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2011 NOV 29 P 4:32

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Arizona Corporation Commission
DOCKETED

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November 29, 2011

Commissioner Sandra D. Kennedy
Arizona Corporation Commission
1200 W. Washington Street
Phoenix, AZ 85007

RE: APS 2012 Renewable Energy Standard Implementation Plan
Docket No. E-01345A-11-0264

Dear Commissioner Kennedy:

In your letter dated November 22, 2011 addressed to Jeff Johnson, you requested that APS respond to several questions relating to programs and budgets included in the Company's 2012 RES Implementation Plan. As a supervisor responsible for renewable program implementation, I am providing responses to your questions below.

Schools and Government Program

The following section includes responses to the eight questions you posed regarding the APS Schools and Government program, both under the APS and third-party ownership models. In order to provide some additional context to the answers provided, APS would like to note the following clarifications that may assist your evaluation of the program mechanics:

Rate Offering

- Projects developed through the APS-owned portion of the program are not issued incentives. These participants are instead offered a rate in return for hosting an APS owned solar system at their facility. This twenty year fixed rate is then reflected on their bill and offsets a fixed amount of energy, representative of that which is produced by the hosted array. This is an important distinction from the third-party owned program, which utilizes production-based incentives and net metering credits to compensate participating customers for energy produced.

Participation Metrics

- APS serves 118 school districts in the state. However, many factors combine to make it difficult to know the precise number of individual schools that are eligible to participate in the Schools and Government program or are located within the APS service territory. For example, many schools have more than one meter, making it difficult to determine the number of schools in our service territory.

- While APS uses available bonding capacity as a metric in its ranking of third-party-owned projects and as a parameter in evaluating potential projects in the APS-owned portion of the program, there is no comprehensive statewide database of these current values. APS relies on information provided by participating school districts to verify compliance with this metric and cannot provide any information about available bonding capacity for schools not currently participating in the program.

- 1. For the APS owned portion of the 2011-2013 Schools and Government Program, please provide (a) the available bonding capacity per student and (b) free and reduced lunch participation percentage for the actual schools where the solar facilities are or will be installed as a result of an incentive reward (or pending incentive reward under the first come first serve award process).**

Response: Table 1, attached to this letter as Attachment A, lists all eligible school districts that have applied for the APS-owned portion of the 2011 Schools and Government Program along with available bonding capacity and free/reduced lunch percentages. As noted above, participants in the APS-owned portion of the program do not receive incentives.

- 2. For the schools that were awarded incentives under the Third Party owned portion of the 2011-2013 School and Government Program, please provide (a) the available bonding capacity per student and (b) free and reduced lunch participation percentage for the actual schools where the solar system will be installed.**

Response: Table 2, attached to this letter as Attachment B, lists projects awarded incentives under the third-party model of the Schools and Government Program and their reported available bonding capacity and free/reduced lunch percentages.

- 3. What percentage of schools in APS' territory has an available bonding capacity of \$8,000 or less per student?**

Response: APS does not have a record of the current available bonding capacity for school districts in the Company's service territory. The Company obtains this information from school districts at the time of application to host an APS-owned solar system or request incentive funding with a third-party solar developer.

- 4. What percentage of schools in APS' territory have free and reduced lunch participation of 60% or greater?**

Response: APS does not have a record of the national Free and Reduced Lunch Program participation levels for school districts in the Company's service territory.

- 5. Given the limited budget of the Schools and Government Program, in particular the government portion, please explain why the Company is proposing to include the E-34/E-35 tariffs in the Rate Rider. Is it possible that a single project would receive a majority or significant portion of the funding in a cycle simply by being the first to apply?**

Response: APS included the E-34/E-35 tariff under the Schools and Government Program rate rider to permit customers falling under the E-34/E-35 classifications the opportunity to participate in the program.

Regarding your concern that a single, large project might take up a significant portion of a cycle's funding, no such danger exists. Utility-owned installations under the Schools and Government Program are not subject to specific funding parameters – such as third-party programs that involve incentives – but instead are limited by the total size of all installed systems. As you know, APS proposes to develop an additional 25 MW beginning in 2012. Because only systems capped at up to 550 kW may participate in APS's program, no single project can exceed that size.

6. Provide clarification on the Third Party owned provision for the government side of the Schools and Government Program. Beyond population of the county, are the next criteria first come first served or size of the project? Please explain the reasoning for the second level of criteria.

Response: For the government portion of the current program, the second level of criteria after county population is size of the project. For government entities requesting third-party incentive funding, projects are received and ranked initially according to county population. Those counties with a lower population receive funding first until the available funding for the nomination period is exhausted. APS believes that county population is the strongest metric to ensure that funding is awarded to the most rural, economically challenged government projects first. Only if the program receives multiple applications from the same county does APS look to the second criteria. By funding projects in the same county according to size, from largest to smallest, APS can fund the most kW possible.

7. As a follow-up to my letter dated September 2, 2011, regarding the rural schools that received funding in the standard non-residential incentive program, have any of these schools begun construction of their projects? Did all of these schools have contracts indicating a binding obligation to build the project if the incentive was received?

Response: All rural schools that received funding in the standard non-residential incentive program were required to submit a signed contract with their incentive application in order to be considered for funding. Most schools receiving funding through the standard program are not considered rural. Of the rural schools funded through the standard program, one was funded in July and six in September. Actual construction has not started (the project deadlines are one year from the award date). Other rural schools using the standard performance-based incentive (PBI) program before 2011 have completed construction of their PV systems.

8. Would APS support language that would require schools participating in the APS owned portion of the program to obtain requests for proposals, as a prerequisite to participation in the APS ownership program? If not, please provide APS' justification.

Response: No, such language does not appear to be needed. All schools seeking to host an APS owned solar system are already required to obtain an alternate proposal

from a third-party not affiliated with APS, whether through a request for proposal ("RFP") process or otherwise. APS does not seek to advise school districts on the method for obtaining an alternate proposal.

Research and Development Program

- 1. I know that utility scale projects can involve major infrastructure cost. Has APS looked at how other states address this issue? I have seen in person and have seen research on the State of New Jersey's pole-mounted solar program, developed by Petra Solar. It is my understanding that the New Jersey 2009 program has installed 200,000 units, is extremely popular and efficient, and is an immediate way to provide solar energy to the grid. In APS' view, should the Commission consider amending Staff's Proposed Order to direct the Company to review and consider this type program as an option in using ratepayers' money in deployment of renewable energy?**

Response: APS does not believe it is necessary to amend Staff's proposed order to direct the Company to conduct specific or targeted renewable technology research. APS continually monitors and assesses renewable technology today as part of the research programs included in APS's annual RES Implementation Plan budgets, and the pole-mounted solar panel that Petra Solar is installing in New Jersey is one of many innovative technologies that APS evaluates on a regular basis. Additionally, technical staff at APS directly interacts with other utilities both regionally and nationwide through its memberships with the Electric Power Research Institute (EPRI), the Solar Electric Power Association (SEPA), and other industry groups to understand how technologies are being applied in other states.

APS has met with Petra Solar representatives several times to discuss details of their pole-mounted solar program. Based on a thorough review of this program and discussions with industry technology developers, the Company does not believe that the current Petra Solar business model being deployed in New Jersey would be cost effective for our customers as compared to other renewable opportunities available today. For example, the pole mounted systems interconnect at the secondary distribution level. Because the secondary distribution level is underground throughout much of APS's system, however, the Company would only have a limited opportunity to install these systems. Finally, there are a number of issues that have yet to be fully understood with this type of deployment including installation and O&M costs on hundreds of thousands of panels and micro-inverters in individual locations, public acceptability, distribution system value and the effects of shading due to compromised attachment locations.

- 2. Also, I am interested in research concerning "carbon negative technology." As the term is used in this letter, I am referring to taking CO2 out of the atmosphere faster than it is put in. I am curious if APS has considered the feasibility of using REST credits or incentives to explore carbon-negative technology possibilities?**

Response: APS has not considered using REST credits or incentives to integrate carbon-negative technologies. As part of its ongoing monitoring of advancing technologies and initiatives, APS participates in the industry's leading research agency,

EPRI. The Company's involvement with EPRI includes monitoring progress in the most promising technologies to capture CO₂ and improving the efficiencies of our existing power plants which has the effect of reducing the carbon emissions produced per megawatt hour of energy produced. Participating in EPRI allows APS to monitor progress in a much wider cross section of projects than APS could afford to on its own.

APS has participated in specific projects including testing the injection of CO₂ into a saline aquifer in northern Arizona, and testing a new method of capturing CO₂ by the use of a film technology. The Company continues to review other cost effective methods of capturing CO₂ from power plant emissions. In May of 2009, APS filed with the Commission a Climate Change Management Plan which outlines strategies the Company has undertaken regarding carbon capture and sequestration technologies.¹

Other Implementation Plan Issues

- 1. If the \$700,000 that Staff has allocated for the Integrated Pilot Program were to be shifted to residential up-front incentives, using Staff's proposed \$0.85 per Watt incentive, how many new residential solar systems could be funded? At an incentive of \$0.50 per Watt, how many new residential solar systems could be funded?**

Response: If the Commission were to reallocate the funding from this initiative for residential up-front incentives, the 100 systems that would have been installed under the Pilot (at \$0.95/watt) would be eliminated. The reallocated funding from the pilot could support 120 systems at \$0.85/watt, or approximately 200 systems at \$0.50/watt assuming an average 7 kW system size.

Please note, however, that reducing the incentive for installations under the Pilot to either \$0.85 or \$0.50/watt will reduce the program budget to approximately \$500,000 or \$400,000 respectively.

- 2. The budget on page 21 of Staff's October 25, 2011 memorandum shows administration costs of \$1.9 million on line 4 and more administration costs of \$2.2 million on line 31. Exactly what do these administration costs cover? What would be the consequences of reducing these costs by 10 percent, 25 percent, and 50 percent each?**
- 3. The budget on page 21 of Staff's October 25, 2011 memorandum shows implementation costs of \$1.3 million on line 5 and more implementation costs of \$5 million on line 32. Exactly what do these implementation costs cover? What would be the consequences of reducing these costs by 10 percent, 25 percent, and 50 percent each?**

A description of the tasks related to your questions regarding administrative and implementation costs is provided below; however, APS believes it is important to provide some additional information for your consideration. For several years, APS has distinguished between administrative and implementation costs in its RES Implementation Plans because the tasks and expertise are unique to each of these

¹ Climate Change Management Plan, May 2009, Docket Nos. E-01345A-05-0816, E-01345A-05-0826, and E-01345A-05-0827.

areas. The Company similarly distinguishes between Renewable Generation and Distributed Energy program costs in its budget exhibits for these same reasons.

It should also be noted that APS's total proposed 2012 administrative and implementation costs are less than 10% of Staff's lowest proposed budget, which is considered an industry benchmark for program administration efficiency. APS has strived to keep these costs low while maintaining high levels of customer service and adapting to a rapidly changing marketplace and regulatory considerations. Personnel supporting Renewable Energy programs are often engaged in multiple roles or responsibilities in order to maintain efficiency.

Specific information related to the line items from your inquiry follow:

Response to Question 2: Lines 4 and 31 on page 21 of Staff's report include the costs associated with APS administration of its Renewable Generation and Distributed Energy programs. The following describes the specific tasks associated with each line item:

Renewable Generation Administration (Line 4)

- Forecasting and modeling of renewable generation/utility-scale project energy and technology needs that will increase renewable generation resources in the APS portfolio to more than 950 MW by 2015;
- Management of benchmarking and resource integration studies, budget management and renewable energy credit accounting; and
- Monitoring of program and project performance, implementation planning, and compliance reporting.

Distributed Energy Administration (Line 31)

- Supports the continued development and oversight of 17 distributed energy programs, compliance reporting, and related technical services;
- Development and administration of programs such as Schools and Government and Qualified Solar Installer (QSI) training; review of eligible renewable technologies (solar water heating, geothermal, etc.), and planning and modeling of resource deployments; and
- Includes customer service management and coordination of requests and responses to external parties (approximately 260 different developers are currently involved in our incentive programs).

Response to Question 3: Lines 5 and 32 on page 21 of Staff's report include the costs associated with APS implementation of its Renewable Generation and Distributed Energy programs. The following describes the specific tasks associated with each line item:

Renewable Generation Implementation (Line 5)

- Development of requests for proposals, solicitation schedules and requirements, coordination with independent, third-party monitor, and interaction with prospective bidders (approximately 1,100 companies registered to bid on APS solicitations in 2010 and 2011);

- Review and evaluation of all proposals submitted as part of Small Generation solicitations and AZ Sun program (more than 650 bids have been received to-date in response to solicitations in 2010 and 2011);
- Negotiation and award of contracts to selected third-party developers; and
- Following in-service of projects, manages relationship with project developer or owner, reports on project performance, and issues payments to 13 distinct existing power purchase agreement contracts.

Distributed Energy Implementation (Line 32)

- Includes APS's core team responsible for managing and reviewing incentive transactions (approximately 6,700 customer transactions in 2011);
- Management of program enrollment tools and databases;
- Interface with customers on Commission-approved programs required for compliance standards;
- Ongoing coordination and updates with industry stakeholders, installers/developers, and other interested parties;
- Includes interconnection and site inspection costs including personnel, materials, and detailed engineering studies required for residential and commercial distributed solar installations expected in 2012; and
- Includes the revenue requirements for the proposed production metering initiative collected through the RES.

Impact of potential cost reductions

It is difficult to quantify the impact of cutting the budget by 10%, 25%, or 50%. However, reducing APS budgets will impact APS's ability to provide the level of service and support required to manage the contracts, programs, and customer incentive commitments that comprise the APS Renewable Energy programs. As an example, a reduction of APS budgets would lead to longer wait times for customers to have renewable systems interconnected, a diminished ability to measure production and program performance for compliance purposes, and would both limit and extend the solicitation periods for new utility-scale resources. Cutting the budget by 50%, however, would require the reduction or elimination of programs or services, potentially compromising the Company's ability to meet annual and/or long-term RES requirements.

4. What exactly does the Information Technology allocation of \$1.8 million on line 33, page 21, of Staff's October 25, 2011 memorandum, cover? What would be the consequences of reducing this cost by 10 percent, 25 percent, and 50 percent?

Response: Line 33 includes APS costs for the development and implementation of databases, web-based customer interface sites, and related electronic or information technology support of the renewable energy programs. Costs in this category include all technology and programming support for renewable energy customer programs, specifically related to the following programs:

- Applications and database management for residential UFI and non-residential PBI incentive requests;

- Technical upgrades and infrastructure to support ongoing programs and program evolution, e.g., deposits and contracts required as part of the incentive program; and
- Non-residential program web-based applications.

Increased program participation, eligibility criteria, and other refinements or requirements have result in the need for regular modifications to existing I/T applications. As with the response to the immediately preceding questions, it is difficult to quantify the impact of generalized budget reductions. Such reductions, however, would delay deployment of needed technical upgrades, delay or potentially eliminate programs in the event of higher level budget cuts.

5. Currently, APS is allowed to recover from the REST surcharge capital carrying costs of any capital investments (as defined in the last rate case Settlement Agreement) for utility-owned renewable resources. What would be the effect of not allowing such recovery in the future, in other words, would APS still continue to invest in utility-owned renewable resources without the ability to recover these capital-carrying costs between rate cases?

Response: No, APS would not continue to invest in utility-owned renewable resources if APS were not allowed to recover the capital carrying costs as currently allowed. With less utility-owned generation, costs to customers will increase.

Without the ability to recover capital carrying costs as authorized in the 2009 Settlement Agreement, APS would enter into PPA agreements with third parties for more of its renewable resource needs as the Company had historically done. That change would increase the costs that customers pay for renewable energy because the capital costs that third party developers build into the price of a PPA are more expensive than APS's capital costs. Furthermore, credit rating agencies will impute more debt to APS as a result of the additional volume of PPA contracts, which serves only to put more pressure on APS's credit metrics.

Given the success of AZ Sun in creating world class projects and jobs with Arizona-based partners, eliminating this material provision of the 2009 Settlement Agreement – a move that would have other unfortunate ramifications – would be regrettable given the progress we have made to date.

6. APS proposed \$700,000 for its 2012 advertising budget. Instead, staff recommended a budget of \$200,000. If the Commission adopts staff's recommended budget of \$200,000, which of APS' nine budgeted elements for advertising will be eliminated or modified?

Response: If the Commission adopts Staff's proposed budget cuts to advertising and customer awareness initiatives, APS will likely reduce spending on all nine budget categories and attempt to conduct at least a modest amount of activity associated with each program subject to review.

APS would prefer to reduce spending in all budget categories rather than cut the budget in one specific category as it is important to reach out to customers in a variety of methods to describe developments in APS programs and customer cost saving

opportunities. More customers are getting information about APS programs from a wider variety of sources, including web content, trade shows, and interactive displays or deployments. APS's budget for these activities has been scaled back significantly from prior years to complement the increased awareness of renewable energy programs. These efforts have been designed to maximize the benefits to customers and stakeholders at the lowest possible cost and remain an important investment for customers seeking information about APS program offerings.

7. APS is proposing to decrease the incentive for residential geothermal systems from \$0.90/kilowatt hour for first year savings to \$0.80/kilowatt hour. What will be the anticipated impact on the number of installations if the Commission adopts APS' proposed decrease?

Response: APS does not anticipate a significant impact on the number of geothermal installations, and the industry appears to agree. Current volume suggests that a total of 34 geothermal system incentives will be reserved in 2011. APS anticipates a similar level of geothermal activity for 2012 with the proposed incentive reduction.

Thank you for the opportunity to address your questions and concerns. APS looks forward to further discussing the development of renewable resources for Arizona. If you have any questions regarding this information, please contact me at (602)250-4849.

Sincerely,



Gregory L. Bernosky

GLB/bgs

cc: Chairman Gary Pierce
Commissioner Bob Stump
Commissioner Paul Newman
Commissioner Brenda Burns
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Attachment A

Table 1. Schools and Government Participants Available Bonding Capacity and Free/Reduced Lunch Percentage (for APS-owned model)

School District	Schools Participating	% of students on Free and Reduced Lunches	Available bonding capacity per student
District #1	3	82%, 83%, 60%	\$4000-\$8000
District #2	3	67%,82%,78%	Less than \$4000
District #3	2	83%,88%	Less than \$4000
District #4	3	79%,84%, 76%	\$4000-\$8000
District #5	1	84%	Less than \$4000
District #6	2	66%, 66 %	Less than \$4000
District #7	3	93%, 93%, 94%	\$4000-\$8000
District #8	1	92%	Less than \$4000
District #9	1	72%	\$4000-\$8000
District #10	1	93%	Less than \$4000
District #11	3	66%, 63%, 66%	Less than \$4000

Attachment B

Table 2. Schools and Government Participants Available Bonding Capacity and Free/Reduced Lunch Percentage (for third-party model)

Project	Per Student Bonding Capacity	% of Students on Reduced Lunch Program
1	Less than \$4,000	60% to 70%
2	Less than \$4,000	60% to 70%
3	Less than \$4,000	60% to 70%
4	\$4,001 to \$8,000	60% to 70%
5	Less than \$4,000	80% to 100%
6	Less than \$4,000	80% to 100%
7	Less than \$4,000	80% to 100%
8	Less than \$4,000	80% to 100%
9	Less than \$4,000	80% to 100%
10	Less than \$4,000	80% to 100%
11	Less than \$4,000	80% to 100%
12	Less than \$4,000	80% to 100%
13	Less than \$4,000	80% to 100%
14	Less than \$4,000	80% to 100%
15	Less than \$4,000	60% to 70%
16	\$4,001 to \$8,000	60% to 70%
17	Less than \$4,000	80% to 100%
18	\$4,001 to \$8,000	80% to 100%
19	\$4,001 to \$8,000	60% to 70%
20	Less than \$4,000	60% to 70%