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An Industry Review of Arizona's Environmental Portfolio Standard

Introduction

One of the main objectives of the Arizona Solar Energy Industries Association (AriSEIA) is the development of Arizona's most prominent renewable resource, the Sun. This will allow our State to utilize this resource and take advantage of the economic development and air quality benefits that a vibrant solar industry can provide.

From the start of the Environmental Portfolio Standard (EPS) process, we have worked for a program that would benefit and promote all solar technologies and segments of our industry. It would be a program that would begin to reduce the market barrier that many years of federal subsidies for traditional forms of energy has caused. For a number of years now our members – which include solar contractors, retailers, distributors, engineers, manufacturers and utilities – have volunteered their time and have worked closely with the Arizona Corporation Commission (ACC), Arizona's Electric Service Providers, environmental groups, and other advocates in an attempt to create a fair and effective public policy for solar and renewable energy in Arizona. The Environmental Portfolio Standard (EPS), which can provide sustainable growth for the State's solar industry is the result of that process.

AriSEIA members have played an active role in the development of the Environmental Portfolio Standard and supported the original technology levels proposed by Commissioner Kunasek. We believed then, as we do now, that a mix of 70% solar electric technologies, 20% solar hot water, and 10% other renewable technologies would have created one of the largest markets for solar technologies in the World. Implementing an EPS with 90% of the requirements dedicated to a mix of solar energy technologies would help drive down costs of solar equipment through economies of scale and at the same time build a strong economic engine for Arizona in the form of a vibrant solar industry and greater disposable income for ratepayers with home sited systems. The percentages originally proposed by Commissioner Kunasek were changed at the last minute and the solar hot water requirement was blended with other renewables and was harmed in the process. Penalties for non-compliance were removed and landfill, an existing and limited technology, gas was approved as a renewable resource.

While we do not necessarily advocate returning to these percentages at this point, we do feel that the focus of the Environmental Portfolio Standard should remain on solar energy, Arizona's most abundant renewable energy resource.

Because the EPS was retroactive to 1997, several projects implemented by the utility companies prior to final approval of the EPS were included in their portfolios. Of particular note is the Landfill Gas project Tucson Electric Power

(TEP) has been allowed to qualify under "Other Renewable Technologies". For the past two years, this project alone, accounted for not only the "Other Renewable Technology" requirements for TEP, but also, through Credit Purchase Agreements, almost all "Other Renewable Technology" requirements for Arizona Public Service (APS) and the other utilities participating in the EPS. For this reason, other renewable projects and programs, especially those that benefit the ratepayer, have been limited.

In recent months, the Cost Evaluation Working Group (CEWG), a volunteer committee established by the ACC per R14-2-1618 (B)(2), has been charged with reviewing the EPS and determining whether or not a cost/benefit point has been reached. The CEWG has also been tasked to make recommendations on potential changes to the EPS that will improve the Electric Service Providers' ability to meet EPS goals and enhance the economic development and air quality benefits to Arizona. AriSEIA and its members have been active participants in the CEWG.

With only two years of EPS projects under its belt, the program can only be measured through the following standards:

- How close the parties have come to meeting EPS goals.
- If the parties responsible for managing the EPS surcharge funds have developed projects and programs that have made the best possible use of EPS funds.
- Whether the ratepayer funds have provided the maximum economic development, air quality and other benefits to Arizona.

The Electric Service Providers have held the reins very tight on the EPS programs they have developed with limited input from the renewable energy industry. The industry feels that there are some shortfalls and problems with the EPS and changes should be considered to remedy these problems.

Findings

The last minute change of technology percentages did not enhance the Arizona EPS. On the contrary, it significantly watered down the solar portion and created barriers for solar water heating and other renewable technologies. By including landfill gas under the "other renewable technologies", almost all other renewable technologies have been excluded from the EPS to date. This is due to the fact, as mentioned, that an existing TEP project was allowed to contribute EPS credits. The project accounts for almost all "other" credits reported by TEP, APS and the other smaller co-ops that have decided to participate in the EPS. Yet this is a technology that cannot substantially improve upon its current production level unlike the rest of the "other renewables. More importantly, the TEP landfill

gas project was large enough to provide credits for others to meet their "other renewables goal".

The Arizona EPS has been in effect for just over two years and almost all capital expenditures of ratepayers surcharge monies collected to date have been toward establishing a fleet of solar power plants owned and operated by the Load Serving Entities (LSE). Most of the equipment used has been manufactured outside of Arizona. Growth in other sectors of Arizona's solar industry, primarily contracting, retail sales, and product distribution, has been either non-existent or extremely limited. This is especially true for the Solar Hot Water segment of our industry.

Finding #1: The Arizona EPS has not contributed to the sustained growth of Arizona's non-utility solar industry.

Independent Arizona-based solar companies provide our State with compound benefits not found with most other industries. Systems sold and installed by local firms and contractors have a significant positive impact on our economy. Information from the National Renewable Energy Labs (NREL) show that annual emissions avoided by a single solar water heating system replacing an electric water heater can be measured in tons. Distributed photovoltaic systems used to offset consumption of peak utility power show similar numbers. The air quality benefits of these distributed systems are significant.

Energy dollars saved by consumers from home-sited systems are spent throughout the State's economy, thereby creating jobs and revenue for the State. The promotion of programs to support the deployment of ratepayer based residential and commercial solar thermal and photovoltaic systems provides benefits to Arizona homeowners and businesses. Money saved on utility bills is circulated locally in Arizona communities for the everyday needs of Arizona families and businesses.

At one point, the solar industry and the Arizona Department of Commerce - Energy Office estimated that there were 100,000 solar water-heating systems in Arizona. These systems were conservatively estimated to save an average of \$28 per month for Arizona homeowners, a total savings of approximately \$2.8 million per month. This money is most likely spent on local goods and services, thereby benefiting the local economies of Arizona's cities and towns. A consumer dollar spent on energy has only a thirty-three cent benefit locally, but a dollar energy saved and spent locally has a \$1.67 benefit to the local community. For this reason, AriSEIA supported the addition of extra credit multipliers under the EPS for distributed systems. We strongly support an EPS that benefits the homeowners and business that are willing to invest their own dollars in their energy future.

Jobs created within the local solar industry can have the same impact. In addition to attracting and growing manufacturers of solar and renewable energy systems to our state, the EPS has the potential to develop Arizona as a leading exporter of solar and renewable energy products and services to the world. Arizona's proximity to Mexico, Central and South America provides a natural market of underdeveloped nations where there is a growing demand for energy. The job creation alone would provide a significant economic impact to our state. More Commission focus needs to be put on growing a solar industry through the EPS.

Finding #2: Customer oriented rebate programs generate the lowest cost EPS credits

The EPS Credit Purchase Program, implemented by APS in May-2002, has been determined by the CEWG to be the lowest cost method of generating solar-electric EPS credits. The cost for an EPS credit generated by this program was \$0.044 in 2002. The next lowest solar-electric credit was more than twice the cost. Solar water heating systems would provide the lowest cost method of meeting the other renewables portion of the EPS. A solar water heating system, producing the same number of credits as the above solar electric system, would produce credits for \$.0010 under the only existing solar water heating program developed by an Arizona utility. That program provides \$350 for a solar water heating system, however that amount is not enough to stimulate the market and there has not been any systems sold under this program.

Finding #3: The Environmental Portfolio Standard lacks market certainty.

Despite the fact that the order by the Commission clearly stated that the EPS would continue past the 2004 Cost Evaluation Point, electric service providers have not felt the necessary confidence in the EPS to enter into long term contracts.

Finding #4: Extra Credit Multipliers are not effectively promoting distributed systems.

The LSE's participating in the EPS are using a very liberal interpretations of the Extra Credit Multipliers – to the point that a multi-megawatt PV power plant receives the same combined credit multiplier as a customer-owned, customer-sited residential PV power system.

Finding #5: The EPS has allowed funding for the development of businesses by the utility to compete with Arizona's existing the solar industry.

By sole-sourcing design, procurement, project management and installation services on it's Springerville Generating Station through affiliate companies Global Solar Energy, Inc. and Southwest Energy Solutions, Inc., TEP has

successfully aided the growth of these companies, thereby providing direct competition to independent design and construction firms that have long specialized in this field.

Finding #6: Uniform EPS credit purchase programs need to be established.

Some of the LSE's participating in the EPS have very vague or even contradictory EPS credit purchase guidelines when dealing with systems that do not fit their published programs. Others have established programs with very tight limitations and excessively high overhead. In most cases, minimal support has gone into promotion of these programs to consumers.

Finding #7: Some LSE's are competing unfairly with independent solar-electric retailers.

Through the commission-approved SunShare program, TEP has been unfairly competing with retailers and distributors of solar-electric power systems. A greater portion of the cost per kilowatt is being offset for the TEP supplied systems under the SunShare program (\$2500 per kW-AC vs. \$2000 per kW-AC for retailer supplied systems).

Recommendations

Recommendation #1: Remove the 20% restriction and allow solar water heating systems that replace natural gas into the EPS and remove ambiguous language regarding solar water heating.

When originally written, the Solar Portfolio Standard was a portion of the docket that deregulated Arizona's electric utilities and encouraged the renewable technologies that were to help displace conventional electricity. However the EPS developed as a separate docket outside of deregulation and ratepayers who use natural gas for water heating should be able to benefit from the program. By including such ratepayers, market penetration would be enhanced and additional emissions would be avoided by the replacement of natural gas and propane water heaters. This would allow for the installation of residential and commercial systems allowing Arizona to take advantage of additional economic development and environmental benefits. It would also help provide relief to the tight supply of natural gas in Arizona

Recommendation #2: Provide additional credits for distributed solar thermal and PV systems.

Thus far, limited efforts have been put into programs that benefit the ratepayer who is funding the EPS. For the most part the utilities have spent ratepayer funds building their own centralized solar-electric facilities and creating assets for

the company. They have also claimed the distributed generation credit for what most would describe as solar power plants. This has had the effect of diminishing the value of the credit for systems that truly are distributed systems. This has hindered the success of a much more cost-effective method of EPS credit generation, meeting a portion of their EPS goals by developing consumer orientated programs. Such programs leverage consumer dollars for the installation of photovoltaic and water heating systems on Arizona homes and businesses.

Recommendation #3: Develop a mechanism that would allow anyone subject to the EPS to recover costs for long term power purchase agreements should the EPS be rescinded at a future date.

Thus far, the development of solar and renewable power generation facilities has been developed only by the utilities. During the investigation into the EPS, various parties were at the table with business plans to develop solar generation facilities, and sell credits to the utilities. The cost per credit of meeting the EPS goal were estimated to be quite low, due to the ability of third parties to take tax credits and provide power over a long term contract. Thus far, these developers have been left out of the process, despite the fact that they were offering solar credits at extremely low rates.

There are a couple of possible reasons for this. Some believe there is little confidence on behalf of the utilities that the EPS will continue beyond 2004, or perhaps a change of attitude of future Commissioners, who may eliminate the EPS. Without confidence that the EPS will endure, there is little interest in entering into a long-term agreement with a third party to deliver solar electricity. If the standard is eliminated, there is, in effect, a stranded cost that the utility must bear. Developing a mechanism that would ensure that the utility would be able to put the costs of any long-term contract into the rate-base would make it easier for third party developers to enter into the market. Also, an extension of the EPS beyond 2011 would allow for longer term contracts to be developed and additional savings to be realized. More competition would mean lower pricing of solar and renewable energy.

Recommendation #4: Create Statewide Market for Trading of EPS Credits.

To date, the market for credits on a statewide basis that was anticipated with the creation of the EPS has not materialized. Some credit purchases have been made between utilities, but on a limited basis and primarily for landfill gas credits. The potential benefits of open trading of credits have been thwarted by the lack of utility participation. Claims of "they're not in our service territory" are often used to deny purchasing the credits for a system – even though some exceptions have been made. Systems outside of an LSE's service territory, but within Arizona, should be considered as valuable sources of EPS credits and therefore supported. A statewide market for credits needs to be created. (A Credit

Purchasing Program for systems of 10kWp or less from all over the State was verbally accepted By Citizens just prior to their buy-out by UniSource).

Recommendation #5: Establish policy that increases funding for distributed (ratepayer based) systems.

The most successful means of generating low-cost solar electric EPS credits to date has been through APS's EPS Credit Purchase Program. By increasing the rebate amount to \$4 per Watt-peak, a tremendous surge in residential and small-commercial installations would occur while only requiring two-thirds of the investment currently being used by APS to create generation assets. There would be a similar effect if the rebate amount for solar hot water was increased in a similar manner to \$1.00 per effective Watt.

Recommendation #6: Allow industry to participate in the ACC's review process for utility developed, customer-oriented EPS credit purchase programs.

The programs established to date were developed by the LSE's with minimal input from the industry. One program currently restrains trade and unfairly competes with the industry and should be reviewed immediately. It makes sense that the parties affected by the programs (ratepayers and the industry) have some input into the development of the programs and how they are implemented.

Conclusions

For the Environmental Portfolio Standard to be truly successful, it must provide benefits for the ratepayers who are paying the bill for the program and benefit all sectors of Arizona's economy – including the solar and renewable energy industry that have been installing systems since the mid 70's. While the EPS is currently providing benefits to Arizona, changes need be made in the EPS that will enhance the program. It is our opinion that we are on the right course, but that the heading should be changed slightly to provide additional benefits to ratepayers and all sectors of the industry.

We must always remember that the greatest energy resource that Arizona has is the sun. While other renewable resources exist in Arizona and should be developed, solar energy remains our most abundant resource and must remain a major portion of the EPS. Eliminating or reducing the solar requirement will simply have the effect of sending EPS ratepayer dollars out of state to purchase other renewables, such as wind energy from the Midwest and will have little economic development and absolutely no air quality benefits here in Arizona. There are currently thirteen states with renewable portfolio standards ranging from requirements of 30% down to 1.1%. We have the lowest percentage at 1.1%. The next lowest percentage is twice ours at 2.2%.

Positive changes that will allow and encourage greater use of leveraged ratepayer funds on a residential and commercial basis will spread the benefits of the EPS to the rest of the solar industry and provide incentives for additional private investment. Development of the market in distributed, or ratepayer-based systems will benefit Arizona's environment and air quality. The solar industry looks forward to the opportunity to work with the ACC and Arizona's LSE's to improve the EPS and make it a program for all States to model. We support the Option Two outlined in the Cost Evaluation Working Group Report provided that the changes we recommend can be made by the Commission administratively.

We believe that a cooperative effort will benefit all parties, especially the ratepayers of Arizona and will pay additional dividends on the ratepayer dollars that are being invested in Arizona and ensure a brighter picture for Arizona's future – a bright future fueled by the sun.