BEFORE THE ARIZONA CORPORATION COMMISS

BOB STUMP, CHAIRMAN
BRENDA BURNS, Commissioner
GARY PIERCE, Commissioner
BOB BURNS, Commissioner
SUSAN BITTER SMITH, Commissioner

In the matter of the application of Arizona Public Service Company for approval of net metering cost shift solution.

Docket No.: E-01345A-13-0248

ARIEIA COMMENTS ON THE ACC STAFF NET METERING MEMORANDUM AND PROPOSED ORDER

ARISEIA believes the Commission can provide strong value to ratepayers by approving a modest distributed solar incentive program for 2014. While we recognize the importance of being discerning when considering continued incentives, we believe that the recommendations below can be done with a very marginal impact to ratepayers, while continuing to provide the tremendous benefits that solar provides for Arizona. Please reflect on the following points in considering continuing distributed solar programs in Arizona:

- Distributed solar is the only reasonable alternative to monopoly electric service providers that consumers have in the absence of electric competition.
- By favoring additions to the APS AZ Sun program for utility owned solar generation, the Commission has implicitly endorsed funding for solar generation that is substantially more expensive to rate payers than distributed generation, where solar customers make most of the system investment.
- The federal government's substantial support for solar in the form of a 30% investment tax credit is scheduled to sunset in 2016, leaving only about two years of certainty for decision makers evaluating large commercial systems and less for utility scale systems.
- Favorable solar programs created 10,000 jobs in Arizona – jobs that are being lost as economics of solar prove to be inadequate with the accelerated reductions of incentives.
- A solar water heating incentive provides all income levels of ratepayers access to replacing their highly inefficient electric water heaters. Solar water heaters can eliminate 90% of their cost for heating their water electrically which substantially reduces their monthly electric usage/cost.
- Solar thermal systems provide an important added benefit of energy storage that has a greater effect of reducing system peak demand than solar electric systems without storage. The solar water heating industry will not be viable without sufficient incentives.

- The apparent high reserve margin on the APS system is heavily dependent on the continuing operation of coal and nuclear plants, a potentially tenuous situation. The recent closure of the San Onofre Nuclear Plant in Southern California is a stark reminder of the risk associated with heavy dependence on aging nuclear power plants. This is a plant that is eerily similar to the Palo Verde Nuclear Generating Station - Palo Verde has the same reactor manufacturer, same architect, same engineer, same prime contractor and is only a few years younger.
- EPA regulations on coal plant emissions are also a threat to the viability of the existing utility system and neighboring utilities in California and Nevada are shedding their coal generation.
- Distributed solar typically generates electricity without water consumption, an increasingly critical resource in the southwest.

For all of these reasons, the Commission should pursue a more aggressive policy of encouraging the development of distributed solar which will lead to a future of renewable energy generation at levels more closely aligned with those of neighboring states. This can be accomplished at minimal impact to current ratepayers and with future savings due to reductions in more expensive new central generation versus distributed system owners making most of the investment in their self-generation.

RESIDENTIAL SOLAR ELECTRIC PROGRAM: Since the beginning of the solar electric system incentive program, which started at $4/watt and now sits at $0.10/watt, we believe that the ratepayers of Arizona have consistently voted for choice by deciding to install solar systems on their homes in a market that is otherwise defined by taking the price your regulated-monopoly Utility gives you. . Polls consistently show that ratepayers are willing to pay a small amount into a program that allows them to choose solar under attractive financial terms.

The dramatic reduction in solar photovoltaic module prices over the past few years was generally paralleled by the dramatic drop in solar incentive rates. Module pricing finally settled (and is now slightly increasing), however the incentive continued to drop. This continued decline in incentives has had the effect of 1) leading to a market dominated by leasing and 2) forcing the market to contract. Unfortunately, this has left some system owners abandoned with no warranty or quality assurance of kWh production, and has further led to a significant drop in the number of members of AriSEIA.

We believe that distributed solar electric generation has direct value to Utility companies in the form of avoided infrastructure costs and renewable energy credits (RECs). The recent residential incentive amount of .10/watt is a token amount for the these benefits and provides great value to ratepayers when compared to utility owned PV projects. The Commission is making a separate determination of REC ownership under the Track and Record docket and ARISEIA believes that either the system owner should retain the REC's or the Commission should authorize funding for the utilities to purchase them at $0.10 per watt via this REST docket. We believe that a Commission decision under the Net Metering docket to decrease the value of solar in rates is another reason to authorize a $0.10 per watt incentive or perhaps higher.

COMMERCIAL PROGRAM: Association members report that the 2013 commercial distributed market has suffered dramatic declines in the number of new projects, other than those benefiting from the Schools and Government (S&G) incentive program. Though the cost to build systems is lower today than in 2012, the reduction has not been sufficient to offset the elimination of incentives, and it is anticipated that the number of new commercial solar projects in APS territory after the 2013 S&G Program funding is gone will be next to zero. This is due in no small part to the structure of APS commercial rates. However, as previously noted, solar module prices have stabilized in 2013 and are actually higher than in January of this year when the program was last considered. Unfortunately, non-profit customers have the poorest project feasibility without incentives, and once 2013 S&G program funding expires, they will no longer be able to justify distributed solar projects. These customer classes are substantial contributors to the REST fund and represent electric bills funded by large numbers of citizens who would like to continue to have reasonably attractive solar system choices.

ARISEIA proposes a modest program of commercial incentives for 2014 that will allow all of the various customer types to participate. We propose that performance based incentives be offered under a schools, government and nonprofit program, as well as under a separate general program, both under auction formats for systems greater than 100 kW DC. To address concerns about long term incentive funding commitments, we suggest that performance based incentive offerings be limited to ten year durations. We propose that the schools, government and non-profit program offer 15 MW of funding with a capped rate of 8 cents per kWh, at a 10-year duration and offered in five nomination periods of two months each and beginning with a February 28th closing. This program is comparable to that available in 2013. We propose a second program of 15 MW for customers who are not eligible for the schools, government and non-profit program. This second program would include a cap of 6 cents per kWh for a ten-year period. The lower cap would be sufficient to allow projects to show attractive value propositions to taxpayers wanting to lease solar carports. Due to the ten year term, there would be no need to limit the total payout plus interest to a percentage of the capital cost, which proves to be a problematic calculation for owners who do not use external project financing sources to fund their systems. A second program for systems smaller than 100 kW DC should include an additional 2 MW and offered with an upfront incentive of $0.10 per watt. Combined, the 32 MW programs will be comparable in capacity to 2012, but with a substantially lower lifetime payout. We believe that the impact on a residential REST charge will be less than 6 cents per month when all systems are completed, which the Commission could mitigate through reductions in the AZ Sun Program if desired.

SOLAR THERMAL: In the 2012 ACC Staff report in response to the Arizona Public Service Company's proposed 2013 Renewable Energy Standard and Tariff (REST) Implementation plan, the Staff made the following comments pertaining to solar water heating markets:

> "Although the residential photovoltaic ("PV") marketplace is currently extremely competitive and customers are buying a significant number of systems without a

substantial incentive, this competiveness does not extend to other renewable technologies, such as wind, solar water heating, and solar daylighting to name a few. "

"Staff believes that incentives should not be eliminated for all renewable technologies and all market segments when one market segment, and only one market segment (the residential PV market), is approaching cost competitiveness"

ARISEIA believes that Staff correctly observes the differentiation between renewable technologies that deserves individual consideration.

Solar Water Heating (SWH), both commercially and residentially, as the ACC staff noted in their 2013 REST Plan, has lagged behind the of solar electric photovoltaic systems (PV) adoption by ratepayers. As has been noted in previous docket responses, there are various reasons for this differentiation. The most important reason is that commoditization and large European Feed in Tariff markets drove Chinese manufacturers with enormous government subsidies to begin a massive race to scale and reduce costs in competition with one another, in order to win market share. Of course, competition eventually pushed selling prices below costs for many, and a number of companies have since exited the market, leading to the cost of these modules beginning to rise once again.

Another reason for greater adoption of PV compared to SWH has to do with incentives. During the early years of the REST, PV received as much as 8 times the amount of incentive compared to SWH. In fact over the years of the REST the PV program has received $152M in REST incentives compared to $12M in SWH incentives. If it is assumed that a higher incentive rate and much higher total amount of incentives would do better to propel the market, then it is understandable that the PV and SWH markets would have had different results. It should be noted that, while state utility incentives have gone down for PV, solar leasing structures have allowed many PV companies to increase the amount of Federal Investment Tax Credits and Depreciation benefits they enjoy, thus offsetting the loss of state incentives..

The SWH segment of the industry is excited by the success of the PV segment and feels that a plan that can leverage some similar advantages and its own unique advantages will result in competitive prices and greatly increased adoption by utility ratepayers. However, it will take an individual plan that capitalizes on those specific advantages.

An important consideration in this plan is the percentages of ratepayers using resistance electric to heat their water (standard electric water heaters). This is an extremely inefficient method of heating water and is not often used in most areas of the country. Surprisingly, 60% of electric ratepayers in Arizona use this method which accounts for 15% of the average ratepayer's electric usage. (In an otherwise energy efficient home, with modest square footage and no pool, it can account for 25 to 30% of the home's energy usage). This use of electric to heat water in an area that receives the most thermal energy on the planet seems at best wasteful and at worst absurd. This seems especially so considering the higher penetration of SWH in most other places in the world including locations with much less available solar energy. It seems clear that there is a substantial amount of potential applications for

SWH that will benefit tens of thousands of ratepayers using a renewable energy source that is unique to Arizona. And these ratepayers are the majority of average income homeowners that all have to heat their water with standard electric water heaters. A properly designed incentive will give them access to the extreme energy efficiency of a SWH. And this could be accomplished with a comparatively low total amount of incentives.

During the initial years of the REST SWH received $.75/kWh saved for the ratepayer. The result was a growing and relatively substantial adoption of SWH systems. In fact it outpaced sales of PV systems during those years. But then there was a substantial reduction in the incentive amount, down to .50/kWh saved, followed by two more reductions to its present level of .40/kWh saved. The result has been a steady and now dramatic decline in SWH sales. In fact, at the current incentive level the amount of funds in the SWH tranche is going substantially unused. It is not enough of an incentive to encourage purchases. While it is understandable that reductions in incentives are desirable over the course of time, the above reductions were ill-planned. The SWH segment of the renewable energy industry suggests a more productive plan.

For residential SWH applications the incentive amount should return to .75/ kWh saved and have a first year funding amount of $9-10M. That will have the potential for funding 5,000 installations. Once the number of installations reaches that 5,000 mark the incentive amount should be lowered by $.05. That should be repeated until the point where SWH becomes the standard technology of heating water for ratepayers. A utility promotion of replacing electric water heaters with SWH through newsletters and billing inserts would be essential.

On the commercial side of SWH it is suggested that an incentive of .50/kWh saved is used with a cap of $1.5M per application. The total funding amount should be $6.25M which would accomplish 100,000 Ft2 Installed Collectors Based on an Average Installed Price of $100/ft2 and 50% of System Cost from RES Incentives.

SWH, both residentially and commercially, has been an extremely underused technology given the natural resource of solar energy in Arizona. With a well conceived and designed program there can be tremendous benefits to all the stakeholders involved. Hopefully that will help bring the Arizona energy industry into the 21st century of energy usage with the full array of benefits that includes.

AriSEIA respectfully on this 10th day of October, 2013

Mark Holohan

Arizona Solar Energy Industries Association
Mark Holohan, Chairman
2221 W. Lone Cactus Dr. Suite 2
Phoenix, AZ 85027