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MEMORANDUM

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FROM: Ernest G. Johnson *E.G.J.*  
Director  
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AZ CORP COMMISSION  
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DATE: January 21, 2005

RE: STAFF REPORT ON PROPOSED CHANGES TO THE ENVIRONMENTAL  
PORTFOLIO STANDARD RULES (DOCKET NOS. RE-00000C-00-0377 AND  
RE-00000C-05-0030)

This Staff report provides a summary of comments made, proposals presented, the analysis of Staff, and Staff's recommendations concerning possible Environmental Portfolio Standard Rules changes. Staff recommends a number of rules changes to include: Increase the Portfolio Percentage to 5 percent by 2015 and to 15 percent by 2025. Reduce the solar electricity requirement from 60 percent to 20 percent of an increased portfolio requirement. Add a new distributed renewable energy requirement of 25 percent. Require that a minimum percentage of the annual portfolio requirements shall come from power purchase agreements resulting from open public bids or RFPs. This percentage shall start at 10 percent in 2006, increasing annually to 40 percent in 2010. Funding levels for the Portfolio Standard should be increased. Maintain the \$0.000875 per kWh charge, but increase the monthly caps to \$2 for residential customers, \$75 for small commercial customers, and \$220 for large customers. Develop adjustment mechanisms during rate cases to allow for additional funding, if needed. Remove wording in the rules that re-allocates Demand Side Management funding in System Benefits Charges to portfolio uses. Add new eligible technologies: in-state geothermal electricity generation, solar daylighting, solar space heating, biogas electricity generation, solar water heating that replaces fossil fuels, small new hydropower facilities, and fuel cells that use only renewable fuel sources. Remove the 20 percent limits on solar water heating and solar air conditioning. Require that new eligible technologies must be located in Arizona. Eliminate the 2012 Portfolio expiration date.

EGJ:RTW:rdp

Originator: Ray T. Williamson

Arizona Corporation Commission  
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Service List for: Environmental Portfolio Standard  
Docket Nos. RE-00000C-00-0377 and RE-00000C-05-0030

A copy of the foregoing document has been e-mailed or mailed to all parties of record.

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**STAFF REPORT  
UTILITIES DIVISION  
ARIZONA CORPORATION COMMISSION**

**PROPOSED CHANGES TO THE  
ENVIRONMENTAL PORTFOLIO STANDARD RULES  
DOCKET NOS. RE-00000C-00-0377 AND RE-00000C-05-0030**

**JANUARY 2005**

## STAFF ACKNOWLEDGMENT

The Staff Report on Proposed Changes to the Environmental Portfolio Standard Rules (Docket Nos. RE-00000C-00-0377 and RE-00000C-05-0030) was the responsibility of Staff member Ray T. Williamson.

*Ray T. Williamson*  
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Utilities Engineer-Electrical

**EXECUTIVE SUMMARY  
PROPOSED CHANGES TO THE  
ENVIRONMENTAL PORTFOLIO STANDARD RULES  
DOCKET NOS. RE-00000C-00-0377 AND RE-00000C-05-0030**

The Commission adopted Environmental Portfolio Standard Rules in 2001. In January 2004, the Commission directed Staff to commence a process to consider changes to the rules. Written comments and proposals were submitted and verbal comments were presented at five workshops throughout the state. Staff reviewed the comments and proposals and provides the Commission the following recommendations for changes to the Environmental Portfolio Standard Rules:

Portfolio Percentage: Increase the Portfolio Percentage from 1.1 percent (presently, the maximum) to 5 percent by 2015 and to 15 percent by 2025.

Percentage of Portfolio Dedicated to Solar Electricity: Reduce the solar electricity requirement from 60 percent to 20 percent of an increased portfolio requirement.

New Distributed Renewable Energy Requirement: Add a new distributed renewable energy requirement of 25 percent.

New requirement that part of the Portfolio must come from power purchase agreements resulting from public bids or Request for Proposals (RFPs): A minimum percentage of the annual portfolio requirements shall come from power purchase agreements resulting from open public bids or RFPs. This percentage shall start at 10 percent in 2006, increasing annually to 40 percent in 2010.

Funding: Portfolio Standard funding levels should be increased. Maintain the \$0.000875 per kWh charge, but increase the monthly caps to \$2 for residential customers, \$75 for small commercial customers, and \$220 for large customers. Develop adjustment mechanisms during rate cases to allow for additional funding, if needed.

Return of DSM Funds: Remove wording in the rules that re-allocates Demand Side Management funding in System Benefits Charges to portfolio uses.

Additional Technologies Eligible for the Portfolio Standard: In-state geothermal electricity generation, solar daylighting, solar space heating, biogas electricity generation, solar water heating that replaces fossil fuels, small new hydro power facilities, fuel cells that use only renewable fuel sources.

Removal of Limitations on Solar Water Heating and Solar Air Conditioning: Remove the 20 percent limits on solar water heating and solar air conditioning.

In-state resources: New technologies must be located in Arizona.

Expiration Date: Eliminate the 2012 Portfolio expiration date.

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## **Introduction**

On February 8, 2001, the Commission entered Decision No. 63364, which adopted the Environmental Portfolio Standard ("EPS") Rules. Five parties to the docket filed timely applications for rehearing and reconsideration of Decision No. 63364. On March 29, 2001, the Commission entered Decision No. 63486, which modified the Environmental Portfolio Standard Rules and approved some exemptions to the rules in response to some of the applications for rehearing and reconsideration.

On January 6, 2004, the Commission directed Staff to commence a workshop process to consider a limited number of possible changes to the Environmental Portfolio Standard Rules. Comments on possible changes were requested in February 2004 and over 45 organizations or individuals provided the Commission with written comments.

The Commission Staff conducted a total of four workshops in March and April 2004 to allow discussion of proposed changes to the rules. Two workshops were held in Phoenix, with one each held in Tucson and Flagstaff. A final workshop was held in June 2004 in Phoenix.

This Staff Report provides a summary of comments made, proposals presented, the analysis of Staff, and Staff's recommendations concerning possible Environmental Portfolio Standard Rules changes.

## **Issues**

The Commission identified a number of issues about which stakeholders and interested parties were asked to provide comments and, if desired, to present proposals for changes. The issues were:

Issue # 1. Should Arizona increase its commitment to renewable energy by increasing the portfolio percentage?

Issue # 2. Should the Environmental Portfolio Standard expiration date of 2012 be eliminated?

Issue #3. What is the appropriate resource mix in the portfolio and should new and emerging technologies be included?

Issue #4. How should the funding be allocated among the eligible technologies?

Issue#5. Are static technology percentages still justified and if so, should the percentages be reconfigured in A.A.C. R14-2-1618 B.3.?

Issue # 6. Should the Environmental Portfolio Standard funding levels be increased?

Issue #7. Should Arizona increase its commitment to renewable energy by increasing the surcharge?

Issue #8. Should Demand-Side Management funding be restored?

### **Comments Received about the Issues**

#### **Issue #1. Should Arizona increase its commitment to renewable energy by increasing the portfolio percentage?**

There were a wide range of suggestions about how much to increase the portfolio percentage. Lane Garrett, representing the Arizona Solar Energy Association, suggested 20 percent. Craig Cox, representing the Interwest Energy Alliance recommended a 1,000 MW portfolio standard by 2010. The Tucson Pima County Metropolitan Energy Commission recommended a renewable portfolio standard of 15-20 percent by 2020, in addition to the existing Environmental Portfolio Standard. Hanafi Fiaval of AerRock, LLC recommended 10 percent between 2010 and 2012, and 20 percent by 2015 or 2020. Amy LeGere recommended 10 percent by 2012 and 20 percent by 2020. Gary Nabham recommended a minimum of greater than 4 percent solar, 4 percent wind and 4 percent other renewables. Dr. Kyril Calsayas recommended a portfolio percentage of at least 50 percent. John Neville and Jawn McKinley recommended at least 10 percent by 2012 and 20 percent by 2020.

The Greater Tucson Coalition for Solar Energy recommended an additional renewable portfolio standard of 15-20 percent. Dave Belskis recommended 10 percent by 2012 and 20 percent by 2020. Lynne Gillette of Segue Energy Consulting recommended a 15-20 percentage requirement, implemented gradually over the next 15-20 years. The City of Tucson recommended 15-20 percent by 2020, in addition to the existing Environmental Portfolio Standard. Marshall Magruder recommended increasing the percentage by 1 percent per year starting in 2008 up to 15 percent in 2021. The Solar Thermal Power Division of the Solar Energy Industries Association recommended 5 percent in 2010 and 10 percent in 2015, while retaining the 60 percent solar fraction. Western Resource Advocates recommended a 15-20 percent standard by 2020.

Arizonans for Electric Choice and Competition does not oppose the existing 1.1 percent standard, but believes that any increase should be the result of evaluations showing that unit costs have been driven down and that the increase will not adversely impact rate payers.

Steve Munson of Vulcan Power Company recommended a 10 percent requirement. The Residential Utility Consumer Office supports an increase in the portfolio percentage. Jim Cooley of Progressive Solar recommended an increase in the portfolio percentage.

Steve Gatewood of the Greater Flagstaff Forest Partnership recommended a 10 percent or greater portfolio percentage.

Arizona Public Service Company ("APS") suggested two possible higher EPS goals. Arizona Public Service Company said that a 5 percent goal, to be achieved by 2015, would be appropriate if the EPS removed restrictions on the mix of technologies. APS suggested a second alternative of a lower 3.5 percent goal if the Commission were to require a specific funding set aside for distributed solar resources.

The Renewable Energy Advocates recommended a bifurcated portfolio requirement including the existing 1.1 percent by 2012 and an additional 8 percent by 2010. Tucson Electric Power Company ("TEP") recommended a similar bifurcated portfolio including the existing 1.1 percent by 2012 and the suggestion that an additional "Commercially Ready Renewable Energy Standard" (CRRES) be funded through a Purchased Power and Fuel Adjustor Clause. TEP did not recommend a specific percentage amount for its CRRES proposal.

The Bio Power Group recommended at least 10 percent renewables by 2012 and 20 percent by 2020. Amanda Ormond, of the Ormond Group, suggested a portfolio standard of at least 10 percent by 2012 and 15 percent by 2020. Stirling Energy Systems, Inc. suggested that the portfolio percentage be increased substantially.

The Arizona Chapter of the U.S. Green Building Council suggested a program of 15-25 percent renewables linearly-increased over 10 years, coupled with incentives for reductions in energy consumption in new construction or remodeling.

Issue #2. Should the Environmental Portfolio Standard expiration date of 2012 be eliminated?

Virtually all parties providing comments recommended that the expiration date should be either eliminated or extended for such a time that would allow for long term (20-30 year) contracts to be offered and signed by parties. The vast majority suggested that the expiration date be eliminated.

Issue #3a. What is appropriate resource mix in the portfolio?

The Grand Canyon State Electric Cooperative Association generally supports the broadening of the list of renewable technologies and the levels at which they qualify for the EPS. ETA Engineering supports 60 percent solar in the mix, but including solar thermal in that portion. Solar Focus recommended that Arizona look at New Mexico's approach with extra credits. Lori Glover of So Cool Energy suggested that solar air conditioning be defined as "solar electric." Arizona Public Service Company representatives indicated that APS could meet the 60/40 mix at a later date, if given some flexibility until 2007. Marshall Magruder said that 60/40 is a great mix. Chuck Skidmore from the City of Scottsdale suggested that market forces and engineering economics would determine the best mix.

A number of parties recommended that "woody biomass" be included in the mix of technologies, even though biomass has been an approved portfolio technology since 2001. A large number of organizations recommended the incorporation of biomass plants in the

Environmental Portfolio Standard. These organizations included: Arizona Fire Chiefs Association, City of Flagstaff, City of Prescott, City of Cottonwood, Town of Clarkdale, City of Camp Verde, City of Chino Valley, City of Prescott Valley, City of Snowflake, Northern Arizona Council of Governments, Greater Flagstaff Economic Council, Inc., Greater Flagstaff Forests Partnership, Ponderosa Fire District, Coconino County Board of Supervisors, and the White Mountain Apache Tribe.

Arizonan's for Electric Choice and Competition suggested a focus on least cost resources. Bruce Bilbrey of Natural Lighting Co., Inc. recommended the inclusion of solar daylighting.

Byron McNeil, representing the White Mountain Apache Tribe said that maintaining the 60 percent solar set-aside would make it difficult to include biomass in the portfolio. Chris O'Brian of Sharp Solar recommended maintaining a balance between distributed generation and utility scale systems.

Marshall Magruder recommended that all technologies should be considered, except coal, natural gas, and nuclear. Mr. Magruder agreed with the 60 percent allocation to solar but suggested additional interest toward solar water heating. He recommended a target of 1 million solar electric generation systems by 2021. Andy Kruze of Southwest Windpower recommended changing the mix by including more biomass.

In its May 13, 2004 proposal, Arizona Public Service Company suggested that it could meet a 5 percent EPS goal by 2015 by removing restrictions on the mix of technologies. The Renewable Energy Advocates suggested a baseline program equivalent to the existing portfolio 1.1 percent requirement by 2012, but added a funding set-aside for distributed generation systems. Similarly, the Tucson Electric Power Company's May 11, 2004 proposal recommended a similar baseline program, but without any distributed generation set-aside.

Bob Hammond of Alpha Specialties, Inc. recommended that 85 percent of the portfolio funding be used for utility-scale applications versus smaller distributed generation systems.

Issue #3b. Should new and emerging technologies be included?

Nuclear Generators: Commissioner Hatch-Miller had suggested that Generation III and Generation IV nuclear technologies be considered for the portfolio standard. At the April 5, 2004 Workshop, Mr. Bob Woehl of the Electric Power Research Institute presented information about the status of various types of nuclear energy systems. Generation III+ technology is working toward design certification, but Generation IV technology is not expected to be deployed until 2025.

Hydrogen Fuel Cells: Commissioner Hatch-Miller had suggested that hydrogen fuel cells be considered for the portfolio standard. Hydrogen fuel cells utilize hydrogen and oxygen as fuels. A catalyst encourages a chemical reaction, which creates a flow of electric current.

Numerous types of fuel cells are in research & development and are installed in prototype proof of concept applications.

Solar Space Heating: At the March 5, 2004 Workshop, it was suggested that solar space heating be considered for the portfolio. Including solar space heating would reduce the need for conventional fossil fuels or electricity for space heating. At the April 5, 2004 Workshop, Lori Glover of So Cool Energy, Inc. made a presentation on a product that provides both solar cooling and solar heating.

Biogas Generation: At the March 5, 2004 Workshop, it was suggested that biogas generation should be included in the portfolio standard. At the April 5, 2004 Workshop, Peter Johnston of Arizona Public Service Company and Daniel Musgrove of Universal Entech made a presentation on bio-fuels which included information on biogas and biomass generation. Mr. Musgrove recommended biogas generation be included as an approved technology.

Renewable Fuel-Driven Fuel Cells: At the March 5, 2004 Workshop, it was suggested that fuel cells should only be included if the fuel source is renewable. At the April 5, 2004 Workshop, Dr. Mani Govindasamy Tamizh-Mani of Arizona State University made a presentation on fuel cells. He included calculations and costs for creation of hydrogen from electrolysis by wind and photovoltaics.

Solar Daylighting: At the March 5, 2004 Workshop, it was suggested that solar daylighting should be included. As originally defined in A.R.S. 43-1074, "solar daylighting" means a device specifically designed to capture and redirect the visible portion of the solar beam, while controlling the infrared portion, for use in illuminating interior building spaces in lieu of artificial lighting. At the April 5, 2004 Workshop, Bruce Bilbrey of Natural lighting Co., Inc., made a presentation about solar daylighting.

Solar Water Heating to replace fossil fuels: At the March 5, 2004 workshop, it was suggested that solar water heating for the portfolio standard should not merely be for systems replacing electric water heating. Solar water heating that replaces either electricity or fossil fuels should be an eligible technology.

New Hydro Power Generation: It was suggested that new hydro power facilities be included as eligible technologies.

Solar Electric Cars: At the March 5, 2004 workshop, solar electric cars were suggested as an addition to the list of eligible technologies. At the April 5, 2004 workshop, Mr. Tom Lederle made a presentation about solar electric cars.

Geothermal Electricity Generation: At the March 5, 2004 workshop, geothermal electricity generation was suggested for inclusion as an eligible technology. At the April 5, 2004 workshop, Mr. Steve Munson of Vulcan Power made a presentation about geothermal generation.

Issue #4. How should funding be allocated among the eligible technologies?

The Residential Utility Consumer Office recommended that the allocation of funding among various technologies should result from a workshop or other similar processes to determine state needs. Bob Hammond of Alpha Specialties, Inc. recommended that 85 percent of surcharge funds be allocated to utility scale applications. Energy Resources, Inc. recommends priority be given to technologies that have the highest promise of achieving the least cost energy in the shortest timeframes. Energy Resources, Inc. suggested that concentrating solar power and high concentration photovoltaics best meet that requirement. The Greater Flagstaff Forests Partnership recommended enough funding to produce 15 MW of biomass power with incremental increases based on market opportunities. The Greater Tucson Coalition for Solar Energy recommended that the mix should strongly favor solar and distributed, customer-sited installations. The Coalition recommended that distributed, customer-sited systems be supported by a minimum funding level. Marshall Magruder recommended a 60 percent allocation of funding toward solar with additional interest towards solar water heaters. The Solar Thermal Power Division of the Solar Energy Industries Association recommended sufficient funding allocation to meet the 60 percent solar electric requirement. Stirling Energy Systems, Inc. said that the 60 percent solar set-aside is critical. Western Resource Advocates suggested that, going forward, 60 percent of 1.1 percent of retail sales should be from solar electric resources. The White Mountain Apache Tribe suggested an allocation among various technologies that would include biomass. The Renewable Energy Advocates recommended that up to 30 percent of the surcharge funds should go to distributed generation.

The Greater Tucson Coalition for Solar Energy recommends that a minimum funding level be established for distributed, customer-sited systems. PV Now supports a 60 percent set-aside for solar electricity. Solar Farms, Inc. spoke in favor of removing any bias in the portfolio to any one or select few technologies. Solar Focus, Inc. suggested a process where the bulk of the funding is spent on the most affordable projects. The United Dairymen of Arizona believe that the current 60/40 split allocates too much funding to solar electricity to the detriment of other, low-cost renewable technologies.

Issue #5. Are static technology percentages still justified and if so, should the percentages be reconfigured in A.A.C. R14-2-1618 B.3.?

Grand Canyon State Electric Cooperative Association supports a broadening of the technologies and the levels at which they qualify for the EPS. The cooperatives said that current static percentages on solar and other renewables do not accommodate the geographic and demographic differences among the various utilities. Arizonans for Electric Choice and Competition suggested an approach that focuses on the least cost resource. Tucson Electric Power Company's bifurcated approach would keep the existing 60/40 mix for the 1.1 percent EPS requirement, but allow expansion to a higher overall portfolio percentage without the static percentage requirement for any resources above the 1.1 percent.

The Renewable Energy Advocates recommend maintaining the existing portfolio percentages for the 1.1 percent in their proposed Developmental Environmental Portfolio Standard ("DEPS") program. The Greater Tucson Coalition for Solar Energy is in favor of the current portfolio commitment to solar in terms of a level of megawatts or percentage of funding. The United Dairymen of Arizona believes the 60 percent solar electric requirement impedes the effort to include biogas or other renewables in the portfolio.

Issue #6. Should the Environmental Portfolio Standard funding levels be increased?

Issue #7. Should Arizona increase its commitment to renewable energy by increasing the surcharge?

The Grand Canyon State Electric Cooperative Association said that cooperatives are not opposed to increasing the surcharge to meet the 1.1 percent requirement. The cooperatives suggested that the Commission conduct a statewide survey to see how much customers are willing to pay. Arizonans for Electric Choice and Competition support the continuation of the existing funding structure, but suggested that if there is an increase, it should be proportionate. David Berry of Western Resource Advocates suggested using an adjusting mechanism, which is more flexible than a fixed surcharge. Jeff Schlegel of the Southwest Energy Efficiency Project recommended that DSM funding be restored to the utilities. Lane Garrett of ETA Engineering suggested that the surcharge could be doubled without a problem. TEP supported the shift of funding back to demand side management. TEP representatives said that by removing surcharge caps, DSM funding could be shifted back to energy conservation and TEP could meet the 1.1 percent requirement. Arizonan's for Electric Choice and Competition ("AECC") suggested an idea about a "self-directed program" where the large customers could receive a benefit equal to the amount they paid into the program. AECC is strongly opposed to removing the surcharge caps, but doubling the surcharge and doubling the caps would not be a problem.

The White Mountain Apache Tribe recommended increasing funding to levels that would support construction of a biomass power plant on the Fort Apache Indian Reservation. In a proposal that only related to APS, Arizona Public Service Company suggested an initial annual funding level of \$20 million coupled with an adjustment mechanism which would allow changes in funding in the future.

Energy Resources, Inc. recommends an up-front (pay as you go) investment of funds and avoidance of long-term contracts. Marshall Magruder recommended a shift from large utility-scale project funding to funding of customer-sited systems after 2008. Mr. Magruder also suggested that utilities leverage all EPS funds, with a minimum ratio of 1:5 of EPS funds received to long-term loans. United Dairymen of Arizona said it was not opposed to reasonable increases in funding levels for the EPS as long as measures are taken to leverage both customer-owned and customer-based systems.

Issue #8. Should Demand-Side Management funding be restored?

The comments on the issue of restoration of DSM funding were virtually unanimous in recommending that DSM funding be restored. However, some parties cautioned that, in restoring the DSM funding, there would be a loss of current funding to meet EPS requirements. If the DSM funding is restored, a new funding source to replace it should be identified in order to continue EPS efforts. Some utilities, such as Navopache and APS have already made commitments for the use of the DSM/System Benefits Charge funds.

**Major Comprehensive Proposals**

In addition to providing comments on the specific suggested portfolio changes, a number of organizations provided more comprehensive proposals of how the portfolio standards rules might change. Those who provided the comprehensive proposals are shown below with the website URL for the appropriate proposal:

TEP: <http://www.cc.state.az.us/utility/electric/EPS-TEPC-2.pdf>

Renewable Energy Advocates: <http://www.cc.state.az.us/utility/electric/EPS-REA.pdf>

APS: <http://www.cc.state.az.us/utility/electric/EPS-APSC-2.pdf>

AriSEIA: <http://www.cc.state.az.us/utility/electric/EPS-A.pdf>

Shown below are summaries of the various proposals.

Tucson Electric Power Company

Tucson Electric Power Company was the first to suggest that the renewable effort be divided into two parts. TEP's proposal is entitled "A Proposal for Long Term Development of Renewable Energy Generation in Arizona." The existing Environmental Portfolio Standard would be retained, as is, as a baseline and foundation for a revised portfolio standard. This portion would be called the Developmental Environmental Portfolio Standard (DEPS). Any additional renewable generation requirements added above the 1.1 percent would be handled in a new Commercially Ready Renewable Energy Standard (CRRES) and would be funded by revenue derived from a new Purchased Power and Fuel Adjustor Clause.

TEP recommended increasing the portfolio surcharge rate from \$0.000875 per KWh to \$0.0025 per KWh. TEP also suggested increasing the customer monthly caps to \$1 per month for residential customers, to \$30 per month for small commercial customers and to \$120 per month for the largest commercial customers.

TEP recommended that the DEPS Program continue through 2012, and then terminate. The CRRES Program would have a term of at least 30 years to allow for long term contracts.

TEP did not recommend how large the CRRES Program should be in terms of portfolio percentages, but rather suggested an assessment be done to determine how much renewable electricity could be developed in a timely and cost-effective manner.

TEP also recommended that utilities be authorized to recover the costs of generation, transmission, and renewable resources purchased through auction or developed to meet the CRRES goal.

#### Renewable Energy Advocates<sup>1</sup>

The Renewable Energy Advocates' proposal is entitled "A Proposal for Developing Renewable Energy Generation in Excess of 1.1 percent of Annual Retail Electric Energy in Arizona." This proposal is very similar to that of Tucson Electric Power Company, with some exceptions. The Advocates propose both DEPS and CRRES programs similar to those proposed by TEP. In addition, the Advocates suggest adding a Research and Development EPS program (R&DEPS) that would allow utilities to use shareholder funding to conduct R&D activities on more costly emerging technologies. The Advocates recommend that by 2010, a total of 8 percent of retail sales should come from the CRRES program. The Advocates calculated that APS would need \$20 million per year and that TEP would need \$6.8 million per year to meet the 1.1 percent DEPS requirement by 2012. The Advocates recommended maintaining the existing \$0.000875 per KWh surcharge, but removing all caps for customer groups.

The Advocates' proposal also recommended a "self-directed" option for the General Service customers. This proposal would allow the larger customers to commit to investing a certain amount of funds each year in DEPS qualifying systems at the customer facilities in lieu of paying the DEPS charge. The Advocates added a proposal for a new distributed generation "set-aside." Starting in 2005, 20 percent of surcharge funds would be set aside to be used solely for distributed generation projects. The percentage would increase in 2006 to 25 percent and in 2007 – 2012, the percentage would be 30 percent. Any distributed generation funds not used within a calendar year could be used by utilities in the next calendar year for large-scale utility projects. The Advocates would define photovoltaics, solar water heating, small wind, and solar heating and air conditioning as "distributed generation."

#### Arizona Public Service Company

The Arizona Public Service Company proposal was offered as a way to grant APS a variance to implement the proposal as an alternative to the EPS program. The program would use an open RFP process as the primary mechanism to acquire new renewable resources.

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<sup>1</sup> The Renewable Energy Advocates' proposal represents a wide range of organizations: Arizona Solar Energy Industries Association, Solar Energy Industries Association, Western Resource Advocates, Southwest Energy Efficiency Project, Arizona Clean Energy Industries Alliance, Renewable Energy Leadership Group, Grand Canyon Chapter of the Sierra Club, Grand Canyon Trust, Interwest Energy Alliance, Distributed Energy Association of Arizona, Greater Tucson Coalition for Solar Energy, Kyocera Solar, Inc., BP Solar, Inc., Southwest Wind Power, Inc., and Universal Entech, LLC.

APS proposes two alternative EPS goals. Alternative 1 would reach a goal of 5 percent of retail sales by 2015, but without any restrictions on the technology mix. Alternative 2, the Distributed Solar Option, would have a goal of 3.5 percent by 2015, while setting aside \$5 million per year for distributed solar technologies. Under both alternatives, APS assumes it would have funding of \$20 million per year through 2015. APS would submit a status report in 2007 with a recommendation of whether the funding level should be changed.

APS proposed that its RFP would be for in-state resources, but asked that it be allowed, after a review of results with Staff, to solicit out-of-state resources.

APS proposed a flexible funding mechanism be adopted. An adjustment mechanism based on energy consumption would be established in the pending rate case to collect any funding not included in base rates necessary to comply with the EPS requirements.

#### Arizona Solar Energy Industries Association

The Arizona Solar Energy Industries Association (AriSEIA) presented a proposal entitled "How Arizonans Can Help Achieve the Goals of the Environmental Portfolio Standard: A Proposal for a Uniform EPS Credit Purchase Program."

AriSEIA proposes that the Corporation Commission require utilities subject to the Environmental Portfolio Standard to offer a uniform program for EPS credit purchases. Currently, both APS and TEP have their own unique programs, but they differ significantly in details.

AriSEIA's proposal is that 30 percent of the EPS Surcharge and System Benefits Charge funding be allocated to a Uniform EPS Credit Purchase Program. AriSEIA suggests that 1 percent of the funds be used for program administration and that 2 percent be set aside for customer awareness and education programs. The remaining funds would be divided as follows: 75 percent for photovoltaics and 25 percent for solar hot water systems. AriSEIA suggests uniform incentives of \$3.10/Watt DC or 50 percent of the system cost (whichever is less) for the photovoltaic systems. The incentive for solar water heater systems would be \$1/Watt (equivalent) or 50 percent of the system cost (whichever is less).

The incentive would automatically reduce each year. For photovoltaic systems, the reduction would be \$0.30/Watt DC per year and for solar water heaters, 2 percent per year.

AriSEIA recommended that a stakeholder working group be established and that it schedule meetings over six months to develop the program guidelines. The program would be adopted by October 2004 and would commence on January 1, 2005.

### **Staff Analysis of Comments and Suggestions**

#### **Recommendation on Issue #1. Should Arizona increase its commitment to renewable energy by increasing the portfolio percentage?**

The suggestions for a new overall portfolio percentage were very wide-ranging, from maintaining status quo to numerous suggestions in the 10-20 percent range and one suggestion of a 50 percent portfolio requirement.

Staff agrees with a number of the parties providing comments that the current 1.1 percent portfolio requirement is inadequate and that it should be increased significantly. Arizona utilities have just begun to tap the various potential renewable energy resources in Arizona.

At the five workshops, Staff heard numerous comments about the states that have adopted the highest portfolio requirements in the U.S. Unfortunately, although the percentages in those state portfolios sound promising, the results have been disappointing. Maine, for instance, has a 30 percent renewable portfolio, but much of it is met by coal resources, which most people realize are not "renewable resources." Similarly, Nevada has adopted a 15 percent standard, but the results in early years have also been disappointing. The Texas portfolio standard requires 2880 MW by 2009, but that will only provide a little over 2 percent of Texas' retail sales in 2009.

Staff realizes that solar energy is Arizona's most abundant renewable resource, but it also is relatively expensive compared to many other renewable technologies. By instituting a gradual, but realistic schedule to develop Arizona renewables, Arizona can take advantage of the low cost resources in early years and when those resources are fully utilized, we can move to some of the more expensive resources.

Staff is particularly optimistic about some of the new suggested solar technologies that act more like energy conservation technologies than electricity generators. Those include solar water heating, solar daylighting, and solar space heating. By embracing these technologies in the portfolio, Arizona will start to reduce the demand in electricity, thereby making the portfolio requirements easier to meet. These solar technologies, combined with expanded utility DSM and energy conservation programs, will help to reduce growth in Arizona's electricity demand.

Staff believes that, with a greater use of distributed energy systems, with the addition of new eligible technologies, and with increased funding, that a gradual increase to a 5 percent standard in 2015 and a 15 percent standard in 2025 is both achievable and affordable.

**Staff recommendation:** Increase the Portfolio Percentage to 5 percent by 2015 and to 15 percent by 2025. (The proposed annual portfolio percentage increase is shown in the table on Page 13 of this Report.)

Recommendation on Issue #2. Should the Environmental Portfolio Standard expiration date of 2012 be eliminated?

Virtually all of the parties providing comments agreed that the 2012 expiration date is inappropriate. Although some suggested an expiration date much farther in the future, in order to allow for long term contracts, Staff disagrees. Unless a date more than 30 years in the future is selected, such a date will soon start to limit the length of long-term contracts offered to meet the portfolio. For instance, if a date of 2034 is selected, by 2009, developers will only be willing to offer 25 year contracts to match the end date.

**Staff recommendation:** Eliminate the expiration date.

Recommendation on Issue #3a. What is the appropriate resource mix in the portfolio?

Parties providing comments on the resource mix offered a variety of suggestions. Solar electricity advocates generally liked the 60 percent set-aside. Others who advocate competing technologies suggested that the 60 percent figure does not allow sufficient funding for other technologies to compete. Some suggested that, if the overall portfolio percentage is to increase, the 60 percent set-aside should be reconsidered and adjusted to an appropriate amount.

Staff believes that the Commission, when it enacted the original Solar Portfolio Standard, established a commitment to rely heavily on solar electricity to meet its portfolio requirements. This was re-confirmed in 2001 when the Commission agreed that 60 percent of the portfolio should be solar electricity.

Now, as the Commission considers expansion of the portfolio, that commitment may be continued by re-allocation of the resource mix so that a gradual, growing part of the portfolio will be dedicated to solar electricity. However, as the overall portfolio requirement grows, a smaller percentage of the portfolio will be dedicated to solar electricity, thereby allowing the majority of the portfolio to be provided by non-solar electric technologies.

Staff has developed a suggested solar electricity requirement that maintains the Commission's past commitment to solar electricity. In 2003, the retail sales of Arizona utilities subject to the portfolio standard was 36,293,506,000 KWh.

2003 Combined Retail sales:	36,293,506,000 KWh
2012 Estimated Retail Sales: (assuming 3 percent annual increase)	47,354,793,376 KWh
2012 Total Portfolio Requirement: (1.1 percent of 2012 Retail sales)	520,902,727 KWh
2012 Solar Electricity Requirement: (60 percent of 2012 total requirement)	312,541,636 KWh

Staff recommends that the target for solar electricity in 2012 be approximately the same KWh requirement that is in the existing portfolio: 312,541,636 KWh.

The increase of the solar electricity kWh requirement would be gradual in the early years (2005 – 2007) and would increase in larger increments in the later years (2008 – 2025) as the costs of solar electricity continue to decrease.

Revised Annual Solar Electricity Requirements for the Portfolio Standard

YEAR	Ret. Sales (est.)	Portfolio kWh	Portfolio %	% Solar El.	Solar El. kWh
2005	38,503,780,515	385,037,805	1.00	15	57,755,671
2006	39,658,893,931	495,736,174	1.25	15	74,360,426
2007	40,848,660,749	612,729,911	1.50	15	91,909,487
2008	42,074,120,571	736,297,110	1.75	16	117,807,538
2009	43,336,344,188	866,726,884	2.00	17	147,343,570
2010	44,636,434,514	1,115,910,863	2.50	18	200,863,955
2011	45,975,527,549	1,379,265,826	3.00	19	262,060,507
2012	47,354,793,376	1,657,417,768	3.50	20	331,483,554 <sup>2</sup>
2013	48,775,437,177	1,951,017,487	4.00	20	390,203,497
2014	50,238,700,293	2,260,741,513	4.50	20	452,148,303
2015	51,745,861,301	2,587,293,065	5.00	20	517,458,613
2016	53,298,237,140	3,197,894,228	6.00	20	639,578,846
2017	54,897,184,255	3,842,802,898	7.00	20	768,560,580
2018	56,544,099,782	4,523,527,983	8.00	20	904,705,597
2019	58,240,422,776	5,241,638,050	9.00	20	1,048,327,610
2020	59,987,635,459	5,998,763,546	10.00	20	1,199,752,709
2021	61,787,264,523	6,796,599,097	11.00	20	1,359,319,819
2022	63,640,882,458	7,636,905,895	12.00	20	1,527,381,179
2023	65,550,108,932	8,521,514,161	13.00	20	1,704,302,832
2024	67,516,612,200	9,452,325,708	14.00	20	1,890,465,142
2025	69,542,110,566	10,431,316,585	15.00	20	2,086,263,317

Adjusting the solar electricity percentage will accomplish two goals. First, it will reaffirm the Commission's past commitment to solar electricity. The solar electricity industry in Arizona has grown along with the Portfolio Standard since 1996. Solar manufacturers, distributors, and dealers have relied on the portfolio requirement as an important part of their business plans. By allowing a continued growth in solar electricity kWh requirements, the local solar industry will continue to grow and develop, thereby enhancing the widespread use of clean, renewable energy technologies.

Second, the modification of the set-aside percentage will allow more room in the portfolio for the other eligible technologies and encourage healthy competition among these technologies for a portion of the portfolio requirement.

<sup>2</sup> Note: This kWh amount is comparable to 60 percent of 1.1 percent in the original rules, which was approximately 312,541,636 kWh.

**Staff recommendation:** Change the resource mix from 60 percent solar electric to a smaller percentage of a larger portfolio standard, meeting the 2012 kWh commitment of 60 percent of 1.1 percent of retail sales and then continuing at 20 percent of the overall portfolio.

Recommendation on Issue #3b. Should new and emerging technologies be included?

Staff has reviewed the comments and presentations by various parties and recommends that the following suggested technology NOT be included in the Environmental Portfolio Standard:

Nuclear: Nuclear is not a renewable technology, but, some would say, it is an “environmentally-friendly” technology. Others would counter that although nuclear generation produces no air pollution, the nuclear waste issue and potential for unanticipated radioactive releases make it decidedly “environmentally non-friendly.” No new nuclear plants have been ordered in the U.S. since the Three-Mile Island accident in the late 1970’s. Neither the Generation III nor the Generation IV nuclear energy systems have received design certification as of yet. Staff agrees that nuclear is a viable technology from a technical viewpoint. Nuclear energy’s shortcomings are related to risk, economics, public acceptance and political will. The NIMBY (Not in MY Back Yard) folks and the BANANA (Build Absolutely Nothing Anywhere Near Anything) proponents can be expected to rally to thwart any attempt to build any new nuclear plant proposed for Arizona. There is a serious question of whether there is the political will to support *any* future nuclear power plants in the U.S. Finally, Staff recognizes that including nuclear in the portfolio standard would vary from the Commission’s past guidelines that require that all portfolio technologies be “renewable.” For all the reasons mentioned, Staff recommends that nuclear technologies not be included in the Portfolio Standard.

Staff has reviewed the comments by stakeholders and recommends that the Commission consider the following technologies to be added to the list of eligible technologies in the portfolio standard:

Solar Daylighting: Solar daylighting can replace the need for significant amounts of electricity that are used to light and cool buildings. Since solar daylighting replaces electricity for the lights as well as reduces internal building heat gain from the lights, the savings are multiplied. Although solar daylighting does not produce electricity, it acts like an energy conservation measure, reducing demand for electricity.

Solar Water Heating to Replace Fossil Fuels: The EPS rules currently only allow solar water heating that replaces electricity. By adding solar water heating that replaces fossil fuels, the Commission would reduce the use of fossil fuels, such as natural gas, for water heating and free up the fossil fuels for use in other critical uses such as the production of electricity or industrial applications.

Geothermal Electricity Generation: Adding geothermal electricity generation would allow utilities to utilize another renewable energy source in the generation mix. Although the

geothermal resource in Arizona appears to be somewhat limited, a number of possible projects could contribute toward meeting a portion of Arizona's portfolio requirements.

Small, New Hydro Power Generation: Hydro power generation is a clean source of electricity. Adding small, new hydro power facilities to the list of eligible environmentally-friendly renewable technologies will help meet a portion of Arizona's portfolio requirements.

Solar Space Heating: In many parts of Arizona, space heating for buildings can dominate winter energy bills. By allowing solar space heating to meet portfolio requirements, Arizona customers will reduce the use of electricity and other conventional fuels for heating.

Biogas Generation: Biogas generation is a logical extension of biomass generation. Biogas fuels from wastewater treatment facilities and livestock facilities can provide low-cost renewable electricity generation.

Renewable Fuel-Driven Fuel Cells: Fuel cells that utilize renewable fuels, such as hydrogen that is electrolyzed from water with renewable-generated electricity, should provide clean, renewable electricity. Fuel cells that utilize fossil-fuels as a feedstock or non-renewable electricity to create the fuel would not be eligible. For example, using coal generated electricity to create hydrogen from natural gas would result in negative environmental impacts.

**Staff recommendation:** A number of additional renewable energy technologies should be included as eligible technologies: in-state geothermal electricity generation, solar daylighting, solar space heating, biogas electricity generation, solar water heating that replaces fossil fuels, small new hydropower facilities, and fuel cells that use only renewable fuel sources.

Recommendation on Issue #4. How should the funding be allocated among the eligible technologies?

A number of parties have made suggestions that specific funding percentages be allocated to various technologies or strategies. One example was that 30 percent of funding should be allocated to distributed generation. Another suggestion was that 85 percent of funding should be allocated to utility scale applications.

Staff believes that the most effective way to reach various goals is to specify what the desired result should be and then allow the utilities to allocate funding in the best way to meet that goal. For instance, if the desired result is that 30 percent of portfolio kWhs should come from distributed generation systems, set the goal, but do not restrict the funding. It might take more than 30 percent of funding, but then it might also take significantly less. Allocating dollars as goals in a free market could have the unintended result of increasing the prices offered by vendors, while failing to meet the desired result. History in Arizona gives us a good example of what to avoid. In the 1980s, the combined federal 40 percent solar tax credit and state 35 percent tax credit drove the price of a nominal \$2,000-\$3,000 solar water heating system up to prices as high as \$4,000-\$5,000.

**Staff recommendation:** Do not allocate specific funding amounts or percentages of funding to specific technologies.

Recommendation on Issue #5. Are static technology percentages still justified and if so, should the percentages be reconfigured in A.A.C. R14-2-1618 B.3?

Comments were mixed on the issue of static percentages. Some liked them, while others said that they acted as a deterrent to the selection of various technologies.

Staff agrees that some of the static percentages in the rules should be changed or removed. In retrospect, the 60 percent solar electricity requirement, without significant additional funding to support it, was too large. Similarly, the limitation that solar water heating and solar air conditioning should be no more than 20 percent of the portfolio is not necessary.

Staff has noted that, in the first three years of the Environmental Portfolio Standard, very few large-scale renewable energy projects have been constructed in Arizona. Arizona utilities have chosen, for the most part, to install utility-owned renewable technologies in small increments, usually 5 MW or less. Although such an approach has resulted in a low-risk, gradual increase in renewables in Arizona, the approach may have discouraged large third-party renewable developers from coming to Arizona.

Staff believes that results in other states with portfolios have shown that by encouraging power purchase agreements resulting from bids or RFPs, third party developers have been able to take advantage of construction economies of scale and large-volume manufacturing economies of scale to deliver lower-cost renewable kWh.

Staff believes that requiring utilities to purchase a portion of their portfolio requirements through power purchase agreements resulting from bids on RFPs will open new opportunities for large scale renewables development in Arizona.

Staff does contend, however, that some modest static percentages can enhance the Portfolio Standard. Staff recommends that the following portfolio kWh percentage requirements be included in the rules:

- Minimum 20 percent solar electricity starting in 2012. This will maintain the Commission's commitment to solar electricity and allow a reasonable ramp-up of resources over time. The solar electricity percentage would be 15 percent in 2005-2007, increasing 1 percent per year starting in 2008 up to 20 percent in 2012 and thereafter.
- Minimum Distributed Renewable Energy Requirement. This is an alternative to the proposal of 30 percent of funding for distributed generation. The minimum would be 10 percent of portfolio kWh in 2006; 15 percent in 2007; 20 percent in 2008; and 25 percent in 2009 and thereafter.

- Minimum portion of portfolio kWhs from power purchase agreements resulting from open bids/RFPs. The requirement would be 10 percent in 2006; 15 percent in 2007; 20 percent in 2008; 30 percent in 2009; and 40 percent in 2010 and thereafter.

**Staff recommendation:** Reduce the solar electricity requirement from 60 percent down to 20 percent. Remove percentage limitations on solar water heating and solar air conditioning. Establish a minimum Distributed Renewable Energy Requirement of 25 percent. Require a minimum percent of the portfolio to come from power purchase agreements resulting from bids/RFPs. This percentage shall start at 10 percent in 2006, increasing annually to 40 percent in 2010.

Recommendation on Issue #6. Should the Environmental Portfolio Standard funding levels be increased?

Comments from the vast majority of parties indicated that increasing funding levels were needed to allow utilities to meet existing portfolio requirements. Staff agrees.

If the Commission were to agree with numerous parties that the size of the portfolio should be increased, there will be a need for a similar increase in funding levels. Staff believes that an increase in funding levels should be approved.

**Staff recommendation:** Environmental Portfolio Standard funding levels should be increased using the surcharge.

Recommendation on Issue #7. Should Arizona increase its commitment to renewable energy by increasing the surcharge?

Some parties suggested increasing the surcharge funds collected by doubling or tripling the caps. Others suggested removing the caps entirely. Some suggested greatly increasing the surcharge amount. Staff is concerned about the impact that removing the caps could have on some customers. In particular, the largest customers would see a substantial increase in utility costs if the caps were removed completely.

Staff recommends that caps be increased substantially, but not be removed. The increases would be proportional for the various customer classes. Staff also recommends that adjustment mechanisms be developed during rate cases to allow for additional funding, if needed.

Staff recommends that the Commission allow the development of mechanisms, to be chosen at the customer's request, where 50-70 percent of a large customer's surcharge payments can be re-directed to that customer's premises project, which benefits both the customer (electricity priced at 90 percent of normal rate) and the utility (meeting a portion of the distributed energy requirement). This mechanism could also be chosen by cities, school districts, retail chains, etc.

**Staff recommendation:** Maintain the \$0.000875 per kWh surcharge, but increase the monthly caps to \$2 for residential customers from the existing \$0.35 cap, \$75 for small commercial customers from the existing \$13 cap, and \$220 for large customers from the existing \$39 cap. Develop adjustment mechanisms during rate cases to allow for additional funding, if needed.

Recommendation on Issue #8. Should Demand-Side Management funding be restored?

Staff suggests that an increase in DSM and energy conservation efforts by utilities will reduce Arizona's annual increase in demand for electricity, which today is around 3 percent per year. By slowing the growth in demand, there will be a reduced portfolio requirement, making it easier for utilities to meet portfolio targets.

**Staff recommendation:** Remove the wording in the rules that re-allocates Demand Side Management funding in System Benefits Charges to portfolio uses.

Uniform EPS Credit Purchase Program

Staff has reviewed the proposal by AriSEIA to establish a Uniform EPS Credit Purchase Program.

The existing rules offer incentives for distributed applications. It is clear that the incentives have failed to encourage as much distributed generation as some would have liked.

If the Commission approves either the industry's 30 percent distributed generation funding suggestion or Staff's 25 percent Distributed Renewable Energy Requirement, new distributed applications will result. However, Staff believes that the wide variety of utility programs and requirements could tend to stifle the development of a robust distributed resource program. Therefore, Staff recommends the establishment of a Uniform EPS Credit Purchase Program.

If the Commission does decide to require such a program, Staff suggests that work on the development of the program not commence until after the formal EPS Rule amendment process has commenced. Also, Staff recommends that such a program become effective no earlier than January 1, 2006.

**Staff recommendation:** Establish a Working Group to assist Staff in the development of a Uniform EPS Credit Purchase Program. If such a program is adopted, the work on its development should start once the EPS Rule amendment process has commenced, with an effective date no earlier than January 1, 2006.

Re-Definition of "Solar Resource"/"Solar Electricity"

In comments submitted by Lori Glover of So Cool Energy, Inc., it was suggested that solar air conditioning be considered in the definition of "solar resource" in the rules, and would therefore qualify as a technology in the 60 percent solar electricity set-aside. The reason given was that although solar air conditioning does not produce electricity, it does displace electricity.

Staff has considered the ramifications of this request and recommends that the Commission deny the request for the following reasons.

First, the original intent of the first Solar Portfolio Standard was to require utilities to broaden their generation portfolio away from just coal, gas, nuclear, and hydro and toward the addition of new, clean renewable generation resources. As the portfolio changed, allowing non-generation resources, such as solar water heating and solar air conditioning, a set-aside was included to ensure that at least some of the portfolio remained as solar generation. In fact, the 20 percent limit on solar water heating and solar air conditioning was added to allow a reasonable, but small portion of the portfolio to be non-generation technologies. To re-define solar resource or solar electricity would entirely change the original intent of the portfolio.

Second, if the logic of allowing solar air conditioning to be considered "solar electric" holds, then any other technology that displaces electricity should also be considered "solar electric." That would include solar water heating, solar daylighting, and solar space heating. If we were to re-define all of these technologies as "solar electric," it is doubtful that any true solar electric generation would be installed, since it is generally more expensive than the other technologies.

Third, Staff believes that this re-definition is not needed. The request was driven by the fact that 60 percent of the portfolio currently must be solar electric. If the Commission approves a lower 20 percent solar electric requirement, as recommended by Staff, 80 percent of the portfolio will be available for solar air conditioning or other eligible technologies.

Further, if the Commission adopts either Staff's 25 percent Distributed Renewable Energy Requirement or the industry's proposal for 30 percent of funding for Distributed Generation, solar air conditioning will be included in its own technology set-aside.

**Staff recommendation:** Maintain the existing definitions of "solar resource" and "solar electricity."

### **Staff's Proposal for Changes to the Environmental Portfolio Standard**

Staff has reviewed all written comments submitted and all verbal comments made at the four workshops. In particular, Staff has reviewed the major comprehensive proposals mentioned in this Staff Report.

Some parties have suggested that the portfolio be subdivided into two or more distinct programs. Staff does not believe that the establishment of these new programs are either necessary or productive. In fact, Staff suggests that the multiple program approach may merely increase complexity and cause confusion about Arizona's portfolio. Staff believes that the best elements of the various programs and suggestions can be incorporated into a single, modified Environmental Portfolio Standard that will be greatly improved. Staff recommends the following changes to the Environmental Portfolio Standard Rules:

Portfolio Percentage: Increase the Portfolio Percentage gradually to 5 percent by 2015 and to 15 percent by 2025.

Percentage of Portfolio Dedicated to Solar Electricity: Maintain the Commission's commitment to solar electricity as incorporated in the 2001 EPS Rules. Continue a gradual increase of solar electricity kWh requirements to match the 60 percent of 1.1 percent kWh commitment for the year 2012. After 2012, maintain the solar electricity requirement at 20 percent of the total portfolio requirement, thereby allowing 80 percent of the portfolio to be from non-solar electric resources.

New Distributed Renewable Energy Requirement: Add a new Distributed Renewable Energy Requirement. Starting in 2006, a minimum portion of the portfolio must be from distributed energy resources. In 2006: 10 percent; in 2007: 15 percent; in 2008: 20 percent; in 2009 and beyond: 25 percent.

"Distributed Renewable Energy Resources" are those resources that are located at utility customer premises that either produce renewable electricity or replace the need for use of conventional electricity or fossil fuel energy resources. The technologies considered eligible as distributed renewable energy resources are: solar electric generators, small-scale wind generators (10 kW or less), solar water heaters that replace electricity or fossil fuels, solar daylighting devices, solar space heaters, solar air conditioners, small new hydropower generators, and fuel cells that only use renewable fuels.

"Renewable fuels" for the purposes of this rule are defined as fuels that are derived from feedstocks that are not fossil fuels, and that are produced by renewable energy resources rather than by conventional or fossil-fueled electricity or energy.

New Requirement that a Portion of the Portfolio must come from power purchase agreements resulting from public bids/RFPs: A minimum percentage of the annual portfolio requirements shall come from power purchase agreements resulting from open public bids or RFPs. The

minimum shall be 10 percent in 2006, 15 percent in 2007, 20 percent in 2008; 30 percent in 2009; and 40 percent in 2010 and thereafter. RFPs shall allow bidders to bid for supplying energy only, without the requirement to provide firm capacity or to "firm" renewable capacity offered.

Utilities shall reserve a portion of the power purchased under power purchase agreements for in-state solar electric generation resources, which will help the utilities meet part of their solar electricity requirement.

Funding: Portfolio Standard funding levels should be increased. Maintain the \$0.000875 per kWh charge, but increase the monthly caps to \$2 for residential customers, \$75 for small commercial customers, and \$220 for large customers. Develop adjustment mechanisms during rate cases to allow for additional funding, if needed.

Allow mechanisms, to be chosen at the customer's request, where 50-70 percent of a large customer's surcharge payments can be re-directed to that customer's premises project, which benefits both the customer (electricity priced at 90 percent of normal rate) and the utility (meeting a portion of the distributed energy requirement). This mechanism could also be chosen by cities, school districts, retail chains, etc.

Return of DSM Funds: Remove wording in the rules that re-allocates Demand Side Management funding in System Benefits Charges to portfolio uses.

Additional Technologies Eligible for the Portfolio Standard: A number of additional renewable energy technologies would be included as eligible technologies. These include in-state geothermal electricity generation, solar daylighting, solar space heating, biogas electricity generation, solar water heating that replaces fossil fuels, small new hydro power facilities, and fuel cells that use only renewable fuel sources.

Removal of Limitations on Solar Water Heating and Solar Air Conditioning: Remove the limitation that says only 20 percent of the portfolio requirement can come from solar water heating and solar air conditioning. Remove the limitation that solar water heating only be used to replace electricity for water heating, allowing the replacement of either electricity or fossil fuels.

In-state resources: By focusing on in-state applications, Arizona will distribute new generation throughout the state, much of it within utility distribution grids, thereby lessening the need for new transmission and distribution siting and costs and reducing the annual increase in demand on the existing transmission system. In-state resources will lessen the impact of system outages and distributed generation systems will concentrate new renewable generation at the site of use rather than hundreds of miles away in another state. As a result, the reliability of electricity service to Arizona customers will be enhanced by in-state renewables. Also, the location of the in-state renewables throughout the web of utility distribution lines may serve to strengthen the security of electric services in the wake of national Homeland Security concerns following the

September 11, 2001 attacks. By decentralizing Arizona's generation resources, and moving them closer to the customer locations, Arizona could reduce its vulnerability from attacks on large, central-station power plants or on long, high-voltage transmission lines in remote areas where they are difficult to protect. Staff recommends that all new eligible technologies shall be located in Arizona.

Expiration Date: Eliminate the 2012 Portfolio expiration date.

### **Proposed Definitions for Revised EPS Rules**

"Biogas electricity generation" derives its energy from gases produced from plant-derived organic matter, agricultural food and feed matter, woodwastes, aquatic plants, animal wastes, vegetative wastes, wastewater treatment facilities via anaerobic digestion or other processes. Municipal solid waste that produces gas through a digester process would also be considered to be biogas.

"Biomass" is defined as any raw or processed plant-derived organic matter available on a renewable basis, including dedicated energy crops and trees, agricultural food and feed crops, agricultural crop wastes and residues, wood wastes and residues, aquatic plants, animal wastes, municipal solid wastes, and other vegetative waste materials.

"Distributed Renewable Energy Resources" are those resources that are located at utility customer premises that either produce renewable electricity or replace the need for use of conventional electricity or fossil fuel energy resources. The technologies considered eligible as distributed renewable energy resources are: solar electric generators, small-scale wind generators (10 kW or less), solar water heaters that replace electricity or fossil fuels, solar daylighting devices, solar space heaters, solar air conditioners, small new hydropower generators, and fuel cells that only use renewable fuels.

"Renewable fuels" for the purposes of this rule are defined as fuels that are derived from feedstocks that are not fossil fuels, and that are produced by renewable energy resources rather than by conventional or fossil-fueled electricity or energy.

"Solar daylighting" means a device specifically designed to capture and redirect the visible portion of the solar beam, while controlling the infrared portion, for use in illuminating interior building spaces in lieu of artificial lighting.