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BEFORE THE ARIZONA CORPORATION C

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Arizona Corporation Commission

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AZ CORP COMMISSION  
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IN THE MATTER OF THE  
APPLICATIONS OF ARIZONA PUBLIC  
SERVICE COMPANY FOR APPROVAL  
OF SCHOOLS AND GOVERNMENT  
RENEWABLE PROGRAM AND FOR  
APPROVAL OF ITS RENEWABLE  
ENERGY STANDARD AND TARIFF  
IMPLEMENTATION PLAN FOR 2011

DOCKET NO. E-01345A-10-0166  
DOCKET NO. E-01345A-10-0262

**REQUEST FOR APPROVAL OF  
MODIFICATION TO DISTRIBUTED  
ENERGY ADMINISTRATION PLAN**

**Expedited Treatment Requested**

With this filing, Arizona Public Service Company ("APS" or the "Company") is requesting that the Arizona Corporation Commission ("Commission") approve a modification to the Company's Distributed Energy Administration Plan<sup>1</sup> ("DEAP"), which was approved as part of its 2011 Renewable Energy Standard Implementation Plan.<sup>2</sup> The proposed modification would address the increased volume of new technologies and products needing to be tested, by allowing more authorized entities to determine whether a solar water heating technology met the required standards to qualify for APS's renewable energy incentives. Currently, the Solar Rating Certification Corporation ("SRCC") is the only authorized entity. APS is proposing that a Nationally Recognized Testing Laboratory ("NRTL") or an American National Standard Institute- ("ANSI") accredited laboratory that has been approved by APS also be authorized to

<sup>1</sup> The DEAP details the process by which customers will obtain incentives, the requirements associated with the selection, installation, and operation of the distributed energy ("DE") system, and the measurement of DE performance for compliance reporting and program evaluation. See Exhibit B to the 2011 RES Implementation Plan.

<sup>2</sup> Approved in Decision No. 72022 (December 10, 2010).

1 certify solar water heating technologies to the Operating Guidelines-300<sup>3</sup> (“OG-300”)  
2 standard, which is required to be eligible for renewable incentives. As new NRTL or  
3 ANSI accredited entities provide standards and certification to the OG-300 standard,  
4 APS will validate that the certification meets the standard and collaborate with the  
5 installers and stakeholders regarding the results.

6 This modification is necessary because the SRCC has not been able to process  
7 new-technology requests at a pace that keeps up with demand, and as a result, innovative  
8 technologies that have not yet been certified are not eligible for renewable energy  
9 incentives. The solar water heating industry has realized rapid product adoption over the  
10 past three years, and there has been an increase in innovative technologies and products.  
11 As a result, the SRCC has a waiting list of up to one year for products to undergo testing  
12 for the requisite certification. Both homebuilders and residential customers have  
13 informed APS that they wish to install new innovative solar water heating technologies,  
14 but have been unable to do so because those products have not yet been certified by  
15 SRCC, and are therefore not eligible for incentives. In response, APS has sought  
16 alternatives to SRCC.

17 In October 2010, the International Association of Plumbing and Mechanical  
18 Officials<sup>4</sup> (“IAPMO”), an ANSI-accredited entity that provides standards and  
19 certifications to the plumbing and mechanical industries, began issuing certified ratings,  
20 purported to be equivalent to the SRCC’s OG-300 rating. APS contracted with an  
21 industry expert, Building Specialists Inc. (“BSI”), to evaluate IAPMO’s OG-300  
22 certification process to determine whether it was equivalent to SRCC’s certification.  
23 BSI analyzed the IAMPO model, data inputs and assumptions, and the certification itself

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24  
25 <sup>3</sup> The OG-300 standard is an industry-accepted standard that reflects rated energy performance for a  
solar water heating system.

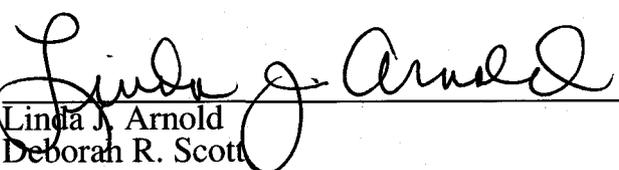
26 <sup>4</sup> IAPMO Research and Testing, Inc. is a product certification body which tests and inspects samples  
27 taken from the supplier's stock or from the market, or a combination of both, to verify compliance to the  
28 requirements of applicable codes and standards. This activity is coupled with periodic surveillance of  
the supplier's factory and warehouses as well as the assessment of the supplier's Quality Assurance  
System. [www.iampo.org](http://www.iampo.org).

1 and determined that there was no technical justification that would preclude APS from  
2 accepting the IAPMO certification.

3 APS met with solar water heater system installers and other stakeholders on  
4 December 13, 2010 and February 15, 2011 to review BSI's assessment and discuss  
5 IAPMO's OG-300 certifications. The stakeholders were supportive of accepting  
6 certifications from multiple accredited laboratories, such as IAPMO, as it should result  
7 in more timely certification and rating of new solar water heating technologies.

8 For these reasons, APS is requesting that the Commission approve the  
9 modification to the DEAP (attached hereto as Attachment A).<sup>5</sup> APS is also respectfully  
10 requesting that the Commission approve this modification to the DEAP on an expedited  
11 basis, to avoid any further delays for customers seeking to install new solar water  
12 heating technologies.

13 RESPECTFULLY SUBMITTED this 8th day of June, 2011.

14  
15 By:   
16 Linda J. Arnold  
Deborah R. Scott

17 Attorneys for Arizona Public Service Company  
18

19 ORIGINAL and thirteen (13) copies  
20 of the foregoing filed this 8th day of  
21 June 2011, with:

22 Docket Control  
23 ARIZONA CORPORATION COMMISSION  
24 1200 West Washington Street  
25 Phoenix, Arizona 85007

26 //

27 //

28 <sup>5</sup> For convenience, only the affected pages of the DEAP are included in Attachment A, rather than the DEAP in its entirety. The changes are noted in bold print.

1 COPY of the foregoing emailed/mailed/  
2 hand-delivered this 8th day of June 2011,  
3 to:

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28

# **ATTACHMENT A**

**EXHIBIT B**



**Arizona Public Service Company**

**Arizona Public Service  
Distributed Energy  
Administration Plan  
July 1, 2010**

## EXHIBIT B

Distributed energy projects are to be used to serve the Participant's load at the designated point of delivery for APS's electrical service ("service entrance"), or metering point for customers who take service at primary or transmission voltage levels, on adjacent and contiguous sites.<sup>8</sup> It may not be used to serve other service entrances or metering points, even if they are located on the same property and belong to the same customer, unless the service entrances or meters are "totalized" according to APS's Service Schedule 4. If any other requirements described in this Plan conflict with APS approved rate schedules, or government or other institutional requirements as listed above, the conflicting requirements in this Plan may not be imposed.

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

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

- The Active Solar Heating Systems Design Manual developed by the American Society of Heating, Refrigerating, and Air Conditioning Engineers, Inc. ("ASHRAE") in cooperation with the Solar Energy Industries Association ("SEIA") and the ACES Research and Management Foundation (the "Design Manual").
- Arizona state boiler regulations (A.A.C. R20-5-401 to R20-5-420).
- Select technology specific qualification requirements developed by Go Solar California ("GSC").
- Solar Rating and Certification Corporation ("SRCC"). The SRCC criteria and ratings can be viewed at [www.solar-rating.org](http://www.solar-rating.org).
- The International Association of Plumbing and Mechanical Officials ("IAPMO"). The IAPMO ratings can be viewed at [www.iapmo.org](http://www.iapmo.org).
- American National Standards Institute ("ANSI").
- Nationally Recognized Testing Laboratory ("NRTL").
- The Underwriters Laboratory ("UL").

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

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<sup>8</sup> Not separated by a private or public property or right of way.

## EXHIBIT B

- The horizontal tilt angle of the collector panels should be between 15 and 60 degrees and the panel orientation should be between +/- 45 degrees of south.
- All systems should be installed such that the energy collection system is substantially unshaded, and systems should have substantially unobstructed exposure to direct sunlight between the hours of 9 a.m. and 3 p.m.

### 4.2.6 Non-residential Solar Water Heating and Space Heating

#### Equipment Qualifications

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

#### Installation Guidance

- The horizontal tilt angle of the collector panels should be between 20 and 60 degrees and the panel orientation should be between +/- 45 degrees of south.
- All systems should be installed such that the energy collection system is substantially unshaded, and systems should have substantially unobstructed exposure to direct sunlight between the hours of 9 am and 3 pm.
- Active, open-loop systems are not eligible for incentives except for active, open-loop systems that have a proven technology or design that limits scaling and internal corrosion of system piping, and includes appropriate automatic methods for freeze protection. Details disclosing conformance with this exception shall be submitted as part of the ES&D report or manufacturer's verification documentation.

### 4.2.7 Small Solar Water Heating

#### Equipment Qualifications

- **Domestic Solar Water Heating systems must be tested and certified to the OG-300 by the SRCC or an APS-approved NRTL or ANSI accredited laboratory and have a rating that is accompanied by the certified system design schematic.**
- The 'high' temperature limit shall be set at a maximum of 160 degrees Fahrenheit.
- Contractors must provide a minimum five year equipment warranty as provided by the system manufacturer, including a minimum warranty period of two years for repair/replacement service to the Participant. The remaining operational life must be supported by a planned maintenance or equipment replacement schedule.

## EXHIBIT B

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

### 4.2.9 Residential Solar Thermal (Heating and Domestic Hot Water)

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

#### Equipment Qualifications

- The system will utilize OG-100 certified collectors and will be tested and certified to the OG-300 by the SRCC or an APS-approved NRTL or ANSI accredited and have a rating that is accompanied by the certified system design schematic.
- The system must be supported by a five year equipment warranty including a minimum warranty period of two years for repair/replacement service to the

## EXHIBIT B

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

All grid-tied systems will be inspected by APS to ensure the system is connected to the grid in conformance with APS's Interconnection Requirements.<sup>11</sup> Under no circumstances is any grid-tied system to be installed in parallel or otherwise connected with the APS system until such time that the system has been inspected by APS and written authorization is received from APS. APS will normally conduct the interconnection inspection only after the system has been inspected by the AHJ.

Select residential solar water heating systems will be required to pass program compliance checks. The systems will be examined to ensure the system is installed safely and according to the **OG-300 standard** installation guidelines. Payment of incentive funding is contingent on successful passage of the APS compliance check; APS compliance checks for systems installed by active members of the APS Qualified Solar Installer ("QSI") program will be waived after successful passage of the required amount of inspections, upon which incentive funding will be released to the Participant without an APS compliance check.<sup>12</sup> APS will normally conduct the compliance check only after the system has been inspected by the AHJ.

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

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

### 4.4 Metering and Meter Reading

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

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<sup>11</sup> APS's Interconnection Requirements are available at [aps.com](http://aps.com).

<sup>12</sup> The quantity of inspections is determined by the APS QSI program requirements.