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**15 February 2005**

The Arizona Corporation Commission  
Chairman Jeff Hatch-Miller  
Commissioner Marc Spitzer  
Commissioner William A. Mundell  
Commissioner Mike Gleason  
Commissioner Kristen K. Mayes  
Mr. Raymond T. Williamson, EPS Workshop Chairman

Arizona Corporation Commission  
1200 West Washington Street  
Phoenix, Arizona 85007

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Docket Numbers RE-00000C-00-0377 and RE-00000C-05-0030

- Re: (a) ACC Utilities Division Staff Report "Proposed Changes to the Environmental Portfolio Standard Rules Docket Numbers RE-00000C-00-0377 and RE-00000C-05-0030" of January 2005, by Ray T. Williamson, Utilities Engineer-Electrical  
(b) Attachment 1 to Marshall Magruder letter of 29 June 2004 to the ACC "Recommendations for the New Energy Portfolio Standard, A New Funding Source" of 29 June 2004

Enclosure (1): **Recommendations for the New Energy Portfolio Standard, A New Funding Source** dated 15 February 2005

This letter provides recommendations on the Staff Report, reference (a) and provides recommendations for a New EPS funding source in Enclosure (1).

1. Recommendations on the Staff Report.

While reviewing reference (a) the follow recommendations are respectfully submitted:

- a. Recommendations #1 and #3 – Both have a slow growth for the Portfolio Percentage. The attached recommended a faster growth rate for the Portfolio Percentage to reach 15.0% in 2021, four years earlier than in reference (a).
- b. Recommendation #2 – concur.

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- c. Recommendation #3a – it should be noted that the 20% should be the minimum for solar electric and that higher percentages of solar electric are possible.
- d. Recommendation #3b – concur with the additions, however, solar space heating might be hard to quantify, as the EPS funds should not be used to just to fund Arizona rooms.
- e. Recommendation #4 – the utilities need to report how these funds are expended in a prudent manner.
- f. Recommendation #5 – the distributed generation and purchase power agreements are not clear. For example, if A produces electricity and then B purchases, is this same electricity used twice in the Portfolio Percentage?
- g. Recommendation #6 – concur, plus the addition EPS funding option in Enclosure (1)
- h. Recommendation #7 - concur, plus the addition EPS funding option in Enclosure (1)
- i. Recommendation #8 – partially concur, with “demand reduction (DR)” processes being used to reduce peak demand. Overall and general conservation efforts should not receive this funding.
- j. Uniform EPS Credit Purchase Program – concur.
- k. Re-Definition of “Solar Resource”/“Solar Electricity” – concur.

## 2. A New EPS Funding Source.

The Enclosure (1) is an expansion of an oral presentation giving at New Environmental Portfolio Standard Workshop 5 and forwarded to these dockets on 29 June 2004 as reference (a). It provides for a new EPS funding mechanism to provide for both solar-energy and energy efficient buildings and can incorporated into or supplement the EPS Report in reference (b)

Recent Western Governor’s Association resolutions have established an energy goal for a saving of 30,000 MW for the western states by 2010. Thus, a requirement for Arizona’s share is about 3,000 MW that is equivalent to about 1,000,000 residences with solar-electric generation, tied to the grid. This will save approximately \$ 3 billion in electric industry generation, transmission and distribution costs to benefit both the ratepayers and utility companies. This plan should accomplish those goals by 2021.

The new EPS funding mechanism will have the following benefits:

- a. Less electric generation, transmission and distribution infrastructure costs for utility companies.
- b. Lower electric bills due to net metering and energy efficient buildings.
- c. Improved voltage reliability with more local distributed generation sources.
- d. Lower peak power demands.

- e. Even lower peak power demands for users with backup electric storage (batteries).
- f. Higher "connect" charges at \$2.00/square foot for residences paid to the utility for EPS rebates.
- g. Incentives to reduce the "connect" charge to \$500 for solar-electric, grid systems.
- h. Additional incentives to lower connect charges to zero dollars for energy efficient buildings.
- i. Additional funds, from the "connect" charge to retrofit older buildings with solar-electric systems.
- j. Improved ways to use automated digital meters so utilities can establish effective demand reduction programs in conjunction with solar-electric systems.
- k. Funding source for additional rebates to new and existing customers to use solar-electric devices.

Please free to call or request additional information as this topic or additional information about the recommendations, as this topic is critical for long-term reliable, efficient, cost-effective electricity.

Sincerely,



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## Enclosure (1)

### Recommendations for the New Energy Portfolio Standard A New Funding Source

Summary. This provides a new funding recommendation for consideration as discussed during Workshop 5.

#### 1. A New EPS Funding Mechanism.

Arizona has a high growth rate, which is expected to continue for several decades. This requires an expanding energy infrastructure, mostly in the form of electricity and natural gas.

To solve this challenge, it is proposed we have both

- (1) The utility companies continue building large generation sources, including renewables, connected to distant load centers by transmission lines with energy losses and associated pollution concerns, and
- (2) The Customers build local, distributed, customer-owned systems connected to the utility company's grid to reduce the utility company's capital costs for generation and transmission, reduce Arizona's dependence on fossil fuels, improve air quality, and provide additional renewable, sustainable energy sources.

**This proposal adds an EPS Charge or tariff or "an increase in connect fee" for new customers to cover the utility's infrastructure costs and additional funding for the Environmental Portfolio Standard (EPS) program by emphasizing both "customer-owned energy systems" and "high efficiency building structures."**

These new Arizona energy customers do not pay in advance for the infrastructure improvements. The existing customers paid for these in their rates.

This proposal is to reduce this inequity by **adding incentives**, when most economically beneficial, to support

- (1) Customer-owned renewable energy and
- (2) High-efficiency facilities to lower energy demands.

Renewable energy is proposed to account for 15% of the total energy demand in 2021, the other 85% being provided by the utility companies. This will be about 3,000 MW (equivalent to about 8 to 10 power plants and \$3.0 billion dollars), about the allocation for Arizona from the 30,000 MW the past two Association of Western Governor's Conferences have stated as their goal by 2010. Further, the impacts of high-efficiency will be able to demonstrate and assist in funding high-efficiency structures in Arizona.

The term "customer-owned energy systems" is defined to include all energy options permitted under the ACC's EPS program and specifically exclude using refined fossil fuels not available to the property owner. For example, any fuel oil that has to be transported to the customer's site would not qualify, however, fossil fuels generated on-site, such a sludge or methane from a wastewater system or garbage burned to generate electricity would be acceptable

One can reduce the energy demand for a building structure most efficiently when the building is being constructed. There are several programs that have been implemented in Arizona, including the City of Scottsdale, the Cochino County's residential Green Building Program, and the national Green Building Council's LEED business and industrial building standards. The term "high efficiency building structures" will be used to denote an objective goal converted into a "factor" to reduce the new customer charge based on the energy efficiency designed into a new facility.

This proposal will provide infrastructure costs to the load serving utility (of last resort) who has to develop and add equipment, plans, crew training; maintenance, repair and inspection services necessary for all customers which will have to be expanded to cover additional infrastructure costs that the growth required by both customers and distributed generation in its service area.

## 2. Calculation of the EPS Charge for New Construction Facilities.

This **EPS Charge** is for new construction facilities, or any building addition of 1,000 square feet or larger. The following formula will be used:

$$\begin{aligned} \text{EPS Charge} &= \text{Utility Infrastructure Cost} \\ &\pm [(\text{Facility Energy Factor} \times \text{EPS facility charge per square foot}) \\ &\quad - (\text{Customer Owned Renewable Energy System cost})] \\ \text{or EPS Charge} &= \text{UIC} \pm [(\text{FEF} \times \text{EFC}) - \text{CORES}] \\ \text{or EPS Charge} &= \text{UIC} \pm \text{Energy Adjustment} \end{aligned}$$

## 3. Determination of the Cost for each term of the EPS Charge.

- a. **Utility Infrastructure Cost (UIC)** will be charged base on customer categories and conditions below.

<b>UIC =</b>	<b>CUSTOMER CATEGORY AND CONDITION</b>
\$500	• For residential customers under 5,000 square feet
\$1,000	• For residential customers over 5,000 square feet • For business and industrial customer under 5,000 square feet
\$2,500	• For business and industrial customers between 5,000 and 10,000 square feet
\$4,000	• For business or industrial between 10,000 and 20,000 square feet
\$8,000	• For business or industrial between 20,000 and 40,000 square feet
\$10,000	• For business or industrial greater than 40,000 square feet or for any customer, including industrial, with a peak demand that exceeds 1 MW

- b. **Energy Adjustment** equals the **Facility Energy Cost** minus **Customer-Owned Renewable Energy System (CORES)** cost which are discussed below,  
Where,

$$\text{Facility Energy Cost} = \text{Facility Energy Factor} \times \text{EPS Facility cost per square foot} \text{ or } \text{FEF} \times \text{EFC, as shown below.}$$

- c. **Facility Energy Factor (FEF)** The FEF is a factor that represents the design energy efficiency of the facility. When there are energy waivers required for the facility, the FEF will be increased by 0.10 for each such waiver. The traditional facility that meets local building codes, will have an FEF = 1.0. If various energy efficiency measures are designed into the facility, using standard rating scales, then the FEF can be reduced from 1.0 to as low as 0.25 when the "entry" level or Green LEED rating has been reached.

If the "advanced" or Gold LEED rating is reached, the FEF will equal 0.00 and the overall energy adjustment will be zero. Only when the FEF is zero, the Customer-Owned Renewable Energy System (CORES) cost can continue to offset the UIC to no less than zero. In this case, both an energy system and high efficiency structure is required for a zero EPS Charge.

EEF =	CONDITION	CALCULATION
Add 0.10	If any energy deviations or variations are required	Increases 0.10 for each energy waiver
1.00	For any structure that complies with local building code, with no deviations or waivers	None
Between 1.00 and 0.25	Based on the percentage the structure achieves for "Entry" level residential or Green LEED rating for business/industrial facilities	Decrease based on percentage of points achieved to total points available to 0.25 for Entry or Green rating
0.25	If Entry level for residential or Green LEED rating achieved for business/industrial facilities	None
0.00	If Advanced level for residential or Gold LEED rating achieved for business/industrial facilities	None

Passive and active energy systems included in the design will be accounted for in determining the Facility Energy Factor (FEF).

- d. **EPS Facility cost per square foot (EFC).** This is a set cost depending upon the customer category and size of the facility.

EFC PER SQUARE FOOT	CUSTOMER CATEGORY
\$2.00	All Residential and business structures under 10,000 square feet.
\$2.00 to \$4.00	All Business structures between 10,000 and 20,000 square feet.
\$4.00	All Business structures greater than 20,000 square feet.
To Be Negotiated	All industrial customers with \$50,000 being a minimum.

- e. **Customer-owned energy system (COES).** This is the total cost of an installed-EPS approved fuel source, system that can be used offset the Facility Energy Cost.

#### 4. Discussion of the terms of the EPS Charge.

- a. The **Utility Infrastructure Cost (UIC)** will always be paid to the load service utility for all new construction facilities, including residential, business and industrial sites. Other categories shall also be paid, as structured using these guidelines, when determining their tariffs.

The UIC shall be used by the utility to cover its installation costs associated new construction, and shall include installing all electrical systems underground for all residential projects of three homes or more, all businesses, and, when appropriate, distribution lines at industrial sites. The UIC will be used only for new installation costs, including underground systems, and such expenditures shall be audited and reported in its Annual EPS Report to the Commission and in rate cases. Any costs which exceeds the UIC shall be considered in next normal rate case and if costs do not exceed the UIC, then such remaining funds shall be deposited into that utilities EPS Bank account.

- b. The **Energy Adjustment** is added to the UIC to equal the EPS Charge. If the customer installs customer-owned energy systems and/or builds a facility that has a high-energy efficiency rating, in all likelihood, it may have a zero Energy Adjustment. The Energy Adjustment can only be less than zero only if the Facility Energy Factor (FEF) equals 0.00. In this case, the EIC may then be reduced and only reduced to zero. This means the facility meets both a high-energy efficiency rating (e.g., 0.00) and has a customer-owned energy system.
- c. The **Facility Energy Factor (FEF)** is used to reflect the impact of facility construction on requirements for the load service utility to add infrastructure to meet that facility demands. The average building, which meets the local building code, will have a factor of 1.0. There is no national or state level rating system for residential facility energy losses; however, both Cocochino County and the City of Scottsdale have voluntary ordinances that establish residential building standards for energy efficient homes. There is a national standard which rates business and industrial facilities coordinated by the Green Building Council. All three of these have similar rating worksheets and levels of qualification. There is a qualification level necessary to be considered by each of these with "points."

If the local building code has a facility energy rating system, it may be used. The FEF would be based on the percentage attainment of the initial (basic) qualification rating, when FEF is 1.0 which can be reduced based on the percent of energy efficiency enhancements have been included in the facility.

When this initial (basic) energy efficiency rating is obtained, then FEF will be 0.25. If additional, next qualification level ratings are obtained such as Advanced or Gold, then FEF will equal 0.00, thus there will be no Energy Adjustment, and the EPS Charge will equal the UIC.

In addition, when FEF is zero and customer-owned renewable energy system (CORES) costs are greater than the Facility Energy Cost, then the remaining CORES can be used to offset UIC until UIC equals zero. In summary, an energy

efficient facility, which has a customer-owned energy system, may not incur any EPS Charges.

- d. The **EPS Facility cost per square foot (EFC)** will be used to determine the potential energy savings that the facility could easily incur over the facility's lifecycle and is a function of the square footage of residential and business/commercial facilities. EFC uses the facility size in square feet and multiplies that by \$2.00 per square foot, for smaller residential facilities increasing to \$4.00 per square foot for larger, commercial facilities. Industrial facility will have a minimum EFC of \$50,000 but will be negotiated with the utility. The utility will conduct an energy audit on the design and make conservation and efficiency recommendations, including, when applicable, recommendations for customer owned renewable energy systems (CORES). It is expected during this negotiations and energy audit, the utility will be able to ensure modern energy efficiency methods are incorporated into the design.
- e. A **Customer-owned renewable energy system (CORES)** will be an energy generation system that meets the EPS requirements, including solar water heating systems, photovoltaic electricity generation systems, and wind-generation systems.

The Customer-owned renewable energy system (CORES) cost is the total cost of installed CORES. This will be based on the cost of materials, permitting, and labor for installation of any customer-owned energy system covered by the EPS rules.

Passive energy systems included in the design will be accounted in determining the Facility Energy Factor (FEF). Dollar-for-dollar cost of the CORES will be used to offset the Facility Energy Cost, which is  $FEF \times \text{EPS Facility Cost/square foot}$ . If the FEF has been reduced to zero, due to a highly efficient building design, then the Utility Infrastructure Cost (UIC) and be offset, dollar-for-dollar, until the EPS Charge equals zero.

## **5. Some implementation recommendations for the EPS Charge.**

The utility shall calculate the EPS Charge whenever a new meter installation is requested for a new facility. The customer and contractor shall be informed in writing the tentative EPS Charge. The customer may make energy efficiency improvements at the facility is being constructed, so an update to the EPS Charge will be required at least two weeks prior to expected occupancy.

The EPS Charge shall be paid and the local building inspector or department informed in writing by the utility that the EPS Charge has been paid. If the EPS Charge is not paid to the utility, then the utility will be able to put a "hold" on the facility's certification for occupancy.

## **6. Additional EPS recommendations.**

The utility shall consider and install automated, two-way, digital meters in new construction facilities. Such meters shall be remotely readable by the utility, thus

providing the capability to remotely monitor electricity usage by its customers. Further, Demand Reduction (DR) options, as discussed in the letter of 17 April 2004, reference (b), could also be considered. DR programs should be permitted to use UIS funds that can be allocated to this purpose.

The ACC Annual EPS Report shall provide an audit of all terms used in the EPS Charge, including the actual revenues and expenditures for each term. In addition, after the second year, trends shall be reported in the ACC Annual EPS Report. The ACC Annual ESP Reports shall be presented to County Boards of Supervisors and City Councils.

### **7. Allocation of EPS Charges.**

There are two parts of the EPS Charges: (1) Utility Infrastructure Costs (UIC) and (2) Energy Adjustment. See the Questions and Answer below.

### **Questions and Answers about the EPS Charge Program and Funds.**

Q1. Where will the EPS Charge funds go?

A1. The load serving utility shall expend funds from *Utility Infrastructure Cost (UIC)* in the following priority order:

- (1) For all infrastructure additions, changes or modifications required to interconnect, operate and maintain (first year only), customer-owned energy systems,
- (2) For all underground facilities installed to service this customer, and
- (3) For any remaining, to the utility's EPS Bank maintained by the load serving utility.

In some cases, such as when a customer has both a high efficiency facility with customer-owned energy system, then it is possible that no UIC will be available; however, this should NOT change the service provided to this customer when compared with those with a higher UIC.

The *Energy Adjustment (EA)*, if any, shall be added to the utility's EPS Bank.

Q2. What is the utility EPS Bank used for?

A2. This EPS Bank, maintained by the load-serving utility, shall include

- (1) **Developmental EPS (DEPS) funds** with the modified 1.1% EPS surcharges being the source to support the EPS Credit Purchase Program.<sup>1</sup>

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<sup>1</sup> For the details of the modified DEPS surcharge, please see the Arizona Solar Energy Industries Association (ASEIA), "A Proposal for Developing Renewable Energy Generation in Excess of 1.1% of Annual Retail Electrical Energy in Arizona," presented on 25 June 2004 at EPS Workshop 5 by Sean Seitz, President ASEIA. Also, the Arizona Solar Energy Industries Association, "How Arizonans Can Help Achieve the Goals of the Environmental Portfolio Standard," presented during EPS Workshop 1, 28 January 2004, provides excellent data to support this approach.

### EPS Portfolio Standard Goals:

BY YEAR	RENEWABLE ENERGY GOAL (in Percent)
In 2008	Increase from 1.1% to 2.0%
In 2009	Increase from 2.0% to 3.0% and 1.0% annually through 2021 at 15.0%
In 2021	15.0%

- (2) **Commercially Ready Renewable Energy Standard (CRRES)** funds, used by the load serving utility to exceed the 1.1% EPS with biomass (including sludge, methane, and solar thermal projects) up to \$0.05 per kWh above market costs compared to the annual Palo Verde firm peak price level for the prior year. The output of CRRES shall count towards meeting the utility's EPS requirements, as stated in the 16 April 2004 paper. Recovery of CRRES shall be during rate cases.<sup>2</sup>
- (3) **Renewable Energy R&D (RERD)** funds, at 3.0% of the annual **EPS Charge**, to be payable to the ACC Utility Division to fund either ACC Utility Division-directed or for issuing RFPs to Arizona utilities and companies for renewable R&D projects, analysis, or feasibility studies. Any RERD funds, not used, will be accounted for during rate cases, or could be returned to the utility's EPS Bank.<sup>3</sup>
- (4) **Renewable Education and Training (REAT)** funds, at 3.0% of the annual **EPS Charge**, shall be directed by the load-serving utility, to appropriate contractors, builders, county and city planning and zoning employees, involved with the planning, design, installation, operations and maintenance of renewable energy systems. Any REAT funds not expended by the end of the year will revert to the EPS Bank maintained by the utility.
- (5) **Media and Advertising (MAA)** funds, at 1.0% of the annual EPS Charge, shall be directed by the load-serving utility, to various forms of media, including radio, television, newspapers, web pages and public meetings. These media expenses are aimed at providing publicity to the utility's EPS programs with emphasis on customer-owned information including planning, design, installation, operations and maintenance of renewable energy systems information. Any MAA funds not expended by the end of the year will revert to the EPS Bank maintained by the utility.
- (6) **Utility Renewable Energy System (URES)** funds, up to 25% of the annual EPS Charge, shall be directed to provide capital funds for utility-owned renewable energy systems. Any URES funds not expended by the end of the year will revert to the EPS Bank maintained by the utility.
- (7) **Customer-Owned Renewable Energy System (CORES)** fund, at least 68% of the annual EPS Charge, shall be provided to support up to 50% of the cost for any customer-owned renewable energy systems. The EPS Bank will be the source of these funds.

Q3. Why do we need to charge "new" construction facilities?

<sup>2</sup> This is similar to the CRRES concepts discussed in the above ASEIA presented at EPS Workshop 5 and the "A Proposal for Long Term Development of Renewable Energy Generation in Arizona" presented by Tucson Electric Power, 10 May 2004.

<sup>3</sup> This is discussed in the ASEIA Workshop 5 presentation; however, funds for the EPS Charge are used as the funding source and control of the Renewable R&D is the ACC Utility Director.

A3. At present, the utility does not receive any additional funds for providing the infrastructure required to support renewable systems and is not required to have underground wiring for developments as small as three units. The existing utility customers have to fund, via rate cases, new utility infrastructures, sometimes purchased a decade or more in advance. This will relieve some, but not all, of this pressure on the utility and provide, via a priority order for spending this Utility Infrastructure Cost (UIC) to support renewable energy needs.

Q4. Why won't the present 1.1% EPS funding be adequate?

A4. During EPS Workshop, a total of less than 2,700 residences (each with a 2.5 kW system) are to be funded by TEP, APS and UNS Electric per year to expend their ESP funding. At this rate, it will take over 370 years to reach the goal for 1,000,000 Arizona homes to have customer-owned energy systems. These goals in reference (b) were as follows:

**Owner-Energy Systems Goals and Estimated Capital Cost Savings**

<b>BY YEAR</b>	<b>GOAL</b>	<b>SAVINGS</b>
By 2012	100,000 solar electricity generation systems, 500,000 solar water heating systems	Saving 350 MW of generation plants or \$350 million
By 2017	500,000 solar electricity generation systems, 1,000,000 solar water heating systems	Saving 1,500 MW of generation plants or \$1.5 billion
By 2021	<b>1,000,000</b> solar electricity generation systems, 2,000,000 solar water heating systems	Saving <b>3,000</b> MW of generation plants <b>over \$3.0 billion in utility capital funds</b>

The proposed schedule of 2,700 residences per year would take 370 years to achieve these goals. The EPS Charge will provide additional funds, above and beyond proposed changes to the DEPS, which is necessary to achieve this requirement.

Q5. Will there be enough funds with the EPS Charge to make these goals?

A5. Since new construction rates have many variables, thus, an exact answer is unknown. This proposal requires the load-serving utilities to achieve the new renewable energy goals, which will increase at 1.0% per year starting in 2009.

Q6. How can load-serving utilities be required to make these new EPS Goals?

A6. If a goal is not met, then the load-serving utility will not be able to recover that percentage of its costs (the amount it missed meeting the EPS goal) in the next rate case. For example, say the number of homes in the service area with solar electric systems was 1.0% below the goal for a year, then the utility will have its rate of returned decreased by 1.0% for that year. The solar hot water heating goals will only be weighted at 0.25 for changing the rate of return. If the utility exceeds their goal, then it would receive one-half of the percentage in excess of the Goal, as a higher rate of return for that year. Example, say the goal was 12% and 13% was achieved; the rate of return would be increased by 0.5%. If the goal was 15% and only 14% achieved that year, the utility rate of return would be 1% lower than the allowed rate of return. This incentives this program so the utilities will strive to exceed Goals to avoid the penalty and achieve the above Goal bonus, every year.