



POWER PUNDITS LLC.

Decision and Process Advisement in Energy and Water

TO: APS Technical Conference Participants

FROM: Power Pundits LLC

RE: Closing Forum Notes

DATE: June 4, 2013

As ordered by the Arizona Corporation Commission related to its 2013 Renewable Energy Standard Implementation Plan, Arizona Public Service Company is conducting a multi-session Technical Conference with stakeholders to evaluate the costs and benefits of distributed renewable energy and net metering. The sessions are designed to bring together stakeholders holding a wide range of perspectives, experiences, and levels of technical knowledge to evaluate these costs for all customers—both those who have access to distributed energy and those who do not. Sessions are exploring such issues as environmental mandates, changes in generation requirements resulting from adding distributed energy to the generation stack, localized grid impacts, system losses and other relevant topics. APS engaged a team from Power Pundits LLC to lead, moderate, and manage this technical conference.

Meetings in this series included:

- An opening forum, February 21
- A technical workshop on understanding rates and distributed energy (DE) benefits, March 7
- A follow-up stakeholder call March 14
- A second technical workshop on resource planning and distributed energy costs, March 20
- A third workshop to review the SAIC refresh work and discuss other models to valuing distributed resources, April 25
- A fourth workshop focused on policy and valuation perspectives, May 9
- A Closing Forum, documented here, held May 28 at the APS Learning Center in downtown Phoenix

The Closing Forum was designed to summarize what was learned during the previous workshops. The agenda included a recap of the previous workshop sessions.

Forty stakeholders pre-registered for this forum, including nine people who participated via a conference phone connection. More than 50 attended in person. Copies of the agenda and presentation slides are available at www.solarfuturearizona.com. An audio recording of the workshop is also available on the site. These notes are the reflection of Power Pundits staff who participated in the workshop and are not a verbatim record. We believe they accurately reflect the sense of the day's meeting.

- In these meeting notes, questions, comments and discussion among participants are in bulleted boldface items.
- Action items are indicated by an arrow.

Welcome and Workshop Overview (SLIDES 1-3)

Bob Davis, from nFront Consulting, welcomed workshop participants to this Closing Forum in the multi-session APS Technical Conference on distributed energy and net metering. He briefly reminded

participants of the conference purpose, workshop goals and where we are in the process, and highlighted today's agenda.

Jeff Guldner, APS Senior VP (slide 4) also welcomed participants and thanked everyone on behalf of APS, particularly the company's renewable energy and regulatory teams for their active input into this process. Mr. Guldner noted that these important issues needed to be discussed. He said that at end of day, the utility's filing with the ACC will benefit from these discussions.

Review of Technical Conference (SLIDES 4-74)

Mr. Davis explained that today's presentation is a paraphrase of information and discussion presented at the workshops and is not a summary of the results of the forum. He said a summary is being prepared for the facilitator's report. He asked participants to weigh in on the stakeholder summarizations in the presentation to ensure he "got it right."

Opening Forum (SLIDES 9-18)

Mr. Davis reviewed the purpose, forum and workshop goals for this technical conference (slide 7) and next moved to the Opening forum's goals and process. He reminded participants of the issues, challenges and options identified during the opening forum and discussed the alignment process (slide 10). He highlighted several stakeholder perspectives on the workshop goals and issues raised during the opening forum (slides 11-12). He next briefly highlighted several key points made by Eran Mahrer, from SEPA, in his net metering overview presentation (slides 13-15).

Mr. Davis also briefly summarized the APS perspective provided by Greg Bernosky, from APS (slides 16) and reviewed the topics that would be discussed at future sessions (slide 17). Finally, he shared a summary of stakeholder Q&A and comments raised during the opening forum (slide 18).

- **A participant noted that on slide 18, it would be more accurate to state that SAIC did independent work without input from this group/process.**
- **A participant said the ACC order said to address both costs and benefits and net metering. He said the APS report does not address net metering.**
- **APS staff replied that the Commission directive was to conduct a technical conference. The SAIC report was an initiative by APS included in its process; it was not the process itself. APS staff noted that the utility has expanded this process to include many topics of interest to stakeholders. APS agreed that the SAIC study is not a net metering study; it is a study of DE costs and benefits and is foundational for net metering.**

WORKSHOP 1: Understanding Rates and DE Benefits (SLIDES 19-28)

Mr. Davis reviewed the agenda for Workshop 1. He noted that participants discussed SAIC data sources and that there was a robust Q&A on this planned study (slides 20-21). He briefly summarized the presentation on additional data considerations by Tom Beach (representing SEIA) (slide 22) and highlighted key components of the utility rate-making presentation by Tony Georgis, from New Gen Strategies and Solutions (slides 23-24). Mr. Davis and summarized the presentation by Charles Miessner

on APS rates and the impact of solar DE (slide 25-26). For each presentation, Mr. Davis also summarized the stakeholder Qs&As and comments (slides 24 and 27-28).

- **In discussing how utilities recover costs, a participant suggested that the language on slide 24 be clarified to state that rates are designed to recover current costs; that we are not discussing two sets of costs. An APS representative suggested that there are differences in using a future test year compared to a historical test year and that the different methods arrive at different result. The participant clarified that there is an established relationship between costs and billing parameters and differences in methods but that using either method, rates are designed to recover costs during the period the rate is in effect.**
- **A participant suggested, such as on slides 27 and 28, that comments be organized so that it's clear which views are from APS and which statements are from other stakeholders. Mr. Davis explained that he was attempting to reflect the diversity of perspective in this presentation and that the report would reflect a fuller discussion.**
- **A participant noted that concerning the comments on slide 28, since mining entities consume about 10 percent of load, other classes subsidize mines because mines only pay 1 percent of the RES charge. She asked if APS had looked at this and if this is cost-shifting. An APS staff member noted that contributions to the RPS adjustor were not looked at in the Navigant study; they looked at rates and cost recovery. He stated that this issue has been debated and decided by ACC and that it gets reviewed every year by the Commission.**
- **A participant suggested that DE and EE are somewhat convoluted. An APS staff member acknowledged that APS has similar concerns for EE but many more customers can participate in EE. Because of this there is less shifting. He added that EE load reductions are about 5 percent not 70 percent, as can be the case for DE. He said this is a smaller magnitude and that APS will address this issue in other forums.**
- **A participant suggested that solar should be treated like other EE measures.**
- **A participant requested that the text on the billing gap on slide 28 be clarified, noting that he believed it was 9 cents for TOU and 15 cents for residential rates**
- **A participant suggested additional clarity on slide 21, in discussing the value of DE included in the SAIC study. He contends that additional incremental value of avoided capacity should be considered, not just conventional power-plant sized blocks.**
- **A participant asked about the inclusion of the cost of carbon starting in 2019 (slide 28) in the text discussing solar DE acting as a hedge against natural gas. An APS staff member said this was used in the SAIC study and was included. He suggested that both the risk and hedge value must be considered. He said that when a utility adds solar or a conventional plant, there are risks. He noted that APS builds and makes purchases. He explained that with a plant, the risks are with both the capital investment and fuel costs. He said with solar, all the risk is in the capital investment, because there are no ongoing fuel costs. The utility is taking more risk in this capital investment because these costs can change over time as well. For solar, he said, APS is sinking that cost for 40 years. He likened this to the risk of putting all one's investment in a capital project and none in O&M, suggesting that upside down mortgages in AZ were a similar situation.**

- **A participant suggested that impacts from climate change and water use should also be captured in the risk discussion. An APS staff member replied that these are captured in capacity and fuel risk planning. He noted that costs for solar installations are decreasing, saying that buying solar today locks the utility into a more expensive resource than future costs—which are trending lower. If the price goes down tomorrow, this is a financial risk for the utility because it results in an adverse outcome.**
- **An APS staff member explained that businesses have to make choices on how to deal with risks. He likened this to homeowners making choices on insurance, saying you can forego insurance, but this subjects you to the volatility of adverse event and the ensuing financial costs, or you can buy insurance to attenuate that volatility through the cost of the insurance premium. A participant noted that in this case, the risk is to the ratepayer not APS, because the costs are covered in a rate adjustment.**
- **Another participant asked about cost models and deregulation, questioning how they can benefit the company. He said, if the risk is costs decreasing, that’s a benefit to ratepayers asking, whose issue are we taking up here?**

WORKSHOP II: Resource Planning and DE Costs (SLIDES 29-47)

Mr. Davis reviewed the status of alignments (slides 30-31). He summarized the presentation by Tom Beach, SEIA/Crossborder Energy, on evaluating the benefits and costs of net energy metering in CA (slides 32-36).

- **A participant suggested that the wording on slide 33 should say, “PG&E has stated a 25-cent subsidy…” because no study was done.**
- **Another participant requested that in the text on the E3 study (slide 33) the rate impact of 0.3 cents be included.**

Mr. Davis next recapped his presentation on resource planning and DE (slides 37-41), Paul Smith’s presentation on APS resource planning (slides 42-46) and the introduction of the cost-benefit matrix. For each presentation, Mr. Davis also summarized the stakeholder Qs&As and comments (slides 40-41, 46 and 47).

- **A participant noted that slide 44 does not include that ratepayers have asked APS to develop renewable energy. He referred to a study posted on the solarfuturearizona.com Website and suggested that a column for ratepayers’ perspective be added to the cost benefit matrix.**

WORKSHOP III: SAIC Model and Other Studies (SLIDES 48-58)

Mr. Davis began the recap of Workshop III by discussing the previous Alignments work, how that led to the cost-benefit matrix and summarized stakeholder Qs and As and comments (slide 49). He summarized the energy subsidies discussion and highlighted stakeholder Qs and As and comments (slide 50) on that topic.

- **A participant said that damage from coal comes to 17.8 cents/kWh (according to studies from Harvard and Yale), with all inclusive costs at 27 cents/kWh. She suggested that this**

won't address today but over the next few years should be part of the discussion. An APS staff member reflected that externalities and societal benefits are difficult to incorporate in a utility cost-of-service or rate process.

Mr. Davis next reviewed the Applying DGValuator presentation by Tom Hoff, Clean Power Research, who was hired by IREC hired to prepare a study using this methodology (slides 51-53). He noted that it will be available later this summer.

- **A participant commented that slide 53 notes that funds spent in the local economy may have more benefit than funds spent by the utility. She said that APS spends \$800 million annually on fuel, with two-thirds of that money going out of state. She said that money spent on solar DE stays in the state's economy and this does provide more economic benefit.**

He also summarized the SAIC DE Model and Analysis presentation by Scott Burnham, SAIC (slides 54-56) and the stakeholder Q&A and comments (slides 57-58) during that session. Mr. Davis stakeholder statements were recorded as they were presented (see slide 57). He clarified that the SAIC study did not consider the existing DE installations, only the incremental additions.

- **A participant noted that on slide 56, the generalized savings should be 10 cents/kWh.**
- **A participant said that the SAIC study showed that while only a handful of distribution circuits would be affected, it amounts to one-third of the of planned distribution work and ensuing costs being eliminated. He suggested that this seems like a larger benefit than is credited.**

WORKSHOP IV: Other Policy and Valuation Perspectives (SLIDES 59-74)

Mr. Davis began the review of Workshop IV with a summary of the progress on developing the cost benefit matrix and the stakeholder comments on this work (slide 60). He next summarized the presentation by Tom Beach, Crossborder Energy, on behalf of SEIA on his perspective on the benefits and costs of solar DE and the stakeholder comments and questions on that presentation (slides 61-65).

- **A participant questioned the assumptions for avoided energy costs shown on slide 62. She suggested that this was a big difference and wondered why combined cycle plants weren't the comparative value when combustion turbine plants are so expensive? The participant suggested that instead of turning on a CT on the hottest day of the year, solar DG would replace this capacity.**
- **An APS staff member explained that the utility weighs a number of factors. He agreed that the CT had a very low capacity factor and DG has a much higher factor (in the 20-percent range). He added that APS sees a lot of solar displacement at other times during the year when energy costs are lower and that this must also be accounted for.**

Mr. Davis summarized a presentation on creating a sustainable solar market, made by Chris Yunker, SDG&E, and the stakeholder questions and comments on that presentation (slides 66-67). He recapped the presentation by Ron Binz, Public Policy Consulting, on the evolution of net metering, rate design and the utility business model and the stakeholder questions and comments (slides 68-70).

- **A participant noted that a lot of progress has been made on the demand side but not much has occurred on the supply side.**

Mr. Davis reviewed the APS conceptual solutions presentation by Chuck Miessner (slides 71-74) and the ensuing participant discussion, summarized on slides 71-74.

- **A participant requested preliminary conclusions, suggesting that the various study approaches be lined up so participants would be able to compare them to the big picture.**
- **Another participant clarified that the point on slide 73 was not made “tongue in cheek” as suggested by the laughter in the room during the original discussion. He said the issue is not if customers should disconnect or not. He said that if the value of grid connection is \$500, he should pay that; if cost is more than the value, the customer should disconnect.**

Mr. Davis wrapped up the Workshop IV review by turning to the Cost Benefit Matrix (slide 75). He noted the addition of four new categories and several minor additions. He noted the matrix now includes input from the solar stakeholders. He asked participants to review and to make edits today so that this document could be finalized and included in the facilitator’s report. He also noted that with this Closing Forum, the Website would also be closing [allowing for the posting of these notes] and that he would be preparing the facilitator’s report.

He said highlights from the matrix in general are that we have virtually zero 100-percent agreement. However, he noted that there are several topics that stakeholders generally agree should be included as costs and benefits. The differences are in the calculations and methodologies. It’s generally agreed that costs for fuel and purchase power, variable O&M, utility system costs, environmental compliance and program administration should be included.

He said stakeholders have partial agreement on DE capacity value, fixed O&M, line losses, transmission and distribution investments, RES avoided costs, integration costs and PV system orientation. How values are calculated, how deeply do you discount for future installations, whether or not to use future or present value, how you measure and model and what’s included and excluded are some of the issues raised by stakeholders on these categories of costs and benefits.

He said there was no agreement among stakeholders among the rest of the categories on the matrix. These include suggestions that ratepayer cross subsidy was an issue, but not a cost-benefit category. He said there is no agreement on how to value water consumption, fuel hedging, ancillary services, market price mitigation, decommissioning costs, and the difference between societal and utility costs, as well as grid security, health effects, non-compliance related environmental effects, economic development and jobs, technological synergies and ratepayer and consumer interests.

- **A participant suggested that it’s important for the matrix to include all stakeholder perspectives and that a column for ratepayers’ perspective is needed. He added that**

APS commissioned a study that confirmed overwhelmingly that AZ ratepayers support adding renewable even if it's at higher cost.

Mr. Davis questioned who could provide this perspective at this late date in the process. HE requested that stakeholders provide references to the most salient report language and he would add some text to the matrix. He also directed participants' attention to a document developed by the solar parties. He said this was a late arrival. He got it on Monday. The document addresses methods these parties believe should be considered by APS, not necessarily costs and benefits. He stated these are important issues. The difficulty is in giving all interested parties the ability to respond. Mr. Davis said this document will be posted on the Website and he will consider it as part of the facilitator report.

- **The solar stakeholders agreed with Mr. Davis' proposal to post this as a separate document and suggested other parties should be free to submit their own views. They said all could go in unedited as a way to expand the discussion to other issues. They said this was not an opportunity for others to respond to the industry's position; that they were not looking for rebuttals.**
- **The AECC noted that they would like to get input from its membership, noting that if they'd been asked to provide a position paper they would have done so.**
- **A participant asked about the facilitator's time constraint on this issue.**

Closing and Final Discussion (SLIDES 76-78)

Mr. Davis said that he needs to wrap this work up by mid June and to wrap up the submission of new information very soon. He said that the Workshop IV meeting notes would be posted soon and that he hoped to get today's notes posted within a week and the facilitator's report completed by June 30. APS plans to provide its proposed solution to the Commission in July and to bring it back to the stakeholders before they file with the ACC.

- **An APS representative noted that this is the close of the technical conference but that the record is not closed for additional input for the Commissioners to consider. He said it remains open for everyone to share new materials with the ACC.**
- **A participant asked if APS would file in one docket or separate dockets. APS staff said they did not yet know. It was suggested that when APS makes its filing a separate docket would be opened**

The meeting ended at 4:15 pm.