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0000093622

February 9, 2009

VIA HAND DELIVERY

Chairman Kristin Mayes and Commissioners
Arizona Corporation Commission
1200 West Washington, 2nd Floor
Phoenix, Arizona 85007

Arizona Corporation Commission
DOCKETED

FEB - 9 2009

Re: Docket No. E-00000P-08-0570
Matters Pertaining to the Devers-Palo Verde No. 2 (DPV2)
Electric Transmission Line

DOCKETED BY 

Dear Chairman Mayes and Commissioners:

Thank you for providing ongoing support and opportunity for parties to evaluate the Devers-Palo Verde No. 2 transmission project ("DPV2") in a way that points to a mutually beneficial outcome for Arizona, California, and the region.

On November 7, 2008, the Arizona Corporation Commission ("Commission") opened Docket E-00000P-08-0570 for purposes of gathering information on the progress of Southern California Edison Company ("SCE") and other parties in modifying DPV2 to incorporate additional Arizona benefits. On November 7, 2008, the Commission held a Special Open Meeting to hear a report from SCE, Arizona utilities, and other entities on the progress made to date regarding modifications to DPV2. Since that time, SCE has participated in Meet and Confer Meetings on December 1, 2008, and January 22, 2009. The attached report summarizes the Meet and Confer sessions.

Very truly yours,

Leslie E. Starck

cc: Commissioner Gary Pierce
Commissioner Paul Newman
Commissioner Sandra D. Kennedy
Commissioner Bob Stump
Ernest Johnson
Janice Alward
Lyn Farmer
Rebecca Wilder
Original and 13 copies filed with Docket Control

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Southern California Edison Company

**Arizona Corporation Commission
Docket No. E-00000P-08-0570**

**Matters Related to the
Devers-Palo Verde No. 2
Electric Transmission Line**

Decision No. 69638

**Report of
Meet and Confer Process**

February 9, 2009

Prepared by Southern California Edison

I.

Overview and Background

On November 7, 2008, the Arizona Corporation Commission (“ACC”) held a Special Open Meeting and opened Docket No. E-00000P-08-0570 to gather information on the progress of Southern California Edison Company (“SCE”) and other parties on modifying the Devers-Palo Verde No. 2 Project (“DPV2”) to achieve additional Arizona benefits. During the Special Open Meeting, the ACC also requested SCE to engage in a Meet and Confer process and report on the results.¹ Specifically, now-Chairman Mayes requested that the Meet and Confer Report identify additional benefits discussed in the Meet and Confer sessions and address a ‘monetization’ associated with the proposed additional benefits:

“I would add that I would like to have all of the utilities and Southern California Edison provide in their reporting to the Commission a monetization, if it is possible, associated with all of the proposals that are being made associated with any proposed future power line.” (Tr. at 178:5-10)

Through the participation of Arizona stakeholders, the Meet and Confer process facilitated by the ACC helped to identify and quantify additional benefits to Arizona associated with DPV2. Because identifying and quantifying benefits is a complex task that takes significant analysis, SCE appreciates greatly the time and consideration provided by the Arizona stakeholders during this process.² All the participants agreed that, although time did not permit the participants to develop numbers that could be jointly supported, it would be very useful for SCE to provide a quantification of the value of the proposals that were discussed.

¹ The Meet and Confer process is described in Attachment 1 (Summary of Meet and Confer Process) and Attachment 2 (November 25, 2008, Letter from Southern California Edison to Arizona Corporation Commission).

² Although this is SCE’s report, SCE has provided a draft of the report to the Meet and Confer participants and asked that they comment that any representations specifically attributed to them are accurate.

The participants discussed conceptually how to quantify the capital cost savings to Arizona consumers which could be achieved from the following proposals; however the Arizona stakeholders did not independently evaluate the estimates:

- (1) SCE's offer, at no charge, of a "Right of First Refusal" for Arizona entities to acquire, at some time in the future, an ownership share of a portion of DPV2 necessary to facilitate the scheduling of unidirectional power flows from western Arizona to Delany Switchyard;³
- (2) Interconnecting the Harcuvar Transmission Project ("HTP") to DPV2 at a new Salome Substation and allowing HTP to acquire bi-directional ownership rights in DPV2 from Salome Substation to the Palo Verde Hub;⁴ and
- (3) Interconnecting the "Palo Verde Hub to TS-5 500kV Transmission Project" ("TS-5 Project") to Delany Switchyard (also referred to as Harquahala Junction)⁵.

Table 1 below shows SCE's preliminary quantification of the value of the capital cost savings to Arizona of these proposals, as discussed in more detail in the sections below. Because the details surrounding these three proposals need further evaluation and discussion, this quantification is preliminary and conceptual. SCE's preliminary

³ The amount of available capacity on the DPV2 transmission line segment between western Arizona and Delany Substation will be determined by subsequent technical studies to be prepared by SCE and approved by the California Independent System Operator, Western Electricity Coordinating Council, and Western Arizona Transmission System Task Force.

⁴ The Harcuvar Transmission Project consists of two components. The first is a proposed 100 mile, 230kV transmission loop located in La Paz County, Arizona, approximately 60 miles west of the Palo Verde Hub. The southern end of this loop would interconnect with DPV2 at a new Salome Substation just east of the Kofa Wildlife Refuge. The northern end would interconnect to the Western Area Power Administration's existing Harcuvar 230kV substation. The second component of HTP entails joint ownership rights in DPV2 from the point of interconnection at Salome Substation east to the Palo Verde Hub. The sponsor of HTP is the Central Arizona Water Conservation District ("CAWCD"). CAWCD and SCE are developing an agreement under which the two entities will share ownership in DPV2.

⁵ The TS-5 Project includes the acquisition by Arizona Public Service of an ownership interest in the existing 500kV transmission line segment between the Harquahala Generating Station Switchyard and the Palo Verde Hub, which would be looped-in to the proposed Delany Switchyard. SCE is currently in negotiations with APS for this line segment.

quantification of these additional Arizona benefits is approximately \$140 million (\$2009 Present Value) as shown on Table 1. Additionally, SCE estimates approximately \$57 million (\$2009 Present Value) in combined reduced operation & maintenance expenses and taxes related to the above acquisitions of an ownership share in DPV2. When summed, the total savings to Arizona of the joint participation in DPV2 is estimated to be \$197 million (\$2009 Present Value)

SCE also includes in Table 1 the value of the proposed mitigation measures for the Kofa National Wildlife Refuge. Although not discussed at length during the Meet and Confer process, SCE believes that the ACC should consider these mitigation measures as a related benefit. These mitigation measures also include funding for the performance of future monitoring studies and proactive mitigation. Examples of these measures include: (1) improving communication infrastructure in the Kofa; (2) contributing \$680,000/year for five years to the National Fish and Wildlife Foundation to address potential, but uncertain, future project impacts; and (3) providing funds for monitoring bighorn sheep mortality, breeding, and lambing after construction. As shown in Table 1, the value of these mitigation measures is \$10 million (\$2009 Present Value).

Overall, through the Meet and Confer process, SCE has been able to identify additional benefits to Arizona of the DPV2 project of \$207 million (\$2009 Present Value). As will be described below, SCE has estimated that the impact (using updated assumptions) of the DPV2 Project on Arizona ratepayers will be to increase spot prices in the wholesale energy market by \$55 million. When compared to the additional benefits shown in Table 1 of \$207 million for DPV2, DPV2 is cost-effective for Arizona.

Table 1
Value of DPV2 Proposals to Arizona
SCE's Preliminary Quantification

	\$2009 Present Value (\$-Millions)
Additional Value to Arizona:	
Capital Cost Savings:	
Right of First Refusal	\$55
Harcuvar Project	\$55
Interconnecting TS-5 Project to Delany Switchyard	\$30
Subtotal – Capital Cost Savings	\$140⁶
O&M and Tax Savings⁷	\$57
Subtotal - Capital, O&M and Tax Savings	\$197
Kofa Mitigation	\$10
Total Additional Benefits to Arizona	<u>\$207</u>
Updated Costs	<u>(\$55)</u>
Impact to Arizona ratepayers from increases in spot market prices for electricity	
Net Benefit to Arizona of Proposals (Not Including “Previously Identified Benefits”⁸)	\$152

⁶ The estimated avoided capital cost savings are approximately ½ of total cost to construct one substation (Salome) and two switchyards (Delany and western Arizona) and construct and operate a 95-mile transmission line segment from western Arizona to the Palo Verde Hub. Cost estimates include ROW cost of \$200,000/mile and transmission line cost of \$1.8 million/mile, using data from the Proposed WREZ Transmission Assumptions, dated January 22, 2009, prepared for the Western Governors Association, Western Renewable Energy Zone Initiative Technical Committee. Transmission rights subject to CPUC, CAISO, and FERC approvals. Estimated capital cost savings of \$15.0 million for each substation/switchyard, based on assumed switchyard costs equal to 30% of total substation costs of \$100M as provided in WREZ assumptions.

⁷ Operation and Maintenance and tax savings associated with joint participation in DPV2 resulting from: (1) exercising the Right of First Refusal, (2) interconnecting the Harcuvar Project to DPV2; and (3) interconnecting the TS-5 Project to Delany Switchyard. Cost estimate includes O&M and tax cost of 3.00%, as provided in WREZ assumptions.

⁸ Exhibit A-16 in Line Siting Committee hearings showed “Previously Identified Benefits” as \$361 million (\$2006 Present Value). SCE plans to update these benefits going forward, but expects they will continue to be substantial. SCE did not add the Previously Identified Benefits to the benefits from the new proposals shown in Table 1.

II.

Renewable Power Developments

The November 12, 2008, Arizona Economic Resource Organization (“AERO”) Solar Task Force Report (Attachment 3) documents how transmission can be a critical foundational piece to achieving the Task Force’s goal of guiding Arizona’s efforts to become a world leader in the solar power industry. The “vision” of the AERO report may be described as positioning Arizona as the world’s leading market for centrally generated solar power, in part as a result of its ability to export to California:

“The market for solar power can be enormous and Arizona, with its favorable solar resource, land availability, large and growing domestic demand and proximity to California and other western states in need of clean power, is well-positioned to develop the world’s leading market for centrally generated solar power.” (pg.4)

“And, Arizona, because it borders California, is strongly positioned to export power deliveries to California.” (pg.11)

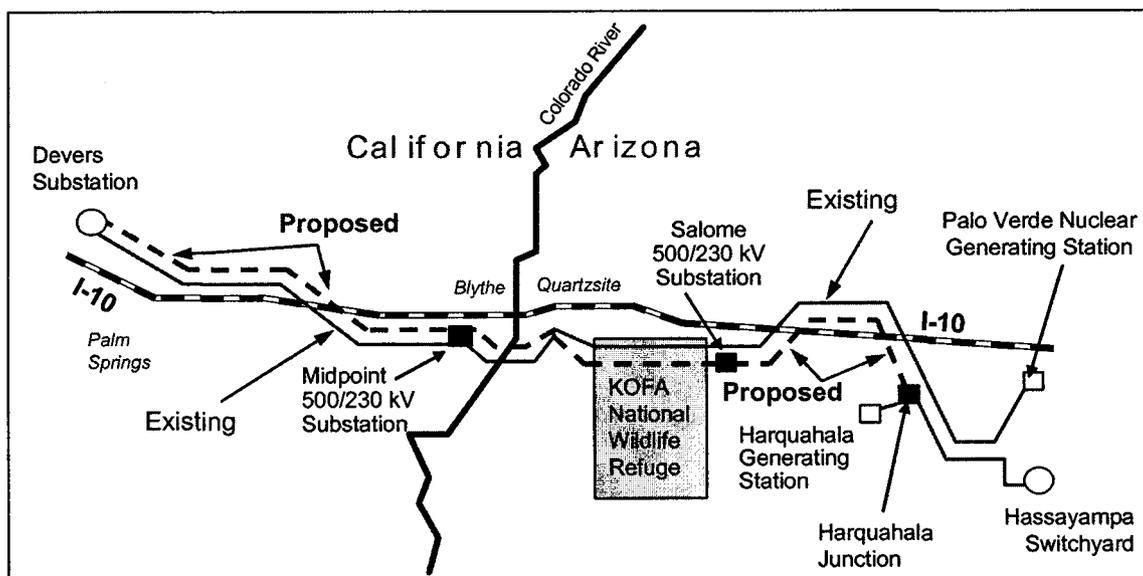
DPV2 is an essential cornerstone to achieving the vision summarized in the AERO report. DPV2 traverses Arizona territory that has the most solar-rich areas in the country. DPV2 would provide Arizona with additional infrastructure necessary to transmit utility-scale solar generation to both Arizona and California markets.

DPV2 is also uniquely positioned as a project on which construction can begin relatively quickly. It already has a favorable Final Environmental Impact Statement, federal land agency review is near completion, and the design of the project is well-developed. In short, DPV2 can quickly allow solar projects to come on-line and help establish Arizona as the leading developer of solar generation in the United States.

New solar renewable projects will be able to seek interconnection to DPV2 through the proposed Harcuvar Transmission Project, or directly through new substations in western Arizona. One such substation will be the proposed Salome Substation.

As shown in Figure 1 below, Salome Substation can be constructed on the DPV2 right-of-way and serve as a collector substation for renewable generation projects seeking to locate in western Arizona.

Figure 1. DPV2 – Location of the Proposed Salome Substation



Between the interest of the present HTP Participants, and projects included in the interconnection queue, the total renewable generation interest in the vicinity of the HTP, western Arizona, and the Salome Substation is approximately 4,700 MW.

III.

Options for Future Savings to Arizona Ratepayers

The Meet and Confer stakeholders discussed how one way to estimate the monetized benefit that DPV2 provides is to determine the avoided cost of a transmission

line following the same route as DPV2 in Arizona; that is, what it would cost to construct a similar line in western Arizona to further the vision of the AERO Report.

Accordingly, SCE estimated the associated cost of such a line based upon the transmission line unit cost assumptions developed by the Western Governors Association's Western Renewable Energy Zone ("WREZ") Technical Committee. As discussed above, the participants discussed conceptually how to quantify the capital cost savings to Arizona from the following three proposals:⁹

(1) A "Right of First Refusal" for Arizona entities to acquire, at some time in the future, an ownership share of a portion of DPV2 necessary to facilitate the scheduling of unidirectional power flows from western Arizona to the Delany Substation (and as depicted on Figure 2, below);

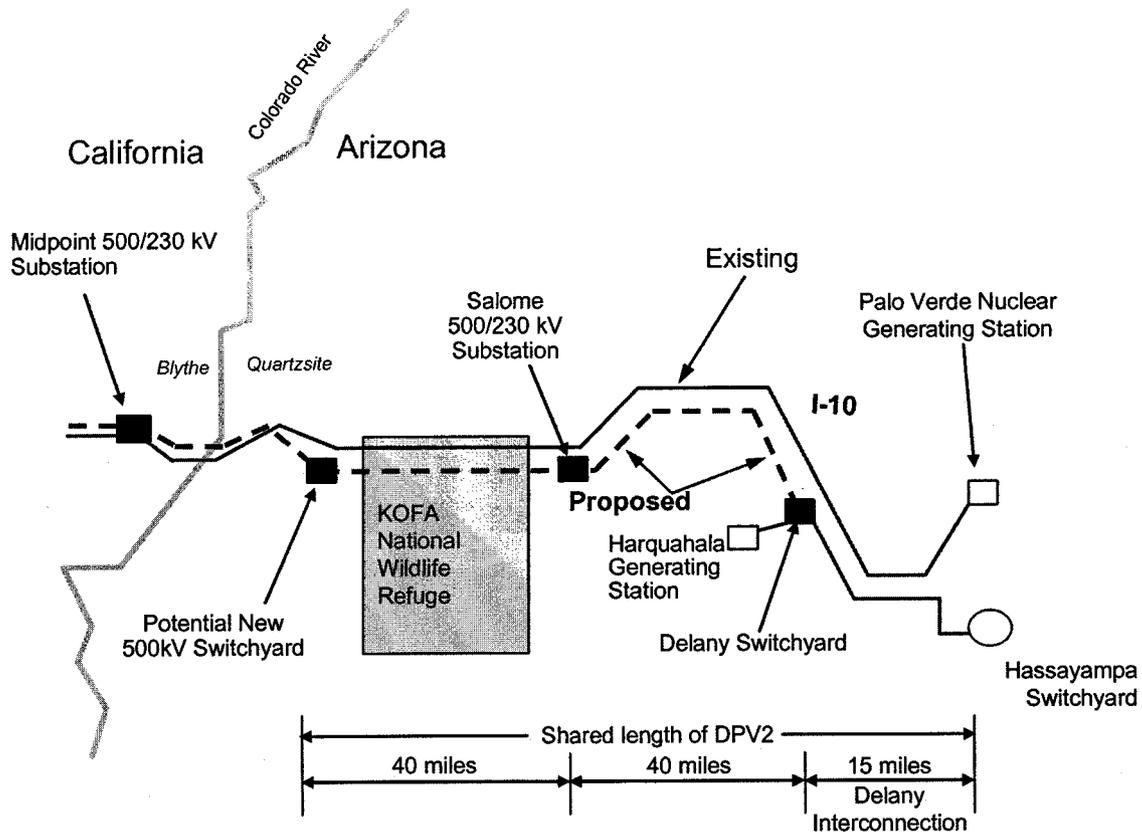
(2) Interconnecting the Harcuvar Transmission Project ("HTP") to DPV2 at a new Salome Substation and acquiring bi-directional ownership rights in DPV2 from Salome Substation to the Palo Verde Hub as depicted on Figure 2; and

(3) Interconnecting the "Palo Verde Hub to TS-5 500kV Transmission Project" ("TS-5 Project") to Delany Switchyard (also referred to as Harquahala Junction) which includes the acquisition by Arizona Public Service of an ownership interest in the existing 500kV transmission line segment between the Harquahala Generating Switchyard and the Palo Verde Hub, which would be looped-in to the proposed Delany Switchyard. SCE is currently in negotiations with APS for this line segment.

⁹ These proposals will require appropriate regulatory approvals, including approval from the California Public Utilities Commission, California Independent System Operator and Federal Energy Regulatory Commission.

Figure 2. DPV2 Locations in Western Arizona

(Depictions are illustrative and not to scale)



A. Right of First Refusal

Providing a right of first refusal to Arizona utilities and other stakeholders will provide major benefits to Arizona ratepayers. This right of first refusal, which SCE proposes to be at no charge, will allow Arizona utilities to acquire a west-to-east ownership share of DPV2 at some time in the future. Upon exercising such an option, APS and/or other Arizona utilities could acquire unidirectional west to east Transmission Ownership Rights of DPV2 (transmission line and related facilities) from western Arizona to Delany Switchyard. The Arizona utilities would be able to exercise this option

as their needs arise and as renewable energy develops in the solar-rich areas of western Arizona. During the Meet and Confer sessions, APS indicated that conceptually this right of first refusal could be a valuable benefit to Arizona, provided that the California Independent System Operator (CAISO) boundary is able to be moved further west. SCE estimates that the savings to Arizona associated with the Right of First Refusal as shown in Table 1 is \$55 million (\$2009 Present Value).

B. Harcuvar Transmission Project

The Harcuvar Transmission Project was another key development addressed by the Meet and Confer participants. The Harcuvar Transmission Project is a proposed 230kV transmission loop located in La Paz County, Arizona that involves upgrading the Central Arizona Project ("CAP") 115 kV transmission system to 230 kV and then interconnecting with DPV2. The Harcuvar Transmission Project would be enhanced by interconnecting DPV2 at the proposed Salome 500/230 kV Substation

The Harcuvar Transmission Project consists of two principal components. The first component is an approximate 90-mile 230 kV "loop" which connects the existing Harcuvar, Bouse Hills, and Little Harquahala substations. For the second component, HTP has requested ownership rights on approximately 40 miles of DPV2 beginning from the proposed Salome Substation east to the proposed Delany Switchyard. SCE would share in the cost of constructing the Salome Substation.

SCE estimates that the savings to Arizona associated with the Harcuvar Project as shown in Table 1 is \$55 million (\$ PresentValue).

C. Interconnection of TS-5 Project to Delany Substation

The interconnection of TS-5 Project into Delany is being negotiated among TS-5 Transmission Line Participants, New Harquahala Generation Company, and SCE. As part of the TS-5 Project, Arizona Public Service will acquire an ownership interest in the existing 500 kV transmission line segment between the Harquahala Generating Station Switchyard and the Palo Verde Hub, which would be looped-in to the proposed Delany

Switchyard. The interconnection of the TS-5 Project to the Delany Substation will provide substantial benefits to Arizona. Because APS will be a joint participant with SCE in this project, APS will avoid a large capital contribution. As shown in Table 1, SCE estimates the value to Arizona is \$30 million (\$2009 Present Value).

III.

Preliminary Monetization of Additional Benefits

As recommended by Arizona stakeholders, SCE used the WGA WREZ Technical Committee cost estimates to quantify the avoided cost benefits associated with the right of first refusal option, SCE's joint participation in the HTP, and interconnection of the TS-5 project into Delany Switchyard. Using this methodology, these three new benefits are worth \$197 million (\$2009 Present Value) to Arizona.

The newly quantified benefits associated with DPV2 are not limited to these three benefits alone. For example, SCE agreed to spend approximately \$10 million (\$2009 Present Value) for mitigation measures in the Kofa National Wildlife Refuge.¹⁰

Other additional benefits that have not yet been quantified include, but are not limited to, scheduling charge savings for Harcuvar Participants and jobs and other benefits associated with construction and operation of renewable power plants. SCE will continue to develop and refine its calculations of these benefits and identify additional benefits as new information becomes available.

IV.

Updated Impact Assessment

In addition to identifying and quantifying new benefits, the stakeholders also discussed ways to assess the potential costs of the DPV2 Project to Arizona ratepayers.

¹⁰ See U.S. Fish and Wildlife to FERC, dated November 6, 2008 Docket PT08-1 regarding DPV2 Right of Way Permit dated May 18, 2007.

SCE stated that previous analyses relied on now-outdated assumptions.¹¹ SCE is in the process of updating the previous analysis; the major updates in assumptions are due to:

- An increased pool of new generation resources, including conventional and a significant amount of renewable resources, that will serve more load in California;
- Reduced load forecasts in California and Arizona (which reduces the likelihood that Arizona utilities will need to purchase from the spot market during off-peak periods); and
- Recent changes of ownership of resources in Arizona such that more of the Arizona load will now be served with Arizona utility-owned resources (which tend to reduce the likelihood that Arizona utilities will need to make spot market purchases).

SCE explained that the pool of generation resources in California has increased due to higher levels of renewable goals in California, and multiple rounds of bid solicitations (*e.g.*, Requests for Offers) for new resources to serve the SCE area. Additionally, SCE and other entities have constructed and will be constructing new resources in the future. For example, since SCE filed the DPV2 application in 2006, 1,200 MW of gas-fired generation has come online (within the CAISO system) in California and 3,000 MW of additional generation are under construction. As the supply of generation resources increases, DPV2's effect on spot market prices at the Palo Verde Hub decreases.

Moreover, projected load growth forecasts in both California and Arizona have declined for various reasons including the development of more energy efficiency programs and the increase of expected distributed generation as well as the current economic conditions. Reduced load growth reduces the need for both California and Arizona utilities to purchase spot-market energy.

¹¹ The stakeholders also discussed the reference in the November 7, 2008, Special Open Meeting that DPV2 would result in a \$242 million cost to Arizona ratepayers. This number did not reflect fully the prior analysis concerning the impact to Arizona ratepayers because it did not include the revenues that would flow back to ratepayers via Arizona utilities' off-system sales across DPV2.

In addition, SCE explained that DPV2 would have no negative impact to Arizona utilities and their customers if Arizona utilities do not purchase from the spot-market during off-peak periods, or if spot-market sales equal or exceed their spot market purchases (for example, as is often the case, if Arizona utilities enter into long-term contracts, or generate themselves instead of making spot-market purchases).

SCE informed the Meet and Confer stakeholders that SCE's preliminary estimate of the impact from making spot-market purchases, without considering offsetting benefits, would be approximately \$55 million (\$2009 Present Value over the life of the project) with the California renewable energy goal of 20 percent by 2010. SCE continues to refine this analysis as new information is collected provided by SCE and the other stakeholders.

Importantly, the impact on the spot market cannot be considered in isolation. Even if there were impacts on Arizona utilities and their customers (from spot-market purchases), the impacts would be more than offset by the other benefits.

V.

Other Issues Raised by Arizona Stakeholders

The Meet and Confer Participants discussed the following proposals, many if not all of which would require appropriate regulatory approvals, including approval from the California Public Utilities Commission, California Independent System Operator and Federal Energy Regulatory Commission.

A. CAISO Control Area Boundary – DPV2 Stakeholders have stated an interest in moving DPV2's CAISO Control Area from Delany Switchyard to a yet-to-be-determined location in western Arizona. SCE remains willing to continue dialog with the CAISO regarding the requested changes to the control area boundary. Changes to the control area are subject to CAISO and FERC approval.

B. Kofa Additional Mitigation – SCE's Proponent's Environmental Assessment (PEA) filed with the Bureau of Land Management and U.S. Fish and Wildlife Service in 2005 included applicant proposed mitigation for the Kofa National Wildlife Refuge. The BLM included additional mitigation in the Final Environmental Impact Statement (EIS) published in November 2006. During permit negotiations with the U.S. Fish and Wildlife Service, SCE agreed to implement additional mitigation measures beyond those identified in SCE's PEA and the BLM's EIS. Measures included improvements to the Kofa radio system, installation of a video surveillance system, funding for National Wildlife foundation studies within the Kofa, and weed control programs. The estimated cost of these mitigation measures is approximately \$10 million (\$2009 Present Value)

C. Access to Natural Gas Storage in California – The Arizona Corporation Commission Staff has asked that SCE support efforts to expand access to existing natural gas storage facilities within Southern California. In proceedings before the California Public Utilities Commission, SCE has endorsed efforts by Sempra Energy to increase off-system sales to states such as Arizona. SCE continues to support these efforts and expects a favorable decision by the CPUC in the third quarter of 2009.

D. Hoover Dam Allocation – The Arizona Municipal Power User's Association has expressed interest in SCE's potential share in the unallocated portion of the Hoover Dam output. SCE stated that the subject of the Hoover allocation is not related to the DPV2 project and the transfer of interests in these very different forums is not feasible.

E. Palo Verde Nuclear Generating Station Decommission Costs – Now-Chairman Kristin Mayes suggested that SCE might pay for a portion of Arizona utility decommissioning costs at the Palo Verde Nuclear Generating Station during the ACC November 7, 2008 Special Open Session. SCE believes that decommissioning costs are

not related to DPV2 and is not willing to consider paying a portion of Arizona utility nuclear decommissioning costs.

F. Four Corners-Moenkopi-Eldorado 500 kV Line Upgrade - Salt River Project and Tucson Electric Power stated an interest in upgrading the Four Corners-Moenkopi-Eldorado 500 kV Line to obtain incremental capacity entitlement. While the Four Corners-Moenkopi-Eldorado line is unrelated to DPV2, SCE would consider working with Arizona entities to determine the feasibility of upgrading Four Corners-Moenkopi-Eldorado. Included in the feasibility evaluation would be SCE's determination of providing the incremental capacity entitlements to the Arizona utilities. Additionally, during the first Meet and Confer meeting, APS, the line's operator, expressed four hurdles to upgrading this line: (1) completion of technical studies; (2) scheduling of the incremental increase; (3) right of way issues; and (4) requirements for a Special Protection System and fair implementation among the owners of the Four Corner Plant.

VI. **Conclusion**

In accordance with the request in the Commission's November 7, 2008 Special Open Meeting, the Meet and Confer stakeholders identified and evaluated some of the additional benefits associated with DPV2, and discussed conceptual methods that could be used to monetize these benefits. SCE believes that the Meet and Confer sessions were productive in helping SCE better understand Arizona's needs and challenges. SCE also believes that DPV2, if constructed, will provide substantial benefits to Arizona, including the acceleration of Arizona as the leading developer of solar generation in the United States.

Attachment 1

Summary of Meet and Confer Process

SCE, APS, TEP, CAWCD, SRP, and Mohave Electric Cooperative met on November 18, 2008, to establish the Meet and Confer process. On November 25, 2008, SCE submitted a letter that described the agreed-upon Meet and Confer process involving two Meet and Confer sessions, and a report on the results by February 9, 2009. The first Meet and Confer session was on December 1, 2008, and was sponsored by Salt River Project ("SRP"). The second session was held on January 22, 2009, and was sponsored by APS. The Meet and Confer sessions were attended by SCE, APS, Arizona Power Authority, Central Arizona Water Conservation District ("CAWCD"), Tucson Electric Power ("TEP"), SRP, Southwest Transmission Cooperative Inc. ("SWTC"), and Arizona Municipal Power Users Association ("AMPUA"). The primary items discussed during the sessions included renewable power developments in western Arizona; the Harcuvar Transmission Project and Salome Substation; and monetization of costs and benefits.

Attachment 2

November 25, 2008 Letter
From: Southern California Edison Company
To: The Arizona Corporation Commission



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November 25, 2008
2008 NOV 25 P 2:39

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Chairman Mike Gleason and Commissioners
Arizona Corporation Commission
1200 West Washington, 2nd Floor
Phoenix, Arizona 85007

AZ CORP COMMISSION
DOCKET CONTROL

Re: Docket No. E-00000P-08-0570
Matters Pertaining to the Devers-Palo Verde No. 2 (DPV2)
Electric Transmission Line

Dear Chairman Gleason and Commissioners:

Thank you for providing ongoing support and opportunity for parties to evaluate the Devers-Palo Verde No. 2 transmission project ("DPV2") in a way that points to a mutually beneficial outcome for Arizona, California, and the region.

On November 7, 2008, the Arizona Corporation Commission ("Commission") opened Docket E-00000P-08-0570 for purposes of gathering information on the progress of Southern California Edison Company ("SCE") and other parties in modifying DPV2 to incorporate additional Arizona benefits. Also on November 7, 2008, the Commission held a Special Open Meeting to hear a report from SCE, and Arizona utilities and other entities, on the progress made to date regarding modifications to DPV2. SCE is encouraged by the progress parties are making and the facilitation provided by the Commission.

At the conclusion of the Special Open Meeting, the Commission asked SCE to prepare a proposed meet and confer process for review by the Commission. During a subsequent meeting held November 18, 2008, SCE solicited and obtained input from stakeholders on a proposed process. The resulting meet and confer proposal is as follows:

SCE will schedule two stakeholder meetings to be held in Arizona, one in December 2008 and one in January 2009, to discuss potential modifications to DPV2. On or before February 9, 2008, SCE will submit a report in the docket identified above that summarizes the results of these meetings and provides an opportunity for other interested parties to review and provide comments.

Arizona Corporation Commission
DOCKETED

NOV 25 2008

DOCKETED BY	<i>MM</i>
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Fax 626-302-9114
les.starck@sce.com

SCE appreciates the efforts of the Commission and its Staff to facilitate ongoing dialogue and assistance as SCE works with stakeholders to develop a mutually acceptable project.

Sincerely,



Leslie E. Starck
Vice President

JAM:dc DM1587718

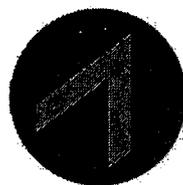
cc: Commissioner Kristin Mayes
Commissioner William A. Mundell
Commissioner Jeff Hatch-Miller
Commissioner Gary Pierce
Ernest Johnson
Janice Alward
Brian McNeil

Attachment 3

November 12, 2008
AERO Solar Task Force Report

Arizona Economic Resource Organization (AERO) Solar Task Force Report

November 12, 2008



Arizona Economic
Resource Organization
Shaping the Future of Arizona

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Executive Summary

The AERO Task Force was formed at the request of Governor Napolitano to develop a strategic framework to guide Arizona's efforts to become a world leader in the solar power industry. Specifically, Governor Napolitano asked the Task Force to help (i) clarify the vision for Arizona as a global leader in the solar industry, (ii) describe the strategies through which Arizona can achieve this vision, (iii) recommend major initiatives required to execute the strategies that are outlined and (iv) suggest next steps to begin implementation.

The Task Force, comprised of the members listed in Appendix A, held a total of five (5) formal meetings and a number of informal work sessions among subgroups. This Report describes the conclusions of the Task Force regarding the vision, strategies and key initiatives. The accompanying document entitled "Recommended Actions" describes the specific actions that the Task Force believes should be undertaken now to advance the initiatives described in this Report.

In summary, Arizona can become a global leader in incorporating solar power into its energy mix and in exporting high value solar technologies, products and services to global markets. By leveraging its preeminence in the solar power industry, Arizona also can become a global leader in a broad set of industries that characterize the information-based societies and economies of the 21st Century.

To achieve this vision, Arizona must:

- 1) Create an Arizona market for utility-scale solar power;
- 2) Develop an export market for utility-scale solar power;
- 3) Develop a sustainable market for distributed solar generation;
- 4) Attract and develop leading solar companies (existing and emerging) to base operations in Arizona; and
- 5) Continuously bring innovations to market that rapidly expand and enhance solar power solutions in response to electricity consumer preferences

The Task Force identified the following specific initiatives that are needed to accomplish each of the objectives listed above:

- 1) To create an Arizona market for utility-scale solar power:
 - Develop a statewide solar scenario that documents Arizona's vision for a solar market
 - Plan and develop solar power transmission projects
 - Advocate a federal energy policy that facilitates the development of the solar market in the U.S.

- Streamline permitting and approval processes for project development
 - Develop a comprehensive land plan
 - Employ a competitive procurement process through which utilities select solar solutions
- 2) To develop an export market for Arizona utility-scale solar power:
- Facilitate interstate purchases and sales of solar power between Arizona generators and large electric consumers
 - Support regional planning that results in a western regional market for solar power from Arizona
- 3) To develop a sustainable market for distributed solar generation:
- Integrate distributed solar generation into the statewide solar scenario
 - Streamline approval processes for construction and interconnection
 - Establish sustainable economic price signals
 - Enable an uncapped, competitive marketplace for distributed generation
 - Provide a reasonable transition for solar companies with a substantial Arizona presence from subsidized to sustainable markets in Arizona
- 4) To attract and develop leading solar companies to base operations in Arizona:
- Develop Arizona-based companies
 - Attract targeted companies to re-locate to Arizona with a combination of attractive market opportunity, favorable business climate and competitive economic incentives
 - Develop creative approaches to recruit targeted companies through private sector initiatives
- 5) To continuously bring innovations to market that rapidly reduce solar generation costs and expand solar power solutions in response to electricity consumer preferences
- Support Arizona Technology Institute funded by Science Foundation Arizona
 - Develop venture capital funding resources for exceptional business plans
 - Use a robust Arizona solar marketplace to promote continuous reductions in costs and improvements in offerings

The accompanying Recommended Actions take this analysis a step further and suggest specific actions that should be undertaken now to advance these initiatives.

The fundamental opportunity for Arizona is to be the first to achieve a sustainable market without the excessive use of the types of subsidies that traditionally have characterized the solar industry – a feat we believe is feasible with a focused effort and broad community support. Although market incentives and other subsidies can play transitioning roles, the fundamental requirement for success – and the emphasis of this Report – is the creation of the technical, market and policy infrastructures that are needed to support a sustainable solar market and a leading industrial base.

Traditionally, the solar industry has been awash in consulting reports and studies but typically short on focused and effective action. In markets like solar power that are in their early stages, the best source of knowledge often comes from the iterative, interactive process of working with customers and other relevant stakeholders in the marketplace. The Recommended Actions adopt this approach and offer a pragmatic path to immediate progress.

Both the Report and the Recommended Actions are intended to be dynamic in nature. They will need to be expanded and modified regularly to reflect the knowledge gained from undertaking the initial actions as well as the rapidly changing state of technology, energy markets and other external dynamics.

Background

The world's energy infrastructures are in the throes of fundamental change, driven by global warming, unstable relationships between western countries and petroleum-rich regions and exploding economies and populations in developing countries. These issues, combined with rapid technological advances, are propelling "clean" energy toward prominence. Over the next 20 years, clean energy solutions will become a significant part of the world's energy infrastructure, spawning whole new businesses and industries, propelling new geographic regions to economic leadership and re-ordering many of the consumer, regulatory and political relationships that characterize today's energy infrastructures.

Solar energy will figure prominently in this new order. The solar resource is ubiquitous and abundant, and capable of meeting a large portion of the world's energy needs. The solar electric industry is already taking off. Photovoltaic industry revenues will exceed \$20 billion in 2008, and have grown at a compound annual rate in excess of 45% over the past five years. Nearly 5GW of photovoltaic solar power will be produced in 2008. Solar thermal project pipelines currently exceed 5GW, representing more than \$15 billion of project revenue. Market demand programs and capital inflows are fueling rapid cost reductions and innovation across the entire solar industry. During the past 18 months, approximately \$12 billion of funding from public capital markets and \$4 billion of private equity has flowed into the solar power sector.

Much of the solar industry's industrial and technology development has occurred outside the U.S., and absent aggressive federal and state policy intervention this course could continue to the point that U.S. leadership in the solar industry becomes impracticable. However, with the right federal policies and by moving smartly and quickly, Arizona can secure a leading position in the evolving solar industry.

Arizona possesses a unique advantage when it comes to solar power – an abundance of sunshine found in very few parts of the world. All things being equal, Arizona can generate solar electricity at a lower cost than regions with less sunshine. The market for solar power can be enormous and Arizona, with its favorable solar resource, land availability, large and growing domestic demand and proximity to California and other western states in need of clean power, is well positioned to develop the world's leading market for centrally generated solar power. The Southwestern United States has relied heavily upon coal and natural gas for generating fuels, and is now launching aggressive renewable energy programs. The change is timely, as the cost of these conventional fuels has risen dramatically in recent years. A shift from natural gas to solar power will reduce generation cost uncertainty, reduce dependence on fossil fuel resources, and reduce greenhouse gas and pollutant emissions.

The solar industry is in its relatively early stages of development and solar electricity prices historically have been much higher than the price levels needed to compete with gas-fired electricity. As a result, the solar industry historically has depended on market demand subsidies implemented primarily in Western Europe to achieve commercial scale. In the United States, state and federal tax incentives and utility program incentives have subsidized the market. However, technological advances, commercial scale-up efforts and massive new investments in the solar industry over the past several years have rapidly advanced technologies and reduced solar generation costs. During the same period, both the levels and volatility of gas prices have increased. As a result of these shifts (and the eight year extension

of the federal investment tax credit), we are nearing the point at which solar power will compete economically with gas fired peaking power.

Innovation in the design and implementation of the technical, market and policy infrastructures needed to support widespread solar electricity generation represents a major opportunity in the solar industry and the key to immediately creating a large, sustainable solar electricity market. By focusing its efforts on developing this infrastructure, Arizona can become a leading solar market and the first to create a sustainable (i.e., non-subsidized) market for centrally generated solar electricity in the United States.

The solar industry will invest significant human, technical and financial resources in the Arizona market if:

- 1) A large, long term solar market opportunity is available and communicated to solar industry participants,
- 2) State policies, regulation and resources support long-term investment and ongoing business, and
- 3) A transparent, competitive selection process exists so that solar suppliers can assess their chances of market success and compete to win business.

To become a global industry leader, Arizona must execute a strategy that takes advantage of its unique, renewable generation capability – which means creating a market for solar generation. Structured correctly, a market for solar generation in Arizona would catalyze a powerful sequence of events:

- Deploying large volumes of solar generation systems – ranging from residential and commercial rooftop systems to large “central generation” plants - would create a “critical mass “ of talent and activity in the State, leading to core competencies and innovation.
- The Arizona solar market would attract engineers, contractors and suppliers of solar generation systems to Arizona and create local installation and technician jobs.
- A strong academic and research and development base combined with robust market activity would position Arizona to continuously reduce solar generation costs through “learning curve” effects and to tackle some of the big issues facing the industry – such as how to store or shift renewable energy to parts of the day when it can be best utilized, how to effectively and reliably integrate large volumes of solar generation onto the electricity grid, how to effectively integrate distributed solar generation systems into a building’s broader energy system, and how to design and build integrated products for mainstream consumer acceptance.
- This “know how” would give rise to the types of highly valued, exportable goods and services that communities covet, leading to a strong export flow from Arizona-based companies.
- As the Arizona market gained momentum, a broader ecosystem would develop, including more manufacturers and suppliers locating in Arizona to be closer to their customers and minimize transportation costs and time, expanded research and development collaboration between

industry and Arizona's universities, a robust clean technology venture capital presence and spin off businesses and enhanced start up activity.

In achieving preeminence within the global solar industry, Arizona would necessarily develop a number of enabling technologies and capabilities - ranging from innovations in material sciences and biosciences to novel approaches to policy development and financial engineering – that could be leveraged to form market-leading capabilities across a broader set of industries. The development of a world leading solar industry therefore should be viewed as a key step toward Arizona's larger quest for leadership in the global information-driven societies and economies of the 21st Century.

With this background in mind, the AERO Solar Task Force has developed a set of recommendations that will enable Arizona to move quickly but thoughtfully toward global leadership. These recommendations are organized in a cascading set of goals, objectives and key initiatives described below.

Goals

Arizona's policies and programs should be directed toward achieving the following vision:

Arizona will become a global leader in incorporating solar power into its energy mix and in exporting high value solar technologies, products and services to global markets. By leveraging its preeminence in the solar power industry, Arizona also will become a global leader in a broad set of industries that characterize the information-based societies and economies of the 21st Century.

Strategies

In order to accomplish its goals, Arizona should use its unique natural solar resource and strategic geographic location to create an attractive solar energy market, and leverage its solar market to attract and develop world-leading industrial, innovation, and research and development capabilities.

Arizona should establish a competitive market within the state by conducting planning, implementing enabling policies, and streamlining implementation through a multi-party process. The focus should be on improving the efficiency of getting generation developed and lowering costs – the underpinning of a sustainable market. In addition to a vibrant intrastate market, Arizona should develop opportunities to export solar generation to nearby states, most importantly California.

Timing is important. The recently extended federal investment tax credit of 30% for solar generation is available through January 1, 2017. This is a large incentive, and the market situation is unknown after this date. Arizona must view this near-term window as the opportunity to develop a self-sustaining market for solar generation. Given that it takes five to six years to plan, permit and develop utility scale solar generation, and that all new power plants will most likely require new transmission lines, Arizona has only approximately three years to commit to the projects that will be constructed in this window of opportunity.

Objectives

In order to accomplish its goals, Arizona must:

- 1) Create an Arizona market for utility-scale solar power;
- 2) Develop an export market for utility-scale solar power;
- 3) Develop a sustainable market for distributed solar generation;
- 4) Attract and develop leading solar companies (existing and emerging) to base operations in Arizona; and
- 5) Continuously bring innovations to market that rapidly expand and enhance solar power solutions in response to electricity consumer preferences

The key initiatives needed to accomplish these objectives are described below.

Key Initiatives

1) Create an Arizona Market for Utility-Scale Solar Power

- A. *Develop a statewide solar scenario that documents Arizona's vision for a solar market***
Arizona should develop a Statewide Solar Scenario ("SSS") that documents Arizona's collective vision for a statewide solar market. Specifically, the SSS should communicate the need for solar energy, the value it provides to the state and its electric customers, and how that solar resource fits with resource plans provided by the state's electric utilities. The SSS should describe all aspects associated with desired Arizona solar market, including technology availability, cost, economic impacts, policy issues and opportunities, and procurement requirements.

The SSS would provide guidance to regulators, utilities and other market participants as to the planned solar electricity infrastructure in Arizona, inform the solar industry as to the significant solar market opportunities in Arizona, and inform stakeholders as to the size, shape and economic and performance attributes required of solar generation solutions.¹

¹ Once collected, all data relevant to the SSS will need to be assessed in ways that address its interrelation and complexity. New and robust modeling and simulation tools will be helpful for analysis of all aspects of development of the solar power industry in Arizona. Arizona State University has proposed an analytical tool known as "RenewSim" that could serve these purposes. A more detailed discussion of RenewSim is included in the supplemental materials delivered with this Report. It would be desirable to consider these types of tools and to involve Arizona State University and other Arizona universities in a coordinated effort to support the SSS.

Arizona's universities can also be helpful in conceiving and articulating aspects of the SSS. For example, Arizona State University proposed creation of a new and innovative "Solar Scorecard" is discussed in more detail in the supplemental materials. Other Arizona universities have thoughts on these subjects as well. These would be helpful additions to ongoing, multi-stakeholder process described above.

The SSS should be a "living" document that is developed over time and with the benefit of market experience, through a multi-stakeholder process that includes Arizona's utilities, universities and business community, the Corporation Commission and other policy makers. The Recommended Actions would start the process of acquiring market knowledge that can serve as the basis for the ongoing development of the SSS.

B. Plan and develop solar power transmission projects

Arizona, like the rest of the western region, needs new transmission capacity to transmit power from new generation including solar power on both an intrastate and interstate basis.

Arizona should take the lead in designing and implementing new transmission to ensure that adequate transmission is available for new solar generation projects. The ability to design, approve, and build solar transmission rapidly and cost effectively will not only support reliability, it will also provide Arizona with a significant competitive advantage in the regional marketplace.

Transmission planning and development requires state, local and federal approvals, multiple permits and public support. There are several challenges or considerations relevant to the effective development of new transmission:

- i. Any system extension or improvement necessitates coordination and system impact studies with all affected utilities because of the nature of an electrical system;
- ii. Regulated utilities will require that the transmission project is justified according to its long-term integrated resource plan (which will compare various resource alternatives);
- iii. FERC and state utility commissions will need to justify transmission projects and provide assurances of timely, adequate cost recovery;
- iv. Regional transmission planning must be linked to both utility resource planning as well as wholesale market development, communicating with transmission system owners, load serving entities, regulators and project developers;
- v. Transmission siting is more difficult than ever, given impacted land owners' reluctance to transmission development;
- vi. Permitting, approval and construction timelines for new transmission are long, involving many groups and agencies; actual construction takes only a fraction of the total timeline;
- vii. Transmission interconnection, which is dictated by the utility transmission owner, is time consuming and the cost is often unknown until the project is completed, creating added risk;
- viii. The ability to operate the grid reliably and to its full economic potential requires special design and resource planning considerations due to the intermittent nature of renewable energy generation;

- ix. In the case of interstate transmission, the business and regulatory models for financing and owning new transmission projects are not clearly identified;
- x. Even in-state transmission requires regulatory approval from both the FERC and ACC;
- xi. FERC open access requirements are not necessarily compatible with the efficient utilization of transmission capacity for solar generation; and
- xii. Transmission is expensive to construct, costing \$1-2 million per mile.

Effective management of these requirements and considerations will only occur if key stakeholders work together with a common goal. In part, this work has begun with the regional transmission planning coordination (Southwest Area Transmission planning group or SWAT) and the Arizona Corporation Commission's biennial transmission assessment. Continued monitoring and support of these initiatives as well as utility resource planning efforts is essential².

C. Advocate a federal energy policy that facilitates the development of the solar market in the U.S.

Federal energy policy will significantly influence the development of both an export and a domestic market for solar power. A number of key issues must be monitored and managed in a coordinated manner to best serve the interests of the state. The issues include, i) how the external costs of conventional electricity generation (or alternatively how the external benefits of renewable energy) are recognized and monetized in the marketplace, such as through a carbon tax or a national cap and trade market for carbon to discourage consumption and effectively level the playing field between generation solutions that emit significant carbon and those that do not, ii) continuation of income tax incentives beyond 1/1/2017 and iii) an evolution to a market-based approach such as a national RPS. In addition, Federal policy will also impact the development of the solar markets in the areas of land planning and procurement (mainly through the forest service and the BLM), transmission (mainly through FERC and agencies such as WAPA), and customer support (mainly through the DOD and the DOE).

In each of these areas, Arizona should articulate and support federal energy policies that lead to a sustainable solar market and promote the State's goals and strategies.

² Consideration was given to recommending creation of a new power authority to focus on solar energy issues. The premature creation of a new authority with an overly broad mandate could undermine the work of the Arizona Corporation Commission and regulated utilities and impede development of the solar market in Arizona. The best approach is to begin work within the existing regulatory and market infrastructures and consider creation of new authorities only if and when their need has become clear. The supplemental materials include a report prepared by Arizona State University that addresses some of these alternatives.

D. Streamline permitting and approval processes for project development

The time, cost and uncertainties involved in approving new solar plants, the transmission needed to serve them and the interconnection requests and conditions imposed on interconnections to assure system reliability are excessive and contribute significantly to the total cost of generating and delivering solar power.

By developing new paradigms for transmission and interconnection design as noted above, and by making a concerted effort to streamline the permitting and approval processes, Arizona can attain a significant competitive advantage in terms of the cost of solar generation and the timelines required to bring new generation on line.

E. Develop a comprehensive land plan

Arizona possesses abundant land that is potentially suitable for solar generation and is owned by a combination of BLM, DOD, Arizona State Land Trust, tribal land and private holdings. The selection of land for development and the siting of transmission corridors must be accomplished through an integrated decision making process that optimizes the overall economic and environmental results as well as the benefits to the existing grid. In other geographic markets, the potential for solar project development has stimulated speculative land purchases, driving up land prices that ultimately increase the cost of solar electricity generation.

Arizona should develop an integrated land and transmission siting plan that identifies solar generation zones, procures lands or rights to lands within those zones for future solar generation development and implements an efficient process for making those lands available at reasonable cost to selected developers of solar generation projects over time. Arizona's work should be coordinated with the efforts of the WGA with regard to interstate transmission.

F. Employ a competitive procurement process through which utilities select solar solutions

Arizona utilities should procure solar power (whether solar electricity generated by IPPs or solar systems that utilities own and operate) under competitive and transparent processes. Solicitations should specify economic and performance criteria and be consistent with the SSP described above.

Each solar project will cost several hundred million dollars to well over a billion dollars, requiring very large and extended financial commitments. The most effective way for these projects to proceed is for developers, utilities and regulators to work in concert to reach timely decisions on project selection and remove unnecessary risks associated with cost recovery. Today, the time that elapses from a utility solicitation to regulatory decision is typically 18 months to two years, without any certainty of cost recovery. This process does not effectively consider and mitigate the risks presented by commodity cost fluctuations and uncertainties in the financial markets which make this process perilous. Regulators and utilities will need to streamline that process and grant sufficient surety to enable financing of such large investments.

2) Develop an Export Market for Arizona Utility-Scale Solar Power

The western U.S. will require significant new supplies of renewable energy to meet renewable portfolio standard (RPS) and carbon emissions standards between now and 2020. One study estimates that over 40GW of renewable energy will be installed in the Western Electricity Coordinating Council (WECC) markets by 2020 to meet demand under current RPS programs alone. Solar power can play a significant role in meeting this demand. The same study estimates a solar power demand of between 5-10GW through 2020, depending on the price points. Under more aggressive RPS and carbon emission scenarios, regional demand for solar power can grow significantly beyond this base case. Arizona can use its natural advantages – high solar resource, abundant land, proximity to California and other western states – to lead the solar power export business. In addition, the exchange of solar energy between Arizona and other western states can serve as an economic driver for Arizona while improving overall system reliability. The following additional initiatives are needed to develop a sustainable export market.

A. Facilitate interstate purchases and sales of solar power between Arizona solar generators and large electric consumers

California utilities have unmet needs for solar power that can serve as a short term catalyst and a long term growth driver for the Arizona export market. California investor-owned utilities are subject to a 20% renewable portfolio standard which, applied to the State's large electricity load, creates the largest solar market opportunity in the U.S. by a wide margin. California investor-owned utilities are currently struggling to meet the RPS targets due to transmission constraints and a host of siting issues. There is some chance that California may increase the RPS to 33% and expand coverage to municipal-owned utilities within the near future. In addition, the California climate change law, AB32, may effectively require certain utilities to transition to a 30%+ renewable electricity generation mix. California utilities could accelerate RPS compliance and reduce compliance costs by importing solar power to meet at least a portion of the total demand. Currently, the California RPS program permits California IOUs to procure solar electricity from other states provided the generation comes in through and is delivered within the CAISO grid. Proposals have been floated in California to remove the CAISO restriction and allow solar power deliveries from any WECC regions. On the other hand, proposals also have been floated to allow California utilities to meet some or all of their RPS demands from renewable energy credits based on electricity generated and delivered within WECC, without the requirement to purchase the electricity itself (referred to as "Unbundled" or "Tradable RECs"). The use of Unbundled RECs could, at least in the short term, result in wind power effectively capturing the major share of the California RPS market due to its current lower generation cost compared to solar power. Arizona, because it borders California, is strongly positioned to export power deliveries to California.

Arizona should begin discussions with California to coordinate on a solar energy market in which Arizona generates and exports solar power to meet a portion of California's demand for renewable energy. These discussions would be complicated and require the involvement of a number of parties including (but not limited to) the Arizona Corporation Commission, the Governors, the California Public Utilities Commission, the electric utilities in both states, as well as the CAISO and FERC.

B. Support regional planning that results in a western regional market for solar power from Arizona

The WECC and other groups within the western U.S. are currently engaged in various regional planning exercises to determine how coordinated regional energy policies may expedite the transition to renewable energy and carbon reduction across the region. The outcome of these decisions will impact numerous factors critical to the Arizona export market, including the overall demand for solar power within the region, the price points required to compete in the market place, transmission needs and key competitors.

Arizona should become an active participant in these regional discussions, including the WGA/WREZ interstate transmission siting efforts, and an advocate for region-wide policies that advance Arizona's objective of creating and leading a large regional market for solar power.

3) Develop a Sustainable Market for Distributed Solar Generation

Historically, most residential, commercial and industrial consumers of electricity have not generated their own electricity or made purchasing decisions regarding their electricity supplies. Instead, electricity has been supplied to them by regulated utilities over central generation networks as a basic social entitlement. This paradigm is changing. Consumers of all types are beginning to take an active role in managing their energy and environmental footprints, including generating some of their own electricity. This transformation is being fueled by innovation in a number of areas – photovoltaics that can be mounted on buildings and even integrated into building materials, smart meters, time of use tariffs, energy management systems, hybrid generation (fuel cells, etc.), efficient lighting and other appliances, carbon credits – as well as growing consumer concerns about externalities like the environment and national security. We must augment the traditional electric utility services, which provide critical benefits such as a reliable backbone system, so that customers can choose from a rich menu of energy solutions to satisfy their needs.

A number of countries and states have implemented subsidy programs to stimulate demand for distributed solar generation. These programs have played a valuable role in allowing solar suppliers to achieve commercial scale and reduce costs, but have not led to the innovative solution development and marketing efforts needed to create a sustainable market for distributed solar generation or a new energy paradigm. As a result, once the subsidies abate, demand will likely follow suit.

Arizona is well positioned to capitalize on the rapid declines in solar costs by creating the first sustainable (i.e., non-subsidized) market for distributed solar generation and leading the

transformation to a new electricity paradigm. To do so, Arizona should create the framework for a sustainable market that will encourage the private sector investment and innovation needed to engage consumers in this transformation.

The solar industry will invest significant human, technical and financial resources needed to reduce distributed solar generation costs and to develop and market broad-based, innovative energy solutions to consumers if, (i) a large, long term solar market opportunity is available and communicated to market participants, (ii) solar market participants are able to access consumers directly in a competitive marketplace and (iii) consumers are able to evaluate solar offerings against price signals that encourage sound economic choices.

The following initiatives will enable this type of market environment.

A. Integrate distributed solar generation into the SSS

Subsidy programs for distributed solar generation typically do not consider design factors that will maximize the value of distributed solar generation in the grid in which it is installed, such as (i) the sizes, locations and orientations of distributed solar generation systems that will avoid peak generation, (ii) the benefits of distributing solar generation not just on buildings but throughout the grid in smaller systems that provide support and minimize intermittency effects and (iii) the opportunity to create capacity benefits by marketing various reliability levels to consumers with different needs.

Arizona should include in its SSS a broad blueprint for how distributed solar generation can be designed into the grid to enhance overall economic value. The SSS should include targeted volumes of distributed solar generation throughout the State, with systems located and oriented in a manner that will maximize the value of distributed solar generation to the grid. The SSS should signal to the solar industry that a massive market opportunity for distributed solar generation exists in Arizona.

B. Streamline approval processes for construction and interconnection

The time and cost of securing permits and approvals to enable the construction and interconnection of distributed solar generation systems varies widely across Arizona, reaching as high as several thousand dollars and requiring as long as six months to enable installations of small systems in some areas. By developing standards and educating and training regulatory personnel, these metrics can be dramatically improved, resulting in much lower solar electricity costs.

C. Establish sustainable economic price signals

The Arizona marketplace does not provide a long term price signal for solar power – a price that would enable consumers to assess the financial benefits of a solar power system or suppliers to assess the price points that must be achieved to open a large, sustainable market. Such a price signal, combined with a large market opportunity, would prompt solar providers to invest in expanding the Arizona market.

D. Enable an uncapped, competitive marketplace for distributed generation

Under the current Arizona regulatory scheme, solar providers can market distributed generation systems to consumers in the investor-owned utility service territories up to the limits provided in the RES. To make the economics work, these utilities must make available subsidies and net metering in order to facilitate the sale. Other utilities (non-IOU) maintain voluntary programs that provide little transparency to the marketplace.

Arizona should enable solar market participants to market distributed solar generation and broader energy solutions in a competitive marketplace. Assuming solar generation is sold at sustainable economic pricing (i.e., without subsidies), the market opportunity should be limited only by the SSS and the willingness of consumers to purchase these solutions.

E. Provide a reasonable transition for solar companies with a substantial Arizona presence from subsidized to sustainable markets in Arizona.

The recommendations for developing the Arizona market focus on creating the clarity and permanence needed for a long term, sustainable (i.e., non-subsidized) market. In order to establish the vision and initiatives, Arizona must first determine the economic value of solar power in its various applications in the Arizona market. With this in place, a plan can be developed to assess the nature and extent of required policies, programs, incentives, and business relationships.

Solar subsidy programs are currently structured to provide a financial benefit to consumers either in the form of up-front buy-down payments or energy-based (i.e. ¢/kWh) payments, in addition to an obligation by investor-owned utilities to purchase any customer generation over and above their individual energy needs. The net result is lower utility bills and more cost certainty. In addition, state and federal tax credits provide incentives for solar equipment investment. Today these costs and incentives result in customer economics that range from a sizable premium over the cost of conventional generation to a net benefit which has a fairly lengthy payback period.

Consumers may well be willing to pay a premium over conventional electricity rates for solar power that is effectively integrated into broader solutions and marketed. However, in order to create a sustained, long-term market for distributed solar power, Arizona must work to drive down the cost and increase the value of distributed solar generation, and explore creative ways to fund and provide transition support.

4) Attract and develop leading solar companies (existing and emerging) to base operations in Arizona

A. Develop Arizona-based companies

Many of the jobs created in a solar market are local in nature, such as development, system integration, distribution, technical support and maintenance and monitoring. These can be high paying jobs that stimulate innovation and growth. The creation of a large, sustainable market for solar power will significantly enhance Arizona's chances of developing high quality solar

companies to Arizona. In addition, Arizona offers a relatively attractive business environment in terms of tax burden, utility costs, skilled workforce and infrastructure. Also, Arizona has major research universities with programs focused on solar energy and there are significant incentives to form university/industry partnerships to provide technological support to Arizona industries. These conditions should enable Arizona-based companies to grow nicely.

B. *Attract targeted companies to re-locate to Arizona with a combination of attractive market opportunity, favorable business climate and competitive economic incentives*

In addition to developing Arizona-based companies, it would also be desirable to attract existing solar companies to move to Arizona, particularly those that offer corporate headquarters, manufacturing and/or leading technology. These types of companies can help Arizona to create a critical mass of talent, ideas and technology that will ultimately lead to high value exports and the creation of yet more businesses formation. The creation of an attractive market for solar power will help. However, Arizona is hampered in competing for these companies because it lacks the indigenous entrepreneurial ecosystem of Silicon Valley, which has spawned numerous solar start-up companies over the past three years, and has not provided financial incentives to attract companies, lagging most mountain-west states.

In the last legislative session, certain income monetized tax credits and other incentives were recommended as they could potentially be implemented without impacting the budget and would be attractive to companies seeking a new location. We believe these should be considered as part of a comprehensive package that is designed to make Arizona competitive with states with which Arizona must compete for solar companies. This proposal should be recommended to the Legislature for prompt action.³

³ Certain members of the Task Force recommended more expansive proposals, including:

Arizona Launch Program

A program to promote research and development activities of start-up companies in renewable energy, bioscience and other non-retail industries. Eligible companies would be entitled to transferable corporate income tax credit based on R&D expenditures or payroll. Start-up companies would be allowed to monetize the credits, which would assist them to make further investments to grow and achieve commercialization.

New Overlay on Current Enterprise Zone Program

Arizona's current Enterprise Zone Program would be revised to support a high-wage strategy for Arizona. The program would be administered by the Arizona Department of Commerce in conjunction with the Community Economic Development Commission. Headquarters, manufacturing, and R&D operations renewable energy, aerospace, bioscience and other qualified non-retail projects would be targeted. The program would offer benefits to companies that meet the wage requirement of 175% over current enterprise zone wage and offer health care benefits to full-time employees. There would be minimum investment and job-creation requirements.

Expanded Arizona Global Network FDI Activities with Leveraged Private Sector Support

The renewable energy industries in Germany, Spain, Japan and other parts of the world are growing fast and ready to expand into US markets. The Arizona Global Network's would be expanded to the \$1 million budget level. The AGN would expand direct selling activities in Germany, Spain, Canada, UK and Japan. Private sector leadership could be leveraged to expand program resources, as well as business contacts and referrals.

C. *Develop creative approaches to recruit targeted companies through private sector initiatives*

In addition to considering these recommendations, Arizona should think creatively about how it could create attractive market opportunities for targeted solar companies that base their operations in Arizona. This may involve developing complete supply chains for companies focusing on different aspects of the solar industry. Also Arizona's ability to offer strong university/industry research collaborations for new technology development can be a major incentive. For a select number of elite companies that could greatly accelerate Arizona's reputation and industrial development, broad community based efforts may be necessary and appropriate.

5) Continuously bring innovations to market that rapidly reduce solar generation costs and expand and enhance solar power solutions in response to electricity consumer preferences

For both central and distributed generation, solar electricity costs must be reduced and solar solutions must be improved in order to expand markets beyond subsidy dependence. There are three areas of innovation where Arizona must be strong in order to lead in cost reduction and solution development: (i) core generation technology, (ii) balance of plant development (including building integrated PV, energy efficiency, intermittency management, storage, system electronics and system reliability) and (iii) business model innovation. The following actions will help assure the needed capabilities:

A. *Support Arizona Technology Institute founded by Science Foundation Arizona*

Science Foundation Arizona ("SFAz") has recently established the Arizona Solar Technology Institute ("ASTI"). The goal of ASTI is to breakdown the technology barriers inhibiting the use of solar energy. In order to accomplish this goal, ASTI is identifying specific technology problems and forming research teams to attack these problems. Meetings are held at each of the state universities, the utility companies, and the solar companies in Arizona to inventory the State's current assets and research strengths relevant to solar energy. The results of this assessment are being used to match important technology areas with available research strengths. The resulting projects are problem driven and focused on providing results over a time scale of 3-5 years, with near term milestones. Funding of these projects is shared by SFAz and industry partners and may be leveraged by government grants.

The ASTI can provide a valuable stimulus to research and development efforts in Arizona. It will be important to coordinate closely with ASTI and to support it in any manner practicable over the coming years.

B. Develop venture capital funding resources for exceptional Arizona business plans

Arizona has long struggled with the “chicken and the egg” problem of an insufficient flow of exceptional start-up business opportunities and plans on one hand and insufficient local sources of venture capital to stimulate such opportunities and plans on the other. By focusing on the solar sector, it is possible to break through and establish a viable venture capital flow that can spread to other industrial sectors. This can be accomplished by (i) undertaking a review of technologies and business plans among the Arizona universities and business communities in an effort to identify one or more truly exceptional opportunities, (ii) sponsoring one or more of these opportunities for funding with one or more top tier venture capital firms focused on clean technology and (iii) integrating some of the local capital formation efforts currently underway with these efforts.

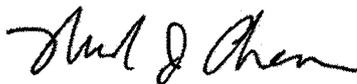
C. Use a robust Arizona solar marketplace to promote continuous reduction in costs and improvement in offerings

Finally, the development of a robust Arizona market for solar power should promote a strong trajectory of continuous improvement among the companies doing business in Arizona. Over the past several years, the solar industry has experienced dramatic cost reduction and performance improvements as a result of the industry’s growth and experience in markets that enable high levels of predictable demand – such as Germany, Japan, Spain and California. By creating the right market conditions based on a sustainable (non-subsidized) market structure, Arizona should be able to surpass the results experienced to date in these other markets.

Conclusion

We appreciate the opportunity to consider these issues on behalf of the State of Arizona. The challenge of creating global leadership in the solar industry is great, the effort required will be significant and the time for making this happen is relatively short. However, this is a challenge well worth undertaking. The opportunity to achieve global leadership in a key industry for the 21st Century is potentially transformative for Arizona. Arizona is endowed with the required natural and human resources. Success will depend on the State’s ability to focus on and solve the critical underlying issues, and to do so in a coordinated fashion. This Report starts the process by recommending the initial areas of focus.

Respectfully submitted



Michael J. Ahearn

Appendix

AERO SOLAR TASK FORCE MEMBERS

Mike Ahearn
Chief Executive Officer
First Solar, Inc.

Stephen Ahearn
Director
Residential Utility Consumer Office

Jim Arwood
Director of Energy Office
Arizona Department of Commerce

Richard Bowen
Associate Vice President for Economic Development
Northern Arizona University

Barry Broome
President & CEO
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Michael Crow
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Philip J. Dion III
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Lori Faeth
Senior Policy Advisor
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Todd Hardy
Associate Vice President for Corporate Engagement
Arizona State University

Bill Harris
President & CEO
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Richard M. Hayslip
Associate General Manager
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Malcolm Humphrey
Vice President – Infrastructure Power Products
National Semiconductor Corporation

Kevin Kayser
Sr. Marketing Manager
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Marco Lopez
Director
Arizona Department of Commerce

Commissioner Kris Mayes
Arizona Corporation Commission

Amanda Ormond
Principal
The Ormond Group, LLC

Bill Post
Chairman & CEO
Pinnacle West

Sal Rivera
Executive Director
Arizona Economic Resource Organization (AERO)

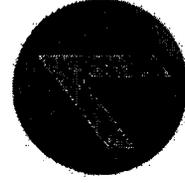
Joaquin Ruiz
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Arizona Department of Commerce

Arizona Economic Resource Organization (AERO) Recommended Actions

November 12, 2008



Arizona Economic
Resource Organization
Shaping the Future of Arizona

Action	Description	Results	Cross Reference to Initiatives in Report
Plan and Execute a Central Generation Solar Project	Solar central generation project of up to 500MW that is sited in an area that represents a proposed solar generation zone.	<p>Use the project to establish the key components of a broader roll-out of central solar generation for the Arizona market. Specifically, this project will be used as pilot to:</p> <ol style="list-style-type: none"> 1. Establish with the ACC a methodology for determining a price for centrally generated solar electricity in Arizona for which the ACC will allow cost recovery for those utilities under its jurisdiction. 2. Demonstrate through the project that sustainable solar electricity prices can be achieved. 3. In coordination with relevant stakeholders, define and locate the project in a solar generation zone that will accommodate future solar generation development. 4. Establish with the ACC, FERC, other appropriate regulatory authorities, and other relevant stakeholders a set of streamlined processes for the approval and utilization of future transmission projects. 5. Establish with the ACC and other relevant stakeholders a set of streamlined processes for the approval of future solar generation projects and interconnection applications (for those utilities under ACC jurisdiction). 6. Generate data that can be used to reduce project costs, influence public policies and programs, and address intermittency and storage issues. 	<ol style="list-style-type: none"> 1. A.B.F. 1. A.B.C.D.E.F. 1. A.B.C.E. 1. A.B.C.D.E.F. 2. A.B. 1. B.D.E.F. 1. A. 4. A.B. 5 A.C.

Action	Description	Results	Cross Reference to Initiatives in Report
<p>Plan and Execute a Distributed Generation Pilot Project</p>	<p>Multi-year residential and commercial PV system program that deploys 3,000 – 5,000 systems (~25MW) in an area that is transmission constrained.</p>	<p>Use the project to establish the key components of a broader roll-out of distributed generation in the Arizona market. Specifically, this project will be used as pilot to:</p> <ol style="list-style-type: none"> 1. Establish with the ACC and other appropriate regulatory authorities, a market-based approach that provides a long term price signal for solar power – a price that enables consumers to assess the financial benefits of a solar power system or suppliers to assess the price points that must be achieved to open a large, sustainable market. 2. Demonstrate through the project that sustainable solar electricity prices can be achieved. 3. Through customer interaction, establish the whole solutions (consumer financing, energy efficiency and management, dashboard, etc.) that will maximize customer value. 4. Develop a community-based education and awareness program that can be used in other communities as the market expands. 5. Establish with the ACC a regulatory structure for a DG market that is limited only by consumer demand assuming sustainable prices are achieved. 	<p>3. A. C.</p> <p>3. A. B. C. D.</p> <p>3. A. B. C. D.</p> <p>3. A. D.</p>

Action	Description	Results	Cross Reference to Initiatives in Report
<p>Create a Community-Based Solar Market Opportunity to Stimulate Solar Business Growth (outside of the RES)</p>	<p>Work with local businesses, schools, governments and electric utilities to secure 50-100MW of commercial rooftop solar projects that can be developed over the next 1-3 years. Make this inventory of projects available to targeted solar integrators based in Arizona.</p>	<p>Use the project to establish the key components of a broader roll-out of distributed generation in the Arizona market and to attract and develop Arizona-based system integrators. Specifically, this project will be used as pilot to:</p> <ol style="list-style-type: none"> 1. Establish with the ACC and other appropriate regulatory authorities, a market-based approach that provides a long term price signal for solar power – a price that would enable consumers to assess the financial benefits of a solar power system or suppliers to assess the price points that must be achieved to open a large, sustainable market. 2. Demonstrate through the project that sustainable solar electricity prices can be achieved. 3. Through customer interaction, establish the whole solutions (consumer financing, energy efficiency and management, dashboard, etc.) that will maximize customer value. 4. Develop a significant market opportunity that can be used to attract or develop a small number of selected businesses to expand their presence in Arizona. 5. Expand community awareness of solar power. 6. Create a way for early stage companies to install demonstration projects in order to facilitate product development and market roll-out. 	<p>3. A. C.</p> <p>3. A. B. C. D.</p> <p>3. A. B. C. D.</p> <p>3. E.</p> <p>3. E. 5. B. C.</p>

Action	Description	Results	Cross Reference to Initiatives in Report
<p>Create a market competitive economic package to attract solar companies to Arizona</p>	<p>Conduct a detailed analysis to ascertain the nature and extent of the gaps between the tax incentives provided by Arizona to Arizona-based solar companies and tax incentives offered by states with which Arizona is competing to attract solar companies. Based on this analysis, structure a tax incentive proposal that is designed to make Arizona competitive with these states. This proposal should be recommended to the Legislature for prompt action.</p>	<p>These measures will make Arizona competitive with the minimum economic benefits offered by other states that are competing with Arizona to attract solar companies.</p>	<p>3. E. 4. A. C.</p>

Action	Description	Results	Cross Reference to Initiatives in Report
<p>Identify and Negotiate with 2-3 Major Solar Companies the Requirements for Them to Base Substantial Operations in Arizona</p>	<p>Identify 2-3 solar companies that could significantly bolster industrial development with substantial presence (corporate headquarters, manufacturing facility, and/or major R&D center) in Arizona. Negotiate the package that will bring them here, including market opportunity, land, economic benefits, etc.</p>	<p>Use the project to refine the target list of companies for recruitment and the benefits that will actually be needed to secure them. Specifically, this project will be used as a pilot to:</p> <ol style="list-style-type: none"> 1. Develop criteria and screening process for companies that are desirable in Arizona. 2. Test the attractiveness of Arizona against the other market opportunities available to these companies. 3. Leverage some of the market opportunities from the pilot projects discussed above to attract companies. 4. Engage the broader community in the recruitment effort. 5. Crystallize the need for any legislative support around specific opportunities that are highly desirable to the Arizona community and the solar development efforts. 	<p>4. B. C.</p>

Action	Description	Results	Cross Reference to Initiatives in Report
Initiate technology development programs to remove barriers to solar energy	Support Arizona Technology Institute funded by Science Foundation Arizona in forming multi-university research teams working with industries to attack targeted issues in solar energy.	<p>Within five years these projects will have demonstrated:</p> <ol style="list-style-type: none"> 1. Cost effective solar concentrators using multi-junction high efficiency photovoltaics 2. Nanostructure architecture for high efficiency thin film photovoltaics 3. Optimized energy storage techniques for all time scales 4. New techniques for photovoltaic testing and reliability 5. Smart grid management tools that include distributed sources and weather predictions 6. Biofuels 	5. A.
Conduct Workshops with Permitting Authorities to Reduce Processing Time for Solar Systems	Develop and conduct workshops for permitting agencies in Arizona communities in order to share best practices on reviewing and approving applications for distributed solar generation.	<p>Workshops will be used to:</p> <ol style="list-style-type: none"> 1. Align solar industry, utilities, agencies with regard to permitting and approval processes and requirements. 2. Standardize processes and requirements across Arizona. 3. Reduce processing time and cost for solar system approval. 	3. B. D.

Action	Description	Results	Cross Reference to Initiatives in Report
<p>Obtain Venture Capital Funding for an Arizona Based Company that Offers Breakthrough Potential</p>	<p>Identify at least one Arizona-based early stage company that has the potential for breakthrough improvements in the marketplace and secure adequate venture funding to support its next leg of growth.</p>	<p>Use this project to baseline the current state of Arizona's innovation and technology, educate scientists and entrepreneurs on requirements for venture funding and focus venture community on Arizona as a source of deal flow for solar. Specifically, this project will be used as a pilot to:</p> <ol style="list-style-type: none"> 1. Develop screening criteria for VC funding of solar businesses. 2. Reach out to the universities and business community for candidate companies. 3. Screen proposals and provide feedback to the community on funding requirements. 4. Engage with top tier VCs with regard to attractive proposals that are identified. 5. Close a transaction and communicate the success broadly within the Arizona community. 	<p>5. B.</p>

Action	Description	Results	Cross Reference to Initiatives in Report
<p>Develop a Communication Strategy that Can be Executed as the Initial Projects are Underway</p>	<p>Define the major public and private stakeholders across Arizona that need to support the solar vision and plans. For each stakeholder group, develop the key message points and plans for communicating them as the pilot projects are being rolled out.</p>	<p>Use the communication plan to:</p> <ol style="list-style-type: none"> 1. Involve key stakeholders whose support will be necessary as the solar market expansion evolves. 2. Educate communities about solar power and the role that Arizona is playing in developing the industry and market. 3. Generate interest outside of Arizona in what we are doing in the state. 4. Create a powerful brand for the state based on solar power and the accomplishments of the State and the companies located here. 	