed payroll personnel who are required to administer the reservation and interconnection applications and agreements, review system design for conformance with DEAP and interconnection requirements, process incentive payments, answer customer and installer questions about the program, and perform field inspections. Also included are the variable payroll personnel required to tag utility equipment to identify potential backfeed sources, and provide billing support to partial-requirements customers, as well as the personnel required to manage the execution of the program, develop and execute the marketing and advertising programs, and provide ongoing program monitoring and compliance reporting. The number of implementation team members required is directly related to the number of program participants.

There are also resources supporting the program that are neither part of the administrative nor the implementation teams. These personnel are considered "non-incremental" and are required to support the general operations of the utility and have responsibilities that are not directly related to the distributed program. This includes, but is not limited to, regulation and pricing, accounting, legal, contract administration, and meter reading.

2. Material Costs

Measuring the actual number of kWh returned to the grid by DE resources requires the use of a bi-directional meter rather than a standard utility meter. The incremental cost charged to the RES is the difference in cost between the bi-directional meter and the standard utility meter.

For compliance verification and program evaluation purposes, the DEAP proposes to capture monthly meter reads for DE systems generating electricity. APS believes that customers will also be interested in the ability to track total kWh generated by their system. To facilitate both the meter read capture requirement and to help customers track the kWh production by the DE system, APS may install and read the system meter for participants in the program. The only costs charged to the RES are those costs associated with providing the second meter to record system production.

There are also incidental material costs associated with the program, including, but not limited to, system locks, tags, inspection tools, and transportation for inspection personnel.

APS may also install an interval recording meter on a sampling of sites. That data will be used to conduct studies on the coincidence of solar output vs. APS system load. The only material cost charged to the Program will be the incremental costs of the interval recording meter.

3. Technological Improvements Required

APS continues to review the existing process flows in order to ensure the effective and efficient use of resources required to cost-effectively implement the DE incentive program. These processes require integration with existing systems, including customer billing, APS's website, program and operations databases, accounting systems, and dispatch and scheduling tools.

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APS's 2009 RES Implementation Plan advanced several such projects that will facilitate additional efforts to further integrate RES programs and expand opportunities to offer streamlined interfaces for customers and stakeholders.

APS also continues the development of cost effective user-friendly tools for customers to determine the opportunity and benefits presented by solar systems. Based on the Company's experience to-date, a customer who is considering investing in a renewable energy system for a home or business wants to know the financial benefits of such an investment, including both potential systems costs and impacts on monthly bills.

To address that threshold question, APS has contracted for the development of a Solar Calculator, an electronic tool for customers to utilize. The tool will help customers learn about typical systems installed on different home sizes. The Solar Calculator will compare the customer's individual usage, based on their actual APS bills, and provide analyses regarding benefits for the individual customer. APS believes that availability of this type of information will be a fundamental component in a customer's decision-making regarding solar resources. The development of the Solar Calculator is in its initial stages and is expected to operational in 2010.

In addition, APS continues work in the following areas:

- **Database Integration:** APS implemented IS projects that combine a number of individual databases into one centralized system. The consolidation helps ensure data accuracy, security, and consistency, as well as increasing overall processing and reporting efficiencies. This consolidation is designed to facilitate program customer support throughout APS's operation, including options for reservation status reporting (see below) and DE system reporting integration with customer billing.
- **Interactive Web-based Project Tracking Application:** Database integration will facilitate web-based project tracking milestones for both contractors and customers and automated correspondence/payment processing feature. Both of these elements will improve processing time, ensure consistency and completeness of information, and reduce reservation coordinator processing time.
- **Renewable Website:** APS is launching its newly redesigned Renewable website. The updated website is designed to cater to four different customer sectors: residential, businesses, contractors, and builders. The site will include an increased use of video, customer testimonials, and sector-specific information with the aim of providing information necessary to drive customer participation in renewable energy programs.

APS will continue to make incremental improvements to its program. This should limit the impact to customers, while still enabling APS to continue its progress in the implementation of technology improvements.

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F. Renewable Research, Development, Commercialization, & Integration

APS proposes a budget allocation for research, development, commercialization, and integration (“RDCI”) of renewable resources in its Plan. The purpose of this budget allocation is to enhance and accelerate the development, deployment, commercialization, and utilization of renewable resources for the benefit of APS customers. For 2010, APS proposes to specifically allocate a minimum of \$750,000 of the total RDCI budget of \$2.0 million for research and development aimed at advancing the role of renewable energy in APS’s resource mix.

APS will prioritize projects and project funding to maximize the benefit to meet RES goals for renewable resources. Activities undertaken as part of this program are supported either by APS solely, or in partnership with other organizations and entities including private industry, public research institutions, and government laboratories. Demonstration and research related to energy storage and storage applications, such as vehicle energy storage, will rely on funds collected as part of the RES in 2008, which were rolled into 2009, as shown in Exhibit 2B.

i. Research and Development

APS’s commitments for Research and Development include:

- AzSMART (Arizona State University)
AzSMART is an analysis system tailored to examine the successful roll-out of a solar-energy infrastructure in Arizona and to develop the required electric grid technologies to enable such a solar infrastructure.
- Compressed Air Energy Storage and Battery Storage
Research and development, potentially including field deployment, of an electric distribution system storage demonstration project. The objective of the study will be to identify commercially viable battery storage systems and above ground compressed air energy storage technologies that could be integrated with renewable resources to shift the production curve of distributed resources and provide value to the energy delivery system.
- Grid to Vehicle / Vehicle to Grid Study
APS plans to continue to support a study commenced in 2009 to address the potential for “vehicle to grid” and “grid to vehicle” technologies. In part, this work will provide an assessment for the development of a demonstration project for available technologies.

ii. Commercialization & Integration

APS has completed several compelling commercialization and integration studies. Some of those studies have identified opportunities for additional investigation while others have provided direct benefit for the effective integration of renewable resources. In determining whether to fund new RDCI projects, APS will consider three key functional areas:

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- Renewable technologies and available resources
This includes studies of the attributes, characteristics, and costs of renewable energy technologies and the availability and viability of renewable energy resources in the state of Arizona and the western United States. Specifically, APS believes it is valuable to explore renewable storage technologies, the forecasting of solar resources, methods for reducing water use for solar thermal generating stations and exploring geothermal resource opportunities. Research and development into new renewable technologies and improvements on existing technologies would also be included in this functional area.
- Roof-top Solar Potential Survey
To assist in the strategic deployment of distributed solar systems, APS has engaged Navigant Consulting to identify the rooftop photovoltaic potential throughout the Company's service territory. The study inventories building types on a zip-code basis to provide the number of each type of building and identifies the typical size solar unit for each type of facility, based on a number of factors, including square footage, roof-type, and building height. This study is currently underway and should be completed by year end. APS has begun exploring potential partnerships with in both the public and private sectors, to determine the potential for a cost-effect second phase that may further customize this information in a format that allows for mapping and integration with the Solar Calculator (see 3.E.ii.3 Technology Improvements Required).
- Transmission and System Integration
These studies would be designed to provide APS with a better understanding of the operational impacts, costs of integration, and identify opportunities with renewable energy resources in the APS generation, transmission, and distribution systems. APS recognizes the critical importance of transmission in the success of the expansion of renewable generation. Any significant increase in renewable generation must be integrated into the long-term planning for transmission to be successful.
- High Penetrations of Distributed Resources and Impacts on the Distribution Systems
These studies would seek to develop a better understanding of the operational impacts, integration and interconnection issues, and strategic opportunities for distributed resources. Specific areas could include investigation of attributes of distributed resources including DE performance, reliability, monitoring, energy and storage dispatch, weather forecasting, and smart grid interface with DE. APS advances these areas with recognition of the importance of maintaining a reliable energy delivery system that includes increasing deployment of distributed resources.

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4. COSTS OF PROGRAM IMPLEMENTATION

The cost of the APS Plan is comprised of three key cost segments: renewable generation, DE, and RDCI. A summary of the costs of those segments and the major components for each segment is included in Exhibit 2A. APS currently estimates the cost to comply with the RES to range between \$85.5 million in 2010 to \$208.1 million in 2014, the peak year, with a five-year total of \$729.6 million. The annual increases are driven mainly by the annually increasing energy targets. As noted in Exhibit 2A, APS would anticipate that some funds collected in 2009 may not be spent or committed and will be available in 2010. At the time of this filing, APS cannot accurately predict that amount. The Company will provide an estimate of that information by November 1, 2009, or before the date of the Open Meeting to adopt this Plan, whichever is earlier.

RES funding is intended to cover the cost of utility-scale renewable generation in excess of the cost of conventional resource alternatives, incentive payments for DE resources, marketing expenses, and program implementation and administration costs. The costs for renewable generation are based on APS's most current insights into that market. The costs for DE incentives and the program budget are based on incentives developed as part of the Commission Staff's working group and APS's best estimations of market uptake for the various technologies available to consumers.

At this time, APS is requesting adjustor funding of \$79.5 million for 2010 (the current RES adjustor would generate approximately \$72.4 million on an annualized basis). The requested adjustor amount, along with the \$6 million already included in base rates, would total the \$85.5 million of funding needed to meet the requirement. APS intends to request additional funding in each successive year for the following calendar year's estimated cost. In other words, in 2010 APS will request funding for the 2011 calendar year and so on. The estimates for years 2010 to 2014, contained in Exhibit 2A, would be updated each year to determine the necessary level of funding from customers.

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Exhibit 1

RES Plan and Program Summary

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Exhibit 1 – RES Program Summary

Exhibit 1A summarizes the RES implementation plan's objectives and outcomes.

Exhibit 1B outlines the annual APS renewable energy targets by renewable generation and distributed energy, anticipated needs, and summarizes the proposed budget.

Exhibit 1A: APS 2010 RES Implementation Plan Overview

Implementation Plan Objectives	<ul style="list-style-type: none"> ▪ Compliance with all portions of RES Rules ▪ Funding sufficient to exceed the non-residential distributed energy target.
2010 Total RES Budget	<ul style="list-style-type: none"> ▪ Renewable Generation: \$10.9 million ▪ DE Contracts & Incentives: \$62.7 million ▪ Total RES target: 734,402 MWh ▪ Total expected RES production: 892,504 MWh ⁽¹⁾ ▪ Distributed Public Assistance Program: \$0.5 million ▪ Research, Development, Commercialization, & Integration: \$2.0 million ▪ Total: \$86.7 million
2010 Renewable Generation	<ul style="list-style-type: none"> ▪ Energy purchases: \$8.5 million ▪ Total expected generation: 779,066 MWh ▪ Nearly 750 MW of renewable generation capacity by 2014
2010 DE Contract and Incentive Budget	<ul style="list-style-type: none"> ▪ Residential Incentives: \$44.1 million ▪ Non-residential lifetime PBI authorization: \$570.0 million ▪ DE target: 146,880 MWh ▪ Expected DE production: 213,438 MWh ▪ Non-residential UFI: \$2.0 million ▪ Non-residential PBI: \$16.2 million ^(2,3) ▪ Wholesale distributed energy: \$0.4 million ▪ Total: \$62.7 million
2010 Projected DE Outcome (Assumes sufficient customer demand)	<ul style="list-style-type: none"> ▪ Exceed total DE requirement ▪ 10% wholesale (applied to non-residential) ▪ 73,440 total residential MWh (7,500 installations) ▪ 139,998 total non-residential MWh
2010 RES Adjustor Rate Schedule & Monthly Caps	<ul style="list-style-type: none"> ▪ \$0.008662 per kWh (2009: \$0.007937 per kWh) ⁽⁴⁾ ▪ Residential cap \$3.46 (2009: \$3.17) ⁽⁴⁾ ▪ Non-residential (under 3 MW) cap \$128.70 (2009: \$117.93) ⁽⁴⁾ ▪ Non-residential (3 MW and over) cap \$386.10 (2009: \$353.78) ⁽⁴⁾

(1) Net of Green Choice requirement. Represents energy available to meet RES requirement.

(2) Includes 2010 commitments associated with PBIs up to the \$220 million authorization provided in Commission Decision No. 71254.

(3) Includes DE RFP and \$100 million lifetime authorization expansion.

(4) APS's 2010 RES Implementation Plan filed on July 1, 2009 requested an RES adjustor of \$0.008532/kWh, a residential cap of \$3.41, a non-residential (under 3MW) cap of \$126.75, and a non-residential (3MW and over) of \$380.26.

Exhibit 1B: APS RES Program Summary

APS RES Targets (MWh)	2010	2011	2012	2013	2014
APS Estimated Retail Sales	29,376,066	29,500,337	29,825,980	30,459,767	31,394,353
APS RES Target - % of Retail Sales	2.50%	3.00%	3.50%	4.00%	4.50%
APS Total RES Target	734,402	885,010	1,043,909	1,218,391	1,412,746
Renewable Generation % of RES Target	80%	75%	70%	70%	70%
RES Generation Target	587,521	663,758	730,737	852,873	988,922
Distributed Energy % of RES Target	20%	25%	30%	30%	30%
Distributed Energy Target	146,880	221,253	313,173	365,517	423,824
Residential Distributed Energy Target (50%)	73,440	110,626	156,586	182,759	211,912
Non-Residential Distributed Energy Target (40%)	58,752	88,501	125,269	146,207	169,530
Wholesale Distributed Energy Target (10%)	14,688	22,125	31,317	36,552	42,382
Renewable Generation (MWh)					
Existing/Planned Generation Owned/Contracted	779,066	894,152	1,063,297	1,828,579	2,147,985
RES Generation Target	587,521	663,758	730,737	852,873	988,922
Projected Green Power Sales ⁽¹⁾	100,000	100,000	100,000	100,000	100,000
Energy Applied To/(Withdrawn From) APS Bank for RES	91,545	130,394	232,560	875,706	1,059,063
Distributed Energy (MWh)					
Estimated Existing/Planned Distributed Energy ^(2,3)	198,750	340,177	445,894	536,056	598,842
Wholesale	14,688	22,125	31,317	36,552	42,382
Total Distributed Energy	213,438	362,302	477,211	572,608	641,224
RES Distributed Energy Target	146,880	221,253	313,173	365,517	423,824
Energy Applied To/(Withdrawn From) APS Bank for RES	66,558	141,050	164,038	207,091	217,401
APS RES Budget Summary (\$ MM)					
Total Renewable Generation	\$ 10.5	\$ 30.9	\$ 54.7	\$ 95.1	\$ 120.3
Total Distributed Energy	\$ 74.2	\$ 90.3	\$ 111.5	\$ 85.8	\$ 95.6
Research, Development, Commercialization, & Integration	\$ 2.0	\$ 2.0	\$ 2.0	\$ 2.0	\$ 2.0
Total RES Program Budget	\$ 86.7	\$ 123.2	\$ 168.2	\$ 182.9	\$ 217.9

Notes:

- (1) The Green Power (Rate Schedules GPS-1, GPS-2, Solar-3) is included only for procurement purposes. APS intends to procure enough energy to achieve RES compliance and to provide for Green Power purchased by customers. Green Power sold to customers will not be counted towards RES compliance and the cost of those resources is not included in the Renewable Generation budget.
- (2) For 2010 the Estimated Existing Distributed Energy is the projected DE at the end of 2009 based on the best available information at the time of the filing.
- (3) Assumes a lifetime PBI authorization expansion to \$970 million. Approximately 33,150 MWh is confirmed or in service under the \$220 million lifetime PBI authorization received as part of Decision No. 71254.

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Exhibit 2

RES Budget Detail

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Exhibit 2 – RES Budget Detail

Exhibit 2A details the RES program's proposed budget for 2010 through 2014 by line item for both Renewable Generation and for Distributed Energy.

Exhibit 2B details the funds collected in 2008 but which were not committed.

Exhibit 2A: APS RES Budget Summary (\$ MM)

	2010	2011	2012	2013	2014	2010-2014 Total
Renewable Generation:						
Purchases and Generation	\$ 8.5	\$ 28.8	\$ 52.6	\$ 94.0	\$ 119.1	\$ 303.0
Administration	\$ 1.3	\$ 1.4	\$ 1.4	\$ 1.4	\$ 1.5	\$ 7.0
Implementation	\$ 1.1	\$ 1.1	\$ 1.1	\$ 1.2	\$ 1.2	\$ 5.7
Renewable Generation - Subtotal	\$ 10.9	\$ 31.3	\$ 55.1	\$ 96.6	\$ 121.8	\$ 315.7
Estimated Green Power Revenue	\$ (0.4)	\$ (0.4)	\$ (0.4)	\$ (1.5)	\$ (1.5)	\$ (4.2)
Renewable Generation - RES	\$ 10.5	\$ 30.9	\$ 54.7	\$ 95.1	\$ 120.3	\$ 311.5
Distributed Energy:						
Contracts:						
DERFP	\$ 1.3	\$ 8.3	\$ 11.3	\$ 13.3	\$ 13.4	\$ 47.6
Production-based Contracts ⁽¹⁾	\$ 14.9	\$ 17.3	\$ 23.0	\$ 28.7	\$ 34.5	\$ 118.4
Wholesale ⁽²⁾	\$ 0.4	\$ 0.6	\$ 0.8	\$ 0.9	\$ 1.1	\$ 3.8
Total Contracts	\$ 16.6	\$ 26.2	\$ 35.1	\$ 42.9	\$ 49.0	\$ 169.8
Incentives:						
Residential Up-front	\$ 44.1	\$ 51.8	\$ 64.1	\$ 31.1	\$ 34.6	\$ 181.6
Non-Residential Up-front	\$ 2.0	\$ 2.0	\$ 2.0	\$ 2.0	\$ 2.0	\$ 10.0
Customer Self-Directed ⁽³⁾	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Total Incentives	\$ 46.1	\$ 53.8	\$ 66.1	\$ 33.1	\$ 36.6	\$ 235.7
Total Contracts and Incentives	\$ 62.7	\$ 80.0	\$ 101.2	\$ 76.0	\$ 85.6	\$ 405.5
Public Assistance Program						
Administration	\$ 0.5	\$ 0.5	\$ 0.5	\$ 0.5	\$ 0.5	\$ 2.5
Implementation	\$ 1.6	\$ 1.6	\$ 1.7	\$ 1.8	\$ 1.8	\$ 8.5
Information Technology	\$ 3.1	\$ 3.1	\$ 3.4	\$ 2.9	\$ 3.1	\$ 15.6
Marketing & Outreach	\$ 1.5	\$ 0.5	\$ 0.1	\$ 0.1	\$ 0.1	\$ 2.3
Distributed Energy - Subtotal	\$ 4.8	\$ 4.6	\$ 4.6	\$ 4.5	\$ 4.5	\$ 23.0
2009 Unallocated Funds ⁽⁴⁾	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Research, Development, Commercialization, & Integration	\$ 2.0	\$ 2.0	\$ 2.0	\$ 2.0	\$ 2.0	\$ 10.0
TOTAL	\$ 86.7	\$ 123.2	\$ 168.2	\$ 182.9	\$ 217.9	\$ 778.9

Notes:

- (1) As can be seen in Exhibit 4C, this is only the portion of the new PBI incentives that would be expected to be paid in a given year. For any year new projects are assumed to have a mid-year in-service date and as a result actual commitments are double that shown in year one.
- (2) This line item is made up of a project (Snowflake White Mountain Power) that is split between Renewable Generation and Distributed Energy (DE). The split is based on the amount of the wholesale DE component allowed in a given year.
- (3) As discussed in the Implementation Plan, no customers have requested self-direction and therefore no allocation has been made.
- (4) Estimated funds collected in 2009 but unallocated. Collected but unallocated funds cannot be accurately calculated at the time of the July 1 filing. APS will update the amount prior to Commission consideration of the Implementation Plan.

Exhibit 2B: 2008 APS RES Budget Rollover (\$ MM)

	2009	2010	2011	2012	2013	2014
2008 RES Net Funds Available ⁽¹⁾	\$ 8.3	\$ 7.2	\$ 4.0	\$ 1.2	\$ 0.0	\$ 0.0
Community Power Project ⁽²⁾	\$ 1.1	\$ 2.7	\$ 1.5	\$ 1.2	\$ -	\$ -
Energy Storage ⁽³⁾	\$ -	\$ 0.5	\$ 1.3	\$ -	\$ -	\$ -
2008 RES Net Funds Remaining	\$ 7.2	\$ 4.0	\$ 1.2	\$ 0.0	\$ 0.0	\$ 0.0

Notes:

- (1) Represents RES funds collected in 2008 that were unallocated by 12/31/2008 and which were not applied towards APS's 2009 RES adjustor as part of the ACC's review and approval of the APS 2009 Implementation Plan.
- (2) Deployment, carrying, and ongoing costs. Assumes completion of an APS rate case and allocation to rate base beginning in 2013.
- (3) Estimated expenditures for energy storage.

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Exhibit 3

Renewable Generation

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Exhibit 3 – Renewable Generation

Exhibit 3A details the expected energy contribution from existing and planned renewable generation projects.

Exhibit 3B details the expected capacity contribution from existing and planned renewable generation projects.

Exhibit 3C details the estimated RES cost for each existing and planned renewable generation project.

Exhibit 3D details the estimated cost per MWh for each existing and planned renewable generation project.

Exhibit 3E details the AZ Sun program sample revenue requirements

Exhibit 3A: APS Existing and Planned Generation (MWh)

	2010	2011	2012	2013	2014	2010-2014 Total
Existing Contracts:						
Solar:						
APS-Owned PV ⁽¹⁾	15,413	15,413	15,413	15,413	15,413	77,065
Saguaro CSP (APS-Owned)	2,015	2,015	2,015	2,015	2,015	10,075
Solana CSP	-	-	-	742,572	903,349	1,645,921
Total Solar	17,428	17,428	17,428	760,000	920,777	1,733,061
Wind:						
Aragonne Mesa	269,239	269,239	269,239	269,239	269,239	1,346,195
High Lonesome	299,592	299,592	299,592	299,592	299,592	1,497,960
Total Wind	568,831	568,831	568,831	568,831	568,831	2,844,155
Geothermal:						
CE Turbo	78,174	78,174	78,174	78,174	78,174	390,870
Total Geothermal	78,174	78,174	78,174	78,174	78,174	390,870
Biomass/Biogas:						
Snowflake White Mountain Power ⁽²⁾	71,686	64,248	55,056	23,016	17,186	231,192
Sexton City of Glendale Landfill	20,847	20,847	20,847	20,847	20,847	104,235
Total Biomass/Biogas	92,533	85,095	75,903	43,863	38,033	335,427
Total Energy - Contracted Projects	756,966	749,528	740,336	1,450,868	1,605,815	5,303,513
Targeted Additions:						
AZ Wind Project 1	-	44,874	168,461	168,461	168,461	550,257
Solar Project 1	-	54,750	54,750	54,750	54,750	219,000
Solar Project 2	-	-	54,750	54,750	54,750	164,250
Solar Project 3	-	-	-	54,750	54,750	109,500
Solar Project 4	-	-	-	-	54,750	54,750
Solar Project 5	-	-	-	-	109,709	109,709
Small Generation ⁽³⁾	22,100	45,000	45,000	45,000	45,000	202,100
Total Energy - Targeted Additions	22,100	144,624	322,961	377,711	542,170	1,409,566
Total Generation	779,066	894,152	1,063,297	1,828,579	2,147,985	6,713,079

Notes:

- (1) Includes the RES multiplier for in-state solar installation prior to 12/31/2005.
- (2) As noted in Exhibit 2A, this project is split between Renewable Generation (RG) and Distributed Energy (DE). As the DE MWh requirement increases, the amount shown here as allocated to RG decreases.
- (3) Energy is the aggregate of all prospective projects for this category and is an estimate only at this time.

Exhibit 3B: APS Existing and Planned Generation Capacity (MW)

	2010	2011	2012	2013	2014
Existing Contracts:					
Solar:					
APS-Owned PV ⁽¹⁾	5	5	5	5	5
Saguaro CSP (APS-Owned)	1	1	1	1	1
Solana CSP	-	-	-	283	283
Total Solar	6	6	6	289	289
Wind:					
Aragonne Mesa	90	90	90	90	90
High Lonesome	100	100	100	100	100
Total Wind	190	190	190	190	190
Geothermal:					
CE Turbo	10	10	10	10	10
Total Geothermal	10	10	10	10	10
Biomass/Biogas:					
Snowflake White Mountain Power ⁽²⁾	15	15	15	10	10
Sexton City of Glendale Landfill	3	3	3	3	3
Total Biomass/Biogas	18	18	18	13	13
Total Energy - Contracted Projects	224	224	224	502	502
Targeted Additions:					
AZ Wind Project 1	-	75	75	75	75
Solar Project 1	-	25	25	25	25
Solar Project 2	-	-	25	25	25
Solar Project 3	-	-	-	25	25
Solar Project 4	-	-	-	-	25
Solar Project 5	-	-	-	-	50
Small Generation ^(3,4)	20	20	20	20	20
Total Energy - Targeted Additions	20	120	145	170	245
Total Generation	244	344	369	672	747

Notes:

- (1) APS Solar capacity shown here in MWac.
- (2) As noted in Exhibit 2A, this project is split between Renewable Generation and Distributed Energy. This Exhibit shows Snowflake's full capacity.
- (3) Actual technology, capacity, energy and cost may vary depending on the results of the procurement effort.
- (4) Capacity is the aggregate of all prospective projects for this category and is an estimate only at this time.

Redacted

Exhibit 3C: APS Renewable Purchases and Generation RES Costs (\$ MM)

	2010	2011	2012	2013	2014	2010-2014 Total
Existing Contracts:						
Solar:						
APS-Owned PV ¹						
Saguaro CSP (APS-Owned) ¹						
Solena CSP						
Total Solar						
Wind:						
Aragonne Mesa						
High Lonesome						
Total Wind						
Geothermal:						
CE Turbo						
Total Geothermal						
Biomass/Biogas:						
Snowflake White Mountain Power ²						
Sexton City of Glendale Landfill						
Total Biomass/Biogas						
Total Energy - Contracted Projects						
Targeted Additions:						
AZ Wind Project 1						
Solar Project 1 ³						
Solar Project 2 ³						
Solar Project 3 ³						
Solar Project 4 ³						
Solar Project 5						
Small Generation ^{4,5}						
Total Energy - Targeted Additions						
Total Generation	\$ 8.5	\$ 28.8	\$ 52.6	\$ 94.0	\$ 119.1	\$ 303.0

Notes:

- (1) Project is APS owned and was funded by customers under the Environmental Portfolio Standard. There is no recurring contract cost to be funded by the RES.
- (2) As noted in Exhibit 2A, this project is split between Renewable Generation and Distributed Energy. Total cost as depicted in this Exhibit is net of the dollars allocated to Distributed Energy.
- (3) If these resources are moved into APS's rate base in a future rate proceeding, the associated costs would no longer be recovered through the RES adjustor.
- (4) Actual technology, capacity, energy and cost may vary depending on the results of the procurement effort.
- (5) Aggregate of all prospective projects for this category and is an estimate only at this time.

Exhibit 3D: APS Renewable Purchases and Generation RES Costs (\$/MWh)

Redacted

	2010	2011	2012	2013	2014
Existing Contracts:					
Solar:					
APS-Owned PV					
Saguaro CSP (APS-Owned)					
Solana CSP					
Total Solar					
Wind:					
Aragonne Mesa					
High Lonesome					
Total Wind					
Geothermal:					
CE Turbo					
Total Geothermal					
Biomass/Biogas:					
Snowflake					
White Mountain Power					
Total Biomass/Biogas					
Targeted Additions:					
AZ Wind Project 1					
Solar Project 1					
Solar Project 2					
Solar Project 3					
Solar Project 4					
Solar Project 5					
Small Generation 1					

Notes:

(1) Aggregate of all prospective projects for this category and is only an estimate at this time.

Exhibit 3E: AZ Sun Program Sample Revenue Requirements

(\$ in Thousands)	2010	2011	2012	2013	2014	Total Lifetime ¹
Sample Implementation Plan Projects:						
Solar Project 1 (25 MW)		\$ 16,100	\$ 15,200	\$ 13,200	\$ 11,900	\$ 256,000
Solar Project 2 (25 MW)			\$ 16,100	\$ 15,200	\$ 13,200	\$ 256,000
Solar Project 3 (25 MW)				\$ 16,100	\$ 15,200	\$ 256,000
Solar Project 4 (25 MW)					\$ 16,100	\$ 256,000
Revenue Requirement for Implementation Plan Projects	\$ -	\$ 16,100	\$ 31,300	\$ 44,500	\$ 56,400	\$ 1,024,000

Notes:

Revenue requirement assumes ratepayers benefit from a 30% investment tax credit in accordance with Federal tax laws.

Revenue requirement calculation assumes a capital structure of 46.2% debt at a 7.5% incremental rate, and 53.8% equity at 11%.

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Exhibit 4

Distributed Energy

Annual Budget Detail

**APS Renewable Energy Standard
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Exhibit 4 – Distributed Energy Annual Budget Detail

Exhibit 4A details the annual incentive budget by residential and non-residential classification.

Exhibit 4B details the estimated energy contribution from existing and planned distributed generation projects.

Exhibit 4C details the estimated total cost of APS' production-based incentive program, including the requested lifetime authorization increases.

Exhibit 4A: APS Distributed Energy Incentive Budget Detail (\$MM)

	2010	2011	2012	2013	2014	2010-2014 Total
Residential						
Up-front Incentives:						
Incremental Growth ⁽¹⁾	\$ 44.1	\$ 51.8	\$ 64.1	\$ 31.1	\$ 34.6	\$ 225.7
2009 Unreserved ⁽²⁾	\$ -	n/a	n/a	n/a	n/a	\$ -
Total Residential	\$ 44.1	\$ 51.8	\$ 64.1	\$ 31.1	\$ 34.6	\$ 225.7
Non-Residential						
Contracts:						
Production-based Incentives ⁽³⁾	\$ 12.0	\$ 8.7	\$ 8.7	\$ 8.7	\$ 8.7	\$ 46.8
Distributed Energy RFP	\$ 1.3	\$ 8.3	\$ 11.3	\$ 13.3	\$ 13.4	\$ 47.6
Wholesale ⁽⁴⁾	\$ 0.4	\$ 0.6	\$ 0.8	\$ 0.9	\$ 1.1	\$ 3.8
Customer Self-Directed ⁽⁵⁾	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Non-Residential Expansion:						
Production-based Incentives ⁽⁶⁾	\$ 2.9	\$ 8.6	\$ 14.3	\$ 20.0	\$ 25.7	\$ 71.5
Up-front Incentives	\$ 2.0	\$ 2.0	\$ 2.0	\$ 2.0	\$ 2.0	\$ 10.0
2009 Unreserved ⁽²⁾	\$ -	n/a	n/a	n/a	n/a	\$ -
Total Non Residential	\$ 18.6	\$ 28.2	\$ 37.1	\$ 44.9	\$ 50.9	\$ 179.7
Total Distributed Energy Incentives	\$ 62.7	\$ 80.0	\$ 101.2	\$ 76.0	\$ 85.5	\$ 405.4

Notes:

- (1) The amount in 2010 is not sufficient to incent customers for the level required by the Distributed Energy (DE) requirement in the RES. To meet that requirement the amount would be 64.1 million in 2010.
- (2) Funds collected in 2009 but not yet allocated to specific projects. If there exist unused funds that amount will be applied to the schools/government buildings program.
- (3) Forecast based on existing PBI Commitments up to the \$220 million lifetime authorization approved in Commission Decision No. 71254.
- (4) This line item is made up of a project (Snowflake White Mountain Power) that is split between Renewable Generation and DE. The split is based on the amount of the wholesale component in a given year.
- (5) As discussed in the Implementation Plan, no customers have requested self-direction and therefore no allocation has been made.
- (6) DE program expansion of \$100 million per year lifetime authorization. Estimated annual incentive payments based on an assumed mix of technologies and credit purchase agreement term lengths.

Exhibit 4B: APS Distributed Energy Budget Detail (MWh)

	2010	2011	2012	2013	2014	2010-2014 Total
Residential						
Up-front Incentives:						
Pre-2010 projects ⁽¹⁾	31,151	31,151	31,151	31,151	31,151	155,757
Incremental Growth ⁽²⁾	41,387	78,573	124,533	150,706	179,859	575,058
Community Power Project	902	902	902	902	902	4,508
Total Residential	73,440	110,626	156,586	182,759	211,912	735,323
Non-Residential						
Contracts:						
Production-based Incentives ⁽³⁾	80,515	80,515	80,515	80,515	80,515	402,575
Distributed Energy RFP	10,320	80,310	106,087	135,701	134,959	467,378
Wholesale ⁽⁴⁾	14,688	22,125	31,317	36,552	42,382	147,064
Customer Self-Directed ⁽⁵⁾	0	0	0	0	0	0
Community Power Project	720	990	990	990	990	4,678
Non-Residential Expansion:						
Production-based Incentives ⁽⁶⁾	31,744	63,489	95,233	126,978	158,722	476,167
Up-front Incentives	2,011	4,247	6,483	9,114	11,745	33,600
Total Non-Residential	139,998	251,676	320,625	389,850	429,312	1,531,461
Total Distributed Energy (MWh)	213,438	362,302	477,211	572,608	641,224	2,266,785

Notes:

- (1) Estimated total energy resulting from incentives paid with funds through 2009.
- (2) Incremental energy required as part of the annual increases in the RES Distributed Energy (DE) requirement.
- (3) Existing PBI Commitments up to the \$220 million lifetime authorization approved in Commission Decision No. 71254. Capacity to generate 45,104 MWh/yr is projected to be in place by year ending 2009.
- (4) This line item is made up of a project (Snowflake White Mountain Power) that is split between Renewable Generation and DE. The split is based on the amount of the wholesale component in a given year.
- (5) As discussed in the Implementation Plan, no customers have requested self-direction and therefore no allocation has been made.
- (6) Distributed energy program expansion of \$100 million per year lifetime authorization. Estimated annual incentive payments based on an assumed mix of technologies and credit purchase agreement term lengths.

Exhibit 4C: PBI Commitment (In Thousands)

	2007	2008	2009	2010	2011	2012	2013	2014
New PBI Contracts:								
PBI Annual Commitment (up to \$77 million lifetime authorization)	\$ 93	\$ 789	\$ 5,508					
PBI Annual Commitment (additional \$143 million lifetime authorization) ⁽¹⁾			\$ 2,327	\$ 6,653				
PBI Annual Commitment (additional \$100 million lifetime authorization) ^(2,3)				\$ 5,714				
PBI Annual Commitment (additional \$100 million lifetime authorization) ^(2,3)					\$ 5,714			
PBI Annual Commitment (additional \$100 million lifetime authorization) ^(2,3)						\$ 5,714		
PBI Annual Commitment (additional \$100 million lifetime authorization) ^(2,3)							\$ 5,714	
PBI Annual Commitment (additional \$100 million lifetime authorization) ^(2,3)								\$ 5,714
Anticipated Fraction Produced in Year	N/A	N/A	N/A	50%	50%	50%	50%	50%
Cash Commitment for New PBIs				\$ 6,184	\$ 2,857	\$ 2,857	\$ 2,857	\$ 2,857
Existing PBI Contracts:								
2006 Contracts	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
2007 Contracts	\$ 93	\$ 93	\$ 93	\$ 93	\$ 93	\$ 93	\$ 93	\$ 93
2008 Contracts		\$ 789	\$ 789	\$ 789	\$ 789	\$ 789	\$ 789	\$ 789
2009 Contracts			\$ 7,835	\$ 7,835	\$ 7,835	\$ 7,835	\$ 7,835	\$ 7,835
2010 Contracts				\$ 5,714	\$ 5,714	\$ 5,714	\$ 5,714	\$ 5,714
2011 Contracts					\$ 5,714	\$ 5,714	\$ 5,714	\$ 5,714
2012 Contracts						\$ 5,714	\$ 5,714	\$ 5,714
2013 Contracts							\$ 5,714	\$ 5,714
DE RFP				\$ 1,340	\$ 8,303	\$ 11,321	\$ 13,268	\$ 13,409
Annual Cash Commitment for All PBIs	\$ -	\$ 93	\$ 882	\$ 16,241	\$ 25,591	\$ 34,323	\$ 41,984	\$ 47,839
Cumulative authorization Commitment up to \$220 Million								
Cumulative authorization Commitment \$220 Million	\$ 930	\$ 8,822	\$ 117,193	\$ 220,000	\$ 220,000	\$ 220,000	\$ 220,000	\$ 220,000
Cumulative authorization Commitment \$500 Million Expansion								
Cumulative authorization Commitment DE RFP				\$ 100,000	\$ 200,000	\$ 300,000	\$ 400,000	\$ 500,000
Cumulative Lifetime Commitment for All PBIs								
Cumulative Lifetime Commitment for All PBIs	\$ 930	\$ 8,822	\$ 117,193	\$ 570,000	\$ 670,000	\$ 770,000	\$ 870,000	\$ 970,000

Notes:

- (1) PBI lifetime authorization approved in Commission Decision No. 71254 for \$220 million.
- (2) Future PBI annual commitments are for the expansion of the Distributed Energy (DE) program.
- (3) Future PBI annual commitments for DE program expansion are assumptions based on expected project mix and CPP agreement term lengths.

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Exhibit 5

Distributed Energy

**Assumptions
&
Projected Program Outcomes**

**APS Renewable Energy Standard
Revised Implementation Plan for 2010-2014
October 16, 2009**

Exhibit 5 – Distributed Energy Assumptions and Projected Program Outcomes

Exhibit 5A details resource and customer participation assumptions used to develop the distributed energy budget.

Exhibit 5B summarizes the expected distributed energy program outcomes by dollars, energy, and capacity.

Exhibit 5C details the expected distributed energy program outcomes by technology.

Exhibit 5B: APS Distributed Energy Projected Program Outcomes

	2010	2011	2012	2013	2014
Annual Program Cost (\$000s)					
Residential UFI	64,095	51,829	64,058	31,065	34,603
Residential PBI	-	-	-	-	-
<i>Sub-Total Residential</i>	<u>64,095</u>	<u>51,829</u>	<u>64,058</u>	<u>31,065</u>	<u>34,603</u>
Non-Residential UFI	-	-	-	-	-
Non-Residential PBI	-	-	-	-	-
<i>Sub-Total Non-Residential</i>	<u>-</u>	<u>-</u>	<u>-</u>	<u>-</u>	<u>-</u>
Total Residential and Non-Residential	64,095	51,829	64,058	31,065	34,603
UFI	64,095	51,829	64,058	31,065	34,603
PBI	-	-	-	-	-
Existing PBI Commitments	12,043	15,370	15,370	15,370	15,370
Total UFI & PBI	76,138	67,199	79,428	46,435	49,973
Total Wholesale	363	564	822	945	1,129
Annual Energy Production (MWHs)					
Residential	73,440	110,626	156,586	182,759	211,912
Non-Residential	125,310	229,551	289,308	353,298	386,930
Wholesale	14,688	22,125	31,317	36,552	42,382
Total Residential and Non-Residential	213,438	362,302	477,212	572,608	641,225
UFI	75,451	114,873	163,069	191,873	223,657
PBI	123,299	225,304	282,825	344,184	375,185
Total UFI & PBI	198,750	340,177	445,894	536,056	598,842
Incremental Installed Capacity (kW)					
Residential UFI	13,396	16,810	20,776	11,831	13,178
Residential PBI	-	-	-	-	-
<i>Sub-Total Residential</i>	<u>13,396</u>	<u>16,810</u>	<u>20,776</u>	<u>11,831</u>	<u>13,178</u>
Non-Residential UFI	1,208	967	667	785	785
Non-Residential PBI	51,575	56,850	68,850	81,850	81,850
<i>Sub-Total Non-Residential</i>	<u>52,783</u>	<u>57,817</u>	<u>69,517</u>	<u>82,635</u>	<u>82,635</u>
Total Residential and Non-Residential	66,179	74,627	90,293	94,466	95,813
Cumulative Total					
Residential	13,396	30,206	50,982	62,813	75,991
Non-Residential	52,783	110,600	180,117	262,752	345,387
Total Residential and Non-residential	66,179	140,806	231,099	325,565	421,378
Cumulative Installed Capacity (kW)					
Residential UFI	13,396	30,206	50,982	62,813	75,991
Residential PBI	-	-	-	-	-
<i>Sub-Total Residential</i>	<u>13,396</u>	<u>30,206</u>	<u>50,982</u>	<u>62,813</u>	<u>75,991</u>
Non-Residential UFI	1,208	2,175	2,842	3,627	4,412
Non-Residential PBI	51,575	108,425	177,275	259,125	340,975
<i>Sub-Total Non-Residential</i>	<u>52,783</u>	<u>110,600</u>	<u>180,117</u>	<u>262,752</u>	<u>345,387</u>
Total Residential and Non-Residential	66,179	140,806	231,099	325,565	421,378
UFI	14,604	32,381	53,824	66,440	80,403
PBI	51,575	108,425	177,275	259,125	340,975
Total UFI & PBI	66,179	140,806	231,099	325,565	421,378
Incremental Number of Installations					
Residential UFI	5,312	6,676	8,251	4,699	5,234
Residential PBI	-	-	-	-	-
<i>Sub-Total Residential</i>	<u>5,312</u>	<u>6,676</u>	<u>8,251</u>	<u>4,699</u>	<u>5,234</u>
Non-Residential UFI	50	42	41	48	48
Non-Residential PBI	39	43	47	47	32
<i>Sub-Total Non-Residential</i>	<u>89</u>	<u>85</u>	<u>88</u>	<u>95</u>	<u>80</u>
Total Residential and Non-Residential	5,401	6,761	8,339	4,794	5,314
Cumulative Number of Installations					
Residential UFI	5,312	11,988	20,240	24,939	30,173
Residential PBI	-	-	-	-	-
<i>Sub-Total Residential</i>	<u>5,312</u>	<u>11,988</u>	<u>20,240</u>	<u>24,939</u>	<u>30,173</u>
Non-Residential UFI	50	92	133	181	229
Non-Residential PBI	39	82	129	176	208
<i>Sub-Total Non-Residential</i>	<u>89</u>	<u>174</u>	<u>262</u>	<u>357</u>	<u>437</u>
Total Residential and Non-Residential	5,401	12,162	20,502	25,296	30,610
UFI	5,362	12,080	20,373	25,120	30,402
PBI	39	82	129	176	208
Total UFI & PBI	5,401	12,162	20,502	25,296	30,610

Exhibit 5C: APS Distributed Energy Projected Program Outcomes by Technology

	2010			2011			2012			2013			2014		
	# Install	MWH/yr	KW												
Residential or Non-Residential															
SMALL WIND Residential (off-grid)	47	207	94	42	188	85	52	230	105	30	131	60	33	146	67
SMALL WIND Non-Residential (off-grid)	189	809	371	176	744	344	274	1,174	492	120	531	260	107	452	260
PV RESIDENTIAL (off-grid)	3,292	28,971	18,107	2,959	26,030	16,283	3,656	32,172	20,108	2,082	18,321	11,450	2,319	20,407	12,755
PV NON-RESIDENTIAL (off-grid)	65	207	129	58	186	116	72	230	144	41	131	82	48	148	91
SOLAR THERMAL/WATER HEATING (1,2)	3,837	11,175	-	3,448	10,040	-	4,281	12,409	-	2,427	7,066	-	2,703	7,871	-
Total Residential Incremental	7,430	41,337	18,708	6,676	37,188	16,810	8,251	43,940	20,778	4,699	26,172	11,831	5,234	28,153	13,178
Non-Residential															
BIOMASS/BIOMASS (electric)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BIOMASS/BIOMASS - CHP (electric)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BIOMASS/BIOMASS - CHP (thermal)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BIOMASS/BIOMASS (thermal)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BIOMASS/BIOMASS (cooling)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
NON-RESIDENTIAL DAYLIGHTING (1)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
GEOTHERMAL - (electric)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
GEOTHERMAL - (thermal) (1)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
PV NON-RESIDENTIAL - small	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
PV NON-RESIDENTIAL (grid-tied)	78	79,078	52,775	77	103,008	57,817	80	58,522	69,517	86	62,537	82,635	71	32,180	82,635
PV NON-RESIDENTIAL (off-grid)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SMALL WIND Non-Residential (off-grid)	4	18	8	-	-	-	-	-	-	-	-	-	-	-	-
SMALL WIND Non-Residential (off-grid)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SOLAR SPACE COOLING	-	-	-	8	1,235	-	8	1,235	-	9	1,453	-	9	1,453	-
SOLAR WATER HEATING/SPACE HEATING (1)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
NON-RESIDENTIAL POOL HEATING (1)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total Non-Residential Incremental	89	80,208	62,783	85	104,241	57,817	88	61,747	69,517	95	63,890	82,635	80	33,633	82,635
Total Wholesale															
Total Incremental	7,519	135,281	71,492	6,761	169,662	74,627	8,339	137,054	90,293	4,794	128,714	94,466	5,314	105,188	95,813

(1) System capacity and size is depicted in KW as these items are not electrical generators.

EXHIBIT B

EXHIBIT B



Arizona Public Service Company

**Arizona Public Service
Distributed Energy
Administration Plan
October 16, 2009**

EXHIBIT B

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ATTACHED EXHIBITS

- Exhibit 1 Distributed Energy Incentives
- Exhibit 2 Solar Space Heating Incentive Calculator
- Exhibit 3 Standard Project PBI Ranking Calculator
- Exhibit 4 PV Off-Angle and Shading Adjustment Table

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ARIZONA PUBLIC SERVICE CORPORATION 2009 DISTRIBUTED ENERGY ADMINISTRATION PLAN

1. OVERVIEW

APS is submitting this updated Distributed Energy Administration Plan (“DEAP” or “Plan”) for Commission approval as part of its 2010 Implementation Plan. APS has made only minor adjustments to the DEAP that was approved as part of the Company’s 2009 RES Implementation Plan.¹

The RES requires that a portion of the renewable energy requirements be obtained from distributed energy (“DE”), and that the installed resources result from residential systems and non-residential systems in equal proportions. As part of its RES Implementation Plan, APS describes the installation of DE systems as facilitated by providing customers with financial incentives for the installation of those resources through APS’s Renewable Energy Incentive Program (“REIP”).

Arizona Corporation Commission (“Commission” or “ACC”) Staff initiated the Uniform Credit Purchase Program (“UCPP”) working group in June 2006, and APS participated in all of the working group efforts. The working group made significant progress towards the development of recommendations to Commission Staff, but a final report has not yet been completed. The working group made considerable progress towards identifying program workflows, technology sensitive incentive structures and levels, and technology specific requirements and limitations. APS will use the approach and technology requirements developed by the UCPP working group for this Plan. If, in the future, the Commission adopts UCPP requirements differing from those implemented as part of this Plan, this Plan may require amendment.

The efforts of the working group also provided APS with insight on the anticipated potential contributions from technologies not previously included in APS’s DE programs. This Plan and the associated planning models, implementation strategies, and budgeting for the DE program were all designed with specific consideration of the insights provided by the UCPP working group. In addition, in developing the DEAP, APS relied on over five years experience with the Solar Partners Incentive program, ongoing dialogue with many industry stakeholders, and more recently its experience with the REIP.

This Plan details the process by which customers will obtain incentives; the requirements associated with the selection, installation, and operation of the DE system; and the measurement of DE performance for compliance reporting and program evaluation. This Plan is designed to provide uniformity and consistency in the administration of APS’s DE program.

As part of the RES, the energy generated or displaced by the DE system is applied towards the DE percentage of the utility’s renewable energy requirement.² The unit used to track kilowatt hours (“kWh”) derived from renewable resources for purposes of compliance with the RES is the

¹ Decision No. 70654 (December 12, 2008).

² A.A.C. R14-2-1805(B).

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Renewable Energy Credit (“REC”).³ One REC equals one kWh or kWh equivalent for systems that do not generate electricity.

This Plan will ensure that each customer with eligible technology will be afforded the opportunity to obtain a reservation. The processes described herein are based on technologies and systems with which APS has considerable experience; technologies, incentive configurations, and development models which are newly incorporated may require special consideration until new implementation strategies and methods can be defined.

The following DE technologies are eligible for incentives:

- Biogas Electricity Generator, Biomass Electricity Generator
- Grid-tied and Off-grid Solar Photovoltaic Generators (“PV”)
- Biomass Thermal Systems and Biogas Thermal Systems
- Non-residential Solar Pool Heating Systems
- Geothermal Space Heating and Process Heating Systems
- Geothermal Electricity Generator
- Renewable Combined Heat and Power System (“CHP”)
- Non-residential Solar Daylighting
- Solar Heating, Ventilation, and Air Conditioning (“Solar HVAC”)
- Solar Industrial Process Heating and Cooling
- Solar Space Cooling
- Solar Space Heating
- Solar Water Heater
- Grid-tied and Off-grid Wind Generators of 1 megawatt (“MW”) or less
- Fuel Cells that use only renewable fuels
- New Hydropower Generators of 10 MW or less

2. PROJECT CATEGORIES

There are three project categories described by this Plan: Standardized projects, Market-Based projects, and Customer Self-Directed projects.

2.1 Standardized Projects

Unless noted otherwise in this Plan, all information contained herein applies to the administration of standardized projects. By definition, standardized projects follow the procedures and incentives described in this Plan. Incentives available for these projects are described in Exhibit 1. APS anticipates that the vast majority of projects facilitated by this Plan will be standardized projects. The processes described for the standard projects are based on technologies and systems with which APS has considerable experience; technologies and incentive configurations which are newly incorporated may require special consideration until new implementation strategies and methods can be developed.

³ A.A.C. R14-2-1801(N) – “Renewable Energy Credit” means the unit created to track kWh derived from an Eligible Renewable Resource of kWh equivalent of Conventional Energy Resource displaced by Distributed Renewable Resources.”

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2.2 Market-Based Projects

Since considerable uncertainty exists with respect to this Plan's ability to meet all expected project variations with standardized incentive offerings, APS believes it is appropriate to fund market-based projects during each program year. That funding will be applied to projects which, for one reason or another, cannot comply with the requirements of the standardized incentive offerings. APS may also solicit market-based projects to meet specific program goals. For example, although the DEAP attempts to identify and accommodate a large range of potential DE project types, financing options, and system host alternatives, specific shortcomings were identified in the proposed approach. Those shortcomings include concerns for increasing cost effectiveness of residential incentives, facilitating installations for multi-tenant residential developments, and challenging DE developers to look at creative mechanisms by which to address the residential DE market.

Projects with staged completion dates, multi-participant or multi-system projects, projects involving more than one technology where an interrelated incentive was not developed, projects requiring new or unique agreement terms, or projects requiring timelines differing from those detailed in this Plan may be eligible for incentives as part of the DEAP. In addition, this Plan does not identify incentives for fuel cells and small hydroelectric facilities; those technologies may also be eligible for incentives as market-based projects.

Market-based projects must achieve similar financial efficiency as the standardized projects detailed in this Plan to be eligible for incentives. Incentives applied for market-based projects must meet the lower of: 1) the maximum allowable incentive for the proposed technology as described in the applicable incentive matrix attached as Exhibit 1; or 2) the average incentive of projects accepted by APS for disbursement for the proposed technology in the previous year. Some qualifying technologies will not have either of the previously described financial efficiency measures. Participants seeking to employ those technologies will work with APS to develop an appropriate incentive.

2.3 Customer Self-Directed

The Customer Self-Directed project funding option is available to eligible customers.⁴ The eligible customer must declare that it will self-direct on or before March 31 of the year prior to the year for self-direction. Customer Self-Directed funds can only be requested for prospective years, they cannot include prior year payments, and they cannot exceed the level of funding paid by the eligible customer towards the RES in the year prior to the requested allocation.

In order to be eligible for the incentives detailed in this Plan (Exhibit 1), Customer Self-Directed projects must achieve similar financial efficiency as the standardized and market-based projects discussed above. If the eligible customer wishes to apply Customer Self-Directed funds to a DE system or another application not described in the applicable Incentive Matrix, the customer must submit documentation describing the project economics and the requested incentive level. All projects proposed for Customer Self-Directed funding must meet the requirements described in the RES.⁵

⁴ A.A.C. R14-2-1801(H). – “Eligible Customer” means an entity that pays Tariff funds of at least \$25,000 annually for any number of related accounts or services within an Affected Utility's service area.”

⁵ A.A.C. R14-2-1809(B).

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Eligible customers who have facilities in the service territories of more than one affected utility can only apply for funds from APS that were collected by APS. The funds obtained from APS can only be used for projects in APS's service territory. Customer Self-Directed projects are also subject to the general requirements set forth in this Plan including installation, operation, REC exchange, and system performance reporting.

For purposes of financing DE projects, funds for Customer Self-Directed projects may be assigned to third parties. Such assignment remains the sole right of the customer.

2.4 General

Under some circumstances, such as for new residential or non-residential construction, a project may not identify the Participant at project initiation. Regardless of the project design, implementation, or timeline, a Participant must have installed a system that is ready for commissioning and, if grid-tied, have established an account to receive electrical service from APS before the incentive will be paid.

3. INCENTIVE TYPES

The DE Program offers two standard incentive options: Up-front Incentives ("UFI") and Production-Based Incentives ("PBI").

UFIs are those incentives where the Participant receives a one time payment based on the DE system's designed capacity, or a one time payment based on the first-year energy savings provided by the DE system. This type of incentive is applied to smaller non-residential installations and for all standard residential installations. PBIs allow the Participant to collect incentive payments in direct relation to the actual system production. Those payments are received by the Participant over time and are based on an agreed upon contract term.

Incentive levels for both UFIs and PBIs are detailed in three incentive matrices included in Exhibit 1. Each incentive matrix prescribes a decline from the incentive levels detailed for the preceding period of the program. Those declines were discussed in detail as part of Commission Staff's UCPP Working Group. In general, the declining incentive levels are designed to reflect several key expectations of the DE markets, which include: declining costs of DE technologies; economic efficiency resulting from increased demand on the DE technologies; and increased availability of equipment required in the development of DE systems.

4. PROGRAM REQUIREMENTS

Requirements detailed in this Plan are designed to provide clarity for program Participants and DE developers; increase the certainty of energy generation and as a result, production of the RECs for APS's compliance with the RES; and to ultimately drive cost-effectiveness for the DE requirement in the RES.

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4.1 General

This program is designed to facilitate Participant installation of DE resources to displace Conventional Energy Resource⁶ usage. REIP incentives are designed to defray a portion of the costs associated with the installation of DE resources for the program "Participant." The Participant is either the account holder for the APS billing meter at the project site or the party holding legal right to the property in APS territory where the DE system will be located. Systems must be located on the Participant's property. All systems must be in APS territory. A project developer that builds an eligible DE system that provides a portion of the system's energy output to a non-Participant must provide metering to document the energy produced by the DE system that is received specifically by the program Participant.

Funding is not guaranteed without written confirmation of a reservation from APS. The Participant must follow the reservation procedure outlined in this Plan for APS to set allocated incentive dollars for the specific DE system proposed. If a Participant is receiving electrical service from APS, the Participant must not be delinquent in payments to the Company before an incentive payment can be issued.

Specific funding allocations are used to implement the DE incentive program. Once funds have been exhausted in any one category of this program, a Participant applying for funding within that category may be placed on a waiting list.

4.1.1 Reservations for New Construction

Reservations can be made for systems that will be installed as part of new residential or non-residential construction. Prior to receipt of a program incentive, a Participant must have installed a system that is ready for commissioning and, if grid-tied, have established an account to receive electrical service from APS before the incentive will be paid.

4.2 Installation and Equipment Specifications

Systems receiving incentives under this program must be installed according to manufacturers' recommendations and generally accepted industry standards. Installation of the system must be completed by an installer meeting the requirements described in Section 5.1 "Installer Qualifications." The dealer for the system must meet the requirements described in Section 5.2 "Dealer Qualifications." Other requirements which are applicable under this Plan include, but are not limited to, the following:

- The project must comply with all applicable local, state, and federal regulations.
- Installations must meet applicable governmental statutes, codes, ordinances, and accepted engineering and installation practices.
- Systems must be permitted with and pass inspection by the Authority Having Jurisdiction (AHJ) over construction projects in the Participant's locale, or, if

⁶ A.A.C. R14-2-1801(C) – "Conventional Energy Resource" means an energy resource that is non-renewable in nature, such as natural gas, coal, oil, and uranium, or electricity that is produced with energy resources that are not Renewable Energy Resources."

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the site is not governed by an AHJ, the Participant must provide a certification in lieu of AHJ clearance.

- If the inverter of the DE system is interconnected or in any way connected to the APS grid – a “Grid-Tied System” – the system must meet all applicable APS Interconnection Requirements.
- APS may request copies of any documents to assure compliance with government, institutional, or DE program requirements that are either explicitly or implicitly described by this Plan.

If any of the requirements described in this Plan conflict with APS approved rate schedules, or government or other institutional requirements listed above, the conflicting requirements in this Plan may not be imposed.

All major components of the DE system must be new and must not have been previously placed in service in any other location or for any other application. A DE system purchased more than 180 days before the date that APS receives the reservation request will not be considered “new” under this Plan. APS may consider exceptions to this timeframe when justified by the Participant in writing. The DE system must also comply with the technology specific criteria detailed below. When technology-specific criteria reference third party standards, the requirements of those standards are fully applicable when referenced as part of technology specific criteria.

The rapid growth in national and international renewable energy programs is resulting in greater need for the development of standardization in design, performance measurement, system integrity/longevity/maintenance, and installation techniques. New standards are likely to develop in the near future for technologies included in the DE program, and APS reserves the right to incorporate new standards into plan requirements as necessary and appropriate. The following standards or standard development bodies are referenced as part of the technology specific criteria.

- The Active Solar Heating Systems Design Manual developed by the American Society of Heating, Refrigerating, and Air Conditioning Engineers, Inc. (“ASHRAE”) in cooperation with the Solar Energy Industries Association (“SEIA”) and the ACES Research and Management Foundation (the “Design Manual”).
- Arizona state boiler regulations (A.A.C. R20-5-401 to R20-5-420).
- Select technology specific qualification requirements developed by the California Energy Commission (“CEC”).
- Solar Rating and Certification Corporation (“SRCC”). The SRCC criteria and ratings can be viewed at www.solar-rating.org.
- The Underwriters Laboratory (“UL”).

The technology standards are relied upon, in part, to develop a clear understanding of the DE system capacity or the expected energy production. Incentives offered under this program are based on system capacity and energy production. Therefore, to encourage transparency in program transaction and clarity for Participants, current and accurate technology standards are fundamental to the program’s success.

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Some technologies included as DE under the RES tend to be designed as custom applications and vary from installation to installation. In other cases, technologies are generally standardized for all installations. In these situations, installation standards have been published under the end-use application. If no technology specific standard is referenced, at a minimum, to qualify for DE incentives, an Energy Savings and Designed Output (“ES&D”) report shall be provided as part of the reservation process.

The ES&D report must include either a testing certification for a substantially similar system prepared by a publicly funded laboratory, or an engineering report stamped by a registered professional engineer. The ES&D report shall provide a description of the system and major components, designed performance, system output, and a brief history of the components used in similar applications. If the system design differs from the recognized industry best practices, as described in the equipment qualifications listed in the Plan for the qualifying technology, the ES&D report must contain a certification that the system design is at least as effective as the specified requirements.

Where the equipment qualifications detailed below are required for program participation, the technology specific installation guidance is provided to program participants to convey information on installation and operation practices that are most likely to achieve the DE system’s designed output. The requirements described herein are not intended as engineering recommendations, services, or technical advice. Engineering recommendations, design, and performance data will be provided to the Participant by their supplier, installer, or professional advisor. Although installation guidance is not currently mandated for a project to receive an incentive, it does reflect both industry and utility concurrence on those practices that are important for a technology to best achieve the designed output. APS reserves the right to modify equipment qualifications and/or installation guidance if APS becomes aware that such qualifications or guidance results in unsafe conditions, provides inappropriate results for our customer, or is inconsistent with program objectives.

4.2.1 Biomass/Biogas and CHP (Electric and Thermal) and Biomass/Biogas Cooling

Equipment Qualifications

- Systems must include a dedicated performance meter to allow for monitoring of the number of RECs produced.
- A complete ES&D report must be submitted. Biomass system installations involving a regulated boiler or pressure vessel are required to include in the ES&D report confirmation of conformance with all Arizona state boiler regulations; provide a qualifying boiler inspection identification number; and keep all applicable permits in good standing.

Installation Guidance

Because of the individual nature of biomass systems, care should be taken to make sure the system complies with all applicable permitting and regulatory requirements, including but not limited to, air emission standards and air permit regulations.

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4.2.2 Non-residential Solar Daylighting

Equipment Qualifications

Energy savings and designed output for the system will be verified by submitting either a testing certification for a substantially similar system prepared by a publicly funded laboratory, or by submitting an engineering reporting stamped by a registered professional engineer or accredited AEE Measurement and Verification professional. The report shall include such items as installed cost, energy savings (lighting savings only – no associated HVAC savings), lighting levels (artificial and daylighting), and control scheme methodology (lighting levels, savings, and control mechanism), as well as the inclusion the following components as part of the overall daylighting system design:

- A roof mounted skylight assembly with a dome having a minimum 70% solar transmittance.
- A reflective light well to the interior ceiling or a minimum 12” below roof deck in open bay areas.
- An interior diffusion lens.
- A minimum of one thermal break/dead air space in the system between the skylight dome and the interior diffuser.
- If artificial lighting systems remain a part of the installation, the system shall include automated lighting control(s) that are programmed to keep electric lights off during daylight hours.
- The system must provide a minimum of 70% of the light output of the artificial lighting system that would otherwise be used for all of the claimed period of energy savings, as measured in foot-candles.

Installation Guidance

All systems should be installed such that the skylight dome is substantially unshaded and have substantially unobstructed exposure to direct sunlight between the hours of 9 a.m. and 3 p.m.

4.2.3 Small Wind Generator

A small wind generator is a system with a nameplate rating of 1 (one) MW or less. The technology criteria described below are intended for small wind generators with a nameplate rating of 100kW or less. Systems larger than 100 kW will be required to submit a detailed package describing site selection, expected energy production, and an engineered system design and installation as part of an ES&D report.

Equipment Qualifications

The technology criteria described below are intended for wind generators with a nameplate rating of 100kW or less.

- Eligible small wind systems must be certified and nameplate rated by the CEC or other qualified third party selected by APS to provide certification and a nameplate rating. See www.consumerenergycenter.org/erprebate/equipment.html for a list of certified generators. For grid-tied or off-grid wind generators where an inverter is

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used, APS will use the lesser of the CEC Wind Turbine Power Output Rating or Inverter Power Rating as the basis for calculating the UFI payment.

- Grid-tied inverters used as part of the system shall be listed to Underwriters Laboratory standard UL 1741.
- The tower used in the installation must be designed by a registered professional engineer.
- The wind generator and system must include a five year warranty and an operation and maintenance plan for the full operational life of the system.

In addition to the requirements for small wind generators outlined above, systems nameplate rating larger than 100 kW will be required to submit an ES&D Report.

Installation Guidance

Location: a wind turbine hub should be at least 20 feet above any surrounding object and at least 28 feet above the ground within a 250-foot radius. Wind generators should be installed in locations with an elevation at or above the general elevation of the surrounding terrain.

Lot size: should be at minimum one-half acre. Municipalities and public facilities, such as schools and libraries, may not need to meet the minimum lot size requirements.

The installed system should be demonstrated to obtain at least a 15% annual capacity factor. The following are readily available methods for helping to demonstrate the potential for a 15% capacity factor, but other methods may be used. The installation location should have a demonstrated average annual wind speed of at least 9 MPH as measured at a height of no more than 50 feet above the ground. Average annual wind speed can be demonstrated by wind speed records from an airport, weather station or university within 20 miles of the proposed wind generator location, or by a 50 meter wind power density classification of Class 2 "Marginal" or higher on the "State of Arizona Average Annual Wind Resource" map, dated July 16, 2005 or later, as published by Sustainable Energy Solutions of Northern Arizona University. Northern Arizona University provides detailed wind resource maps as well as other resource services. For more information contact Northern Arizona University at <http://wind.nau.edu/maps/>.

4.2.4 Photovoltaic Systems

- All systems shall be installed with a horizontal tilt angle between 0 degrees and 60 degrees, and azimuth angle of +/- 110 degrees of due south. Since some installation alternates are less than ideal for energy production, some installation configurations for some systems receiving a UFI will not be eligible for the full incentive applicable to that system. APS will apply the PV off-angle and shading factor adjustment for the PV installation (Section 6.5).
- Photovoltaic modules must be covered by a manufacturer's warranty of at least 20 years.
- Inverters must be covered by a manufacturer's warranty of at least five years. The remaining operational life must be supported by a planned maintenance or equipment replacement schedule.

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Grid-Tied Systems Equipment Qualifications

- The minimum PV array size shall be 1,000 W-DC.
- All photovoltaic modules must be certified by a nationally recognized testing laboratory as meeting the requirements of UL Standard 1703.
- All other electrical components used in the installation must be UL listed.
- The inverter must be listed to Underwriters Laboratories UL 1741

Off-Grid Systems Equipment Qualifications

- The minimum, single-system PV array size shall be 200 W-DC.
- All photovoltaic modules must be certified by a nationally recognized testing laboratory as meeting the requirements of the UL Standard 1703.
- All other electrical components used in the installation must be UL listed.
- If the installation is an AC application, the inverter must be listed to Underwriters Laboratories UL 1741
- "As-built" drawings shall be submitted to APS upon completion of the project and shall include a plant location map.

4.2.5 Solar Space Cooling

Equipment Qualifications

- Submittal of a complete ES&D Report certifying:
 - The minimum cooling capacity of the system will be 120,000 BTU per hour (10 tons).
 - Solar collector panels used will have a SRCC OG-100 rating or laboratory documentation showing the panel energy output under controlled and replicable test conditions.

Installation Guidance

- The horizontal tilt angle of the collector panels should be between 20 and 60 degrees and the panel orientation should be between +/- 45 degrees of south.
- All systems should be installed such that the energy collection system is substantially unshaded and should have substantially unobstructed exposure to direct sunlight between the hours of 9 a.m. and 3 p.m.

4.2.6 Non-residential Solar Water Heating and Space Heating

Equipment Qualifications

Submittal of a complete ES&D Report that includes certification that solar collector panels used shall have a SRCC OG-100 certification or laboratory documentation showing the panel energy output under controlled and replicable test conditions.

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Installation Guidance

- The horizontal tilt angle of the collector panels should be between 20 and 60 degrees and the panel orientation should be between +/- 45 degrees of south.
- All systems should be installed such that the energy collection system is substantially unshaded and should have substantially unobstructed exposure to direct sunlight between the hours of 9 am and 3 pm.

4.2.7 Small Domestic Solar Water Heating

Equipment Qualifications

- Domestic Solar Water Heating systems must be rated by the SRCC and meet the OG-300 system standard.
- The 'high' limit shall be set at a maximum of 160 degrees Fahrenheit.
- Contractors must provide minimum of a five year equipment warranty as provided by the system manufacturer, including a minimum warranty period of two years for repair/replacement service to the Participant. The remaining operational life must be supported by a planned maintenance or equipment replacement schedule.
- Systems shall be selected and sized according to the geographic location and hot water needs of the specific application.
- Active, open-loop systems are not eligible for incentives except for active, open-loop systems that have a proven technology or design that limits scaling and internal corrosion of system piping, and includes appropriate automatic methods for freeze protection. Details disclosing conformance with this exception shall be submitted as part of the manufacturer's verification documentation.
- ICS systems shall have a minimum collector piping wall thickness of 0.058 inches. Details disclosing conformance with this requirement shall be submitted as part of the manufacturer's verification documentation.

Installation Guidance

- All systems should be installed such that the energy collection system is substantially unshaded and should have substantially unobstructed exposure to direct sunlight between the hours of 9 am and 3 pm.

4.2.8 Small Domestic Solar Space Heating

Equipment Qualifications

- The system must be supported by a five year equipment warranty including a minimum warranty period of two years for repair/replacement service to the Participant. The remaining operational life must be supported by a planned maintenance or equipment replacement schedule.
- Submittal of a report verifying that:

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- The system will be incented based on a Solar Space Heating Incentive Calculation Procedure. The input sheet and description calculation procedure is attached as Exhibit 2 (APS will make the calculation procedure publicly available upon program implementation).
- The system will utilize OG-100 certified collectors.
- The solar space heating incentive calculation does not suggest or imply that a full energy audit is required to qualify for the solar space heating incentive. The intent is that industry professionals can utilize the calculation tool to aid in facilitating sound system design.

Installation Guidance

- The system should be installed with a horizontal tilt angle between 20 degrees and 60 degrees, and azimuth angle of +/- 60 degrees of due south. It is recommended that collectors be positioned for optimum winter heating conditions at a minimum tilt angle of 45 degrees above horizontal, or as recommended by the manufacturer for the specific collector type and geographic location of installation.
- All systems should be installed such that the energy collection system is substantially unshaded and should have substantially unobstructed exposure to direct sunlight between the hours of 9 a.m. and 3 p.m.
- Heat exchange fluid in glycol systems should be tested and flushed and refilled with new fluid as necessary, every five years, or per the manufacturer's recommendations.
- It is recommended that the anode rod be checked and replaced per manufacturer's recommendations, but no less frequently than every five years.
- It is recommended that the system design include a timer, switch, or other control device on the backup element of the storage tank.
- The collectors and storage tank should be in close proximity to the backup system and house distribution system to avoid excessive pressure or temperature losses.
- It is recommended that in areas where water quality problems are reported to have reduced expected life of a solar water heater, that a water quality test is performed for each residence to screen for materials that, through interaction with the materials of the proposed system, may reduce the expected operational life of the system components. The Participant should consider contacting the manufacturer to determine if warranty or operational life will be affected.
- In areas subject to snow accumulation, sufficient clearance should be provided to allow a 12" snowfall to be shed from a solar collector without shadowing any part of the collector.
- Each system should have an operation and maintenance manual at the Participant's site, and each Participant must complete an initial start up and operation training review with the contractor at the time of system start up.

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4.2.9 Residential Solar Thermal (Heating and Domestic Hot Water)

Residential Solar Thermal is a single system design that produces both space heating and water heating for residential use. An ES&D Report must be submitted that includes certification that solar collector panels used shall have a SRCC OG-100 certification or laboratory documentation showing the panel energy output under controlled and replicable test conditions. Report details should be broken out on a month-by-month basis, and should include the following: total solar production based on installation and location, total building BTU requirements, BTU space heating requirements, domestic hot water BTU requirements, and any other hot water BTU requirements.

Equipment Qualifications

- The system will utilize OG-100 certified collectors
- The system must be supported by a five year equipment warranty including a minimum warranty period of two years for repair/replacement service to the Participant. The remaining operational life must be supported by a planned maintenance or equipment replacement schedule.

Installation Guidance

- The system should be installed with a horizontal tilt angle between 20 degrees and 60 degrees, and azimuth angle of +/- 60 degrees of due south. It is recommended that collectors be positioned for optimum winter heating conditions at a minimum tilt angle of 45 degrees above horizontal, or as recommended by the manufacturer for the specific collector type and geographic location of installation.
- All systems should be installed such that the energy collection system is substantially unshaded and should have substantially unobstructed exposure to direct sunlight between the hours of 9 a.m. and 3 p.m.
- Heat exchange fluid in glycol systems should be tested and flushed and refilled with new fluid as necessary, every five years, or per the manufacturer's recommendations.
- It is recommended that the anode rod be checked and replaced per manufacturer's recommendations, but no less frequently than every five years.
- It is recommended that the system design include a timer, switch, or other control device on the backup element of the storage tank.
- The collectors and storage tank should be in close proximity to the backup system and house distribution system to avoid excessive pressure or temperature losses.
- It is recommended that in areas where water quality problems are reported to have reduced expected life of a solar water heater, that a water quality test is performed for each residence to screen for materials that, through interaction with the materials of the proposed system, may reduce the expected operational life of the system components. The Participant should consider contacting the manufacturer to determine if warranty or operational life will be affected.

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- In areas subject to snow accumulation, sufficient clearance should be provided to allow a 12” snowfall to be shed from a solar collector without shadowing any part of the collector.
- Each system should have an operation and maintenance manual at the Participant’s site, and each Participant must complete an initial start up and operation training review with the contractor at the time of system start up.

4.2.10 Non-Residential Pool Heating

Equipment Qualifications

- Submittal of a complete ES&D Report.

4.2.11 Geothermal Space/Process Heating & Cooling

Equipment Qualifications

- A complete ES&D report must be submitted by the contractor and approved by APS prior to the installation.
- Equipment must be UL approved and meet the applicable Air Conditioning and Refrigeration Institute (ARI) Performance Certifications.
- Equipment must meet the following minimum efficiency requirements:
 - Closed Loop: 14.1 EER 3.3 COP
 - Open Loop: 16.2 EER 3.6 COP

Installation Guidance

- Ground loop systems must be installed by a contractor who holds a current International Ground Source Heat Pump Association (IGSHPA) certification.
- Wells must be permitted and drilled by a State of Arizona certified contractor.
- Contractors must hold a valid National Balancing Institute (NBI) or Building Performance Institute (BPI) certification.
- All systems should be designed (sized) and installed in accordance to the Air Conditioning Contractors of America (ACCA) Quality Installation Specifications and Standards.
- The operational life must be supported by a planned maintenance or equipment replacement schedule.

4.3 Inspections

DE systems must be permitted with and inspected by the Authority Having Jurisdiction (“AHJ”) over construction projects in the Participant’s locale or the Participant must provide to APS a Letter in Lieu of Electrical Clearance⁷ or other waiver acceptable to APS. Any inspections conducted by APS are in addition to, not in lieu of, these building and construction related inspections. Access to the system shall be made available to APS during normal business hours

⁷ Available on APS’s website.

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for the purpose of conducting the applicable APS inspection. Note that APS will at times be inspecting system components on the Participant side of the meter.

All grid-tied systems will be inspected by APS to ensure the system is connected to the grid in conformance with APS Interconnection Requirements.⁸ Under no circumstances is any grid-tied system to be installed in parallel or otherwise connected with the APS system until such time that the system has been inspected by APS and written authorization is received from APS. APS will normally conduct the interconnection inspection only after the system has been inspected by the AHJ.

APS will select a subset of DE program reservations for an APS DE Program conformance inspection. The selected systems will be required to pass the conformance inspection before the Participant is eligible to receive an incentive payment. The purpose of the conformance inspection is to ensure that the system has been installed in accordance with the terms, conditions, and specifications provided on the Reservation Application and Credit Purchase Agreement and with the requirements outlined in this DEAP. The conformance inspections for photovoltaic systems will normally also include verification of the PV off-angle and shading factor reported for the PV installation in the reservation.

APS will randomly select some DE Program installations whose systems will receive a maintenance inspection to field verify that the system is being operated in compliance with the terms and conditions agreed to in the Reservation Request and Credit Purchase Agreement and the requirements outlined in this Plan. The purpose of the maintenance inspection is to gather information that will assist APS in its evaluation of the effectiveness of the DEAP.

4.4 Metering and Meter Reading

All DE systems must include a system dedicated kWh meter, or meters, which allows for measurement of system energy production (the "Performance Meter"). The Performance Meter must be installed in compliance with the APS Electric Service Requirements Manual (ESRM) Section 300, which is available on APS's website, and must be installed so as to record the renewable energy A/C power output produced by the inverter or generator. If Performance Meter output data is used to calculate a PBI, other metering arrangements may be required depending on the configuration of the system. These arrangements may include wireless or telephone line telemetry at the customer's expense. The Performance Meters are in addition to the APS billing meter and must be appropriately identified as the "Photovoltaic, Wind, etc., Performance Meter." The Performance Meter must be calibrated to meet industry standards and must provide either direct kWh readings or readings which can readily be converted to kWh (RECs) using standard engineering conversions. The Performance Meter is required to be located adjacent to the APS billing meter unless otherwise approved by APS.

In those circumstances where the DE system is a hybrid system (i.e., uses more than one technology), APS requires that a Performance Meter be in place to measure the RECs (kWh) produced from each renewable resource so that the information can be accurately recorded.

⁸ *Id.*

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APS may, at its discretion, install APS-owned Performance Meters for system monitoring purposes. A Performance Meter owned and read by APS may facilitate APS's ability to gather performance data and to report system performance to the Participant on their standard APS bill.

System generation (REC production) must be reported annually to APS for UFI Participants, unless other arrangements have been approved by APS. Participants utilizing PBIs will be provided with monthly system production on a quarterly basis. The reported production is to be verified by the participant or authorized representative and returned to APS along with the Renewable Energy Credit documentation. Payment for system production will be made on a quarterly basis following APS's receipt of the REC documentation and production verification.

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.

4.6 System Maintenance

To ensure a system benefit received by the REC purchase, APS requires that the Participant maintain and operate the DE system in APS territory for the specific duration detailed in the Reservation Request and Credit Purchase Agreement. If the DE system either needs to be removed from the Participant property or if it is no longer operational, the Participant must notify APS within five business days after the DE system is either removed from the property or is no longer operational. Short (those lasting less than one month) system "outages" as part of system repair or planned maintenance are anticipated as part of this program and need not be reported in accordance with the above requirement.

5. INSTALLER AND DEALER QUALIFICATIONS

The installer must possess a valid license on file with the Arizona Registrar of Contractors ("AZROC"), with a license classification appropriate for the technology being installed, or the installer must identify use of a contractor holding an appropriate license on file with the AZROC for the technology being installed. With APS's implementation of its Qualified Contractor Program, it is APS's intention to rely on training and certification to ensure the consistent quality of installations at customer sites. With the maturation of our Qualified Contractor Program over time, APS will ultimately require a customer to use a contractor qualified under this program in order to be eligible for a renewable energy incentives.

If the equipment dealer is party to the reservation request, the dealer must provide proof of possession of a business license that is in good standing with the appropriate agency (ies) and must also provide proof of liability insurance if the business license provided does not require liability insurance.

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6. INCENTIVES

6.1 Funding Allocation

As described in APS's 2010 RES Implementation Plan, the annual funding level for DE incentives was established primarily based on previous year program installations and reservations with consideration for estimates of anticipated consumer demand for the various technologies, project sales and development time frames, variations in the levels of technology maturity, and availability of equipment for installation. The proposed DE incentive budget and the incentive budget allocation are designed to achieve the residential distributed energy target and provides for exceeding the non-residential distributed energy target for the full five years described in the current Implementation Plan.⁹

The incentive matrices in Exhibit 1 describe incentive reductions every two years of the program. Those planned reductions are designed to reflect the anticipation that DE technologies will decline in cost as market penetration and product availability increase. Eight specific DE budget allocations are described in the APS RES Implementation Plan: residential up-front incentives, existing production-based contracts, contracts resulting from the 2009 DE request for proposals, wholesale contracts, customer self-direct, new non-residential production-based incentives, and non-residential up-front incentives. Budget allocations for market-based projects are derived as a portion of the respective DE budget allocation which they support.

In the event that funds collected for use in the DE incentive program are not fully subscribed in a program year, those funds will be applied towards the next program year and allocated to achieve the required energy outcome between residential and non-residential projects.

Funds are made available for project reservations on the first working day after January 1st of each program year. Funds for residential projects will be made available for reservations on a first-come, first-reserved basis.

Funds offered under APS's expanded new non-residential program will be divided into four categories; Large Projects (PBI), Medium Projects (PBI), Small Projects (UFI), and qualifying projects under the Schools and Governmental Program (PBI).

For purposes of APS expanded non-residential program, a Large Project is defined as any electricity producing project whose inverter(s) or generator(s) is rated greater than 100 kWac or any project whose lifetime incentive commitment is greater than \$2.5 million dollars. Incentives will be capped for electric producing systems at a capacity size of 2,000 kWac per interconnection point; actual system size is not limited under this program, although all other interconnection and program requirements remain applicable.

A Medium Project is defined as any electricity producing project whose inverter(s) or generator(s) is rated 100 kWac or less, or any project whose lifetime incentive commitment is less than \$2.5 million dollars, and does not qualify for an up-front incentive.

A Small Project is defined as any project that qualifies for an up-front incentive.

⁹ A.A.C. R14-2-1805(D).

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The Schools and Governmental Program is designed to assist publicly funded (K-12) schools and state/local governmental facilities. Projects are open to all RES qualifying technologies, however, are limited to 300 kWac per interconnected meter for generating technologies or Lifetime Project Commitment of \$1.5 million, per interconnected meter for other qualifying technologies. Projects that qualify as a Small Project do not qualify for this program. Projects larger than the above mentioned limits will be required to participate in the standard program as a Large Project.

Large Project funding described in APS's Implementation Plan will be divided equally into two semi-annual nomination periods; March 1st (reservations received through the end of February) and September 1st (reservations received from March through the end of August). Medium Project funding as described in APS's Implementation Plan will be allocated equally over six nomination periods (January-February, March-April, May-June, July-August, September-October, and November-December) with each equaling two full calendar months. Small Project and the Schools and Governmental Program funding will be allocated annually on a first come, first reserved basis.

Non-residential reservation requests are submitted as a bid expressed in \$/REC (or \$/kWh) and, if a PBI, the preferred REC and payment terms. Each bid is evaluated by a project ranking "calculator." A sample ranking calculator was prepared as part of the Commission Staff UCPP working group; APS's ranking calculator will be designed to function in substantially the same manner as the sample calculator. The input sheet and description for the sample calculator is attached provided as Exhibit 3. APS will make the ranking calculator publicly available on APS's website.

In the event that the budgeted funds available for that nomination period exceed the total amount of incentives requested, all qualifying reservations requested will be approved. Remaining budgeted funds for that nomination period will be equally divided among the remaining nomination periods within that category. If the reservation request is approved, APS will send a written confirmation to the applicant.

In the event that the demand for incentives exceeds the budgeted funds available for a nomination period in any one project category, APS will use the ranking calculator to select the projects with the highest ranking, which is the lowest Conforming Project Rank value, matching requested incentives with the available budgeted funds. If the reservation request is denied because funding is not available, APS will send written notification to the applicant. In the event that requests are denied due to funding, Conforming Project Rank values will be posted, along with their approval status. No specific project information (customer/contractor names, locations or non-energy/cost details) will be listed to ensure that confidentiality is maintained.

6.2 Incentive Principles

As part of this Plan, residential systems are eligible only for UFIs. Non-residential systems may receive either a UFI or a PBI, depending on the technology and the installation size. UFIs were developed for technologies where the average project size results in a total incentive less than or equal to \$75,000. PBIs were developed for technologies where the average project size results in

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a total incentive totaling more than \$75,000, based on the net-present value of the total of incentive payments or the otherwise applicable UFI.

Incentive funds can be applied to a "project," which is the sum of all DE systems installed at a Participant site that are eligible for program incentives in a single calendar year. A Participant site can obtain a UFI for multiple projects, under separate reservations, up to \$75,000 at each Participant site per calendar year. Once the sum of incentives for all project(s) exceeds the \$75,000 limit, incentives for additional projects will take the form of a PBI.

6.2.1 Reservations for New Residential Construction

Incorporation of DE systems into the development of new residential construction requires the reservation of funds in a manner other than that described in the standard UFI process. Approved reservations for incentive funds for new construction will conform to the following provisions:

- a. Funds may be reserved for up to three years for a single development or sub-division. A single reservation may request incentive funding for multiple systems.
- b. All funds within a reservation must be allocated to specific lots within the development or sub-division.
- c. The reservation must specifically indicate the development schedule for the identified lots and the year when the incentive payment is expected. Once a project is initiated, funding "adjustments" can not exceed 10 percent of the requested annual funding.
- d. Funds reserved but uncollected as completed projects in one year will be forfeited.
- e. Once funds have been reserved for a lot, no future reservation may be applied to that lot or the same technology until the original reservation has expired.

6.3 Standardized Incentives

Incentives levels provided as part of this Plan were collaboratively developed, and, in part, were created to help or expand incipient markets for DE, taking into account each technology's specific market conditions, and placing a portion of the cost on the Participant. Incentive levels are provided in accordance with the applicable year project incentive matrix included as Exhibit 1.

6.4 Incentive Caps

DE incentives can be applied to systems designed to serve only the typical load of the Participant. Typical load is defined as the total annual kWhs used by that customer at the metered point of interconnection. The assessment of that typical load does not preclude the periodic production of electricity in excess of the Participant's demand. Under some circumstances it is understood that select Participant installations will be designed to serve loads greater than that of the Participant. Under those circumstances, the incentive will be applied only to the fraction of the generation that is used to serve the typical Participant load. The DE incentives were developed separate and apart from other utility program incentives, such as those

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for demand side management projects. Systems are not eligible to receive DE incentives if incentives from other APS programs are received.

A PBI cannot exceed 60% of the "total project cost" for the DE system. Total project costs are defined as the undiscounted total system cost plus "acceptable financing" charges, if disclosed by the participant. Acceptable finance charges are finance charges used for the PBI incentive cap calculation and cannot exceed the current prime interest rate plus 5%. Financing charges may be disclosed as part of the commissioning package, if not disclosed before. The PBI incentive cap will decline in the third year of the program (2011) to 55% of the real project cost, and the cap will decline further to 50% of the real project cost in the fifth (2013) year of the program and beyond. Both residential and non-residential UFIs cannot exceed 50% of the system cost. Financing costs are not considered as part of the total system cost for these projects.

Dealer's and manufacturer's incentives are capped at 50% of the system cost basis. Dealers cannot include retail installation costs in the cost basis calculation. Dealers must provide verification for the cost paid for each system component. Manufacturers cannot include their own technology in the cost basis.

For residential solar hot water heating systems, Participants are required to contribute a minimum of 15% of the "actual system cost." The actual system cost will be calculated by assuming the full application of all available federal and state incentives, regardless of the Participant's ability to realize any particular incentive; adding the Participant contribution (15%), and finally adding the program incentive. If the incentive can be fully applied without exceeding the actual system cost, the Participant will receive the full incentive amount. If the incentive cannot be fully applied without exceeding the actual system cost, the incentive will be capped so as not to exceed the system cost.

6.5 De-Rating of Photovoltaic System Incentives

The productivity of photovoltaic systems is sensitive to the specifics of the installation method and location. In particular, these systems are impacted by shading and photovoltaic panel tilt angle and azimuth. This variability in system performance is taken into account when adjusting the available UFI level and determining the actual amount of incentive received by the Participant. Incentives for photovoltaic systems will be adjusted in accordance with the PV Off-Angle and Shading Adjustment Table attached as Exhibit 4.

6.6 Payment of PBIs

Participants receiving PBI funds will be provided with monthly system production on a quarterly basis. The reported production is to be verified by the participant or authorized representative and returned to APS along with the Renewable Energy Credit documentation. Payment for system production will be made on a quarterly basis following APS's receipt of the REC documentation and production verification.

6.7 Taxes

Program participants are solely responsible for the payment of any and all taxes applicable to the DE resource and/or the incentive payment(s).

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6.8 Assignment of Payment

Systems may be owned by third parties, and APS may make payments to such third parties upon the written consent of the Participant. Participants may assign payments to an installer, dealer, or developer. APS will consider assignment to other parties upon request by the Participant.

6.9 Default

If the Participant fails to maintain and operate the DE system in APS territory for the period detailed in the Credit Purchase Agreement, which is never less than ten (10) years, the Participant shall be considered in default of the terms and conditions of the incentive payment agreement. Participants in default will be subject to damages and must reimburse the Program for all or a portion of the incentive(s) received to that point, subject to the terms of the Credit Purchase Agreement. The default terms in the Credit Purchase Agreement will vary slightly depending on whether the incentive is a UFI or PBI, but are designed to reimburse the Program for environmental credits that were paid and/or accounted for through the full incentive term, but not received. This is especially important for UFIs where APS is entitled to 20 years of credits through the payment of one up-front incentive.

7. RESERVATION PROCESS OVERVIEW

Participant submits a reservation request to APS: The Participant must submit a signed reservation request supplied by APS.

Participant receives reservation confirmation: After reviewing the reservation request, APS will assign a reservation status. If the reservation request is approved, APS will send a written confirmation to the applicant. Approved reservations will be logged in the order received.

If the reservation request is deficient in meeting one or more of the program requirements, APS will inform the Participant of the nature of the deficiency and will allow the Participant to correct the deficiency. If the reservation request is denied because funding is not available, the request will be placed on a waiting list and APS will send written notification to the applicant.

Credit Purchase Agreement: PBI participants must execute a Credit Purchase Agreement within 30 days of the date of the reservation confirmation from APS. At such time, the customer must also provide proof of an executed contract between themselves and the developer/contractor for the installation of the proposed renewable technology.

Proof of Advancement: The Participant may be required to submit Proof of Advancement (written progress report) to APS within 60 days of reservation approval for UFIs, and within 120 days of reservation approval for PBIs to retain an active reservation. The purpose of the Proof of Advancement requirement is to ensure that reservation dollars are allocated to projects that will advance to the installation stage. Reservations requiring Proof of Advancement will be notified at the time of reservation approval.

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Interconnection Application: The interconnection application and site plan diagram is submitted to APS. APS will provide preliminary approval that the system meets interconnection standards (grid-tied). Final approval will not be issued until the interconnection inspection is completed.

Participant Proceeds with Installation: Obtain all required permits and proceed with system installation.

Grid-tied systems: Systems are required to pass an interconnection inspection that will be conducted by APS before the system can be authorized to operate in parallel to the APS grid. APS will conduct the interconnection inspection only after the system has been inspected by the AHJ or if APS has received a Letter in Lieu of Electrical Inspection. If the DE system passes the interconnection inspection, APS will provide the Participant with a written document that provides "Permission to Operate." If the DE system fails the interconnection inspection, the reservation can remain active, as long as the deficiency is remedied within the defined reservation timeframe.

Commissioning Packet: Participant must submit a signed Commissioning Packet supplied by APS. At a minimum, the Commissioning Packet will include certification from the installer/dealer and Participant that the system installed was consistent with the terms and conditions of the Reservation Packet and this Plan. If a material change was made between the time APS approved the reservation and the date APS received the Commissioning Packet, the Participant must complete an Amended Application. If the change increases the incentive amount the system is eligible to receive, APS will confirm that DE program funding is available. If funding is not available, APS will only provide an incentive in the amount requested in the Reservation Packet. Changes in the project plan that result in increased system output will only result in additional incentives beyond the original reservation amount if RES funding is sufficient/available.

If the system is a photovoltaic system that has been selected to receive a conformance inspection, the incentive may be adjusted in accordance with the provision set out in Section 6.5 of this Plan.

If the system has been selected to receive a conformance inspection, as detailed in Section 4.3, the incentive payment will not be processed until after the system has passed the conformance inspection.

APS sends incentive payment: For UFIs, APS will send the incentive payment or initiate incentive payments in accordance with the instructions provided by the Participant in the signed Commissioning Packet. For participants under a PBI, the payment process in Section 6.6 above will be followed.

8. EXTENSIONS AND CANCELLATION POLICY

A Participant will receive a written notice of pending cancellation if all program requirements have not been met within the reservation timeframe. The reservation timeframe for UFIs is 180 days from the reservation confirmation date. For PBIs, the reservation timeframe is 365 days from the reservation confirmation. APS may grant an extension for up to 90 days following timely receipt of a Participant's request for extension and may approve written extension

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requests beyond 90 days under extenuating circumstances. APS may request additional support for the Proof of Advancement to be considered the extension.

9. ENERGY REPORTING PROGRAM MONITORING

APS will track progress toward program goals on an ongoing basis to monitor program effectiveness and sufficiency of the funding allocation. APS will compile data received from conducting the conformance and maintenance inspections, meter readings, and analyze trends in Participant participation and technology installation. The data will be evaluated on an ongoing basis to better understand critical factors impacting the incentive structures and the overall effectiveness of this Plan. If the DEAP need to be adjusted to reflect new information, changing market conditions, incorrect initial assumptions, or technological innovations, APS will bring those issues to the attention of the Commission in a timely manner.

APS will report on the productivity of all distributed resource on an annual basis. For PBI systems, APS will report on the actual metered production of each system as reported by the Participant and confirmed by APS. For systems receiving a UFI, APS will report on the total installed capacity and projected productivity. APS will develop a method by which to calibrate the reported productivity and shall monitor that method for long-term accuracy.

On occasion, a DE system, which received a UFI, will be removed from the Participant property prior to the end of its agreement term without the permission of the utility. Also, on occasion, a DE system, which had received a UFI, will be in need of a repair which the Participant does not plan to complete. If either situation occurs, and if despite reasonable efforts on the part of the APS the Participant will not reinstall or repair the DE system, then APS will continue to reflect in its annual compliance reporting the annual historic energy production for the system until the agreement term for the system has been completed.

In addition, APS will monitor that specific Participant and Property to ensure that an additional incentive is not provided for any new DE system on that property until the operational life of the incented system has been completed. APS will attempt to monitor the number of missing and unrepaired DE systems and shall summarize its observations in its annual compliance report.

Exhibit 1

Distributed Energy Incentives

DISTRIBUTED ENERGY ADMINISTRATION PLAN CONFORMING PROJECT UP-FRONT INCENTIVES

UFI Matrix

Resource Type	Year Beginning				
	2010	2011	2012	2013	2014
Residential or Non-Residential					
Residential(1)					
SMALL WIND Residential (off-grid)	\$2.00/Watt	\$1.80/Watt	\$1.80/Watt	\$1.53/Watt	\$1.53/Watt
SMALL WIND Residential (grid-tied)	\$2.50/Watt	\$2.25/Watt	\$2.25/Watt	\$1.91/Watt	\$1.91/Watt
PV RESIDENTIAL (grid-tied) (2)	\$3.00/Watt	\$2.70/Watt	\$2.70/Watt	\$2.30/Watt	\$2.30/Watt
PV RESIDENTIAL (off-grid) (2)	\$2.00/Watt	\$1.80/Watt	\$1.80/Watt	\$1.53/Watt	\$1.53/Watt
SOLAR THERMAL (3,4)					
SOLAR SPACE/WATER HEATING (4,5)	\$0.75/kWh	\$0.68/kWh	\$0.68/kWh	\$0.57/kWh	\$0.57/kWh
Non-Residential (6)					
BIO MASS/BIO GAS (electric)	0.00	0.00	0.00	0.00	0.00
BIO GAS/BIO MASS - CHP (electric) (7)	0.00	0.00	0.00	0.00	0.00
BIO GAS/BIO MASS - CHP (thermal) (7)	0.00	0.00	0.00	0.00	0.00
BIO MASS/BIO GAS (thermal)	0.00	0.00	0.00	0.00	0.00
BIO MASS/BIO GAS (cooling)	0.00	0.00	0.00	0.00	0.00
NON-RESIDENTIAL DAYLIGHTING (4)	\$0.20/kWh	\$0.18/kWh	\$0.18/kWh	\$0.15/kWh	\$0.15/kWh
Reserved	0.00	0.00	0.00	0.00	0.00
GEO THERMAL - (electric)	\$0.50/Watt	\$0.45/Watt	\$0.45/Watt	\$0.38/Watt	\$0.38/Watt
GEO THERMAL - (thermal) (4)	\$1.00/kWh	\$0.90/kWh	\$0.90/kWh	\$0.77/kWh	\$0.77/kWh
Reserved	0.00	0.00	0.00	0.00	0.00
PV NON-RESIDENTIAL - small (2)	\$2.50/Watt	\$2.25/Watt	\$2.25/Watt	\$1.91/Watt	\$1.91/Watt
PV NON-RESIDENTIAL (grid-tied) (2)	\$2.50/Watt	\$2.25/Watt	\$2.25/Watt	\$1.91/Watt	\$1.91/Watt
PV NON-RESIDENTIAL (off-grid) (2)	\$1.50/Watt	\$1.35/Watt	\$1.35/Watt	\$1.15/Watt	\$1.15/Watt
SMALL WIND Non-Residential (grid-tied) (8)	\$2.50/Watt	\$2.25/Watt	\$2.25/Watt	\$1.91/Watt	\$1.91/Watt
SMALL WIND Non-Residential (off-grid) (8)	\$2.00/Watt	\$1.80/Watt	\$1.80/Watt	\$1.53/Watt	\$1.53/Watt
SOLAR SPACE COOLING (4,9)	\$1.00/kWh	\$0.90/kWh	\$0.90/kWh	\$0.77/kWh	\$0.77/kWh
SOLAR WATER HEATING/SPACE HEATING (4,9)	\$0.45/kWh	\$0.41/kWh	\$0.41/kWh	\$0.34/kWh	\$0.34/kWh
NON-RESIDENTIAL POOL HEATING (4)	\$0.10/kWh	\$0.09/kWh	\$0.09/kWh	\$0.08/kWh	\$0.08/kWh

DISTRIBUTED ENERGY ADMINISTRATION PLAN CONFORMING PROJECT UP-FRONT INCENTIVES

PBI Matrix 1 **Contract Years 10** **PBI Years 10**

		2010	2011	2012	2013	2014
Residential or Non-Residential		Resource Type				
Residential						
	SMALL WIND Residential (off-grid)	Wind	-	-	-	-
	SMALL WIND Residential (grid-tied)	Wind	-	-	-	-
	PV RESIDENTIAL (grid-tied)	Solar PV	-	-	-	-
	PV RESIDENTIAL (off-grid)	Solar PV	-	-	-	-
	SOLAR THERMAL/WATER HEATING (1,2)	Solar - All Other	-	-	-	-
Non-Residential						
	BIOMASS/BIOGAS (electric) (10)	Biomass/Biogas	0.060	0.054	0.046	0.046
	BIOGAS/BIO MASS - CHP (electric) (10)	Biomass/Biogas	0.035	0.032	0.027	0.027
	BIOGAS/BIO MASS - CHP (thermal) (10)	Biomass/Biogas	0.018	0.016	0.014	0.014
	BIOMASS/BIOGAS (thermal) (10)	Biomass/Biogas	0.015	0.014	0.011	0.011
	BIOMASS/BIOGAS (cooling) (10)	Biomass/Biogas	0.032	0.029	0.025	0.025
	NON-RESIDENTIAL DAYLIGHTING (1)	Other	-	-	-	-
Reserved						
	GEO THERMAL - (electric) (10)	Geothermal	0.024	0.022	0.019	0.019
	GEO THERMAL - (thermal) (1,10)	Geothermal	0.129	0.116	0.099	0.099
Reserved						
	PV NON-RESIDENTIAL - small	Solar PV	-	-	-	-
	PV NON-RESIDENTIAL (grid-tied) (10)	Solar PV	0.182	0.154	0.131	0.131
	PV NON-RESIDENTIAL (off-grid) (10)	Solar PV	0.121	0.109	0.093	0.093
	SMALL WIND Non-Residential (grid-tied) (10)	Wind	0.145	0.131	0.111	0.111
	SMALL WIND Non-Residential (off-grid) (10)	Wind	0.116	0.105	0.089	0.089
	SOLAR SPACE COOLING (10)	Solar - All Other	0.129	0.116	0.099	0.099
	SOLAR WATER HEATING/SPACE HEATING (1,10)	Solar - All Other	0.057	0.051	0.043	0.043
	NON-RESIDENTIAL POOL HEATING (1,10)	Solar - All Other	0.012	0.011	0.009	0.009

DISTRIBUTED ENERGY ADMINISTRATION PLAN CONFORMING PROJECT UP-FRONT INCENTIVES

PBI Matrix 2 Contract Years 15 PBI Years 15

		2010	2011	2012	2013	2014
Residential or Non-Residential		Resource Type				
Residential						
	SMALL WIND Residential (off-grid)	-	-	-	-	-
	SMALL WIND Residential (grid-tied)	-	-	-	-	-
	PV RESIDENTIAL (grid-tied)	-	-	-	-	-
	PV RESIDENTIAL (off-grid)	-	-	-	-	-
	SOLAR THERMAL/WATER HEATING (1,2)	-	-	-	-	-
Non-Residential						
	BIOMASS/BIOGAS (electric) (10)	0.056	0.050	0.050	0.043	0.043
	BIOGAS/BIOMASS - CHP (electric) (10)	0.032	0.029	0.029	0.025	0.025
	BIOGAS/BIOMASS - CHP (thermal) (10)	0.017	0.015	0.015	0.013	0.013
	BIOMASS/BIOGAS (thermal) (10)	0.014	0.013	0.013	0.011	0.011
	BIOMASS/BIOGAS (cooling) (10)	0.030	0.027	0.027	0.023	0.023
	NON-RESIDENTIAL DAYLIGHTING (1)	-	-	-	-	-
Reserved						
	GEOHERMAL - (electric) (10)	0.022	0.020	0.020	0.017	0.017
	GEOHERMAL - (thermal) (1,10)	0.120	0.108	0.108	0.092	0.092
Reserved						
	PV NON-RESIDENTIAL - small	-	-	-	-	-
	PV NON-RESIDENTIAL (grid-tied) (10)	0.168	0.143	0.143	0.121	0.121
	PV NON-RESIDENTIAL (off-grid) (10)	0.112	0.101	0.101	0.086	0.086
	SMALL WIND Non-Residential (grid-tied) (10)	0.135	0.121	0.121	0.103	0.103
	SMALL WIND Non-Residential (off-grid) (10)	0.108	0.097	0.097	0.082	0.082
	SOLAR SPACE COOLING (10)	0.120	0.108	0.108	0.092	0.092
	SOLAR WATER HEATING/SPACE HEATING (1,10)	0.052	0.047	0.047	0.040	0.040
NON-RESIDENTIAL POOL HEATING (1,10)		0.011	0.010	0.010	0.009	0.009

DISTRIBUTED ENERGY ADMINISTRATION PLAN CONFORMING PROJECT UP-FRONT INCENTIVES

PBI Matrix 3 Contract Years 10 PBI Years 20

		2010	2011	2012	2013	2014
Residential or Non-Residential		Resource Type				
Residential						
SMALL WIND Residential (off-grid)	Residential	Wind	-	-	-	-
SMALL WIND Residential (grid-tied)	Residential	Wind	-	-	-	-
PV RESIDENTIAL (grid-tied)	Residential	Solar PV	-	-	-	-
PV RESIDENTIAL (off-grid)	Residential	Solar PV	-	-	-	-
SOLAR THERMAL/WATER HEATING (1,2)	Residential	Solar - All Other	-	-	-	-
Non-Residential						
BIOMASS/BIOGAS (electric) (10)	Non-Residential	Biomass/Biogas	-	-	-	-
BIOGAS/BIOGAS - CHP (electric) (10)	Non-Residential	Biomass/Biogas	-	-	-	-
BIOGAS/BIOGAS - CHP (thermal) (10)	Non-Residential	Biomass/Biogas	-	-	-	-
BIOMASS/BIOGAS (thermal) (10)	Non-Residential	Biomass/Biogas	-	-	-	-
BIOMASS/BIOGAS (cooling) (10)	Non-Residential	Biomass/Biogas	0.040	0.036	0.036	0.031
NON-RESIDENTIAL DAYLIGHTING (1)	Non-Residential	Other	-	-	-	-
Reserved	Non-Residential	Other	-	-	-	-
GEO THERMAL - (electric) (10)	Non-Residential	Geothermal	0.030	0.027	0.027	0.023
GEO THERMAL - (thermal) (1,10)	Non-Residential	Geothermal	0.160	0.144	0.144	0.122
Reserved	Non-Residential	Other	-	-	-	-
PV NON-RESIDENTIAL - small	Non-Residential	Solar PV	-	-	-	-
PV NON-RESIDENTIAL (grid-tied) (10)	Non-Residential	Solar PV	0.225	0.191	0.191	0.163
PV NON-RESIDENTIAL (off-grid) (10)	Non-Residential	Solar PV	0.150	0.135	0.135	0.115
SMALL WIND Non-Residential (grid-tied) (10)	Non-Residential	Wind	0.180	0.162	0.162	0.138
SMALL WIND Non-Residential (off-grid) (10)	Non-Residential	Wind	0.144	0.130	0.130	0.110
SOLAR SPACE COOLING (10)	Non-Residential	Solar - All Other	0.160	0.144	0.144	0.122
SOLAR WATER HEATING/SPACE HEATING (1,10)	Non-Residential	Solar - All Other	0.070	0.063	0.063	0.054
NON-RESIDENTIAL POOL HEATING (1,10)	Non-Residential	Solar - All Other	0.015	0.014	0.014	0.011

DISTRIBUTED ENERGY ADMINISTRATION PLAN CONFORMING PROJECT UP-FRONT INCENTIVES

PBI Matrix 4

Contract Years 20 PBI Years 20

	20	2010	2011	2012	2013	2014
	Residential or Non-Residential	Resource Type				
Residential						
SMALL WIND Residential (off-grid)						
SMALL WIND Residential (grid-tied)						
PV RESIDENTIAL (grid-tied)						
PV RESIDENTIAL (off-grid)						
SOLAR THERMAL/WATER HEATING (1,2)						
Non-Residential						
BIOMASS/BIOGAS (electric) (10)						
BIOGAS/BIOMASS - CHP (electric) (10)						
BIOGAS/BIOMASS - CHP (thermal) (10)						
BIOMASS/BIOGAS (thermal) (10)						
BIOMASS/BIOGAS (cooling) (10)						
NON-RESIDENTIAL DAYLIGHTING (1)						
Reserved						
GEOHERMAL - (electric) (10)						
GEOHERMAL - (thermal) (1,10)						
Reserved						
PV NON-RESIDENTIAL - small						
PV NON-RESIDENTIAL (grid-tied) (10)						
PV NON-RESIDENTIAL (off-grid) (10)						
SMALL WIND Non-Residential (grid-tied) (10)						
SMALL WIND Non-Residential (off-grid) (10)						
SOLAR SPACE COOLING (10)						
SOLAR WATER HEATING/SPACE HEATING (1,10)						
NON-RESIDENTIAL POOL HEATING (1,10)						
	Residential	Wind				
	Residential	Wind				
	Residential	Solar PV				
	Residential	Solar PV				
	Residential	Solar - All Other				
	Non-Residential	Biomass/Biogas	0.054			
	Non-Residential	Biomass/Biogas	0.031	0.048		
	Non-Residential	Biomass/Biogas	0.016	0.028	0.041	0.041
	Non-Residential	Biomass/Biogas	0.013	0.014	0.024	0.024
	Non-Residential	Biomass/Biogas	0.013	0.012	0.012	0.012
	Non-Residential	Other	0.029	0.026	0.010	0.010
	Non-Residential	Other		0.026	0.022	0.022
	Non-Residential	Geothermal				
	Non-Residential	Geothermal	0.022			
	Non-Residential	Other	0.115	0.019		
	Non-Residential	Solar PV		0.019		
	Non-Residential	Solar PV		0.104	0.017	0.017
	Non-Residential	Solar PV			0.088	0.088
	Non-Residential	Wind	0.162			
	Non-Residential	Wind	0.108	0.138		
	Non-Residential	Wind	0.130	0.065	0.117	0.117
	Non-Residential	Solar - All Other	0.104	0.094	0.083	0.083
	Non-Residential	Solar - All Other	0.115	0.117	0.099	0.099
	Non-Residential	Solar - All Other	0.104	0.094	0.080	0.080
	Non-Residential	Solar - All Other	0.045	0.104	0.088	0.088
	Non-Residential	Solar - All Other	0.010	0.045	0.039	0.039
	Non-Residential	Solar - All Other	0.010	0.010	0.008	0.008

DISTRIBUTED ENERGY ADMINISTRATION PLAN CONFORMING PROJECT UP-FRONT INCENTIVES
DISTRIBUTED ENERGY ADMINISTRATION PLAN – INCENTIVE MATRIX NOTES

- 1) Residential projects are only eligible for up-front incentives (UFI). UFI payments, whether residential or non-residential, can not exceed 50% of the system cost.
- 2) Some installations will require an adjustment of the incentive as detailed in the PV Incentive Adjustment Chart.
- 3) Residential Solar Thermal is a single system design that produces both space heating and water heating for residential use. These applications require a report detailing energy savings for the complete system.
- 4) Rate applies to rated first year energy savings only.
- 5) Energy savings rating is based on the SRCC OG-300 published rating. The customer contribution must be a minimum of 15% of the project cost after accounting for and applying all available Federal and State incentives.
- 6) Non-residential projects with a total incentive of less than or equal to \$75,000 are only eligible for a UFI. Non-residential projects with a total incentive of greater than \$75,000 are only eligible for a production-based incentive.
- 7) The CHP incentives may be used in combination for the appropriate components of one system.
- 8) The small wind PBI applies to a maximum system size of 100 kW. A larger wind system may apply for an incentive as a non-conforming project.
- 9) The solar space heating and cooling incentives may be used in combination for the appropriate components of one system.
- 10) Only the maximum incentives are offered under the Schools and Governmental Program.

Exhibit 2

Solar Space Heating Incentive Calculator

Solar Space Heating Incentive Calculation Procedure.

In Advance, please perform the Design Review and Utility Bill Review (if Applicable) for numbers to enter in Steps #1, #2 and #5.

Min Elevation	Max Elevation	Heating Season Days	Daily Panel Heat Output
-1000	1000	105	0
1001	3000	140	0
3001	5000	175	0
5001	7000	210	0
7001	9000	245	0
9001	11000	280	0

Category:	Delta T	Clear Day
A	-9 Deg. F.	
B	+9 Deg. F.	
C	+36 Deg. F.	
D	+90 Deg. F.	
E	+144 Deg. F.	

Enter Solar Panel Make and Model Number Selected for Project:

Step #1:	Enter the result of the Design Review of the Design Annual Building Loss =	<input type="text" value=""/>	BTU/Year
Step #2:	Enter the result of the Utility Bill Review of the Actual Annual Building Loss: (If not Electric, Natural Gas or Propane Heat, enter 0) =	<input type="text" value="0"/>	BTU/Year
Step #3:	Calculate the Lesser of the Result in Step #1 & Step #2 = This is the Annual Building Heat Requirement.	0	BTU/Year
Step #4:	Enter Elevation of the Solar Space Heated Building:	<input type="text" value=""/>	Feet AMSL
Step #4 cont:	Number of Heating Days per Heating Season from Elevation Zone Table:	105	Days per Year
Step #4 cont:	Calculate Average Daily Building Heat Requirement =	0	BTU/Day
Step #5:	Enter Passive Heat Storage Specific Heat Capacity from Building Design Review:	<input type="text" value=""/>	BTU/Deg. F.
Step #5 cont:	Enter Maximum Daily Room Temperature Variation Allowed by Building Occupants: (Max of 10 Degrees F.)	<input type="text" value=""/>	Degrees F.
Step #5 cont:	Calculate Maximum Passive Heat Storage Capacity =	0	BTU
Step #5 cont:	Enter Total Active Heat Storage Heat Capacity from Building Design Review:	<input type="text" value=""/>	BTU
Step #5 cont:	Calculate Maximum Total Heat Storage Capacity =	0	BTU
Step #6:	Calculate the Lesser of the Average Daily Building Heat Requirement in Step #4 and the Maximum Total Storage Capacity in Step #5. This is the Maximum Useful Daily Solar Heat Input.	0	BTU/Day
Step #7:	Size the Solar Panels based on a total daily solar heat input no greater than the Maximum Useful Daily Solar Heat Input. Enter the single panel SRCC OG-100 Collector Thermal Performance Rating data in the Table Above.	0	BTU/Day per Panel
Step #7 cont:	Enter the Total number of solar panels to be installed:	<input type="text" value=""/>	# of Panels
Step #7 cont:	Calculate the Average Expected Daily Solar Heat Input:	0	BTU/Day
Step #8:	Calculate the Expected Annual Useful Solar KWH Heat Input using the Number of Heating Days times the Average Expected Daily Solar Heat Input / 3415 BTU/KWH:	0	KWH/Year
Step #9:	Enter the UFI per first year KWH UCPP Incentive Rate:	<input type="text" value="\$0.75"/>	\$/KWH
Step #9 cont:	Calculate the Total Maximum UFI Payment Subject to Possible Limitation by the 50% of Initial Cost Cap & 15% Minimum Customer Contribution:	\$0.00	\$
Step #10:	Enter the Total Solar Space Heating System Initial Cost: This should not include costs for Passive Heat Storage or Building Heating System.	<input type="text" value=""/>	\$
Step #10 cont:	Calculate the Total Expected Federal and Arizona Incentives for this Project:	\$0.00	\$
Step #10 cont:	Calculate the 15% minimum of the Total Solar Space Heating System Initial Cost to be paid by Customer	\$0.00	\$
Step #10 cont:	Calculate the Total Actual UFI Payment:	\$0.00	\$

Exhibit 3

Standard Project PBI Ranking Calculator

APS PBI Project Ranking Calculator

PBI INDEX CALCULATOR

Input Terms	
P1 Incentive Terms	10-year PBI, 10 year REC
P2 Project Cost (\$)	100
P3 Estimated Annual Production (KWH)	1
P4 Requested PBI (\$/KWH)	0.0100
Output Terms	
P5 Index Value	111
P6 Calculated Incentive Cap	60
P7 Total Incentive Payout	0

Pull-down box for input of PBI term

Input Project Cost

Input Estimated Annual Energy Production in KWHs

Input requested PBI rate

Index Value

UFI INDEX CALCULATOR

Input Terms	
U1 Technology Incentive Type	Up Front Incentive
U2 Capital Cost (\$)	100
U3 Capacity (KW)	1
U4 Estimated Annual Production (KWH)	1
U5 Requested Incentive (\$/Watt or \$/KWH)	0.0100
Output Terms	
U4 Index Value	7,358
U5 Total Incentive Payout	10

Pull-down Box for UFI type

Input Capital Cost of Project - (\$s)

For incentives based on capacity: Input Rated Size of System in kW, this input is not used for First Year Energy Savings.

Input Annual Energy Production in KWHs for System Capacity UFIs, otherwise, for First Year Energy Savings kWh savings.

Index Value

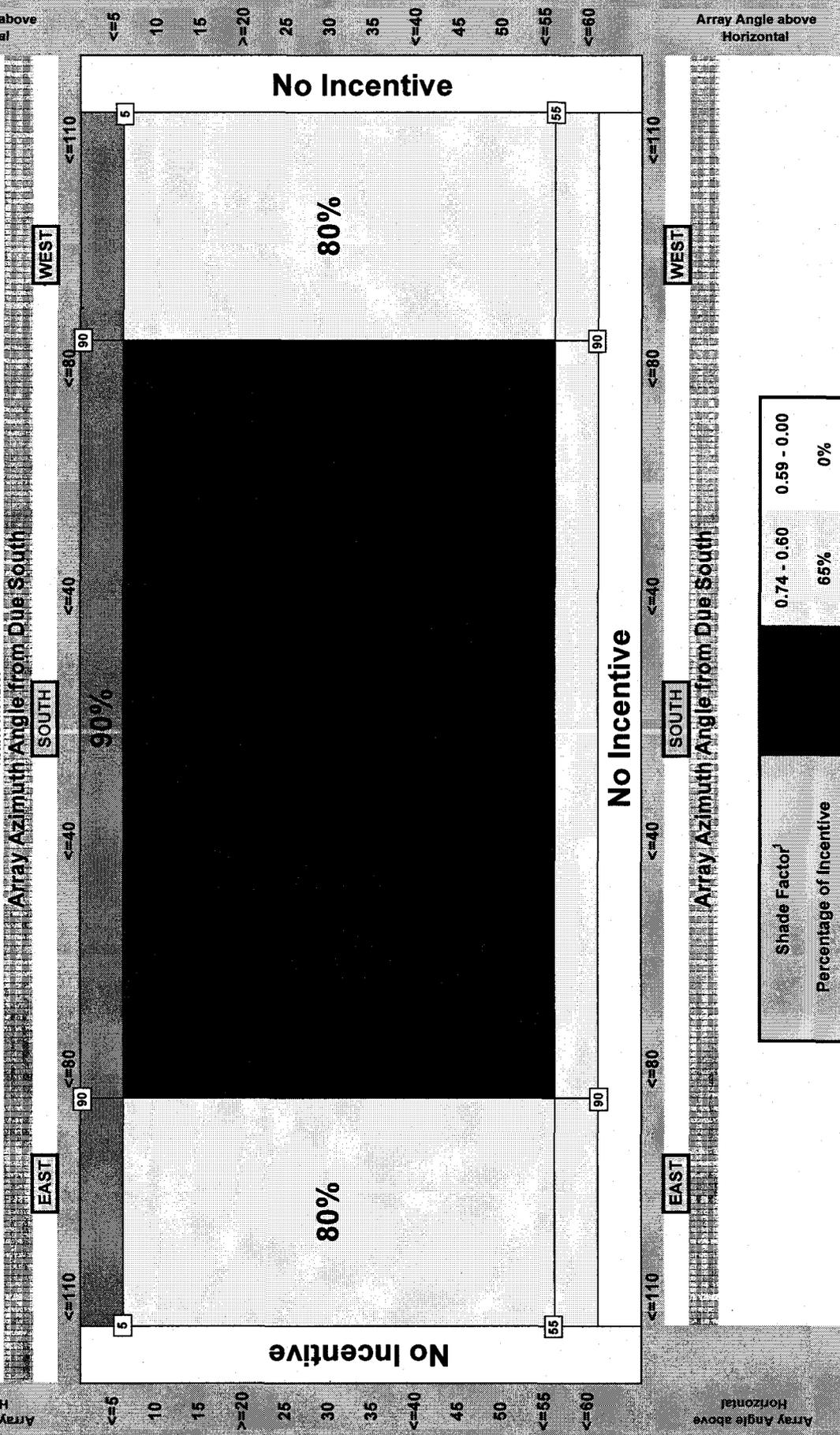
Input requested incentive. For System Capacity UFIs, input \$/Watt; otherwise, for First Year Energy Savings input \$/kWh.

Exhibit 4

PV Off-Angle and Shading Adjustment Table

APS - PV Off-Angle & Shading Incentive Adjustment Chart

Revised 07/01/2008



The system installation will receive the lowest applicable incentive adjustment, reading from both the installation Angle Chart and Shading Adjustment

Notes: 1. "Shade Factor" is the percentage of annual solar insolation expected given latitude, shading and the available solar window.

EXHIBIT C



**ADJUSTMENT SCHEDULE RES
RENEWABLE ENERGY STANDARD**

APPLICATION

The Renewable Energy Standard ("RES") Adjustor shall apply to all retail Standard Offer or Direct Access service, excluding kWhs served in accordance with rate schedules SP-1 (Solar Partners), Solar-2, Solar-3, and Adjustment Schedules GPS-1 and GPS-2. All provisions of the customer's current applicable rate schedule will apply in addition to the RES Adjustor. From time to time, the RES program spending requirements will be evaluated and if necessary the charge and/or caps may be modified by the Commission. Any new charges/caps will be applied in billing cycle 1 beginning in the month following Commission approval in A.C.C. Decision No. XXXXX and will not be prorated. Details regarding the administration of this Adjustor can be found in A.A.C. R14-2-1808. The RES Adjustor and the Demand Side Management Adjustor may be combined on the customer's bill and shown on the "Environmental Benefits Surcharge" line.

RATES

The bill shall be calculated at the following rates:

All kWh	\$0.008662	per kWh
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SURCHARGE LIMITS

The monthly total of the Renewable Energy Standard Adjustment Charge shall not exceed the following limits:

Residential Customers	\$3.46	per service per month
Non-residential Customers	\$128.70	per service per month
Non-residential Customers with demand of 3,000 kW or higher per month for three consecutive months	\$386.10	per service per month

EXHIBIT D



Arizona Public Service Company

**Arizona Public Service
Renewable Energy Standard
2010 Marketing Plan**

October 16, 2009



Arizona Public Service Company Renewable Energy 2010 Marketing Plan

I. Executive Summary

APS implemented an aggressive multi-faceted marketing plan in 2009 to fuel renewable energy growth, with the objective of meeting the Renewable Energy Standard ("RES") target. The 2009 renewable energy target required that two percent of APS's retail sales must be from renewable energy resources and fifteen percent of the renewable energy requirement must be distributed energy. Additionally, one half of the distributed energy requirement must be met through residential applications and one half from non-residential applications. The marketing plan included awareness building through multiple advertising channels such as TV, print, radio, bill messaging, e-mails, earned media placements as well as targeted direct mail. It also included participation in more than one hundred community events and implementation of a cooperative advertising program with installers, who play a critical role in customers' product purchase process and decision.

APS's 2009 marketing initiatives significantly heightened consumer awareness. While interest in APS's residential distributed energy program has increased over the past year, despite a challenging economic climate, APS recognizes the pressing need to develop programs and strategies to further increase residential system installations.

Achieving the 2010 distributed energy targets may be challenging given that consumers still face the same economic conditions that they faced in 2009, however, APS is committed to improving its residential program participation through the enhancement of marketing, outreach and education efforts. This marketing plan outlines APS's plans to aggressively increase awareness and participation through the transition to a "call to action" strategy.

APS recognizes that it must continue to have a close partnership with the installer community to assist in creating this call to action. APS can help create awareness of the category and general product benefits, but APS customers continue to rely on installers to present the product-specific details, recommend a product solution based on household specifics (e.g., size of home, energy use, savings potentials, etc.), and ultimately to install the system.



II. APS's 2010 Marketing Strategy

Under the 2010 RES rules, APS must acquire two and one-half percent of its total retail sales from renewable energy resources, and 20 percent of the renewable energy requirement must be met from distributed energy resources. One-half of the distributed energy requirement must be met by residential applications, and the other half must be met by non-residential applications. Pursuant to Arizona Corporation Commission ("ACC") Decision No. 71275 APS created proposals to increase participation in the residential distributed energy program. Therefore, the most fundamental change between APS's 2009 and 2010 RES Implementation Plans is the expansion of the Company's programs for residential distributed energy. This marketing plan details APS's 2010 marketing initiatives and strategies focused on supporting those objectives by continuing efforts to increase customer awareness of APS's incentive programs and by transitioning key messages to drive a call to action for the installation of renewable energy systems.

In order to meet these objectives, APS is including significant enhancements to its marketing plan in 2010. Given interest levels and participation of commercial entities, APS expects to meet and possibly exceed its non-residential distributed energy target. While interest in APS's residential distributed energy program has increased dramatically over the past year, the participation in this program has not been sufficient to meet the residential distributed energy targets. Therefore, the focus of APS's 2010 marketing efforts continues to be on the residential market.

The over-arching strategy will be to continue awareness building of solar energy and APS's solar incentive programs, and to create a call to action to increase the momentum already present in APS's distributed energy programs.

Through these efforts, APS will seek to overcome consumers' key barriers to purchase and address common concerns. Based on APS's recent market research, these include:

- Perceived value of photovoltaic systems;
- A wide array of questions about solar and the purchase process; and
- Financial/economic considerations & upfront cost of the systems.

This marketing plan outlines five primary strategies to increase awareness within the residential market and drive product adoption. First, APS will focus on introducing new programs to address upfront costs and increase the availability of financing. Second, APS will seek new and innovative ways to motivate consumers to consider solar, and help consumers identify a qualified installer. Third, APS will refine its advertising to strengthen the call to action and drive customers to use resources at aps.com, contact installers for project estimates, and ultimately purchase a renewable energy system. Fourth, APS will work to create an



organization dedicated to raising awareness, driving to a “call to action” for distributed renewable energy within Arizona and specifically within APS communities. Next, APS will continue to build on successful strategies, such as building additional facets on APS’s website, to make the decision and purchase process easier for customers. Finally, APS will identify new ways to partner with the installer community to help customers use their increased knowledge and awareness to take the next steps.

A. New Programs to Drive Growth

The following section describes APS programs designed to increase market penetration within the residential sector. APS will continue to develop and refine these strategies based on insight gained from program execution with input from program stakeholders, including customers and installers.

i. Solar Homes Program

APS launched the APS Energy Star and Solar Homes Program in April 2009. The goal of the program is to increase the overall number of energy efficient homes being built that include renewable technologies in the most cost-effective way for end-use customers. The program rewards homebuilders for their commitment to developing communities with renewable technologies (homebuilders must offer renewable technologies as a standard feature across the community). In exchange for this commitment, the builder receives a supplemental incentive and non-monetary benefits such as co-operative marketing, training, and technology assistance.

APS will continue to expand this effort with interested homebuilders. By 2013, based on current economic forecasts, APS anticipates that over 2,700 solar-equipped and solar-ready homes will be built as a result of this program. A recovery in the Arizona housing market could dramatically increase the number of solar homes resulting from this program. APS may offer promotional incentives in order to increase market share depending on results throughout the year.

To increase participation in this program, APS will aggressively target both homebuilders and homebuyers. Efforts will leverage APS’s existing Energy Star relationship with builders, as well as participation in industry forums (e.g., Greenbuild, Southwest Builder Show). In addition, APS will integrate the builder and consumer programs on the APS website and will grow the program through cooperative advertising with builders.

ii. Qualified Contractors Program

APS is launching a Qualified Contractors Program in 2010. The primary objectives of this program are to increase overall customer satisfaction



with the distributed energy purchase process, improve program operating and marketing efficiencies, and to ensure a consistent high quality installation.

APS believes this program will play a key role in its marketing strategy to transition from creating market awareness to enabling customers to take action. Upon creation of a list of qualified contractors, APS's customers will have increased clarity, confidence and direction in choosing an installer for their renewable system. While proposed as part of APS's Implementation Plan, it is APS's intention to ultimately require customers to use an APS qualified contractor to be eligible for renewable energy incentives.

To accelerate the adoption of solar products, APS will integrate the list of Qualified Contractors across its marketing efforts. This includes prominent placement on the APS website, as well as including the name and contact information of the qualified contractors in APS advertising efforts. Additionally, APS will provide cooperative advertising assistance to the Qualified Contractors to expand their supplemental marketing efforts.

iii. Community Based Marketing/Outreach

APS is a strong supporter of cooperative advertising and statewide programs targeted at increasing the production of renewable energy, both through renewable generation and distributed energy. Experience in other jurisdictions has proven that statewide collaborative initiatives are effective in increasing participation in renewable energy programs, through partnerships with state agencies, non-profits, utilities and stakeholders. There is also substantial research that documents the effectiveness of community based marketing, especially when there is a social benefit involved. APS will work with SmartPower¹ to establish a non-profit Arizona entity to increase residential solar installations through a community participatory engagement. This Arizona non-profit will be launched in 2010 and will work to introduce these programs into Arizona with a focus on community outreach.

APS will work closely with the newly created non-profit to ensure alignment with APS's customer offerings and to ensure the organization's efforts are focused on creating program participation. APS will partner with SmartPower on the development of new approaches to drive consumer distributed energy growth and will help them in their outreach efforts. In addition, as the SmartPower tools and resources are developed,

¹ SmartPower is a national award-winning, non-profit marketing organization that specializes in clean energy and energy efficiency.



APS will provide links to the APS website and may include them in some of its advertising.

1) Schools and Governmental Program

In Decision No. 71275, APS was ordered to propose a separate distributed energy program for schools, municipalities and other government entities, which has been included in its 2010 RES Implementation Plan.

APS's proposed program offers schools and governmental entities production based incentives ("PBI") for the installation of all RES qualified non-residential technologies. The Schools and Governmental Program will be implemented once APS receives approval from the Commission. APS anticipates that this program will be further promoted and developed in large part through community based outreach and marketing.

Through the installation of distributed generation systems on school buildings, thousands of students, teachers and parents are exposed to this technology. Additionally, by supplementing these systems with educational displays, the program will increase awareness and knowledge. Therefore, as a part of this proposed program, participants will be required to install kiosks, monitoring displays, and other appropriate signage as part of a student, employee, and/or general public awareness and educational campaign. These displays will be installed at the customer's expense, but will be included in the total program cost and eligible for incentive funding.

Once this program is approved by the Commission, APS will work with the Schools Facilities Board and its Customer Representatives to inform schools and state and local government agencies of this program. APS will also sponsor and participate in forums to help create awareness of this program.

iv. Financing Incentive for Residential Renewable Energy

APS is dedicated to finding solutions that will help reduce or eliminate the financial barriers associated with the up-front costs of installing residential distributed energy systems. It is apparent that innovative financing is becoming more readily available as renewable programs mature across the country. APS is actively pursuing other mechanisms to offer residential customers additional financing options. The Company is collaborating with banks and other lending institutions to create options that will help customers overcome the obstacle of up-front installation costs. APS



believes that, like home builders within the Solar Homes program, incentive mechanisms designed to encourage lending institutions to make funds available and create programs for DE installations will have a broad and long lasting effect.

Once fully developed, this program will be available to all lending institutions. As in its other cooperative marketing efforts, APS believes this approach will vest additional entities in the promotion of distributed renewable energy that will extend the reach of APS's own marketing and outreach efforts. This effort will also raise awareness of the availability of distributed energy financing options.

The APS Web site will include details and links to financial resources that become available through these efforts. In addition, APS will inform customers that financing options exist through the Company's advertising.

v. Promotional Incentives/Rebates

This call to action initiative will offer promotional incentives to residential customers for the installation of photovoltaic systems or solar water heaters in addition to the already available up-front incentives up-front incentives. APS anticipates that by temporarily adding limited additional incentives, the Company can create momentum that will carry through the end of 2010 and beyond. APS believes that the promotional incentives will not only affect purchase decisions, but will also serve to increase understanding of APS's standard incentive offerings.

To preserve the effectiveness of the promotion and minimize adverse market behavior, the details of the promotional incentives and their specific timing are not included in this plan.

B. Refinements to Current Marketing Efforts

The marketing tactics listed below describe the programs that APS is currently executing that will be refined and/or expanded to continue to drive awareness of the benefits of renewable energy and the availability of incentives and motivate customers to take action.

i. Advertising

Television

Television will be used to continue to build awareness of renewable energy. APS's key messaging will be to present the Company as a "trusted advisor" and direct customers to www.aps.com/GoSolar to find more information about current incentives, how solar can work for them, and the next steps in the purchase process.



Existing ads, which featured children in one set and Steve Nash in another, have proven effective in heightening awareness and driving people to APS's website for additional information. APS will continue to look at opportunities to refresh existing advertising with a stronger call to action. In addition, APS continues to evaluate new advertising options to supplement existing ads based on feedback received from stakeholder input.

As the Qualified Contractor program is rolled out, APS will explore the opportunity to tag its TV spots with qualified contractor's information (e.g., find out more about solar for your home, contact *AAA Solar at 602 555-XXXX*).

Direct Mail

APS is currently working on two direct mail campaigns. These campaigns will test and refine messaging.

Because APS's goal is to drive customers to its website, to measure the effectiveness of the direct mail campaign, APS will track both reservations and inquiries. APS will also work to track Web page views by registered users (i.e. – how many registered APS customers receiving the mail piece logged in and visited a solar page).

Print

Given that the print media allows APS to provide more detail on its products, benefits, and next steps, APS will pursue additional print advertising opportunities, including but not limited to:

- Local newspapers;
- Local green publications or green issues of local magazines; and
- National magazines targeting messages to the APS service area.

Outdoor

APS will explore billboard advertising and the opportunity to create succinct messaging to drive customers to the website.

Theatre Screen Ads

On screen ads at movie theaters may be used to build general awareness for the program. APS may use key messaging with a call to action to visit aps.com/GoSolar to find out more.

Radio Ads

Radio will be used to build awareness of solar and the Company's incentive program. The call to action will be to visit www.aps.com/GoSolar to find out what solar can do for the customer and



how affordable it can be when combined with incentives and tax credits. (Ad tagging opportunities may also exist for qualified contractors.)

Radio Remotes

APS is exploring the opportunity to do radio remotes from new homes in Phoenix that incorporate solar as a standard or optional feature in the subdivision development. The remotes will serve two purposes: first, to build awareness of solar and second, to build awareness of APS's incentive program to attract new installations. It will also help to create more demand for solar installations by new home builders as customers begin to request a solar option.

ii. APS.com/GoSolar Web Site

The APS website plays a critical role in educating customers on their options and can be an excellent tool to drive them to take action. While APS has thirty to sixty seconds in most other advertising media (radio, TV), the Web offers a wide array of opportunities. Significant improvements were made to the website in 2009:

- A new solar website that is more user friendly and informative than previous versions;
- The addition of an easy step-by-step guide to installing photovoltaic panels or a solar water heater;
- Videos with background information on installing solar and customer testimonials from recent buyers;
- The addition of extensive Frequently Asked Questions to answer common questions; and
- The addition of a variety of educational links and resources.

Additional improvements that are planned or being considered for 2010 include:

- Add new solar calculator tied to the customer's particular usage to help model the financial benefits of solar;
- Create an easy-to-use qualified installer list so that customers can move to the next step in the purchase process;
- Simplify the presentation of the reservation/installation process;
- Automation of the reservation process;
- Exploring the possibility of creating a map of solar installations to allow customers to see how many homes in Phoenix already have solar installed and providing some level of project detail (e.g., photovoltaic or solar water heater, installer, system size).

iii. Marketing Collateral

APS will continued development of brochures and additional pieces of collateral for distribution at events and for other applications. A



messaging audit of the collateral will be done and pieces will be refreshed if needed. These documents include:

- Photovoltaic brochure;
- Solar water heater brochure;
- “Sales Packet” for home builders;
- Presentation packet for Home Owner Associations; and
- Case study sheets.

iv. Events/Customer Training

APS will continue to participate in various events within the Company’s service territory that provide an opportunity to showcase renewable energy and present details on the current APS incentives. APS will work with the events staff, the Arizona non-profit aimed at community outreach and marketing discussed earlier in this plan, and other groups such as Energy Efficiency and Demand Side Management groups to identify events that have a good tie-in to renewable energy. Some currently identified events are:

- Solar Home Tour – Phoenix area;
- Flagstaff Home Show; and
- Develop “Solar Seminars” to talk about the technology, showcase equipment, have vendors on hand for Q&A

v. APS Bill Messaging

Bill inserts are a highly cost effective way to communicate with APS’s customers. Bill inserts will be used throughout the year to create awareness of solar options. They offer the benefit of being able to communicate more detail than other bill messaging, are more likely to be noticed by customers given that they are a separate piece in the envelope, and they are relatively inexpensive to produce.

APS will also include key messaging on customer bills to build awareness of the program and direct customers to its website for more detailed information.

Information on solar systems will be included in APS newsletters. This medium allows for some level of detail about the benefits of solar, but again the call to action will be to visit APS.com/GoSolar for more detailed information.

vi. E-marketing to APS Customers

There are two avenues to communicate with customers through email:



- An awareness building email push to existing customers for whom APS has an address. Customers will be given information about solar technology and our incentive program with links to the APS site to find out more; and
- APS will use e-newsletters to heighten awareness of solar options.

vii. Aggressively promote cooperative program for Qualified Contractors

APS will support a robust cooperative advertising program for the enrollees in its Qualified Contractor Program. This will include co-funding for their marketing efforts, such as direct mail, local print advertising, door hangers, targeted TV or radio, and event participation, etc. In addition, APS will look for opportunities to integrate the Qualified Contractors into its advertising efforts.

viii. Media Relations

APS will leverage Arizona-based media to help tell the renewable incentive story. It will both use a proactive and reactive approach to garnering media coverage of the program's availability to customers. First, subject-area experts will be made available for both on and off camera interviews about the program. Second, when appropriate, APS will work with customers who engage in "newsworthy" installations to garner media attention for their installation. Lastly, as new programs and initiatives' are undertaken, each will be evaluated for appropriateness for proactive media outreach.

ix. Customer Service Center/Green Team Training

APS currently has a group of customer representatives in its call center that fields questions from customers on the renewable energy incentive program. Continued training will be provided to keep them current on changes to APS's programs and marketing efforts, especially because customers will want to speak to an APS employee, rather than using the website.



C. Budget

Below is the proposed budget. As the program progresses, changes to the strategy may be made based on results.

Outreach and Participation Initiatives	\$2,100,000
Awareness Building	\$1,500,000
Customer Conversion Efforts	\$600,000
Contractor/Installer Effort	\$225,000
Market Research	\$75,000
Marketing Administration and Implementation Costs	\$300,000
Total	\$4,800,000

EXHIBIT E



Arizona Public Service Company

**Arizona Public Service
AZ Sun Program Summary**

October 16, 2009

AZ Sun Program

The AZ Sun program is a new component of the Company's RES Implementation Plan ("Plan"), in which APS will invest \$500 million of capital to develop 100 MWs of utility-owned solar generation facilities beginning in 2010 through 2014. APS anticipates the solar facilities will take the form of ground mounted solar photovoltaic ("PV") systems.

The AZ Sun program, if approved, will provide diversification of APS's renewable portfolio that today consists primarily of Power Purchase Agreements ("PPAs") to include more utility-owned renewable resources. APS's customers will benefit from utility ownership as the Company will have more control over construction, operation, maintenance and financing of these projects ultimately allowing APS to increase the certainty of these projects being developed in a timely fashion, among the other benefits discussed below. While both the Community Power Project (see section D.vii) and the AZ Sun program are focused on utility ownership, when combined with the Company's overall Plan, APS will solicit and consider proposals that may result in either PPAs, as the Company has done historically, or utility ownership.

Acquisition of solar resources through the AZ Sun program is consistent with the Company's resource plan¹ and will play an important part in the ability of APS to meet its Renewable Energy Standard ("RES") requirements of 15% of retail sales from renewable resources by 2025.

Program Goals and Procurement Strategy

Through the AZ Sun program, beginning in 2010 and continuing through 2014, the Company plans to invest \$500 million of capital to develop 100 MWs of solar resources. APS expects to acquire these resources through competitive procurement processes beginning in 2010. The Company has forecasted to develop 25 MWs a year in each of 2011, 2012, 2013 and 2014. APS may accelerate development of this capacity if commercially reasonable to do so and if able to achieve desired diversification of both developer and system impact risks.

APS expects to procure primarily solar PV resources through the AZ Sun program. Solar PV is now more suitable for ownership because these systems can be installed quickly as compared to other types of generation resources, generally speaking the various solar PV technologies themselves are more mature and costs have come down making solar systems more economically attractive. These systems are the most versatile of the utility scale generation technologies as they can be designed to consider various shapes and sizes of available land, can be located in the Company's distribution system where feeders are close to capacity or where transmission congestion may be an issue, and can also be scaled to meet the resource needs of the area in which they are situated.

¹ Filed in Docket No. E-01345A-09-0037, January 20, 2009.

Additionally, ground-mounted PV systems can be properly aligned with the available sunlight in order to maximize system production.

All PV technology types will be evaluated through the procurement processes, with consideration being given to cost, reliability and performance. The most beneficial technology for each individual location will be chosen.

The AZ Sun program may also include utility scale systems located on a customer's premise, thereby qualifying as a distributed energy project as discussed in the 2010 Implementation Plan.

Program Costs and Funding

The AZ Sun program, as proposed, stipulates a capital investment of approximately \$500 million to be made beginning in 2010 through 2014 to develop 100 MW of solar generation capacity. This is based on an average solar PV capital cost of \$5.00/watt. The cost of the actual systems deployed will be based on competitive procurement processes, and will most likely vary with the size of the system, as smaller size systems tend to be greater on a per watt basis, while larger sized systems cost less due to economies of scale of the individual project.² Approval of this Program will allow the Company to install these resources quickly and efficiently without additional regulatory filings.

The revenue requirement that APS proposes to recover through the RES for each 25 MW increment is estimated to be \$16.1 million in the first year of operation, \$5.2 million in the last year, and \$256 million over the 30 year life of the project, based on an average capital cost of \$5.00/watt and other finance, tax and operating cost assumptions. Full development of the 100 MW through the AZ Sun program will require a cumulative revenue requirement over 30 years of approximately \$1,024 million.

APS is proposing that revenue requirements for the AZ Sun program, including depreciation property taxes, income taxes, operating and maintenance expenses and financing costs using the then currently authorized cost of capital, would be recovered through the RES adjustor until the investment is included in base rates or other recovery mechanism.

Although individual resource sizes and the timing of these resources are not yet known, Exhibit 3E of APS 2010 Implementation Plan (revised October 16, 2010) illustrates expected revenue requirements for a sample 25 MW PV system added to the Company's

² This capital cost is consistent with the expected solar PV cost in other jurisdictions that have approved or are reviewing programs similar to APS's AZ Sun program. For example, Pacific Gas and Electric's proposed PV Program, a 250 MW primarily ground mounted solar photovoltaic utility ownership program, is expected to have a capital cost of \$4.28/watt. See Application of Pacific Gas and Electric Company to Implement its Photovoltaic Program, filed February 24, 2009 in Docket No. A09-02-019. Similarly, the capital cost of Duke Energy Carolinas' approved 10 MW ground and rooftop mounted solar photovoltaic utility ownership program is expected to be \$5.00/watt. See North Carolina Utilities Commission Order Granting Certificate of Public Convenience and Necessity with Conditions in Docket No. E-7, Sub 856, dated December 31, 2008.

resources each year for the four year life of the Plan. While this exhibit shows that revenue requirement for the first several years of each project is higher than a similar resource acquired through a PPA, in most cases the cost to customers is less when calculated over the life of the resource.

It is important to emphasize that, resources under this program are not likely to commence commercial operation until 2011. As such, the requested 2010 RES adjustor does not include any recovery for revenue requirements under the AZ Sun program. APS will include an updated budget for this program in its 2011 Implementation Plan as specific resources are identified.

Rationale for Utility Ownership

Utility ownership of PV systems provides many benefits to APS customers and the Company, including among others, APS's ability to:

- 1) Move quickly and increase the certainty of solar projects being developed,
- 2) Exercise greater control over construction, operation, and maintenance of solar projects,
- 3) Leverage existing relationships and procurement expertise with potential suppliers to obtain volume discounts which in turn helps lower customer rates,
- 4) Utilize the Company's experience in owning existing solar generation assets for the benefit of new solar projects,
- 5) Gain even further experience with solar assets that will become an increasingly important resource for the Company going forward,
- 6) Manage an increasingly complex distribution system to deliver safe, reliable power to APS customers,
- 7) Increase the certainty of the financial impact to the Company of developing solar projects,
- 8) Eliminate the need for developers to arrange "tax equity" financing as APS is able to utilize the tax credits and accelerated tax depreciation associated with making investments in solar projects, and
- 9) Facilitate financing of solar projects from the Company's corporate balance sheet; through access APS has to both debt and equity capital markets assuming the Company is able to maintain at a minimum its investment grade rating.

Developments in Tax, Accounting, Rating Agency Treatment and Finance

A key development that makes utility ownership appropriate to consider from a customer economics perspective, is the recent change in federal tax laws that allows utilities to claim a 30 percent Investment Tax Credit ("ITC") for certain renewable technologies such as solar. This was enacted through the Emergency Economic Stabilization Act of 2008, and ultimately provides for a reduction in a utility's overall tax liability for investments in solar technology that was not available to utilities prior to that time. Any

ITC value that APS receives from its investment in solar properties will benefit customers by reducing the revenue requirement over the regulatory life of the solar property in accordance with federal tax laws.

Utility ownership also increases the certainty of the financial impact to the Company of developing these resources. Accounting firms are reviewing the interpretation of existing accounting guidance as it relates to their policies on renewable power purchase agreements and whether they should be accounted for as traditional PPAs or perhaps as leases. Simultaneously, the Financial Accounting Standards Board, which governs US Generally Accepted Accounting Principles ("US GAAP"), has an active project underway to re-evaluate lease accounting. The International Accounting Standards Board ("IASB"), which governs International Financial Reporting Standards ("IFRS"), already has different lease accounting standards than US GAAP. The Securities and Exchange Commission has a proposal that will likely require US based companies to convert to IFRS for annual financial statements filed for the fiscal year end 2014. The IASB also has an active project underway to re-evaluate lease accounting. No grandfathering of existing contracts is expected, as one of the general principles of accounting standards is to ensure that all Company financials are prepared on a consistent and comparable basis. Ownership of solar generation assets through the AZ Sun program will help the Company manage these uncertainties related to PPA and lease accounting.

Additionally, as has been discussed before the Arizona Corporation Commission in prior proceedings, rating agencies currently impute debt related to PPAs. With no corresponding equity, the mere signing of a PPA weakens the Company's credit profile. Conversely, ownership of renewable assets such as proposed in the AZ Sun program will allow APS to finance the program with a mixture of both debt and equity, which will maintain the Company's financial health.

Conclusion

For these reasons APS believes that pursuing utility ownership of solar resources is in the best interest of its customers and the Company and is requesting approval of the proposed AZ Sun program.

EXHIBIT F

Redline Version
RES Implementation Plan
2010-2014

ATTACHMENT EXHIBIT-A

**APS RES Implementation Plan 2010 to 2014
July 1 October 16, 2009**



Arizona Public Service Company

**Arizona Public Service
Renewable Energy Standard
Revised Implementation Plan
2010 to 2014**

October 16, 2009

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APS RES Implementation Plan 2010 to 2014
July-October 16, 2009

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**APS RES Implementation Plan 2010 to 2014
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ATTACHED EXHIBITS

- Exhibit 1A 2010 Implementation Plan Overview
- Exhibit 1B RES Program Summary
- Exhibit 2A RES Budget Summary
- Exhibit 2B 2008 APS RES Budget Rollover
- Exhibit 3A Existing and Planned Generation - Energy
- Exhibit 3B Existing and Planned Generation - Capacity
- Exhibit 3C ~~Cost Above Conventional Generation~~Renewable Purchases and Generation RES Costs (Dollars)
- Exhibit 3D ~~Cost per MWh Above Conventional Generation~~Renewable Purchases and Generation RES Costs
- Exhibit 3E AZ Sun Program Sample Revenue Requirements
- Exhibit 4A Distributed Energy Incentive Budget Detail (Dollars)
- Exhibit 4B Distributed Energy Budget Detail (Energy)
- Exhibit 4C PBI Commitment
- Exhibit 5A Distributed Energy Program Assumptions and Planning Inputs
- Exhibit 5B Distributed Energy Projected Program Outcomes
- Exhibit 5C Distributed Energy Projected Outcomes by Technology

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APS RES Implementation Plan 2010 to 2014
July-October 16, 2009

1. EXECUTIVE SUMMARY

Arizona Public Service Company ("APS" or "Company") has prepared this Implementation Plan ("Plan") for the five-year period of 2010 to 2014 in compliance with the Renewable Energy Standard and Tariff Rules ("RES")¹, which requires the filing of an annual plan describing how utilities intend to comply with the rule requirements for the next five years. This Plan describes the renewable energy resources that may be added during the next five years, the estimated customer funding and surcharge amounts required to acquire those resources, and a budget that allocates specific funding. The current RES requirement is 2.50% of total retail sales in 2010, and the rules prescribe that 20% of that requirement is to come from distributed energy solutions. The Company's Plan is also consistent with APS's planning goals and resource acquisition plans described in the Company's Resource Plan Report ("RPR") filed with the Commission on January 29, 2009.²

This document revises the Implementation Plan originally filed by APS on July 1, 2009 (the "July Filing") and includes provisions incorporated in conformance with orders described by Decision No. 71275³. This amendment also includes revisions to select strategies and programs based upon developing market conditions.

Decision No. 71275 directed APS to review its residential offerings and propose programs in its 2010 Implementation Plan with a focus on increasing participation in residential distributed energy ("DE") programs. Decision No. 71275 also granted APS authority to allocate up to \$20 million of its 2009 residential DE budget to the funding of school projects, with RECs counting towards the non-residential DE target. To reach full residential DE compliance in the future, additional funding may be required. If necessary, APS will file an application with the Commission for additional funding at that time. This amended Implementation Plan does not propose an increase to the incentive budget from that originally proposed in the July Filing.

As part of this plan, APS is proposing the AZ Sun program which is designed to increase APS's solar renewable generation portfolio, with the goal of developing 100 megawatts of utility scale generating facilities.

In addition, in a letter dated September 29, 2009, Starwood Energy Group Global, LLC provided notice to APS that it was terminating the long-term purchase power agreement for Starwood Solar I, a 290 megawatt concentrating solar power plant.

As a separate document, the Company is filing its updated Distributed Energy Administration Plan ("DEAP"). The DEAP describes the participation process for a wide range of customers, presents incentive levels, and discusses eligible technologies and system requirements, all of which together will provide a program that APS believes will encourage customer participation.

¹ A.A.C. R14-2-1801, *et. seq.*

² Docket No. E-01345A-09-0037.

³ Docket No. E-01345A-09-0263

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APS RES Implementation Plan 2010 to 2014

July ~~1~~ October 16, 2009

In this filing, APS has made only minor adjustments to the DEAP that was approved as part of the 2009 Implementation Plan.⁴

The Implementation Plan and the DEAP are similar to the plans filed for 2009.⁵ A few key program elements reflected in this Plan are provided below:

- To assist APS in achieving its renewable energy goals, the Company has developed the AZ Sun program which will result in the installation of 100 megawatts of utility-scale ground-mounted solar photovoltaic resources, in increments, at targeted locations in its service territory over the Implementation Plan timeframe.
- APS will launch a Qualified Contractors Program in 2010. The primary goal of this program is to increase overall customer satisfaction, improve program efficiencies, and work to ensure the consistent quality of end-use customers' installations.
- To enhance interest and awareness in residential DE by working within communities and extending the reach of APS's marketing efforts, APS is working to establish an Arizona based non-profit organization focused on driving increased participation in APS's distributed renewable energy programs.
- APS will introduce a program designed to encourage lending institutions to create programs that will help customers overcome the obstacles with up-front financing.
- To help assume an equitable distribution of RES funds aimed at incenting distributed energy installations, and in order to assist schools and governmental (state and local) entities that are at an economic disadvantage, APS proposes a separate Schools and Governmental Program.
- To drive a deliberate call to action and to increase the momentum in APS's residential programs, APS will offer promotional incentives/rebates to residential customers for the installation of photovoltaic ("PV") systems or Solar Water Heaters ("SWH"), in addition to the up-front incentives collected through the RES.
- APS's successful Distributed Public Assistance Program ("DPAP") will be expanded to meet the needs of limited income, school, non-profit, and governmental customers.
- APS anticipates project selection for its Small Generation Pilot Program, with some projects expected to come on line as early as the fourth quarter of 2010. The Small Generation Pilot Program aims to simplify the Request for Proposal ("RFP") and contracting processes for small renewable generators and provide APS with valuable small renewable generation through the Plan period.

⁴ Decision No. 70654 (December 12, 2008).

⁵ Docket No. E-01345A-08-0331, filed July 1, 2008 and supplemented October 10, 2008.

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- APS also anticipates selection and implementation of projects resulting from the ~~Distributed Energy~~ (“DE”) RFP. The DE RFP was designed to increase the number of distributed installations, and will do so at a substantial cost savings over normal DE incentives. With the addition of projects selected from the DE RFP, APS will exceed the non-residential RES DE targets for each year described in this Plan.
- APS will move forward with the execution of its Solar Homes program for homebuilders to promote the development of communities that incorporate energy efficient and solar technologies in home design and construction.
- APS will continue to procure a mix of solar, wind, geothermal, and biomass/biogass renewable resources seeking to exceed compliance with the RES requirements through the Plan period.
- Upon Commission approval, APS will implement the Company’s proposed Community Power Project – Flagstaff Pilot. The program application is currently pending at the Commission.⁶ The Pilot would provide Flagstaff-area customers with DE systems including photovoltaic (“PV”) arrays, solar water heaters, and small scale wind turbines.
- In order to expand the non-residential DE program beyond near-term RES compliance, APS proposes annual increases in the lifetime contract authorization for Performance Based Incentive (“PBI”) commitments to support customer installations under the program on an annual basis and for projects proposed as part of the Company’s DE RFP.⁷ In addition, APS proposes additional modifications to its non-residential distributed program to increase program efficiency. The proposed changes include updates to project eligibility and program administration.
- APS will enhance its research, development, commercialization and integration program, including the acceleration of the development and deployment of renewable resources for the benefit of APS customers.

APS currently estimates the cost of its RES related projects and programs to be ~~\$86.755~~ million in 2010 and increasing to an annual cost of ~~\$208.1~~ 217.9 million by 2014, with a five year total of ~~\$729.6778.9~~ million. The peak annual cost in this five-year planning window is 2014 at ~~\$208.1~~ 217.9 million, due primarily to the expanded DE program and ~~two~~ the new large

⁶ Docket No. E-01345A-09-0227 (May 11, 2009).

⁷ In a separate application (Docket No. E-01345A-09-0263), APS filed for approval of a \$220 million authorization in lifetime Performance Based Incentive contract commitments through 2009. On September 3, 2009, the Commission granted APS this authorization in Decision No. 71254. The proposed budget in this Plan includes the \$220 million.

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APS RES Implementation Plan 2010 to 2014

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renewable generation projects⁸ generating approximately ~~570~~280 MW during ~~their~~its first full year in 2014, and the introduction of, and full deployment of, the AZ Sun program.

RES funding is intended to cover the cost of utility scale renewable generation in excess of the cost of conventional resource alternatives, incentive payments for DE resources, marketing expenses, and program implementation and administration costs. The costs for renewable generation collected through the RES adjustor during 2010 are partly based on APS's existing contracts and APS's small generation RFP. These contracts, if brought to fruition, will enable APS to meet and exceed renewable generation and total RES energy targets in 2010. Additional projects will be required for APS compliance with RES targets in the four subsequent years of this planning period. The costs for DE incentives and the program budget are based on incentives developed as part of the Commission Staff's Uniform Credit Purchase Program ("UCPP") working group, preliminary results from APS's DE RFP and APS's best estimations of market penetration for the various technologies available to consumers.

At this time, APS is requesting adjustor funding of ~~\$80.779.5~~ million for 2010 (the adjustor is currently designed to collect approximately \$72.4 million annually). The requested adjustor amount, along with the \$6 million collected in base rates, would total the ~~\$86.75.5~~ million of funding needed to meet the requirement.

⁸ Solana and Starwood are concentrating solar power ("CSP") projects and were both included in APS's July Filing. The Solana project was approved in Decision No. 70531. ~~The Starwood application is currently pending approval in Docket No.~~ On September 30, 2009, APS announced it had received notice from Starwood Energy Group Global, LLC that it was terminating the long-term purchase power agreement for Starwood Solar I, the 290-megawatt CSP. On October 6, 2009 APS filed to withdraw the Starwood application in Docket No. E-01345A-09-0261.

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APS RES Implementation Plan 2010 to 2014
July ~~1~~ October 16, 2009

2. INTRODUCTION

A. Renewable Energy Requirements

APS has prepared this Implementation Plan for the five year period 2010-2014 in compliance with the RES Rules. The RES requires that affected utilities satisfy an annual renewable energy requirement by providing a percentage of their electric retail sales from renewable resources. The required percentage for the current implementation period begins at 2.50% in 2010 and increases to 4.50% in 2014.⁹ That minimum percentage increases to 15% of the utility's retail sales by the year 2025.¹⁰

This rule defines renewable resources as: 1) "renewable generation" projects that are constructed solely to export their energy production to the utility; and 2) DE that is a renewable resource application installed at the customer premises and used to displace customer energy consumption.¹¹ As part of the RES, the energy generated or displaced by DE is applied towards the percentage of the utility's distributed renewable energy requirement.¹² For both Renewable Generation and DE, the unit used to track kilowatt-hours ("kWh") derived from renewable resources for purposes of compliance with the RES is the Renewable Energy Credit ("REC"), where one kWh equals one REC.¹³

The RES requires regulated utilities to file an Implementation Plan each year for review and approval by the Arizona Corporation Commission ("ACC" or "Commission").¹⁴ The Plan must describe the procurement of renewable energy resources for the next five calendar years that will meet the requirements of the RES.¹⁵ This description must identify the considered technologies, the expected schedule for the resource incorporation on a year-by-year basis, and a description of the kilowatts ("kW") and kWh that are expected to be added to the APS portfolio by the incorporation of those resources.¹⁶ The RES provides that reasonable and prudent costs incurred to comply with the RES Rules are recoverable.¹⁷ Further, the RES provides that implementation of the approved Plan by the utility shall serve to measure the utility's compliance with the RES.¹⁸ With Commission approval of APS's Plan, APS anticipates exceeding compliance with the RES

⁹ A.A.C. R14-2-1804(B).

¹⁰ *Id.*

¹¹ A.A.C. R14-2-1802(B).

¹² A.A.C. R14-2-1805(B).

¹³ "Renewable Energy Credit" means the unit created to track kWh derived from an Eligible Renewable Resource of kWh equivalent of Conventional Energy Resource displaced by Distributed Renewable Resources. A.A.C. R14-2-1801(N).

¹⁴ A.A.C. R14-2-1813(A).

¹⁵ A.A.C. R14-2-1813(B).

¹⁶ *Id.*

¹⁷ *See*, A.A.C. R14-2-1808.

¹⁸ A.A.C. R14-2-1815(C).

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APS RES Implementation Plan 2010 to 2014

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renewable energy requirement in each year of the Plan period. Attached as Exhibit 1B is a summary of the APS targets, energy requirements, and program budget.

B. Renewable Generation Challenges and Risks

In developing this Plan, APS evaluated renewable resources available for procurement in the next one to two years (“the near-term”), as well as those anticipated to become available over the remainder of the five-year period covered by this Plan and beyond (“the longer-term”). Although there exists uncertainty in the specific details of many of those renewable resources, APS believes it has chosen a strategy that will meet or exceed the renewable generation and total RES energy targets, assuming all existing and planned facilities come to fruition.

APS’s implementation strategy for achieving compliance with RES targets for the years 2010-2014 are detailed in this Plan. The Plan and the resulting renewable energy goals do not come without some risk related to meeting the renewable resource targets. Inasmuch as those risks are currently definable and quantifiable, they are identified and discussed in this Plan. Those risks include issues such as: the availability, level and consistency of federal, state and local incentives; availability of renewable energy projects executed by financially and technically sound developers; adequate transmission resources to deliver new resources to APS load; renewable energy projects matching APS’s anticipated cost profiles; and the timing of new resource availability.

The timely delivery of energy from renewable resources is critical to APS’s compliance with the RES energy targets, and development of these types of projects typically requires between ~~two to~~ one to three years. Experience across the nation indicates renewable generation projects suffer from high levels of project failure, broadly summarized as the inability to meet contract energy delivery dates. These failures and delays can be attributed to a broad range of issues, but are generally due to the relatively emergent nature of renewable resource markets and the current national and global economic climate. APS’s experience, both with renewable energy projects and with conventional energy technologies, suggests that careful project screening can reduce, but not eliminate, some of the risk associated with project failures.

C. Distributed Energy Targets

The RES requires that affected utilities satisfy a percentage of the annual renewable energy requirement through the addition of DE resources. The required percentage for the current implementation period is 20% of the total requirement in 2010 and increases to 30% by 2012.¹⁹ That percentage remains at 30% of the total renewable energy requirement through 2025.

In the time since approval of APS’s first RES Implementation Plan in 2008, the Company has gained considerable experience with and understanding of the opportunities and challenges associated with deployment of DE at the scale required under the RES. Through this Plan, APS is initiating the opportunity to exceed the non-residential DE target described in the RES.

¹⁹ A.A.C. R14-2-1805(B).

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Further, APS believes it has identified a means by which to provide non-residential customers continued opportunity to receive incentives for the installation of DE systems while also benefitting from program cost reduction over the period described in this Plan. As part of APS's ongoing efforts to increase the penetration of DE to meet the RES DE targets at a lower cost than APS's current Implementation Plan, the Company issued its DE RFP in August 2008.

APS recognizes that DE is an important component of the RES requirement. Therefore, as part of this Plan, APS proposes a funding level believed necessary for compliance with the residential DE target and sufficient to exceed the non-residential target in each year of this Plan. APS continues to work toward meeting the residential DE target and has developed programs and strategies for increasing residential system installation. APS has also continued to aggressively market the residential DE programs. However, to date, residential customer participation in the program is not sufficient to meet the residential DE target. Even with availability of significant incentives, customers must still provide significant personal funding to install DE systems on their homes. Today, the typical 3 kW residential distributed PV system costs more than \$23,000 to install, attracts about \$15,000 in government and utility incentives, and requires a customer investment of about \$8,000. While residential DE programs have grown dramatically in the months since Commission approval of APS's first Implementation Plan, further increasing customer participation will prove challenging in the current economic climate. Nevertheless, APS is dedicated to increasing participation in the residential DE program and is determined to provide solutions that will work to reduce or eliminate the financial barriers associated with the up-front costs for residential customers.

During the second quarter of 2009, APS became aware that a number of reservation requests from schools were expected in the coming months and that those requests would likely not be funded, due in part to the overwhelming interest in the PBI program. At the same time, APS's residential DE program was not receiving requests for incentives at a sufficient pace to commit all funds that have been allocated for that purpose in 2009. In Decision No. 71275, the Commission granted APS authority to allocate up to \$20 million of the 2009 residential DE budget to the funding of school projects. The RECs resulting from those school installations will count towards the non-residential DE target.

APS's RES Implementation Plan forecasts the number of kW's of customer installed capacity needed to meet the residential DE RES requirement and, in turn, APS calculates the level of incentive dollars required to support that amount of capacity. Since a portion of the funds collected to fulfill the residential DE requirement was used for installations at schools, and since the RECs are applied towards the non-residential target, residential funds may need to be increased above that originally forecasted as of part the 2009 Implementation Plan filed on July 1, 2008, to achieve full residential distributed energy compliance in the future. Specifically, should customer demand for incentives increase to support reaching APS's compliance target, APS may require an increase in the RES surcharge. Additionally, a reduction in incentive amounts over time may decrease the amount needed to achieve full compliance. To date, residential customer participation in the program has not been sufficient to meet the residential

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distributed energy target. If necessary, APS will file an application with the Commission for additional funding at that time.

Assumptions used to build the DE program budget are based on incentives developed as part of Commission Staff's UCPP working group, previous year program installations and reservations under APS's Renewable Energy Incentive program ("REIP"), project sales and development time frames, variations in the levels of technology maturity, and availability of equipment for installation. The proposed DE incentive budget and the incentive budget allocation are designed to achieve the residential ~~distributed energy~~ DE target and provides for exceeding the non-residential ~~distributed energy~~ DE target for the full five years described in the Plan. If the DE program assumptions prove to be correct, the 2010 cost for this component of the Plan is estimated to be approximately \$73.0 million. This amount escalates to approximately \$117.0 million in 2012. It is expected that 2012 will be the peak cost year in this five-year planning window because that is the last year the DE requirement ramps up relative to the total RES requirement. After 2012, the increases to the requirement are based on the growth of the overall RES requirement and retail sales increases.

D. Required Program Funding

The Plan proposed by the Company is estimated to cost a total of ~~\$729.6778.9~~ million over the five-year Plan period. The budget summary can be found in Exhibit 2A. This Plan is anticipated to result in APS exceeding compliance with the overall RES requirements in each year. The cost for 2010 is estimated to be approximately ~~\$86.75.5~~ million and increases to ~~\$208.4217.9~~ million in 2014. The increase in costs is mainly driven by increasing energy targets, large solar generating projects becoming operational, and DE program expansion. In this Plan, APS is requesting an adjustor to recover only the estimated 2010 costs of approximately ~~\$80.779.5~~ million, resulting in an ~~\$7.48.3~~ million increase over the \$72.4 million currently collected on an annualized basis. The requested adjustor amount, along with the \$6 million collected in base rates, would total the ~~\$86.75.5~~ million of funding needed to meet the requirement. In each succeeding year, as part of its Implementation Plan, APS will continue to request a reset of the adjustor to collect the estimated costs for the following calendar year. Current estimates for each of those years can be seen in Exhibit 2A.

Certain exhibits contained in this Plan include pricing estimates made by APS in development of the program costs. Some of the pricing included in this Plan is from existing competitively confidential contracts. The price estimates are necessary to allow APS to provide the information sought by the Commission as part of the Implementation Plan. APS believes it is in the best interest of customers and the Company to ensure that future suppliers of renewable resources compete for the right to supply renewable energy without a pre-conceived notion of the pricing assumptions or competitively confidential pricing in this plan. Therefore, APS has submitted a redacted version of that confidential information in Exhibit 3C and 3D and will provide Staff the competitively confidential information pursuant to an executed Protective Agreement.

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This Plan makes reasonable assumptions concerning renewable energy resources, and as APS gains more experience with renewable resources, future Plans will account for the realities APS encounters in the actual implementation of the RES.

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3. APS 2010 IMPLEMENTATION PLAN

A. Energy

The RES identifies the minimum annual percentage of a utility's retail sales that must be obtained from renewable resources. The 2010 target is 2.50% of retail sales. The renewable resource targets required to meet APS's targets for each year are detailed in Exhibit 1B. The targets detailed by the RES are described in two categories, renewable generation and DE resources.

Renewable generation is represented by projects that export their energy production to the utility. These projects are typically large-scale facilities that use renewable resources such as wind, solar, geothermal, biomass, and biogas to generate electricity. Energy produced from those resources is delivered through the transmission and distribution systems and, ultimately, to the utility's customers.

DE resources are represented by technology applications that are physically installed on the customer's property. Those applications are typically specifically designed for the distributed setting. Distributed applications under the RES include a wide range of technologies; today those technologies are most frequently represented by PV and solar water heating systems. DE resources can be tied to the existing APS distribution system or can be installed as a remote application, independent of the APS distribution system.

B. Capacity

The RES targets are energy based (kWh), with no capacity (kW) requirements. However, the Plan utilizes generation capacity assumptions to forecast compliance with the energy targets. When equating energy targets to planned capacity levels, it is important to recognize that the capacity factors²⁰ for various renewable generation technologies vary significantly. Some technologies, such as geothermal and biomass, are very predictable and can produce at capacity factors near 80-90%, similar to conventional base load generation. Some renewable generation technologies, such as solar, are predictable, but have inherently low capacity factors of 15-30%, driven by the daily availability of solar radiation. Other renewable generation technologies, such as wind, are less predictable on a real-time basis. However, wind will generally produce capacity factors in the range of 25-40% annually, depending on the characteristics of the wind resource in a given location.

²⁰ Capacity factor is a value used to express the average production level of a generating unit over a given period of time. Capacity factor is expressed as a percentage of the maximum possible production if the generating unit had operated at its maximum capacity rating for all hours during the period. For example, a generating facility which operates at an average of 60% of its maximum capacity over a measured period has a capacity factor of 60% for that period.

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The balance of the technologies employed is critical and the ultimate balance of the technology portfolio will dictate the additional capacity required to achieve the energy targets. Exhibit 3B provides the level of capacity for the specific mixture of technologies assumed in this Plan for the coming five years. Targeted additions described in Exhibit 3B are not intended to be an exact representation of the resources APS intends to acquire, but merely an example of a potential resource mix based on APS's current resource strategy. The economics of a particular resource or technology will ultimately determine the extent to which any one technology is employed as part of the overall portfolio.

C. Renewable Generation

The Plan was designed with sufficient flexibility to provide the best opportunity to meet or exceed RES targets in a cost effective manner. The Plan provides descriptions of the current projects under contract, as well as the expected resource additions over the next five years. The renewable resources contemplated under this Plan are consistent with APS's short and long-term planning goals and resource acquisition plans described in the Company's RPR.²¹

i. Existing Renewable Generation

As shown in Exhibit 3B, APS is anticipating renewable generation capacity of 244 MW by the end of 2010. Of that capacity, 218 MW are from Purchased Power Agreements ("PPA") for projects currently operating or anticipated to be completed in 2010, 6 MW are from APS-owned solar facilities, and 20 MW are estimated from the APS proposed Small Generation Program discussed later in this Plan.

ii. Renewable Generation Procurement Plan and Process

The energy required to meet the APS targets and the allocation established to support anticipated demand for the Green Power rates²² in each of the next five years is outlined in Exhibit 1B. In general, two to five years is required from the initiation of an RFP to the point at which energy can flow into the APS system from a new renewable generation project. The majority of that time is required for development and construction.

APS has anticipated the need for additional energy output from renewable resources in 2010 and beyond. Accordingly, APS implemented two separate competitive procurement processes in 2008, seeking additional renewable energy including distributed resources with commercial operation dates ranging from 2010 to 2014. In 2009, APS issued its renewable small generation RFP with a commercial operation date of ~~2010~~2011. The competitive procurement processes

²¹ Docket No. E-01345A-09-0037 (January 29, 2009).

²² Current Green Power rate schedules GPS-1 and GPS-2 were approved by the Commission in Decision No. 69663. They were created to allow customers to purchase a portion of their energy usage from renewable resources. These purchases do not count toward RES targets. Revisions to GPS-1 and GPS-2 and the new Green Power rate schedule GPS-3 are ~~currently awaiting~~ were approved by the Commission approval September 17, 2009 in ~~Docket~~Decision No. E-01345A-08-0614-71276.

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will continue to consist of, but not be limited to, the issuance of RFPs, negotiated bilateral supply contracts, and other strategies for obtaining long-term renewable resources. Implementing an effective competitive procurement process will ensure a fair and unbiased procedure that will efficiently incorporate a full range of renewable resource alternatives from the marketplace. APS expects to continue engaging the market and seeking cost effective projects over the next few years.

In the evaluation of bids submitted during the competitive procurement process, analysis of proposals will include an evaluation of: energy production; capacity value; deliverability; technical characteristics; operational performance; reliability; efficiency; credit; and respondent experience. The procurement and project selection procedure employed by APS has been documented and certified by an independent auditor as required by the RES.²³

The AZ Sun program is a new component of the Company's RES Implementation Plan, in which APS will invest \$500 million of capital to develop 100 MWs of utility-owned solar generation facilities beginning in 2010 through 2014. APS anticipates the solar facilities will take the form of ground mounted solar photovoltaic ("PV") systems. The AZ Sun program, if approved, will provide diversification of APS's renewable portfolio that today consists primarily of Power Purchase Agreements ("PPAs") to include more utility-owned renewable resources. Acquisition of solar resources through the AZ Sun program is consistent with the Company's resource plan²⁴ and will play an important part in the ability of APS to meet its Renewable Energy Standard ("RES") requirements of 15% of retail sales from renewable resources by 2025.

This Plan attempts to fully acknowledge the reality that PPAs and project development methods will not necessarily conform to required delivery schedules and planned quantities. Renewable generation projects, like other generation projects, may be delayed or fail to achieve scheduled commercial operation.²⁵ APS also expects output from existing renewable projects to fluctuate from year to year. The tool used to manage these planning and output variances will be the banking of RECs. APS's initial renewable generation bank was established using RES-eligible energy procured prior to the effective dates of the RES rules, or August 14, 2007. After that date, changes to the REC bank are only expected to come from withdrawals to meet compliance or deposits from excess generation in any given year. APS uses a first-in, first-out approach to track the REC bank balance. In other words, withdrawals will be made from the oldest vintages first and will move to the next year after the oldest year has been exhausted.

iii. Identifying Renewable Generation Requirements

²³ A.A.C. R14-2-1812(B)(6) requires "A description of the procedures for choosing Eligible Renewable Energy Resources and a certification from an independent auditor that those procedures are fair and unbiased and have been appropriately applied." Certification letters were filed as part of the RES Annual Compliance Report filed in Docket No. E-01345A-95-0491, on February 29, 2008, and in Docket No. E-01345A-07-0468 on April 1, 2009.

²⁴ Filed in Docket No. E-01345A-09-0037, January 20, 2009.

²⁵ For example, the commercial operation date for the Solana CSP project is now expected to be April 2013.

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During the five years covered by this Plan, the renewable resource targets increase from 2.50% in 2010 to 4.50% in 2014. In the near-term, this Plan focuses on existing and planned renewable resource projects to meet those targets. This Plan also contemplates that new renewable generation will be contracted and developed during the five-year period covered by this Plan. APS has based its program budget and energy procurement on several assumptions, which are discussed below. Details are competitively confidential and have been redacted. Those details will be provided to Staff pursuant to an executed Confidentiality Agreement.

1. Costs of Renewable Generation

For purposes of resource and budget planning, the costs of renewable generation are based on the portion of the renewable energy cost in a Power Purchase Agreement (“PPA”) that is above the market cost of comparable conventional generation.²⁶ For existing contracts, the percentage above APS’s cost for comparable generation was established at the time the contract was signed and the percentage is applied to the total contract cost for the planning year. For targeted future contracts, the price is estimated based on existing renewable generation contracts, recent market experience, and general trends observed in renewable generation project development. These percentages for future contracts will be re-evaluated during subsequent five-year planning periods. All renewable resource costs are described in terms of dollars per MWh above APS’s comparable conventional generation. For utility owned assets, APS is proposing to collect the revenue requirement associated with these assets through the RES adjustor until such time as it can be incorporated into traditional ratemaking methods.

The detailed cost assumptions used to develop the budget for procurement of these resources are included in Exhibits 3C and 3D. Because this information is competitively confidential, it will be provided to Staff pursuant to an executed Protective Agreement. It should also be noted that the existing contracts referenced in Exhibits 3C and 3D are long-term commitments that are either already in place or nearly finalized at the date of this Plan.²⁷

iv. AZ Sun Program

The AZ Sun program is a new component of the Company’s RES Implementation Plan, in which APS will invest \$500 million of capital to develop 100 MWs of utility-owned solar generation facilities beginning in 2010 through 2014. APS anticipates the solar facilities will take the form of ground mounted solar PV systems.

If approved, the AZ Sun program will provide diversification of APS’s renewable portfolio that today consists primarily of Power Purchase Agreements (“PPAs”) to include more utility-owned renewable resources. While both the Community Power Project (see section D.vii) and the AZ Sun program are focused on utility ownership, when combined with the Company’s overall Plan, APS will solicit and consider proposals that may result in either PPAs, as the Company has done historically, or utility ownership.

²⁶ A.A.C. R14-2-1801(K) defines Market Cost of Comparable Conventional Generation.

²⁷ ~~The Company’s application for approval of the Starwood CSP PPA, filed on May 22, 2009, in Docket No. E-01345A-09-0261 is currently pending at the ACC.~~

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Through the AZ Sun program, beginning in 2010 and continuing through 2014, the Company plans to invest \$500 million of capital to develop 100 MWs of solar resources. APS expects to acquire these resources through competitive procurement processes beginning in 2010. The Company has forecasted to develop 25 MWs a year in each of 2011, 2012, 2013 and 2014. APS may accelerate development of this capacity if commercially reasonable to do so and if able to achieve desired diversification of both developer and system impact risks.

APS expects to procure primarily solar PV resources through the AZ Sun program; however, all PV technology types will be evaluated through the procurement processes, with consideration being given to cost, reliability and performance. The most beneficial technology for each individual location will be chosen.

The AZ Sun program may also include utility scale systems located on a customer's premise, thereby qualifying as a distributed energy project as discussed in the 2010 Implementation Plan.

As proposed, the AZ Sun program stipulates a capital investment of approximately \$500 million to be made beginning in 2010 through 2014 to develop 100 MW of solar generation capacity. This is based on an average solar PV capital cost of \$5.00/watt. The cost of the actual systems deployed will be based on competitive procurement processes, and will most likely vary with the size of the system, as smaller size systems tend to be greater on a per watt basis, while larger sized systems cost less due to economies of scale of the individual project. Approval of this Program will allow the Company to install these resources quickly and efficiently without additional regulatory approvals. The Company will report on the results of the AZ Sun program through its annual RES Compliance Report.

The revenue requirement that APS proposes to recover through the RES for each 25 MW increment is estimated to be \$16.1 million in the first year of operation, \$5.2 million in the last year, and \$256 million over the 30 year life of the project, based on an average capital cost of \$5.00/watt and other finance, tax and operating cost assumptions.

APS is proposing that revenue requirements for the AZ Sun program, including depreciation property taxes, income taxes, operating and maintenance expenses and a return using the then currently authorized cost of capital, would be recovered through the RES adjustor until the investment is included in base rates or other recovery mechanism. It is important to note that resources under this program are not likely to commence commercial operation until 2011. As such, the requested 2010 RES adjustor does not include any recovery for revenue requirements under the AZ Sun program. APS will include an updated budget for this program in its 2011 Implementation Plan as specific resources are identified.

v. Small Generation Pilot Program

Traditionally, a small renewable generation project developer's best opportunity to execute an agreement with APS was by bidding into an RFP. While this process works well for large

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projects, APS recognizes that this process may seem onerous for a small system developer. In the Company's 2009 RES Implementation Plan, APS received approval for a one-year Small Generation Pilot Program²⁸ for projects that produce less than 35,000 MWh per year. The program is available to all RES eligible technologies, but is limited to a total of 45,000 MWh per year. The 45,000 MWh maximum is further segregated into 10,000 MWh for solar and 35,000 MWh for all other RES eligible projects, although the exact mix of projects will depend on the response to the program.

APS began implementation of the Program in early 2009 and issued an RFP on March 25, 2009. In addition to the criteria mentioned above, APS also developed "Threshold Criteria" designed to provide local benefits similar to large scale renewable projects. To pass the initial screening, bidders were required to meet at least three of the following five criteria:

Criteria	APS Goal Criteria	Respondent Compliance Document or Information
1. Community Participation Partnerships	Community groups and residents to participate and benefit from a small renewable energy generation plant in their community.	Letter of interest from the community partner submitted with the RFP response.
2. School/Educational Partnerships	Encourage renewable energy educational opportunities for educators and students.	This could be accomplished with renewable energy curriculum, internships, physical location, or other respondent proposals. Letter of interest from the school or educational institution should be submitted with the RFP response.
3. Geographic Diversity - Defined as zip codes outside of the Metro Phoenix area.	Projects in diverse areas of APS service territory.	Include site zip code in the RFP response.
4. Job Creation	Support the creation of at least 2 renewable energy jobs.	Include number of construction and operating jobs in the RFP response.
5. Leverage Federal, State, or Local grants, contributions, or funding sources (other than Investment Tax Credit or Production Tax Credit).	Encourage participation of research or other public partners.	Letter of support or commitment from funding source.

A bidder's conference was held on April 16, 2009 to provide additional information and answer questions related to the RFP. More than one hundred people attended by phone or in person. A total of 30 bids were received on June 4, 2009, representing an array of renewable technologies including biogas, wind, and several solar technologies. APS ~~plans to develop~~ has developed a

²⁸ Decision No. 70654 (December 18, 2008).

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short-list of finalists ~~in the third quarter of 2009 and plans to complete PPAs with the successful bidders in by the fourth quarter end of 2009.~~ The RFP requires the projects to be commercially operable no later than year-end 2011.

Based on the current responses, APS believes the results of the RFP are promising, and will promote the development of small generation systems. While the selection process is not complete, initial results appear promising and APS anticipates issuing a second Small Generation RFP in 2011. APS will report additional results from the pilot in its 2009 RES Compliance Report. Initial assessment of the Small Generation Pilot suggests the approach will have a favorable impact on this market segment and should result in valuable project additions. APS believes a second Small Generation RFP may be appropriate as part of its 2011 Implementation Plan strategy.

D. Distributed Energy

APS recognizes the importance of DE resources as part of the Commission's comprehensive renewable energy objectives. Distributed resources have become an increasingly important part of APS's renewable energy strategy. APS has successfully implemented its REIP for nearly two years and overall APS has more than eight years of experience in implementing DE programs. As part of this Plan, APS seeks to implement new strategies to increase the penetration of DE within its service territory and to reduce the cost of achieving residential RES targets, and exceeding the non-residential RES targets.

As part of this Plan, APS proposes a funding level it believes necessary ~~for compliance with to meet the expected level of customer demand in the residential DE program.~~ However, APS recognizes that should the residential DE program become fully subscribed in 2010, the Company may require additional funding as a result of the \$20 million reallocation from the residential program to the funding of school projects.²⁹ A reduction in incentive amounts over time may decrease the amount needed to achieve full compliance, and specifically will depend on the point in time when customer demand exceeds the currently available incentives. APS also proposes authorization for the lifetime of the contracts and the associated annual funding level that the Company believes will be sufficient to exceed the non-residential DE targets in each year of this Plan.

Interest in APS's residential DE program has increased over the past year, even with a challenging economic climate. Continued improvements in residential program implementation, successful marketing, outreach and education efforts, and further incorporation of the REIP into APS's broad-based technology infrastructure are working to manage more customer transactions more efficiently. As part of this plan, APS developed or expanded two key components of its residential programs: 1) the continued implementation of APS's residential DE incentive program; and 2) refinement and continuation of the Solar Homes Program, which is designed to drive energy efficient and solar home construction. In Decision No. 71275, APS was ordered to

²⁹ Decision No. 71275

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create proposals to increase participation in the residential DE program. APS is accelerating the deployment of, or developing, the following initiatives as part of this plan:

- APS will launch a Qualified Contractors Program in 2010. The primary goal of this program is to increase overall customer satisfaction, improve program efficiencies, and work to ensure the consistent quality of end-use customers' installations.
- To enhance interest and awareness in residential DE by working within communities and extending the reach of APS's marketing efforts, APS will work to establish an Arizona based non-profit organization focused on driving increased participation in APS's distributed renewable energy programs.
- APS will introduce a program designed to encourage lending institutions to create programs that will help customers overcome the obstacles with up-front financing.
- To drive a deliberate call to action and to increase the momentum already present in APS's residential programs, APS will offer promotional incentives/rebates to residential customers for the installation of PV systems or SWH in addition to the up-front incentives collected through the RES.

APS views ~~thisthese~~ these programs as a valuable component components of the long-term success of a broadly successful residential program.

APS's non-residential DE program includes four components: 1) annual increases in the amount of \$100 million per year to the lifetime Performance Based Incentive ("PBI") commitment authorization with associated annual funding to allow customers the opportunity to install DE systems above and beyond what would be required for APS compliance with the RES targets; 2) the implementation of DE projects identified through the Company's 2008 DE RFP; 3) the continued support of agreements entered into through year-end 2009;³⁰ and 4) the continued funding of projects eligible as wholesale DE.

APS is also introducing a DE program for schools, municipalities and other government entities as part of its DE program expansion.³¹ APS's Plan offers these entities PBIs for the installation of all RES qualifying non-residential technologies. APS's proposed program allocates \$15 million of the \$100 million annual growth in the lifetime PBI authorization described as part of APS's distributed program expansion. This program will not require additional funding above what APS proposed in its July Filing.

³⁰ ~~APS filed for~~ The Commission authorized approval on September 3, 2009 of a \$220 million authorization in lifetime Performance Based Incentive contract commitments through 2009 in ~~Decision~~ Decision No. E-01345A-09-0263 (May 26, 2009)-71254.

³¹ Decision No. 71275 required APS to propose a DE program designed to increase the participation at schools and government buildings.

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APS also plans expansion of the DPAP designed to provide additional financial support for residential customers who would not otherwise be able to afford residential DE systems.

As part of a separate application before the Commission, APS proposed the Community Power Project - Flagstaff Pilot.³² The Community Power Project represents an important step forward as both an opportunity for technical learning related to DE system interaction with APS's electric distribution system, and an outstanding opportunity to gain further insight into consumer interest in and interactions with DE technologies. The Community Power Project is included as part of this Plan.

Planning models, implementation strategies, and budgeting for the DE programs were all designed with specific consideration for the insight from the UCPP working group. In addition, APS relied on several years of experience with the REIP and ongoing dialogue with many industry stakeholders.

i. ~~Expansion of the Non-Residential DE Program Beyond Compliance~~ Enhancement of DE Programs

The following sections describe APS programs designed to increase market penetration within the residential sector. APS continues to develop and refine these strategies based on insight gained from program execution and with stakeholder input.

1. Solar Homes Program

In review of the DE program activity to date, nearly all participants are customers who have incorporated renewable technologies on existing facilities. From an end-user perspective, the most cost effective and convenient way of incorporating energy efficiency and renewable energy technology is at the time of initial design and construction.

As a result of today's economy, the local building market is depressed when compared to the explosive growth seen in the recent past. Potential homebuyers are becoming more informed, selective, and demanding in order to stretch their limited purchasing power. Homebuilders are looking for ways to differentiate their product, not only from their competition, but from the quality home that they had previously sold.

In response to this opportunity, APS launched the APS Energy Star and Solar Homes Program in April of 2009. The goal of the program is to increase the overall number of energy efficient homes being built that include renewable technologies in the most cost-effective way for end-use customers. The program will reward homebuilders for their commitment to developing communities with renewable technologies. In exchange for this commitment (homebuilders must offer renewable technologies as a standard feature across the community), the builder will receive a supplemental incentive and non-monetary benefits such as cooperative marketing, training, and technology assistance.

³² Docket No. E-01345A-09-0227 (May 11, 2009).

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As part of this Plan, APS has included continued expansion of this effort with interested homebuilders. By 2013, based on current economic forecasts, APS anticipates that over 2,700 solar-equipped and solar-ready homes will be built as a result of this program. A recovery in the Arizona housing market could dramatically increase the number of solar homes resulting from this program. APS may offer promotional incentives in order to increase market share depending on results throughout the year.

2. Qualified Contractors Program³³

Within the last few years, Arizona has experienced significant growth in the number of contractors offering and installing renewable technologies. While this growth is a sign that the demand for renewable technologies is increasing, stakeholders and customers have concerns regarding the qualifications and expertise of these contractors.

APS recognizes this issue and is therefore launching a Qualified Contractors Program in 2010. The primary goals of this program are to increase overall customer satisfaction with the DE purchase process, improve program operating and marketing efficiencies, and to ensure a consistent high quality installation.

The first phase of the program will be designed to serve two technology segments; solar electric and solar thermal system installations. Participating contractors will be required to complete a training curriculum including technical, administrative, utility rates, customer service, and ethics courses; meet inspection/commissioning standards; maintain Better Business Bureau ratings and customer satisfaction levels; and commit to formal dispute resolution services.

Participating qualified contractors will benefit from this program by receiving accreditations, a formal referral process, cooperative marketing/advertising, streamlined administrative processes, and increased overall training of staff.

APS believes this program will play a key role in its marketing strategy to transition from creating market awareness to enabling customers to take action. Upon completion of the qualified contractors list, APS's customers will have increased clarity and direction in choosing an installer for their renewable system. While not proposed as part of this Implementation Plan, it is APS's intention to ultimately require customers to use an APS qualified contractor to be eligible for renewable energy incentives.

3. Financing Incentive for Residential Renewable Energy

APS is dedicated to finding solutions that will help reduce or eliminate the financial barriers associated with the up-front costs of installing residential DE systems. It is apparent that innovative financing is becoming more readily available as renewable programs mature across the country. In 2008, APS partnered with the non-profit Electric & Gas Industries Association

³³ The Qualified Contractors Program will also impact and benefit non-residential installations.

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(“EGIA”) to provide financing options for customers to install residential DE systems. The program was positively received by APS’s customers; however, GE Money, the funding source of the GEOSmart program, discontinued their unsecured installment loan (APS’s program) due to economic conditions in October 2008. APS is actively pursuing other mechanisms to offer residential customers additional financing options. The Company is collaborating with banks and other lending institutions to create options that will help customers overcome the obstacle of up-front installation costs. APS believes that, like home builders within the Solar Homes program, incentive mechanisms designed to encourage lending institutions to make funds available and create programs for DE installations will have a broad and long lasting effect.

Once fully developed, this program will be available to all lending institutions. As in its other cooperative marketing efforts, APS believes this approach will vest additional entities in the promotion of distributed renewable energy that will extend the reach of APS’s own marketing and outreach efforts. This effort will also raise awareness of the availability of DE financing options.

4. Promotional Incentives/Rebates

APS is preparing a marketing initiative with a specific call to action. The initiative will offer promotional incentives to residential customers for the installation of PV systems or SWH in addition to the already available up-front incentives (“UFI”). APS anticipates that by temporarily adding limited additional incentives, the Company can create momentum that will carry through the end of 2010 and beyond. APS believes that the promotional incentives will not only affect purchase decisions, but will also serve to increase understanding of APS’s standard incentive offerings.

To preserve the effectiveness of the promotion and minimize adverse market behavior, the details of the promotional incentives and their specific timing are not included in this plan.

ii Expansion of the DE Program Beyond Compliance

The combination of the success of APS’s non-residential DE program in 2009 and the success of the DE RFP have resulted in commitments for non-residential DE resources to comply with the RES target for each year of this Plan. APS recognizes our customers’ interest in continuing to install increasing amounts of DE technologies. APS also recognizes the Commission’s continued support for developing renewable energy strategies that exceed the targets established in the RES. Therefore, as part of this Plan, APS proposes an expansion of the non-residential DE program that will result in energy beyond that required for near-term compliance. In addition, the expansion is designed to continue development of customer-sited DE projects.

The expanded program includes two fundamental pieces: 1) annual increases to the lifetime PBI authorization to continue to facilitate large, medium, and largeschools and governmental customer installations; and 2) an annual budget for non-residential Up Front Incentives (“UFI”) to continue to facilitate smaller or generally lower cost customer installations. The increased

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lifetime PBI commitment authorization is accompanied by a forecast of the annual funding requirement necessary to meet incentive payments resulting from the energy produced in each budget year. The annual funding required for ~~Distributed Energy DE~~ Incentives are included in Exhibit 4A. In addition, the detailed interaction between annual funding and the lifetime PBI commitment authorization is included in Exhibit 4C.

With specific experience from APS's REIP and based upon dialogue with customers and other stakeholders,³⁴ the expanded non-residential program will allocate the annual \$100 million increase in the lifetime PBI to ~~two~~ three areas: ~~\$8065~~ million for large projects, and \$20 million for medium projects, and \$15 million for schools and governmental program as defined below.

Large Project: any electricity producing project whose inverter(s) or generator(s) is rated greater than 100 kWac or any project whose lifetime incentive commitment is greater than \$2.5 million. Incentives will be capped for electric producing systems at a capacity size of 2,000 kWac per interconnection point; actual system size is not limited under this program although all other interconnection and program requirements remain applicable.

Medium Project: any electricity producing project whose inverter(s) or generator(s) is rated 100 kWac³⁵ or less, or any project whose lifetime incentive commitment is less than \$2.5 million, and does not qualify for an up-front incentive.

~~Projects eligible as Medium will participate in the non-residential program as presently described under Section 6 of APS DEAP. Projects Schools and Governmental Program: designed to assist publicly funded (K-12) schools and state/local governmental facilities. Projects are open to all RES qualifying technologies, however, are limited to 300 kWac per interconnected meter for generating technologies or Lifetime Project Commitment of \$1.5 million, per interconnected meter for other qualifying technologies. Projects that qualify as a Small Project do not qualify under this program. Projects larger than the above mentioned limits will be required to participate in the standard program as a Large Project.~~

~~All eligible as Large projects will also be required to conform to the provisions of the APS DEAP. A limited number of modifications have been made to accommodate to the goal of increasing competition among Large and Medium projects' incentive funding and thereby reducing incentive costs. Generally, nomination and selection of Large projects will be limited to two times per year and the available lifetime cap will be equally divided between both periods.~~

³⁴ On June 2, 2009, APS held a 2010 Renewable Energy Standard Implementation Plan stakeholder meeting focused on the ~~status~~ status of the non-residential DE program. APS informed stakeholders that participation in the non-residential program had exceeded expectations, which presented challenges for the Company in the acceptance of PBI reservation under the existing Commission approved lifetime PBI commitment authorization of \$77 million. Options to reduce costs without diluting the amount of distributed renewable energy generated were discussed with stakeholders. APS is using stakeholder input to further refine its DE program.

³⁵ Solar nameplate capacity is commonly designated in dc (direct current), while utility operations and services are provided in ac (alternating current).

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A description of the DEAP and a summary of included enhancements are provided in Section 3.D(vi).

ii-i Distributed Energy RFP

On August 14, 2008, APS issued an RFP for DE Resources ("DE RFP"). Through the DE RFP, APS sought to increase the quantity of DE resources to assist in compliance with the RES Rules and to lower costs of DE resources relative to that forecast through continued implementation of the current incentive programs. To facilitate this goal, APS considered offers that phase-in over several years and introduce alternative and potentially cost-saving methods for providing customers choices related to DE. Bids submitted under the DE RFP were due on October 17, 2008.³⁶

APS received submittals from 12 separate entities, representing 22 distinct proposals. The proposals submitted were principally focused on PV installations for non-residential customers. After performing the initial screening process to determine bid conformance, APS was presented with 12 projects for consideration that aggregated to more than 400 MWdc³⁷ and 400,000 MWh/yr of DE projects. From these projects, the Company reviewed the details of each proposal and the economics relative to the REIP. All proposals that represented a reduced cost compared to funding the same projects through the REIP were short-listed for further discussions. These short-listed projects were subjected to a more thorough economic evaluation. APS selected only a portion of the proposed projects, first in an effort to gain additional and specific experience with these types of DE transactions and second in an effort to preserve opportunities for customer projects under other DE programs. In addition, APS began a direct dialogue with the customers identified by the bidders to determine the extent of their interest in installed DE systems as described in bids submitted to the DE RFP.³⁸ APS has entered into contract negotiations with several counterparties that will provide over 130,000 MWh/yr of DE projects (when fully deployed) at a significantly reduced cost when compared to the REIP. This total quantity represents a little more than one-quarter of APS's 2014 DE requirement. Two new DE transaction types -were proposed among the bids under negotiation. APS believes that each DE transaction type results in customer-sited projects that are qualified to meet the RES DE targets. Those transaction types are described below.

1. Customer Aggregation Model

This model would produce a negotiated arrangement between APS and a third-party developer for a specified amount of DE. The developer will have the ability to phase in projects over several years and will have the ability to determine the optimal mix of customer installations and technologies needed to meet their fixed REC price to APS in accordance with the contract. This contract type leverages a third party's expertise in partnership development and site selection to

³⁶ APS engaged Merrimack Energy Group, Inc., to act as Independent Auditor for this RFP.

³⁷ Solar nameplate capacity is commonly designated in dc (direct current), while utility operations and services are provided in ac (alternating current).

³⁸ The vast majority of conforming bids were submitted by project developers who identified either specific customer sites or potential market segments.

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derive DE outcomes at a predetermined price. Benefits to the APS program include: dramatically reduced REC costs; contractual controls over system and installation performance; and increased implementation efficiency.

2. REC and Energy Contract Model

In the REC and Energy Contract Model, APS and the DE developer enter into an agreement to meet the specific needs of large customers. Under this model, the developer would site the PV system at a customer's facility. APS would purchase all of the energy and the associated RECs generated by the system, then APS and the customer would enter into a separate agreement for the customer to purchase all of the energy from the DE system. Those contractual rate agreements will require separate approval from the ACC. This model provides a more economic way to integrate solar power for very large energy users. APS believes that this model, while different from the standard approach where APS purchases only the RECs, qualifies in contributing to the DE target under the RES.

In aggregate, when compared to the current cost of the non-residential DE program, the results of the DE RFP are projected to reduce program costs for RECs by approximately 50 percent.

iv. *Distributed Public Assistance Program*

As part of its 2009 Implementation Plan, APS began working to deploy DPAP funds in support of DE installations for limited income customers. APS proposes an increase in the budget by \$200,000 resulting in an overall proposed budget of \$500,000 to continue the development of the DPAP to meet the unique needs of our limited income, school, non-profit, and governmental customers. Because these customers may have limited financial means and relatively low or non-existent taxable income to be offset by tax credits, the standard REIP is not likely to meet the needs of these customers. Where available, APS will use other customer and non-customer funds to leverage overall program results and reach additional customer segments.

There are a number of concepts APS intends to expand upon, to help increase the utilization of DE with feedback from stakeholders, community leaders, and organizations including:

- Larger incentives. Because many of these customers have little or no tax liability, a standard incentive leaves them paying a larger portion of the total cost to install renewable systems than someone who could take advantage of tax credits. Larger than standard incentives and increased incentive authorizations may be an appropriate way to level the playing field.
- Contributions. In limited instances, APS may provide for the complete installation of systems including PV, solar water heating, and daylighting.
- Administrative and technical requirements. To address the unique and lengthy approval processes most schools and governmental agencies use, APS may be able to extend the reservation timelines to meet the needs of those groups. APS will also determine if there are contracting terms and conditions that could be modified to assist all limited income, school, non-profit, and governmental customers.

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v. *Anticipated Distributed Energy Program Outcomes*

In developing the anticipated program outcomes, a number of assumptions about technologies and customer preferences were required. The assumptions included the anticipated number of projects by technology and the anticipated energy contribution from each DE project. Anticipated energy contribution was described by assumptions about average project size and average project production. The detailed assumptions were required for purposes of budget and planning; they are not intended to reflect allocations, funding authorization, or preference for any one technology. The assumptions are detailed in Exhibit 5A.

Incentives were drawn from the draft UCPP working group efforts and are included in the APS DEAP. The DEAP, generally described below, details different incentive types for use in the DE program. For planning purposes, assumptions about customer preference for the variety of incentive alternative were required.

APS's proposed DE budget and anticipated resulting energy are described in Exhibits 4A and 4B. The lifetime authorization for commitments under the non-residential program is described in Exhibit 4C. The actual results of program implementation are likely to differ from those anticipated by APS's planning efforts as customers learn more about the variety of technologies and applications available as a result of APS's program marketing, advertising, and partnership development efforts.

Planning assumptions for the residential DE program are described in Exhibit 5A. Projections for the resulting installations under the residential DE program are described in Exhibit 5C.

vi. *Key Tenets of the Proposed Distributed Energy Administration Plan*

APS's DE program is detailed in the DEAP. While the DEAP is substantially the same as the version approved in Decision No. 70654, there have been some ~~minor~~ enhancements designed to improve clarity and customer service. In addition, the DEAP has been updated to reflect APS's approach for the implementation of a non-residential program that exceeds RES compliance targets. Those enhancements are discussed in a following section. Below are several key tenets of APS's program as described in the proposed DEAP:

1. Administration

Project funding is not guaranteed until the customer receives a reservation confirmation from APS for each project. To receive a reservation and an incentive, applicants must follow the established reservation, installation, and inspection procedures.

2. Equipment and Installation Requirements

Systems will be required to adhere to generally accepted industry standards, federal, state and local codes, all applicable regulatory requirements, and manufacturer recommendations for installation and operation. Systems must be installed by an Arizona-licensed contractor with an

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active certification for the technology being installed, and must conform to APS interconnection requirements, if applicable.

3. Incentives

In the development of APS's distributed incentives, APS used the approach developed by the UCPP working group. Incentives are designed to defray some of the costs of a system designed to offset a typical load of a customer. Systems qualifying for DE incentives cannot qualify for other utility incentives.

Residential – Customers for residential incentives can apply for a one-time payment based on the DE system's capacity or based on the first year estimated savings provided by the DE system, dependent on the technology application. This type of incentive is referred to as an Up-Front Incentive ("UFI").

Non-Residential – Non-residential customers will either receive a UFI or a PBI, an incentive based on system production, which is paid over time. Projects receiving PBI are paid based on system energy output rather than on system capacity. Projects with a total incentive value of \$75,000 or less (calculated as the present value of the total of incentive payments) will receive a one-time capacity based incentive; all others will receive incentives based on production.

For installations receiving a UFI, the incentive amount is predetermined by the capacity or energy savings of the system. Customers who request a PBI for a DE system have the latitude to propose an incentive appropriate for their project; the PBI incentive matrix describes the maximum available incentive level. The non-residential program expansion described in this Plan is designed to better leverage that flexibility in hopes of driving down project incentive levels.

4. Market-Driven Projects

Projects that fall outside of the standard administrative, equipment, or incentive requirements for DEAP projects or projects that are solicited by APS to achieve specific program goals may be eligible for incentives as market-driven projects. These projects must be comparable to conforming projects in financial efficiency to be considered for incentives.

5. Customer Self-Direct

As set forth in APS's approved Adjustment Schedule SDR,³⁹ eligible customers are required to declare the amount of the self-directed funding requested by March 31st each year. These projects must be comparable to conforming projects in financial efficiency to be considered for incentives. The amount of funds allocated to customer self-directed projects will be disclosed in this Plan for the next program year. As noted in Exhibit 2A to this Plan, APS has not received any requests for self-direction to date.

³⁹ Adjustment Schedule SDR, Self-Directed Renewable Resources, was approved by the Commission in Decision No. 70313.

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6. DEAP Enhancements

After beginning the process of implementing the DE incentive program that was approved by the Commission in Decision No. 70654 (December 18, 2008), APS discovered a number of minor issues that require a modification to the DEAP. These modifications are designed to improve customer service and eliminate any issues that might limit customer participation or satisfaction. In addition, modifications have been made to accommodate APS's proposed non-residential program expansion.

- APS simplified the methodology for calculating the UFI for small wind generators. The change eliminates the compounding effect of applying inverter efficiency more than once in the calculation. By making this change, the calculation more accurately reflects the true output of the system.
- APS has seen increased customer interest in geothermal applications. APS included equipment qualifications and installation guidelines to better assist interested parties in the proper design and installation of geothermal heating and cooling systems. By using equipment standards consistent with the federal tax credit requirements, along with an incentive based on annual energy savings, the program more accurately reflects industry standards in the design, and installation of systems, as well as ensuring that customers receive system appropriate incentives.
- In expanding the Non-Residential DE Program, APS described projects in ~~three~~four different categories: Large Projects, Medium Projects, ~~and~~ Small, and School and Governmental Projects. Large Projects will be eligible for PBI, with semi-annual nomination periods. Medium Projects will be eligible for PBI, with six, bi-monthly nomination periods. Small Projects will be eligible for UFI, and School and Governmental Projects will be eligible for a PBI on a first-come, first reserved basis.
- Increased requests for non-residential incentives have placed demands on incentive funds in excess of total availability. The need to qualify and contractually bind applicants in a timely manner has become critical, such that, timely execution of a Credit Purchase Agreement ("CPA") has become important to the effective administration of incentive funds and the PBI authorization. To improve equitability of incentive fund implementation, APS has reduced the time allowed for a customer to execute a CPA from 60 days to 30 days before the reserved funds are released from notification of funding. APS will also require an executed contract between the customer and the developer to be submitted within 30 days of notification of funding to retain the funding reservation.

vii. *Community Power Project – Flagstaff Pilot*

The Community Power Project - Flagstaff Pilot ("Community Power Project")⁴⁰ will provide renewable energy from APS-owned DE systems to customers in a limited geographical area located in Flagstaff, Arizona. This pilot program will help APS gain valuable experience regarding the impact of DE systems on the distribution grid, and has the potential to increase DE

⁴⁰ Filed for Commission approval in Docket No. E-01345A-09-0227 (May 11, 2009).

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deployment in APS's service territory. As such, the Community Power Project will help facilitate the Company's compliance with the distributed renewable energy requirements of the RES Rules. As part of the Community Power Project, APS proposes placing distributed renewable energy resources, including PV arrays, solar water heaters, and small-scale wind turbines, on approximately 250 homes and businesses in a limited distribution area. The Community Power Project will provide customers with a convenient solar opportunity: the benefits of a DE system, without the economic obligations of capital investments, or the cost and inconvenience of operating and maintaining the system.

As part of the Community Power Project, APS will also study significant information regarding distributed renewable energy systems. By utilizing smart grid technologies also being installed by APS in the area, the Company will study the impact of renewable energy systems on the distribution feeder, the energy and capacity impact of distributed PV deployments, the impacts of system availability, and the impact of environmental factors (such as weather) on the aggregated PV systems and the connected energy delivery system. Additionally, APS believes the Community Power Project will provide a better understanding of the reliability of renewable energy systems, as well as the life cycle costs for both residential and commercial applications. The information obtained from the Community Power Project should enable APS to deploy distributed renewable energy more effectively in the future.

If the Community Power Project is approved, deployment, carrying, and ongoing costs for the project through 2012 will be paid using funds that rolled over from the 2008 RES budget, as illustrated in Exhibit 2B.

viii. Distributed Energy Incentive Budgets

The proposed DE incentive budget for the five-year planning window is described in Exhibit 4A. The incentive budget is designed to result in sufficient residential DE installations to achieve the RES target.⁴¹ The incentive budget for the non-residential program is sufficient to exceed the RES target. Annual changes in program budget are designed to accommodate an increase in the DE energy target, both as an increasing fraction of the total RES requirement and as the requirement itself increases. The incentive matrices incorporated as part of the DEAP describe incentive reductions every two years of the program. Those planned reductions were designed by the UCPP working group in an attempt to reflect the anticipation that DE technologies will decline in cost as market penetration and product availability increase. In 2010, the allocation for residential DE incentives is \$44.1 million.

The incentive budget for the non-residential DE program is expected to result in sufficient DE installations to exceed the RES targets in each year of this Plan. The budget can generally be divided into three areas 1) funds necessary to meet PBI obligation entered into through year-end 2009,⁴² 2) funds necessary to meet contract obligations for contracts entered into as part of the

⁴¹ A.A.C. R14-2-1805(D).

⁴² APS filed for approval of authorizations for lifetime PBI contract commitments through 2009 in Docket No. E-01345A-09-09-0263 (May 26, 2009).

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DE RFP, and 3) funds for expanding the non-residential program beyond that required strictly for near-term compliance. In sum, these commitments to customers' incentives are \$18.2 million in 2010.

1. Performance-Based Incentives - Lifetime Contract Commitment Authorization

In Commission Decision No. 70654, the Commission approved APS's 2009 RES Implementation Plan.⁴³ In that Decision, the Commission approved recovery of the cost of incentive payments to meet APS's contractual obligation for PBI paid to customers for non-residential distributed renewable energy projects up to \$77 million over the lifetime of the contracts. During 2009, APS experienced an unexpectedly large number of reservations for distributed projects under the program. As a result of the surge in customer requests for PBI reservations, ~~the \$77 million authorization for PBI lifetime commitments was insufficient for APS to support the number and type of distributed energy projects that customers have requested under APS 2009 RES Implementation Plan. APS filed an application with the Commission, which is currently pending, and received approval to increase the lifetime authorization on lifetime for PBI payments from \$77 million commitments to \$220 million to accommodate outstanding reservation request and expected customer interest through 2009.~~⁴⁴ APS requested expedited approval, to ensure that customer projects could move forward through 2009.⁴⁵

As part of this Plan, APS has developed its expansion of the non-residential DE program around an annually increasing lifetime PBI authorization. Specifically, in each year of the Plan, APS proposes increasing the lifetime PBI authorization by \$100 million. APS anticipates that the increased funding under the lifetime PBI commitment will result in a growing number of increasingly cost-effective customer DE installations.

APS's proposed schools and governmental program will be a separate allocation within the requested annually increasing lifetime PBI authorization of \$100 million. The schools and governmental program does not increase the lifetime authorization above that originally proposed as part of the July Filing.

APS views projects resulting from the DE RFP as substantially the same as commitments under the PBI program. As a result, the Company has included those commitments in its calculation of lifetime PBI authorization. In 2010, the lifetime PBI authorization necessary to implement those projects and program described by this Plan is \$570 million, with \$250 million required for the DE RFP. Details of the requested PBI commitment authorization for all of the years described in this Plan are included in Exhibit 4C.

2. Customer Self-directed Funding

The DEAP describes potential funding for customer self-directed projects. As part of the DEAP, a budgetary earmark is required to fund projects meeting the criteria of customer self-directed

⁴³ Docket No. E-01345A-08-0331 (December 18, 2008).

⁴⁴ ~~Docket No. E-01345A-09-0263 (May 26, 2009).~~

⁴⁵ See Decision No. 71254

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projects. As of the March 31, 2009 deadline, APS had not received any requests for self-direction; therefore, no allocation was established.

3. Budgeting Assumptions and Flexibility

As previously described in this Plan, the annual funding level for DE incentives was established based on the estimates of the energy needed for compliance, anticipated consumer demand, project sales and development time frames, variations in the levels of technology maturity, and availability of equipment for installation. In the event that funds collected for use in the DE incentive program are not fully subscribed in a program year, those funds will be applied to the next program year. To continue to adapt to customer demand and market changes, APS will continue to implement the incentive budget flexibility granted in Decision No. 70313. In that Decision, APS was granted the ability to reallocate up to 20 percent of the incentive budget to match customer demand.

Decision No. 71275 directed APS to review its residential offerings and propose programs in its 2010 Implementation Plan with a focus on increasing participation in residential DE programs. Decision No. 71275 also granted APS authority to allocate up to \$20 million of its 2009 residential DE budget to the funding of school projects, with RECs counting towards non-residential DE targets. To reach full residential DE compliance in the future, additional funding may be required. If necessary, APS will file an application with the Commission for additional funding at that time. This amended Implementation Plan does not propose an increase the incentive budget from that originally proposed in the July Filing.

ix. *Marketing, Advertising and Partnership Development*

APS's marketing effort for 2010 will build on the marketing activities of 2009 to continue advancing the primary goals including:

1. Creating an increased awareness of the APS Renewable Energy programs available to customers;
2. Promoting and developing educational curriculum and consumer education pieces about DE through specific written materials, events, and APS's website;
3. Increasing the understanding and participation among vendors and other stakeholders;
4. Deliver messages that will motivate APS customers to adopt renewable energy technologies;
5. Positioning the APS REIP as a beneficial choice customers can make to address the growing energy needs and environmental concerns that face Arizona;
6. Increase awareness and create a call to action to the residential customers regarding APS's distributed generation program.

The key objectives of the marketing plan are 1) to motivate APS customers to become more aware of, and build a comfort level with, distributed renewable energy technology; 2) to help

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customers recognize the ability DE has to meet their individual energy goals as well as those of Arizona; and 3) to help move them to action through taking advantage of available renewable energy incentives. To accomplish these objectives, the marketing plan ~~will incorporate~~ incorporates a combination of compelling messages, critical program partners, community outreach, and an effective and convincing use of media, both placed and earned.

The marketing plan ~~will include~~ includes a variety of important strategies and tactics to accomplish the program goals ~~including the following:~~

- Identify, evaluate and refine messages to address adoption barriers for residential customers, builders, and commercial customers.
- Continue a media relations plan that includes mass media to raise visibility of renewable DE alternatives and motivate APS customers to move along the path of adopting those technologies.
- Continue to use and refine direct marketing to motivate APS customers.
- Continue to cultivate contractor alliances via co-op advertising programs.
- Continue to educate customers about DE through events, seminars, workshops, and the APS website.
- Continue to create strategic alliances to increase exposure of APS DE messages to various targeted audiences.
- Optimize the APS website as an information resource for customers, installers and other stakeholders. Leverage ongoing opportunities to enhance the website based on customer and stakeholder feedback.
- Leverage online advertising and communications. Look for opportunities to incorporate social media tactics into the marketing mix.
- Create sales tools and marketing materials to support both residential and non-residential customer acquisition (e.g. as installers and home builders).
- Launch a Qualified Contractors Program in 2010. The primary goal of this program is to increase overall customer satisfaction, improve program efficiencies, and work to ensure the consistent quality of end-use customers' installations.
- Enhance interest and awareness in residential DE by working within communities and extending the reach of APS's marketing efforts. APS will work to establish an Arizona based non-profit organization focused on driving increased participation in APS's DE programs.
- Introduce a program designed to encourage lending institutions to create programs that will help customers overcome obstacles with up-front financing.
- Drive a deliberate call to action to increase the momentum already present in APS's residential programs by offering a promotional incentive/rebate to residential customers for the installation of PV systems or SWH in addition to the up-front incentives collected through the RES.
- Promote APS's Schools and Governmental Program.

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Modifications to our communication strategies will be made to address changing market conditions and key learnings throughout the marketing process.

Each year of experience informs our market preparation for the coming year. APS will continue to review available data for customer program marketing budgets among other states and utilities, and consider the level of anticipated effort to create consumer demand based on the breadth of available technologies and the proposed DE incentive budget. The proposed annual budget for 2010 to 2014 is detailed in Exhibit 2A.

E. Implementation and Administration

In developing both a strategy and a budget for implementation of the RES, a logical separation was created between those elements required to support renewable generation and those elements required to support DE. Renewable generation involves expertise in utility scale renewable generation technologies, competitive procurement and evaluation processes, project siting, utility integration, and transmission and distribution related issues. The DE program is a mass market program that involves thousands of individual interactions requiring customer communication, interconnections, inspections, customer billing, and a sophisticated system to monitor REC production. Of course, certain resources are used to support both portions of the RES and they are characterized as such in the descriptions that follow.

i. Resources Required for the Renewable Generation Program

The renewable generation program requires subject-matter experts to identify those aspects of renewable generation procurement, engineering, and market analysis that are unique from those same areas in conventional energy operation, and to coordinate with the impacted operational areas of APS to seamlessly integrate renewable resource management into APS's standard business practices. The knowledge-area experts comprising the renewable generation administrative team include the personnel necessary to manage the program. Program management includes establishing policies and procedures, procuring renewable generation, handling contract administration and construction management, managing benchmarking and resource integration studies, and performing program monitoring and compliance reporting.

There are many APS personnel who support the program but are not part of the administrative team. Those employees are not included in the program costs; they are considered "non-incremental" because they are necessary to support the general operations of the Company and have responsibilities that are not directly related to the renewable generation program. This includes, but is not limited to, regulation and pricing, accounting, legal, contract administration, contract settlement, transmission planning, power and gas marketing, and resource planning.

ii. Resources Required for the Distributed Energy DE Program

The implementation strategy for the DE program was developed with the following targets:

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- Developing an accurate, efficient, and customer friendly process.
- Integrating the program processes into the general business operations.
- Creating a scalable process that responds to adjustments in the volume of program participation.
- Supporting the strategic marketing efforts of the program.

Accomplishing these objectives requires a considerable investment in program implementation. The DE program requires a substantial number of individual transactions and each transaction impacts numerous parts of APS's business infrastructure. As such, implementation costs for the DE programs are significant. Incorporation of projects from the DE RFP may provide opportunities to reduce the number of individual transactions APS is required to manage and the DE RFP can work to leverage APS's strengths in management of complex contract negotiations and contract management.

1. Program Resources

The implementation team is comprised of the personnel necessary to execute the DE incentive program. This includes the fixed payroll personnel who are required to administer the reservation and interconnection applications and agreements, review system design for conformance with DEAP and interconnection requirements, process incentive payments, answer customer and installer questions about the program, and perform field inspections. Also included are the variable payroll personnel required to tag utility equipment to identify potential backfeed sources, and provide billing support to partial-requirements customers, as well as the personnel required to manage the execution of the program, develop and execute the marketing and advertising programs, and provide ongoing program monitoring and compliance reporting. The number of implementation team members required is directly related to the number of program participants.

There are also resources supporting the program that are neither part of the administrative nor the implementation teams. These personnel are considered "non-incremental" and are required to support the general operations of the utility and have responsibilities that are not directly related to the distributed program. This includes, but is not limited to, regulation and pricing, accounting, legal, contract administration, and meter reading.

2. Material Costs

Measuring the actual number of kWh returned to the grid by DE resources requires the use of a bi-directional meter rather than a standard utility meter. The incremental cost charged to the RES is the difference in cost between the bi-directional meter and the standard utility meter.

For compliance verification and program evaluation purposes, the DEAP proposes to capture monthly meter reads for DE systems generating electricity. APS believes that customers will also be interested in the ability to track total kWh generated by their system. To facilitate both the meter read capture requirement and to help customers track the kWh production by the DE system, APS may install and read the system meter for participants in the program. The only

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costs charged to the RES are those costs associated with providing the second meter to record system production.

There are also incidental material costs associated with the program, including, but not limited to, system locks, tags, inspection tools, and transportation for inspection personnel.

APS may also install an interval recording meter on a sampling of sites. That data will be used to conduct studies on the coincidence of solar output vs. APS system load. The only material cost charged to the Program will be the incremental costs of the interval recording meter.

3. Technological Improvements Required

APS continues to review the existing process flows in order to ensure the effective and efficient use of resources required to cost-effectively implement the DE incentive program. These processes require integration with existing systems, including customer billing, APS's website, program and operations databases, accounting systems, and dispatch and scheduling tools. APS's 2009 RES Implementation Plan advanced several such projects that will facilitate additional efforts to further integrate RES programs and expand opportunities to offer streamlined interfaces for customers and stakeholders.

APS also continues the development of cost effective user-friendly tools for customers to determine the opportunity and benefits presented by solar systems. Based on the Company's experience to-date, a customer who is considering investing in a renewable energy system for a home or business wants to know the financial benefits of such an investment, including both potential systems costs and impacts on monthly bills.

To address that threshold question, APS has contracted for the development of a Solar Calculator, an electronic tool for customers to utilize. The tool will help customers learn about typical systems installed on different home sizes. The Solar Calculator will compare the customer's individual usage, based on their actual APS bills, and provide analyses regarding benefits for the individual customer. APS believes that availability of this type of information will be a fundamental component in a customer's decision-making regarding solar resources. The development of the Solar Calculator is in its initial stages and is expected to operational in 2010.

In addition, APS continues work in the following areas:

- Database Integration: APS implemented IS projects that combine a number of individual databases into one centralized system. The consolidation helps ensure data accuracy, security, and consistency, as well as increasing overall processing and reporting efficiencies. This consolidation is designed to facilitate program customer support throughout APS's operation, including options for reservation status reporting (see below) and DE system reporting integration with customer billing.
- Interactive Web-based Project Tracking Application: Database integration will facilitate web-based project tracking milestones for both contractors and customers

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APS RES Implementation Plan 2010 to 2014

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and automated correspondence/payment processing feature. Both of these elements will improve processing time, ensure consistency and completeness of information, and reduce reservation coordinator processing time.

- Renewable Website: APS is launching its newly redesigned Renewable website. The updated website is designed to cater to four different customer sectors: residential, businesses, contractors, and builders. The site will include an increased use of video, customer testimonials, and sector-specific information with the aim of providing information necessary to drive customer participation in renewable energy programs.

APS will continue to make incremental improvements to its program. This should limit the impact to customers, while still enabling APS to continue its progress in the implementation of technology improvements.

F. Renewable Research, Development, Commercialization, & Integration

APS proposes a budget allocation for research, development, commercialization, and integration ("RDCI") of renewable resources in its Plan. The purpose of this budget allocation is to enhance and accelerate the development, deployment, commercialization, and utilization of renewable resources for the benefit of APS customers. For 2010, APS proposes to specifically allocate a minimum of \$750,000 of the total RDCI budget of \$2.0 million for research and development aimed at advancing the role of renewable energy in APS's resource mix.

APS will prioritize projects and project funding to maximize the benefit to meet RES goals for renewable resources. Activities undertaken as part of this program are supported either by APS solely, or in partnership with other organizations and entities including private industry, public research institutions, and government laboratories. Demonstration and research related to energy storage and storage applications, such as vehicle energy storage, will rely on funds collected as part of the RES in 2008, which were rolled into 2009, as shown in Exhibit 2B.

i. Research and Development

APS's commitments for Research and Development include:

- AzSMART (Arizona State University)
AzSMART is an analysis system tailored to examine the successful roll-out of a solar-energy infrastructure in Arizona and to develop the required electric grid technologies to enable such a solar infrastructure.
- Compressed Air Energy Storage and Battery Storage
Research and development, potentially including field deployment, of an electric distribution system storage demonstration project. The objective of the study will be to identify commercially viable battery storage systems and above ground compressed air energy storage technologies that could be integrated with renewable resources to shift the

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production curve of distributed resources and provide value to the energy delivery system.

- Grid to Vehicle / Vehicle to Grid Study
APS plans to continue to support a study commenced in 2009 to address the potential for “vehicle to grid” and “grid to vehicle” technologies. In part, this work will provide an assessment for the development of a demonstration project for available technologies.

ii. Commercialization & Integration

APS has completed several compelling commercialization and integration studies. Some of those studies have identified opportunities for additional investigation while others have provided direct benefit for the effective integration of renewable resources. In determining whether to fund new RDCI projects, APS will consider three key functional areas:

- Renewable technologies and available resources
This includes studies of the attributes, characteristics, and costs of renewable energy technologies and the availability and viability of renewable energy resources in the state of Arizona and the western United States. Specifically, APS believes it is valuable to explore renewable storage technologies, the forecasting of solar resources, methods for reducing water use for solar thermal generating stations and exploring geothermal resource opportunities. Research and development into new renewable technologies and improvements on existing technologies would also be included in this functional area.
- Roof-top Solar Potential Survey
To assist in the strategic deployment of distributed solar systems, APS has engaged Navigant Consulting to identify the rooftop photovoltaic potential throughout the Company’s service territory. The study inventories building types on a zip-code basis to provide the number of each type of building and identifies the typical size solar unit for each type of facility, based on a number of factors, including square footage, roof-type, and building height. This study is currently underway and should be completed by year end. APS has begun exploring potential partnerships with in both the public and private sectors, to determine the potential for a cost-effect second phase that may further customize this information in a format that allows for mapping and integration with the Solar Calculator (see 3.E.ii.3 Technology Improvements Required).
- Transmission and System Integration
These studies would be designed to provide APS with a better understanding of the operational impacts, costs of integration, and identify opportunities with renewable energy resources in the APS generation, transmission, and distribution systems. APS recognizes the critical importance of transmission in the success of the expansion of

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renewable generation. Any significant increase in renewable generation must be integrated into the long-term planning for transmission to be successful.

- High Penetrations of Distributed Resources and Impacts on the Distribution Systems
These studies would seek to develop a better understanding of the operational impacts, integration and interconnection issues, and strategic opportunities for distributed resources. Specific areas could include investigation of attributes of distributed resources including ~~distributed energy~~ DE performance, reliability, monitoring, energy and storage dispatch, weather forecasting, and smart grid interface with ~~distributed energy~~ DE. APS advances these areas with recognition of the importance of maintaining a reliable energy delivery system that includes increasing deployment of distributed resources.

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4. COSTS OF PROGRAM IMPLEMENTATION

The cost of the APS Plan is comprised of three key cost segments: renewable generation, ~~distributed energy~~ DE, and RDCI. A summary of the costs of those segments and the major components for each segment is included in Exhibit 2A. APS currently estimates the cost to comply with the RES to range between \$85.5 million in 2010 to \$208.1 million in 2014, the peak year, with a five-year total of \$729.6 million. The annual increases are driven mainly by the annually increasing energy targets. As noted in Exhibit 2A, APS would anticipate that some funds collected in 2009 may not be spent or committed and will be available in 2010. At the time of this filing, APS cannot accurately predict that amount. The Company will provide an estimate of that information by November 1, 2009, or before the date of the Open Meeting to adopt this Plan, whichever is earlier.

RES funding is intended to cover the cost of utility-scale renewable generation in excess of the cost of conventional resource alternatives, incentive payments for ~~distributed energy~~ DE resources, marketing expenses, and program implementation and administration costs. The costs for renewable generation are based on APS's most current insights into that market. The costs for DE incentives and the program budget are based on incentives developed as part of the Commission Staff's working group and APS's best estimations of market uptake for the various technologies available to consumers.

At this time, APS is requesting adjustor funding of \$79.5 million for 2010 (the current RES adjustor would generate approximately \$72.4 million on an annualized basis). The requested adjustor amount, along with the \$6 million already included in base rates, would total the \$85.5 million of funding needed to meet the requirement. APS intends to request additional funding in each successive year for the following calendar year's estimated cost. In other words, in 2010 APS will request funding for the 2011 calendar year and so on. The estimates for years 2010 to 2014, contained in Exhibit 2A, would be updated each year to determine the necessary level of funding from customers.

Redline Version
Distributed Energy
Administration Plan

ATTACHMENT EXHIBIT -B



Arizona Public Service Company

Arizona Public Service

Distributed Energy

Administration Plan

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ATTACHED EXHIBITS

- Exhibit 1 Distributed Energy Incentives
- Exhibit 2 Solar Space Heating Incentive Calculator
- Exhibit 3 Standard Project PBI Ranking Calculator
- Exhibit 4 PV Off-Angle and Shading Adjustment Table

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ARIZONA PUBLIC SERVICE CORPORATION 2009 DISTRIBUTED ENERGY ADMINISTRATION PLAN

1. OVERVIEW

APS is submitting this updated Distributed Energy Administration Plan (“DEAP” or “Plan”) for Commission approval as part of its 2010 Implementation Plan. APS has made only minor adjustments to the DEAP that was approved as part of the Company’s 2009 RES Implementation Plan.¹

The RES requires that a portion of the renewable energy requirements be obtained from distributed energy (“DE”), and that the installed resources result from residential systems and non-residential systems in equal proportions. As part of its RES Implementation Plan, APS describes the installation of DE systems as facilitated by providing customers with financial incentives for the installation of those resources through APS’s Renewable Energy Incentive Program (“REIP”).

Arizona Corporation Commission (“Commission” or “ACC”) Staff initiated the Uniform Credit Purchase Program (“UCPP”) working group in June 2006, and APS participated in all of the working group efforts. The working group made significant progress towards the development of recommendations to Commission Staff, but a final report has not yet been completed. The working group made considerable progress towards identifying program workflows, technology sensitive incentive structures and levels, and technology specific requirements and limitations. APS will use the approach and technology requirements developed by the UCPP working group for this Plan. If, in the future, the Commission adopts UCPP requirements differing from those implemented as part of this Plan, this Plan may require amendment.

The efforts of the working group also provided APS with insight on the anticipated potential contributions from technologies not previously included in APS’s DE programs. This Plan and the associated planning models, implementation strategies, and budgeting for the DE program were all designed with specific consideration of the insights provided by the UCPP working group. In addition, in developing the DEAP, APS relied on over five years experience with the Solar Partners Incentive program, ongoing dialogue with many industry stakeholders, and more recently its experience with the REIP.

This Plan details the process by which customers will obtain incentives; the requirements associated with the selection, installation, and operation of the DE system; and the measurement of DE performance for compliance reporting and program evaluation. This Plan is designed to provide uniformity and consistency in the administration of APS’s DE program.

As part of the RES, the energy generated or displaced by the DE system is applied towards the DE percentage of the utility’s renewable energy requirement.² The unit used to track kilowatt hours (“kWh”) derived from renewable resources for purposes of compliance with the RES is the

¹ Decision No. 70654 (December 12, 2008).

² A.A.C. R14-2-1805(B).

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Renewable Energy Credit (“REC”).³ One REC equals one kWh or kWh equivalent for systems that do not generate electricity.

This Plan will ensure that each customer with eligible technology will be afforded the opportunity to obtain a reservation. The processes described herein are based on technologies and systems with which APS has considerable experience; technologies, incentive configurations, and development models which are newly incorporated may require special consideration until new implementation strategies and methods can be defined.

The following DE technologies are eligible for incentives:

- Biogas Electricity Generator, Biomass Electricity Generator
- Grid-tied and Off-grid Solar Photovoltaic Generators (“PV”)
- Biomass Thermal Systems and Biogas Thermal Systems
- Non-residential Solar Pool Heating Systems
- Geothermal Space Heating and Process Heating Systems
- Geothermal Electricity Generator
- Renewable Combined Heat and Power System (“CHP”)
- Non-residential Solar Daylighting
- Solar Heating, Ventilation, and Air Conditioning (“Solar HVAC”)
- Solar Industrial Process Heating and Cooling
- Solar Space Cooling
- Solar Space Heating
- Solar Water Heater
- Grid-tied and Off-grid Wind Generators of 1 megawatt (“MW”) or less
- Fuel Cells that use only renewable fuels
- New Hydropower Generators of 10 MW or less

2. PROJECT CATEGORIES

There are three project categories described by this Plan: Standardized projects, Market-Based projects, and Customer Self-Directed projects.

2.1 Standardized Projects

Unless noted otherwise in this Plan, all information contained herein applies to the administration of standardized projects. By definition, standardized projects follow the procedures and incentives described in this Plan. Incentives available for these projects are described in Exhibit 1. APS anticipates that the vast majority of projects facilitated by this Plan will be standardized projects. The processes described for the standard projects are based on technologies and systems with which APS has considerable experience; technologies and incentive configurations which are newly incorporated may require special consideration until new implementation strategies and methods can be developed.

³ A.A.C. R14-2-1801(N) – “Renewable Energy Credit” means the unit created to track kWh derived from an Eligible Renewable Resource of kWh equivalent of Conventional Energy Resource displaced by Distributed Renewable Resources.”

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2.2 Market-Based Projects

Since considerable uncertainty exists with respect to this Plan's ability to meet all expected project variations with standardized incentive offerings, APS believes it is appropriate to fund market-based projects during each program year. That funding will be applied to projects which, for one reason or another, cannot comply with the requirements of the standardized incentive offerings. APS may also solicit market-based projects to meet specific program goals. For example, although the DEAP attempts to identify and accommodate a large range of potential DE project types, financing options, and system host alternatives, specific shortcomings were identified in the proposed approach. Those shortcomings include concerns for increasing cost effectiveness of residential incentives, facilitating installations for multi-tenant residential developments, and challenging DE developers to look at creative mechanisms by which to address the residential DE market.

Projects with staged completion dates, multi-participant or multi-system projects, projects involving more than one technology where an interrelated incentive was not developed, projects requiring new or unique agreement terms, or projects requiring timelines differing from those detailed in this Plan may be eligible for incentives as part of the DEAP. In addition, this Plan does not identify incentives for fuel cells and small hydroelectric facilities; those technologies may also be eligible for incentives as market-based projects.

Market-based projects must achieve similar financial efficiency as the standardized projects detailed in this Plan to be eligible for incentives. Incentives applied for market-based projects must meet the lower of: 1) the maximum allowable incentive for the proposed technology as described in the applicable incentive matrix attached as Exhibit 1; or 2) the average incentive of projects accepted by APS for disbursement for the proposed technology in the previous year. Some qualifying technologies will not have either of the previously described financial efficiency measures. Participants seeking to employ those technologies will work with APS to develop an appropriate incentive.

2.3 Customer Self-Directed

The Customer Self-Directed project funding option is available to eligible customers.⁴ The eligible customer must declare that it will self-direct on or before March 31 of the year prior to the year for self-direction. Customer Self-Directed funds can only be requested for prospective years, they cannot include prior year payments, and they cannot exceed the level of funding paid by the eligible customer towards the RES in the year prior to the requested allocation.

In order to be eligible for the incentives detailed in this Plan (Exhibit 1), Customer Self-Directed projects must achieve similar financial efficiency as the standardized and market-based projects discussed above. If the eligible customer wishes to apply Customer Self-Directed funds to a DE system or another application not described in the applicable Incentive Matrix, the customer must submit documentation describing the project economics and the requested incentive level. All projects proposed for Customer Self-Directed funding must meet the requirements described in the RES.⁵

⁴ A.A.C. R14-2-1801(H). -- "Eligible Customer" means an entity that pays Tariff funds of at least \$25,000 annually for any number of related accounts or services within an Affected Utility's service area."

⁵ A.A.C. R14-2-1809(B).

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Eligible customers who have facilities in the service territories of more than one affected utility can only apply for funds from APS that were collected by APS. The funds obtained from APS can only be used for projects in APS's service territory. Customer Self-Directed projects are also subject to the general requirements set forth in this Plan including installation, operation, REC exchange, and system performance reporting.

For purposes of financing DE projects, funds for Customer Self-Directed projects may be assigned to third parties. Such assignment remains the sole right of the customer.

2.4 General

Under some circumstances, such as for new residential or non-residential construction, a project may not identify the Participant at project initiation. Regardless of the project design, implementation, or timeline, a Participant must have installed a system that is ready for commissioning and, if grid-tied, have established an account to receive electrical service from APS before the incentive will be paid.

3. INCENTIVE TYPES

The DE Program offers two standard incentive options: Up-front Incentives ("UFI") and Production-Based Incentives ("PBI").

UFIs are those incentives where the Participant receives a one time payment based on the DE system's designed capacity, or a one time payment based on the first-year energy savings provided by the DE system. This type of incentive is applied to smaller non-residential installations and for all standard residential installations. PBIs allow the Participant to collect incentive payments in direct relation to the actual system production. Those payments are received by the Participant over time and are based on an agreed upon contract term.

Incentive levels for both UFIs and PBIs are detailed in three incentive matrices included in Exhibit 1. Each incentive matrix prescribes a decline from the incentive levels detailed for the preceding period of the program. Those declines were discussed in detail as part of Commission Staff's UCPP Working Group. In general, the declining incentive levels are designed to reflect several key expectations of the DE markets, which include: declining costs of DE technologies; economic efficiency resulting from increased demand on the DE technologies; and increased availability of equipment required in the development of DE systems.

4. PROGRAM REQUIREMENTS

Requirements detailed in this Plan are designed to provide clarity for program Participants and DE developers; increase the certainty of energy generation and as a result, production of the RECs for APS's compliance with the RES; and to ultimately drive cost-effectiveness for the DE requirement in the RES.

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4.1 General

This program is designed to facilitate Participant installation of DE resources to displace Conventional Energy Resource⁶ usage. REIP incentives are designed to defray a portion of the costs associated with the installation of DE resources for the program "Participant." The Participant is either the account holder for the APS billing meter at the project site or the party holding legal right to the property in APS territory where the DE system will be located. Systems must be located on the Participant's property. All systems must be in APS territory. A project developer that builds an eligible DE system that provides a portion of the system's energy output to a non-Participant must provide metering to document the energy produced by the DE system that is received specifically by the program Participant.

Funding is not guaranteed without written confirmation of a reservation from APS. The Participant must follow the reservation procedure outlined in this Plan for APS to set allocated incentive dollars for the specific DE system proposed. If a Participant is receiving electrical service from APS, the Participant must not be delinquent in payments to the Company before an incentive payment can be issued.

Specific funding allocations are used to implement the DE incentive program. Once funds have been exhausted in any one category of this program, a Participant applying for funding within that category may be placed on a waiting list.

4.1.1 Reservations for New Construction

Reservations can be made for systems that will be installed as part of new residential or non-residential construction. Prior to receipt of a program incentive, a Participant must have installed a system that is ready for commissioning and, if grid-tied, have established an account to receive electrical service from APS before the incentive will be paid.

4.2 Installation and Equipment Specifications

Systems receiving incentives under this program must be installed according to manufacturers' recommendations and generally accepted industry standards. Installation of the system must be completed by an installer meeting the requirements described in Section 5.1 "Installer Qualifications." The dealer for the system must meet the requirements described in Section 5.2 "Dealer Qualifications." Other requirements which are applicable under this Plan include, but are not limited to, the following:

- The project must comply with all applicable local, state, and federal regulations.
- Installations must meet applicable governmental statutes, codes, ordinances, and accepted engineering and installation practices.
- Systems must be permitted with and pass inspection by the Authority Having Jurisdiction (AHJ) over construction projects in the Participant's locale, or, if

⁶ A.A.C. R14-2-1801(C) – " "Conventional Energy Resource" means an energy resource that is non-renewable in nature, such as natural gas, coal, oil, and uranium, or electricity that is produced with energy resources that are not Renewable Energy Resources."

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the site is not governed by an AHJ, the Participant must provide a certification in lieu of AHJ clearance.

- If the inverter of the DE system is interconnected or in any way connected to the APS grid – a “Grid-Tied System” – the system must meet all applicable APS Interconnection Requirements.
- APS may request copies of any documents to assure compliance with government, institutional, or DE program requirements that are either explicitly or implicitly described by this Plan.

If any of the requirements described in this Plan conflict with APS approved rate schedules, or government or other institutional requirements listed above, the conflicting requirements in this Plan may not be imposed.

All major components of the DE system must be new and must not have been previously placed in service in any other location or for any other application. A DE system purchased more than 180 days before the date that APS receives the reservation request will not be considered “new” under this Plan. APS may consider exceptions to this timeframe when justified by the Participant in writing. The DE system must also comply with the technology specific criteria detailed below. When technology-specific criteria reference third party standards, the requirements of those standards are fully applicable when referenced as part of technology specific criteria.

The rapid growth in national and international renewable energy programs is resulting in greater need for the development of standardization in design, performance measurement, system integrity/longevity/maintenance, and installation techniques. New standards are likely to develop in the near future for technologies included in the DE program, and APS reserves the right to incorporate new standards into plan requirements as necessary and appropriate. The following standards or standard development bodies are referenced as part of the technology specific criteria.

- The Active Solar Heating Systems Design Manual developed by the American Society of Heating, Refrigerating, and Air Conditioning Engineers, Inc. (“ASHRAE”) in cooperation with the Solar Energy Industries Association (“SEIA”) and the ACES Research and Management Foundation (the “Design Manual”).
- Arizona state boiler regulations (A.A.C. R20-5-401 to R20-5-420).
- Select technology specific qualification requirements developed by the California Energy Commission (“CEC”).
- Solar Rating and Certification Corporation (“SRCC”). The SRCC criteria and ratings can be viewed at www.solar-rating.org.
- The Underwriters Laboratory (“UL”).

The technology standards are relied upon, in part, to develop a clear understanding of the DE system capacity or the expected energy production. Incentives offered under this program are based on system capacity and energy production. Therefore, to encourage transparency in program transaction and clarity for Participants, current and accurate technology standards are fundamental to the program’s success.

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Some technologies included as DE under the RES tend to be designed as custom applications and vary from installation to installation. In other cases, technologies are generally standardized for all installations. In these situations, installation standards have been published under the end-use application. If no technology specific standard is referenced, at a minimum, to qualify for DE incentives, an Energy Savings and Designed Output ("ES&D") report shall be provided as part of the reservation process.

The ES&D report must include either a testing certification for a substantially similar system prepared by a publicly funded laboratory, or an engineering report stamped by a registered professional engineer. The ES&D report shall provide a description of the system and major components, designed performance, system output, and a brief history of the components used in similar applications. If the system design differs from the recognized industry best practices, as described in the equipment qualifications listed in the Plan for the qualifying technology, the ES&D report must contain a certification that the system design is at least as effective as the specified requirements.

Where the equipment qualifications detailed below are required for program participation, the technology specific installation guidance is provided to program participants to convey information on installation and operation practices that are most likely to achieve the DE system's designed output. The requirements described herein are not intended as engineering recommendations, services, or technical advice. Engineering recommendations, design, and performance data will be provided to the Participant by their supplier, installer, or professional advisor. Although installation guidance is not currently mandated for a project to receive an incentive, it does reflect both industry and utility concurrence on those practices that are important for a technology to best achieve the designed output. APS reserves the right to modify equipment qualifications and/or installation guidance if APS becomes aware that such qualifications or guidance results in unsafe conditions, provides inappropriate results for our customer, or is inconsistent with program objectives.

4.2.1 Biomass/Biogas and CHP (Electric and Thermal) and Biomass/Biogas Cooling

Equipment Qualifications

- Systems must include a dedicated performance meter to allow for monitoring of the number of RECs produced.
- A complete ES&D report must be submitted. Biomass system installations involving a regulated boiler or pressure vessel are required to include in the ES&D report confirmation of conformance with all Arizona state boiler regulations; provide a qualifying boiler inspection identification number; and keep all applicable permits in good standing.

Installation Guidance

Because of the individual nature of biomass systems, care should be taken to make sure the system complies with all applicable permitting and regulatory requirements, including but not limited to, air emission standards and air permit regulations.

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4.2.2 Non-residential Solar Daylighting

Equipment Qualifications

Energy savings and designed output for the system will be verified by submitting either a testing certification for a substantially similar system prepared by a publicly funded laboratory, or by submitting an engineering reporting stamped by a registered professional engineer or accredited AEE Measurement and Verification professional. The report shall include such items as installed cost, energy savings (lighting savings only – no associated HVAC savings), lighting levels (artificial and daylighting), and control scheme methodology (lighting levels, savings, and control mechanism), as well as the inclusion the following components as part of the overall daylighting system design:

- A roof mounted skylight assembly with a dome having a minimum 70% solar transmittance.
- A reflective light well to the interior ceiling or a minimum 12” below roof deck in open bay areas.
- An interior diffusion lens.
- A minimum of one thermal break/dead air space in the system between the skylight dome and the interior diffuser.
- If artificial lighting systems remain a part of the installation, the system shall include automated lighting control(s) that are programmed to keep electric lights off during daylight hours.
- The system must provide a minimum of 70% of the light output of the artificial lighting system that would otherwise be used for all of the claimed period of energy savings, as measured in foot-candles.

Installation Guidance

All systems should be installed such that the skylight dome is substantially unshaded and have substantially unobstructed exposure to direct sunlight between the hours of 9 a.m. and 3 p.m.

4.2.3 Small Wind Generator

A small wind generator is a system with a nameplate rating of 1 (one) MW or less. The technology criteria described below are intended for small wind generators with a nameplate rating of 100kW or less. Systems larger than 100 kW will be required to submit a detailed package describing site selection, expected energy production, and an engineered system design and installation as part of an ES&D report.

Equipment Qualifications

The technology criteria described below are intended for wind generators with a nameplate rating of 100kW or less.

- Eligible small wind systems must be certified and nameplate rated by the CEC or other qualified third party selected by APS to provide certification and a nameplate rating. See www.consumerenergycenter.org/erprebate/equipment.html for a list of certified generators. For grid-tied or off-grid wind generators where an inverter is

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used, APS will use the lesser of the CEC Wind Turbine Power Output Rating or Inverter Power Rating as the basis for calculating the UFI payment.

- Grid-tied inverters used as part of the system shall be listed to Underwriters Laboratory standard UL 1741.
- The tower used in the installation must be designed by a registered professional engineer.
- The wind generator and system must include a five year warranty and an operation and maintenance plan for the full operational life of the system.

In addition to the requirements for small wind generators outlined above, systems nameplate rating larger than 100 kW will be required to submit an ES&D Report.

Installation Guidance

Location: a wind turbine hub should be at least 20 feet above any surrounding object and at least 28 feet above the ground within a 250-foot radius. Wind generators should be installed in locations with an elevation at or above the general elevation of the surrounding terrain.

Lot size: should be at minimum one-half acre. Municipalities and public facilities, such as schools and libraries, may not need to meet the minimum lot size requirements.

The installed system should be demonstrated to obtain at least a 15% annual capacity factor. The following are readily available methods for helping to demonstrate the potential for a 15% capacity factor, but other methods may be used. The installation location should have a demonstrated average annual wind speed of at least 9 MPH as measured at a height of no more than 50 feet above the ground. Average annual wind speed can be demonstrated by wind speed records from an airport, weather station or university within 20 miles of the proposed wind generator location, or by a 50 meter wind power density classification of Class 2 "Marginal" or higher on the "State of Arizona Average Annual Wind Resource" map, dated July 16, 2005 or later, as published by Sustainable Energy Solutions of Northern Arizona University. Northern Arizona University provides detailed wind resource maps as well as other resource services. For more information contact Northern Arizona University at <http://wind.nau.edu/maps/>.

4.2.4 Photovoltaic Systems

- All systems shall be installed with a horizontal tilt angle between 0 degrees and 60 degrees, and azimuth angle of +/- 110 degrees of due south. Since some installation alternates are less than ideal for energy production, some installation configurations for some systems receiving a UFI will not be eligible for the full incentive applicable to that system. APS will apply the PV off-angle and shading factor adjustment for the PV installation (Section 6.5).
- Photovoltaic modules must be covered by a manufacturer's warranty of at least 20 years.
- Inverters must be covered by a manufacturer's warranty of at least five years. The remaining operational life must be supported by a planned maintenance or equipment replacement schedule.

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Grid-Tied Systems Equipment Qualifications

- The minimum PV array size shall be 1,000 W-DC.
- All photovoltaic modules must be certified by a nationally recognized testing laboratory as meeting the requirements of UL Standard 1703.
- All other electrical components used in the installation must be UL listed.
- The inverter must be listed to Underwriters Laboratories UL 1741

Off-Grid Systems Equipment Qualifications

- The minimum, single-system PV array size shall be 200 W-DC.
- All photovoltaic modules must be certified by a nationally recognized testing laboratory as meeting the requirements of the UL Standard 1703.
- All other electrical components used in the installation must be UL listed.
- If the installation is an AC application, the inverter must be listed to Underwriters Laboratories UL 1741
- "As-built" drawings shall be submitted to APS upon completion of the project and shall include a plant location map.

4.2.5 Solar Space Cooling

Equipment Qualifications

- Submittal of a complete ES&D Report certifying:
 - The minimum cooling capacity of the system will be 120,000 BTU per hour (10 tons).
 - Solar collector panels used will have a SRCC OG-100 rating or laboratory documentation showing the panel energy output under controlled and replicable test conditions.

Installation Guidance

- The horizontal tilt angle of the collector panels should be between 20 and 60 degrees and the panel orientation should be between +/- 45 degrees of south.
- All systems should be installed such that the energy collection system is substantially unshaded and should have substantially unobstructed exposure to direct sunlight between the hours of 9 a.m. and 3 p.m.

4.2.6 Non-residential Solar Water Heating and Space Heating

Equipment Qualifications

Submittal of a complete ES&D Report that includes certification that solar collector panels used shall have a SRCC OG-100 certification or laboratory documentation showing the panel energy output under controlled and replicable test conditions.

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Installation Guidance

- The horizontal tilt angle of the collector panels should be between 20 and 60 degrees and the panel orientation should be between +/- 45 degrees of south.
- All systems should be installed such that the energy collection system is substantially unshaded and should have substantially unobstructed exposure to direct sunlight between the hours of 9 am and 3 pm.

4.2.7 Small Domestic Solar Water Heating

Equipment Qualifications

- Domestic Solar Water Heating systems must be rated by the SRCC and meet the OG-300 system standard.
- The 'high' limit shall be set at a maximum of 160 degrees Fahrenheit.
- Contractors must provide minimum of a five year equipment warranty as provided by the system manufacturer, including a minimum warranty period of two years for repair/replacement service to the Participant. The remaining operational life must be supported by a planned maintenance or equipment replacement schedule.
- Systems shall be selected and sized according to the geographic location and hot water needs of the specific application.
- Active, open-loop systems are not eligible for incentives except for active, open-loop systems that have a proven technology or design that limits scaling and internal corrosion of system piping, and includes appropriate automatic methods for freeze protection. Details disclosing conformance with this exception shall be submitted as part of the manufacturer's verification documentation.
- ICS systems shall have a minimum collector piping wall thickness of 0.058 inches. Details disclosing conformance with this requirement shall be submitted as part of the manufacturer's verification documentation.

Installation Guidance

- All systems should be installed such that the energy collection system is substantially unshaded and should have substantially unobstructed exposure to direct sunlight between the hours of 9 am and 3 pm.

4.2.8 Small Domestic Solar Space Heating

Equipment Qualifications

- The system must be supported by a five year equipment warranty including a minimum warranty period of two years for repair/replacement service to the Participant. The remaining operational life must be supported by a planned maintenance or equipment replacement schedule.
- Submittal of a report verifying that:

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- The system will be incented based on a Solar Space Heating Incentive Calculation Procedure. The input sheet and description calculation procedure is attached as Exhibit 2 (APS will make the calculation procedure publicly available upon program implementation).
- The system will utilize OG-100 certified collectors.
- The solar space heating incentive calculation does not suggest or imply that a full energy audit is required to qualify for the solar space heating incentive. The intent is that industry professionals can utilize the calculation tool to aid in facilitating sound system design.

Installation Guidance

- The system should be installed with a horizontal tilt angle between 20 degrees and 60 degrees, and azimuth angle of +/- 60 degrees of due south. It is recommended that collectors be positioned for optimum winter heating conditions at a minimum tilt angle of 45 degrees above horizontal, or as recommended by the manufacturer for the specific collector type and geographic location of installation.
- All systems should be installed such that the energy collection system is substantially unshaded and should have substantially unobstructed exposure to direct sunlight between the hours of 9 a.m. and 3 p.m.
- Heat exchange fluid in glycol systems should be tested and flushed and refilled with new fluid as necessary, every five years, or per the manufacturer's recommendations.
- It is recommended that the anode rod be checked and replaced per manufacturer's recommendations, but no less frequently than every five years.
- It is recommended that the system design include a timer, switch, or other control device on the backup element of the storage tank.
- The collectors and storage tank should be in close proximity to the backup system and house distribution system to avoid excessive pressure or temperature losses.
- It is recommended that in areas where water quality problems are reported to have reduced expected life of a solar water heater, that a water quality test is performed for each residence to screen for materials that, through interaction with the materials of the proposed system, may reduce the expected operational life of the system components. The Participant should consider contacting the manufacturer to determine if warranty or operational life will be affected.
- In areas subject to snow accumulation, sufficient clearance should be provided to allow a 12" snowfall to be shed from a solar collector without shadowing any part of the collector.
- Each system should have an operation and maintenance manual at the Participant's site, and each Participant must complete an initial start up and operation training review with the contractor at the time of system start up.

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4.2.9 Residential Solar Thermal (Heating and Domestic Hot Water)

Residential Solar Thermal is a single system design that produces both space heating and water heating for residential use. An ES&D Report must be submitted that includes certification that solar collector panels used shall have a SRCC OG-100 certification or laboratory documentation showing the panel energy output under controlled and replicable test conditions. Report details should be broken out on a month-by-month basis, and should include the following: total solar production based on installation and location, total building BTU requirements, BTU space heating requirements, domestic hot water BTU requirements, and any other hot water BTU requirements.

Equipment Qualifications

- The system will utilize OG-100 certified collectors
- The system must be supported by a five year equipment warranty including a minimum warranty period of two years for repair/replacement service to the Participant. The remaining operational life must be supported by a planned maintenance or equipment replacement schedule.

Installation Guidance

- The system should be installed with a horizontal tilt angle between 20 degrees and 60 degrees, and azimuth angle of +/- 60 degrees of due south. It is recommended that collectors be positioned for optimum winter heating conditions at a minimum tilt angle of 45 degrees above horizontal, or as recommended by the manufacturer for the specific collector type and geographic location of installation.
- All systems should be installed such that the energy collection system is substantially unshaded and should have substantially unobstructed exposure to direct sunlight between the hours of 9 a.m. and 3 p.m.
- Heat exchange fluid in glycol systems should be tested and flushed and refilled with new fluid as necessary, every five years, or per the manufacturer's recommendations.
- It is recommended that the anode rod be checked and replaced per manufacturer's recommendations, but no less frequently than every five years.
- It is recommended that the system design include a timer, switch, or other control device on the backup element of the storage tank.
- The collectors and storage tank should be in close proximity to the backup system and house distribution system to avoid excessive pressure or temperature losses.
- It is recommended that in areas where water quality problems are reported to have reduced expected life of a solar water heater, that a water quality test is performed for each residence to screen for materials that, through interaction with the materials of the proposed system, may reduce the expected operational life of the system components. The Participant should consider contacting the manufacturer to determine if warranty or operational life will be affected.

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- In areas subject to snow accumulation, sufficient clearance should be provided to allow a 12" snowfall to be shed from a solar collector without shadowing any part of the collector.
- Each system should have an operation and maintenance manual at the Participant's site, and each Participant must complete an initial start up and operation training review with the contractor at the time of system start up.

4.2.10 Non-Residential Pool Heating

Equipment Qualifications

- Submittal of a complete ES&D Report.

4.2.11 Geothermal Space/Process Heating & Cooling

Equipment Qualifications

- A complete ES&D report must be submitted by the contractor and approved by APS prior to the installation.
- Equipment must be UL approved and meet the applicable Air Conditioning and Refrigeration Institute (ARI) Performance Certifications.
- Equipment must meet the following minimum efficiency requirements:
 - Closed Loop: 14.1 EER 3.3 COP
 - Open Loop: 16.2 EER 3.6 COP

Installation Guidance

- Ground loop systems must be installed by a contractor who holds a current International Ground Source Heat Pump Association (IGSHPA) certification.
- Wells must be permitted and drilled by a State of Arizona certified contractor.
- Contractors must hold a valid National Balancing Institute (NBI) or Building Performance Institute (BPI) certification.
- All systems should be designed (sized) and installed in accordance to the Air Conditioning Contractors of America (ACCA) Quality Installation Specifications and Standards.
- The operational life must be supported by a planned maintenance or equipment replacement schedule.

4.3 Inspections

DE systems must be permitted with and inspected by the Authority Having Jurisdiction ("AHJ") over construction projects in the Participant's locale or the Participant must provide to APS a Letter in Lieu of Electrical Clearance⁷ or other waiver acceptable to APS. Any inspections conducted by APS are in addition to, not in lieu of, these building and construction related inspections. Access to the system shall be made available to APS during normal business hours

⁷ Available on APS's website.

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for the purpose of conducting the applicable APS inspection. Note that APS will at times be inspecting system components on the Participant side of the meter.

All grid-tied systems will be inspected by APS to ensure the system is connected to the grid in conformance with APS Interconnection Requirements.⁸ Under no circumstances is any grid-tied system to be installed in parallel or otherwise connected with the APS system until such time that the system has been inspected by APS and written authorization is received from APS. APS will normally conduct the interconnection inspection only after the system has been inspected by the AHJ.

APS will select a subset of DE program reservations for an APS DE Program conformance inspection. The selected systems will be required to pass the conformance inspection before the Participant is eligible to receive an incentive payment. The purpose of the conformance inspection is to ensure that the system has been installed in accordance with the terms, conditions, and specifications provided on the Reservation Application and Credit Purchase Agreement and with the requirements outlined in this DEAP. The conformance inspections for photovoltaic systems will normally also include verification of the PV off-angle and shading factor reported for the PV installation in the reservation.

APS will randomly select some DE Program installations whose systems will receive a maintenance inspection to field verify that the system is being operated in compliance with the terms and conditions agreed to in the Reservation Request and Credit Purchase Agreement and the requirements outlined in this Plan. The purpose of the maintenance inspection is to gather information that will assist APS in its evaluation of the effectiveness of the DEAP.

4.4 Metering and Meter Reading

All DE systems must include a system dedicated kWh meter, or meters, which allows for measurement of system energy production (the "Performance Meter"). The Performance Meter must be installed in compliance with the APS Electric Service Requirements Manual (ESRM) Section 300, which is available on APS's website, and must be installed so as to record the renewable energy A/C power output produced by the inverter or generator. If Performance Meter output data is used to calculate a PBI, other metering arrangements may be required depending on the configuration of the system. These arrangements may include wireless or telephone line telemetry at the customer's expense. The Performance Meters are in addition to the APS billing meter and must be appropriately identified as the "Photovoltaic, Wind, etc., Performance Meter." The Performance Meter must be calibrated to meet industry standards and must provide either direct kWh readings or readings which can readily be converted to kWh (RECs) using standard engineering conversions. The Performance Meter is required to be located adjacent to the APS billing meter unless otherwise approved by APS.

In those circumstances where the DE system is a hybrid system (i.e., uses more than one technology), APS requires that a Performance Meter be in place to measure the RECs (kWh) produced from each renewable resource so that the information can be accurately recorded.

⁸ *Id.*

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APS may, at its discretion, install APS-owned Performance Meters for system monitoring purposes. A Performance Meter owned and read by APS may facilitate APS's ability to gather performance data and to report system performance to the Participant on their standard APS bill.

System generation (REC production) must be reported annually to APS for UFI Participants, unless other arrangements have been approved by APS. Participants utilizing PBIs will be provided with monthly system production on a quarterly basis. The reported production is to be verified by the participant or authorized representative and returned to APS along with the Renewable Energy Credit documentation. Payment for system production will be made on a quarterly basis following APS's receipt of the REC documentation and production verification.

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.

4.6 System Maintenance

To ensure a system benefit received by the REC purchase, APS requires that the Participant maintain and operate the DE system in APS territory for the specific duration detailed in the Reservation Request and Credit Purchase Agreement. If the DE system either needs to be removed from the Participant property or if it is no longer operational, the Participant must notify APS within five business days after the DE system is either removed from the property or is no longer operational. Short (those lasting less than one month) system "outages" as part of system repair or planned maintenance are anticipated as part of this program and need not be reported in accordance with the above requirement.

5. INSTALLER AND DEALER QUALIFICATIONS

The installer must possess a valid license on file with the Arizona Registrar of Contractors ("AZROC"), with a license classification appropriate for the technology being installed, or the installer must identify use of a contractor holding an appropriate license on file with the AZROC for the technology being installed. With APS's implementation of its Qualified Contractor Program, it is APS's intention to rely on training and certification to ensure the consistent quality of installations at customer sites. With the maturation of our Qualified Contractor Program over time, APS will ultimately require a customer to use a contractor qualified under this program in order to be eligible for a renewable energy incentives.

If the equipment dealer is party to the reservation request, the dealer must provide proof of possession of a business license that is in good standing with the appropriate agency_(ies) and must also provide proof of liability insurance if the business license provided does not require liability insurance.

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6. INCENTIVES

6.1 Funding Allocation

As described in APS's 2010 RES Implementation Plan, the annual funding level for DE incentives was established primarily based on previous year program installations and reservations with consideration for estimates of anticipated consumer demand for the various technologies, project sales and development time frames, variations in the levels of technology maturity, and availability of equipment for installation. The proposed DE incentive budget and the incentive budget allocation are designed to achieve the residential distributed energy target and provides for exceeding the non-residential distributed energy target for the full five years described in the current Implementation Plan.⁹

The incentive matrices in Exhibit 1 describe incentive reductions every two years of the program. Those planned reductions are designed to reflect the anticipation that DE technologies will decline in cost as market penetration and product availability increase. Eight specific DE budget allocations are described in the APS RES Implementation Plan: residential up-front incentives, existing production-based contracts, contracts resulting from the 2009 DE request for proposals, wholesale contracts, customer self-direct, new non-residential production-based incentives, and non-residential up-front incentives. Budget allocations for market-based projects are derived as a portion of the respective DE budget allocation which they support.

In the event that funds collected for use in the DE incentive program are not fully subscribed in a program year, those funds will be applied towards the next program year and allocated to achieve the required energy outcome between residential and non-residential projects.

Funds are made available for project reservations on the first working day after January 1st of each program year. Funds for residential projects will be made available for reservations on a first-come, first-reserved basis.

Funds offered under APS's ~~new~~ expanded new non-residential program will be divided into ~~three~~four categories; Large Projects (PBI), Medium Projects (PBI), ~~and~~ Small Projects (UFI), and qualifying projects under the Schools and Governmental Program (PBI).

For purposes of APS expanded non-residential program, a Large Project is defined as any electricity producing project whose inverter(s) or generator(s) is rated greater than 100 kWac or any project whose lifetime incentive commitment is greater than \$2.5 million dollars. Incentives will be capped for electric producing systems at a capacity size of 2,000 kWac per interconnection point; actual system size is not limited under this program, although all other interconnection and program requirements remain applicable.

A Medium Project is defined as any electricity producing project whose inverter(s) or generator(s) is rated 100 kWac or less, or any project whose lifetime incentive commitment is less than \$2.5 million dollars, and does not qualify for an up-front incentive.

A Small Project is defined as any project that qualifies for an up-front incentive.

⁹ A.A.C. R14-2-1805(D).

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The Schools and Governmental Program is designed to assist publicly funded (K-12) schools and state/local governmental facilities. Projects are open to all RES qualifying technologies, however, are limited to 300 kWac per interconnected meter for generating technologies or Lifetime Project Commitment of \$1.5 million, per interconnected meter for other qualifying technologies. Projects that qualify as a Small Project do not qualify for this program. Projects larger than the above mentioned limits will be required to participate in the standard program as a Large Project.

Large Project funding described in APS's Implementation Plan will be divided equally into two semi-annual nomination periods; March 1st (reservations received through the end of February) and September 1st (reservations received from March through the end of August). Medium Project funding as described in APS's Implementation Plan will be allocated equally over six nomination periods (January-February, March-April, May-June, July-August, September-October, and November-December) with each equaling two full calendar months. Small Project and the Schools and Governmental Program funding will be allocated annually on a first come, first reserved basis.

Non-residential reservation requests are submitted as a bid expressed in \$/REC (or \$/kWh) and, if a PBI, the preferred REC and payment terms. Each bid is evaluated by a project ranking "calculator." A sample ranking calculator was prepared as part of the Commission Staff UCPP working group; APS's ranking calculator will be designed to function in substantially the same manner as the sample calculator. The input sheet and description for the sample calculator is attached provided as Exhibit 3. APS will make the ranking calculator publicly available on APS's website.

In the event that the budgeted funds available for that nomination period exceed the total amount of incentives requested, all qualifying reservations requested will be approved. Remaining budgeted funds for that nomination period will be equally divided among the remaining nomination periods within that category. If the reservation request is approved, APS will send a written confirmation to the applicant.

In the event that the demand for incentives exceeds the budgeted funds available for a nomination period in any one project category, APS will use the ranking calculator to select the projects with the highest ranking, which is the lowest Conforming Project Rank value, matching requested incentives with the available budgeted funds. If the reservation request is denied because funding is not available, APS will send written notification to the applicant. In the event that requests are denied due to funding, Conforming Project Rank values will be posted, along with their approval status. No specific project information (customer/contractor names, locations or non-energy/cost details) will be listed to ensure that confidentiality is maintained.

6.2 Incentive Principles

As part of this Plan, residential systems are eligible only for UFIs. Non-residential systems may receive either a UFI or a PBI, depending on the technology and the installation size. UFIs were developed for technologies where the average project size results in a total incentive less than or equal to \$75,000. PBIs were developed for technologies where the average project size results in

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a total incentive totaling more than \$75,000, based on the net-present value of the total of incentive payments or the otherwise applicable UFI.

Incentive funds can be applied to a "project," which is the sum of all DE systems installed at a Participant site that are eligible for program incentives in a single calendar year. A Participant site can obtain a UFI for multiple projects, under separate reservations, up to \$75,000 at each Participant site per calendar year. Once the sum of incentives for all project(s) exceeds the \$75,000 limit, incentives for additional projects will take the form of a PBI.

6.2.1 Reservations for New Residential Construction

Incorporation of DE systems into the development of new residential construction requires the reservation of funds in a manner other than that described in the standard UFI process. Approved reservations for incentive funds for new construction will conform to the following provisions:

- a. Funds may be reserved for up to three years for a single development or sub-division. A single reservation may request incentive funding for multiple systems.
- b. All funds within a reservation must be allocated to specific lots within the development or sub-division.
- c. The reservation must specifically indicate the development schedule for the identified lots and the year when the incentive payment is expected. Once a project is initiated, funding "adjustments" can not exceed 10 percent of the requested annual funding.
- d. Funds reserved but uncollected as completed projects in one year will be forfeited.
- e. Once funds have been reserved for a lot, no future reservation may be applied to that lot or the same technology until the original reservation has expired.

6.3 Standardized Incentives

Incentives levels provided as part of this Plan were collaboratively developed, and, in part, were created to help or expand incipient markets for DE, taking into account each technology's specific market conditions, and placing a portion of the cost on the Participant. Incentive levels are provided in accordance with the applicable year project incentive matrix included as Exhibit 1.

6.4 Incentive Caps

DE incentives can be applied to systems designed to serve only the typical load of the Participant. Typical load is defined as the total annual kWhs used by that customer at the metered point of interconnection. The assessment of that typical load does not preclude the periodic production of electricity in excess of the Participant's demand. Under some circumstances it is understood that select Participant installations will be designed to serve loads greater than that of the Participant. Under those circumstances, the incentive will be applied only to the fraction of the generation that is used to serve the typical Participant load. The DE incentives were developed separate and apart from other utility program incentives, such as those

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for demand side management projects. Systems are not eligible to receive DE incentives if incentives from other APS programs are received.

A PBI cannot exceed 60% of the "total project cost" for the DE system. Total project costs are defined as the undiscounted total system cost plus "acceptable financing" charges, if disclosed by the participant. Acceptable finance charges are finance charges used for the PBI incentive cap calculation and cannot exceed the current prime interest rate plus 5%. Financing charges may be disclosed as part of the commissioning package, if not disclosed before. The PBI incentive cap will decline in the third year of the program (2011) to 55% of the real project cost, and the cap will decline further to 50% of the real project cost in the fifth (2013) year of the program and beyond. Both residential and non-residential UFIs cannot exceed 50% of the system cost. Financing costs are not considered as part of the total system cost for these projects.

Dealer's and manufacturer's incentives are capped at 50% of the system cost basis. Dealers cannot include retail installation costs in the cost basis calculation. Dealers must provide verification for the cost paid for each system component. Manufacturers cannot include their own technology in the cost basis.

For residential solar hot water heating systems, Participants are required to contribute a minimum of 15% of the "actual system cost." The actual system cost will be calculated by assuming the full application of all available federal and state incentives, regardless of the Participant's ability to realize any particular incentive; adding the Participant contribution (15%), and finally adding the program incentive. If the incentive can be fully applied without exceeding the actual system cost, the Participant will receive the full incentive amount. If the incentive cannot be fully applied without exceeding the actual system cost, the incentive will be capped so as not to exceed the system cost.

6.5 De-Rating of Photovoltaic System Incentives

The productivity of photovoltaic systems is sensitive to the specifics of the installation method and location. In particular, these systems are impacted by shading and photovoltaic panel tilt angle and azimuth. This variability in system performance is taken into account when adjusting the available UFI level and determining the actual amount of incentive received by the Participant. Incentives for photovoltaic systems will be adjusted in accordance with the PV Off-Angle and Shading Adjustment Table attached as Exhibit 4.

6.6 Payment of PBIs

Participants receiving PBI funds will be provided with monthly system production on a quarterly basis. The reported production is to be verified by the participant or authorized representative and returned to APS along with the Renewable Energy Credit documentation. Payment for system production will be made on a quarterly basis following APS's receipt of the REC documentation and production verification.

6.7 Taxes

Program participants are solely responsible for the payment of any and all taxes applicable to the DE resource and/or the incentive payment(s).

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6.8 Assignment of Payment

Systems may be owned by third parties, and APS may make payments to such third parties upon the written consent of the Participant. Participants may assign payments to an installer, dealer, or developer. APS will consider assignment to other parties upon request by the Participant.

6.9 Default

If the Participant fails to maintain and operate the DE system in APS territory for the period detailed in the Credit Purchase Agreement, which is never less than ten (10) years, the Participant shall be considered in default of the terms and conditions of the incentive payment agreement. Participants in default will be subject to damages and must reimburse the Program for all or a portion of the incentive(s) received to that point, subject to the terms of the Credit Purchase Agreement. The default terms in the Credit Purchase Agreement will vary slightly depending on whether the incentive is a UFI or PBI, but are designed to reimburse the Program for environmental credits that were paid and/or accounted for through the full incentive term, but not received. This is especially important for UFIs where APS is entitled to 20 years of credits through the payment of one up-front incentive.

7. RESERVATION PROCESS OVERVIEW

Participant submits a reservation request to APS: The Participant must submit a signed reservation request supplied by APS.

Participant receives reservation confirmation: After reviewing the reservation request, APS will assign a reservation status. If the reservation request is approved, APS will send a written confirmation to the applicant. Approved reservations will be logged in the order received.

If the reservation request is deficient in meeting one or more of the program requirements, APS will inform the Participant of the nature of the deficiency and will allow the Participant to correct the deficiency. If the reservation request is denied because funding is not available, the request will be placed on a waiting list and APS will send written notification to the applicant.

Credit Purchase Agreement: PBI participants must execute a Credit Purchase Agreement within 30 days of the date of the reservation confirmation from APS. At such time, the customer must also provide proof of an executed contract between themselves and the developer/contractor for the installation of the proposed renewable technology.

Proof of Advancement: The Participant may be required to submit Proof of Advancement (written progress report) to APS within 60 days of reservation approval for UFIs, and within 120 days of reservation approval for PBIs to retain an active reservation. The purpose of the Proof of Advancement requirement is to ensure that reservation dollars are allocated to projects that will advance to the installation stage. Reservations requiring Proof of Advancement will be notified at the time of reservation approval.

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Interconnection Application: The interconnection application and site plan diagram is submitted to APS. APS will provide preliminary approval that the system meets interconnection standards (grid-tied). Final approval will not be issued until the interconnection inspection is completed.

Participant Proceeds with Installation: Obtain all required permits and proceed with system installation.

Grid-tied systems: Systems are required to pass an interconnection inspection that will be conducted by APS before the system can be authorized to operate in parallel to the APS grid. APS will conduct the interconnection inspection only after the system has been inspected by the AHJ or if APS has received a Letter in Lieu of Electrical Inspection. If the DE system passes the interconnection inspection, APS will provide the Participant with a written document that provides "Permission to Operate." If the DE system fails the interconnection inspection, the reservation can remain active, as long as the deficiency is remedied within the defined reservation timeframe.

Commissioning Packet: Participant must submit a signed Commissioning Packet supplied by APS. At a minimum, the Commissioning Packet will include certification from the installer/dealer and Participant that the system installed was consistent with the terms and conditions of the Reservation Packet and this Plan. If a material change was made between the time APS approved the reservation and the date APS received the Commissioning Packet, the Participant must complete an Amended Application. If the change increases the incentive amount the system is eligible to receive, APS will confirm that DE program funding is available. If funding is not available, APS will only provide an incentive in the amount requested in the Reservation Packet. Changes in the project plan that result in increased system output will only result in additional incentives beyond the original reservation amount if RES funding is sufficient/available.

If the system is a photovoltaic system that has been selected to receive a conformance inspection, the incentive may be adjusted in accordance with the provision set out in Section 6.5 of this Plan.

If the system has been selected to receive a conformance inspection, as detailed in Section 4.3, the incentive payment will not be processed until after the system has passed the conformance inspection.

APS sends incentive payment: For UFIs, APS will send the incentive payment or initiate incentive payments in accordance with the instructions provided by the Participant in the signed Commissioning Packet. For participants under a PBI, the payment process in Section 6.6 above will be followed.

8. EXTENSIONS AND CANCELLATION POLICY

A Participant will receive a written notice of pending cancellation if all program requirements have not been met within the reservation timeframe. The reservation timeframe for UFIs is 180 days from the reservation confirmation date. For PBIs, the reservation timeframe is 365 days from the reservation confirmation. APS may grant an extension for up to 90 days following timely receipt of a Participant's request for extension and may approve written extension

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requests beyond 90 days under extenuating circumstances. APS may request additional support for the Proof of Advancement to be considered the extension.

9. ENERGY REPORTING PROGRAM MONITORING

APS will track progress toward program goals on an ongoing basis to monitor program effectiveness and sufficiency of the funding allocation. APS will compile data received from conducting the conformance and maintenance inspections, meter readings, and analyze trends in Participant participation and technology installation. The data will be evaluated on an ongoing basis to better understand critical factors impacting the incentive structures and the overall effectiveness of this Plan. If the DEAP need to be adjusted to reflect new information, changing market conditions, incorrect initial assumptions, or technological innovations, APS will bring those issues to the attention of the Commission in a timely manner.

APS will report on the productivity of all distributed resource on an annual basis. For PBI systems, APS will report on the actual metered production of each system as reported by the Participant and confirmed by APS. For systems receiving a UFI, APS will report on the total installed capacity and projected productivity. APS will develop a method by which to calibrate the reported productivity and shall monitor that method for long-term accuracy.

On occasion, a DE system, which received a UFI, will be removed from the Participant property prior to the end of its agreement term without the permission of the utility. Also, on occasion, a DE system, which had received a UFI, will be in need of a repair which the Participant does not plan to complete. If either situation occurs, and if despite reasonable efforts on the part of the APS the Participant will not reinstall or repair the DE system, then APS will continue to reflect in its annual compliance reporting the annual historic energy production for the system until the agreement term for the system has been completed.

In addition, APS will monitor that specific Participant and Property to ensure that an additional incentive is not provided for any new DE system on that property until the operational life of the incented system has been completed. APS will attempt to monitor the number of missing and unrepaired DE systems and shall summarize its observations in its annual compliance report.

Redline Version
RES Adjustment Schedule



ADJUSTMENT SCHEDULE RES
RENEWABLE ENERGY STANDARD

APPLICATION

The Renewable Energy Standard ("RES") Adjustor shall apply to all retail Standard Offer or Direct Access service, excluding kWhs served in accordance with rate schedules SP-1 (Solar Partners), Solar-2, Solar-3, and Adjustment Schedules GPS-1 and GPS-2. All provisions of the customer's current applicable rate schedule will apply in addition to the RES Adjustor. From time to time, the RES program spending requirements will be evaluated and if necessary the charge and/or caps may be modified by the Commission. Any new charges/caps will be applied in billing cycle 1 beginning in the month following Commission approval in A.C.C. Decision No. XXXXX and will not be prorated. Details regarding the administration of this Adjustor can be found in A.A.C. R14-2-1808. The RES Adjustor and the Demand Side Management Adjustor may be combined on the customer's bill and shown on the "Environmental Benefits Surcharge" line.

RATES

The bill shall be calculated at the following rates:

| All kWh \$0.0085320.008662 per kWh

SURCHARGE LIMITS

The monthly total of the Renewable Energy Standard Adjustment Charge shall not exceed the following limits:

Residential Customers	\$3.413.46	per service per month
Non-residential Customers	\$126.75128.70	per service per month
Non-residential Customers with demand of 3,000 kW or higher per month for three consecutive months	\$380.26386.10	per service per month

ARIZONA PUBLIC SERVICE COMPANY
Phoenix, Arizona
Filed by: David J. Rumolo
Title: Manager, Regulation and Pricing
Original Effective Date: May 1, 2008

A.C.C. No. ~~XXXXXXX~~
Canceling A.C.C. No. 57055718
Adjustment Schedule RES
Revision No. 2
Effective: ~~XXXXXXX~~