

OPEN MEETING AGENDA ITEM



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Re: Clarification of Need for AZ Sun DG
2014 RES Implementation Plan E-01345A-13-0140 and
2015 RES Implementation Plan E-01345A-14-0250

In response to the Commission's request, APS submits this letter to clarify the needs that AZ Sun DG will fulfill and suggest how AZ Sun DG might be modified to do so. Over the past several weeks, APS has worked diligently with stakeholders to develop modifications to AZ Sun DG. These modifications are intended to address the Commission's concerns, but ensure that AZ Sun DG will (i) provide more customers with solar options, (ii) permit APS to study the strategic placement of DG on the grid, (iii) result in DG that contributes more to peak load periods; and, (iv) contribute to APS's REST DG requirements while the Investment Tax Credit remains. APS requests that the Commission consider how AZ Sun DG can be modified to fulfill these needs when it votes on the project in the upcoming December Open Meeting.

I. Need Exists for AZ Sun DG.

The need for AZ Sun DG is clear and compelling. AZ Sun DG will:

- A. provide a reasonable backstop to ensure compliance with APS's 2009 settlement obligations;
- B. contribute to APS's REST requirements;
- C. assist both APS and the U.S. electric industry in understanding how the increasing introduction of various customer-sited technologies affects the grid; and
- D. meet customer demand for solar options.

A. AZ Sun DG provides a backstop for APS's 2009 settlement compliance obligations.

APS understands Staff's perspective regarding compliance with the 2009 settlement obligation. The amount of renewable energy needed for compliance diminishes as more rooftop solar is installed. Nonetheless, APS believes it was appropriate for APS to propose AZ Sun DG as a means to ensure compliance with APS's renewable energy obligations. Without AZ Sun DG, APS must entirely rely on third parties to fulfill those obligations. And as discussed during the November Open Meeting, third parties might slow or even stop installing solar due to federal investigations, among other risks. By proposing AZ Sun DG, APS has demonstrated that it takes its compliance obligations seriously and has not casually delegated its responsibilities in light of known risks. AZ Sun DG continues to provide a reasonable compliance backstop given future uncertainties.

B. AZ Sun DG will contribute to APS's DG REST Requirement.

Even as the risk of not meeting the 2009 settlement requirement diminishes, APS still must meet its DG REST compliance obligations. Although APS proposed AZ Sun DG on an accelerated schedule to meet the 2009 settlement obligations, it has always been true that AZ Sun DG would apply to the residential DG component of APS's REST requirements.¹ It is true that APS won't need more DG RECs for three years. Nonetheless, APS believes that AZ Sun DG should be approved now. Approval now will permit APS to claim the full 30% investment tax credit and pass that benefit to customers. If APS waits three years, however, the 30% ITC savings will no longer be available to reduce customer costs and the costs to achieve future REST DG compliance will be higher.

C. Increasing amounts of DG requires understanding how to integrate that technology and optimize grid planning and operations.

1. The Electric Power Research Institute wants to partner with APS on grid research.

After the November 13 Open Meeting, the Electric Power Research Institute (EPRI), a leading independent, non-profit research institute, contacted APS about research collaboration. EPRI is currently engaged in its groundbreaking Integrated Grid project and is partnering with only a handful of utilities, like APS, that are exploring the benefits of advanced inverters. EPRI, most recently before the Commission when it presented during the Commission-sponsored technology workshops earlier this year, is now interested in exploring the research opportunities afforded by the AZ Sun DG project.

EPRI's involvement is an exciting opportunity that could not come at a better time. The utility industry stands at a crossroads. More and more DG is being installed, but utilities do not fully understand how DG will affect the distribution system. Nor do they understand how to maximize the benefits and mitigate the unwanted effects of DG. It could be that

¹ See A.A.C. R14-2-1805.

strategically targeted rooftop solar reduces or even avoids future investments, prolongs the useful life of existing infrastructure that might otherwise need to be upgraded, or helps to optimize the efficient dispatch of central station generation facilities. On the other hand, DG might drive the need to upgrade distribution infrastructure, or prompt the need for additional investments due to two-way energy flow caused by DG.

One known challenge is voltage control caused by the increasing proliferation of intermittent DG. EPRI intends to explore how advanced inverters at the residential level can assist in managing voltage. Contrary to the discussion at the November Open Meeting, very few utilities are working on these critical issues, and EPRI needs utility partners like APS to succeed. This work is critical to explore, and could lead to significant changes in grid planning and operations. With strong interest in customer-sited technologies, and the exciting possibilities and potential risks they represent, it is critical to understand both how those technologies can best be harnessed, and how to mitigate any negative effects that DG may have on electrical reliability, all for the benefit of customers.

2. AZ Sun DG would permit APS to explore how to optimize the grid for the long-term benefit of customers.

There are many operational effects of rooftop that have never been, but could be, studied in connection with AZ Sun DG. In light of the unique needs and characteristics of APS's distribution system, APS's research with EPRI could include the following if AZ Sun DG were approved:

- Managing peak load on specific feeders. It is not clear if rooftop solar meaningfully reduces peak load on specific feeders. But if APS learns how to deploy rooftop solar in a manner that does reduce peak load, such as pairing that solar with batteries or orienting panels towards the west, the future could see the targeted deployment of solar as a cost-effective alternative to upgrading or installing new distribution lines or equipment.
- Active remote management of distribution system. With further study, the deployment of solar and advanced inverters could permit APS to respond to changing system conditions, dynamically support local power quality components such as voltage, and improve power factor. Understanding how to effectively use rooftop solar paired with advanced inverters could improve overall system stability and voltage, reduce outages, limit wear and tear on the distribution system, strengthen the grid's reliability and resiliency, improve grid security, and possibly even avoid the need for expensive system upgrades and redundancies.

With EPRI's involvement, AZ Sun DG could truly be the first step towards understanding how utilities can optimize their system with never-before-studied technologies in a manner that reduces costs and ultimately benefits customers.

APS strongly believes that AZ Sun DG is not simply an academic exercise. The research opportunities provided by AZ Sun DG are in fact needed if APS's system is going to

evolve to accommodate customer needs and desires. The alternative is for APS to continue planning for and operating its grid without regard to how new technologies might operate, improve or impair operations, or impact costs. Understanding how utility operations need to evolve and adapt to accommodate and account for new technologies is an independent need, beyond compliance, that merits approval of a targeted AZ Sun DG pilot program.

3. Generic research conclusions won't help—the research needs to be conducted in relation to APS's grid.

Moreover, the research conclusions of a targeted AZ Sun DG pilot program will only be useful to APS customers if they are studied on APS's system. Generic conclusions about solar on other grids, although informative, would only prompt the need for APS-specific research. To result in actionable conclusions, AZ Sun DG research must be based on APS's system load information and load forecasts, made in relation to APS's planned investments, and tied to the specific facilities and configuration of APS's grid.

4. The nature of the AZ Sun DG research makes it incompatible with third party involvement.

Finally, this immediate research can and should only be conducted by APS. Although third parties may ultimately be included in future research, many financial and legal issues would need to be resolved first. The point is that third party participation is incompatible with the type of research that AZ Sun DG will facilitate. For instance, part of the system benefits to be studied under AZ Sun DG systems result from west-facing panels and certain advanced inverter settings. But both of these characteristics will reduce energy production. And reduced energy production reduces customers' net metering benefits, undermining the financial basis for third-party solar transactions.

It is not that third parties can never participate on any level with utility-led research projects concerning DG and the grid. Additional issues, such as integrating non-APS systems into utility communications and control systems, liability and risk shifting, and operational questions must be resolved before third parties can participate in future distribution system research. But only utilities can effectively conduct the type of research, unique to their systems, that needs to be done now. Involving third parties at this stage of the research only increases the chance of customer risk and cost, all with no apparent incremental benefit.

D. AZ Sun DG is needed to meet customer demand.

AZ Sun DG is an opportunity to provide more solar options to customers, and it appears that significant customer interest exists. Over 1,500 customers have signed up for an "interest only" list, all without any marketing effort by APS. That customers are interested in rooftop solar simply because it is provided by APS isn't surprising. APS has been in business for over 125 years. Customers know who to contact if something goes wrong, they have a question, or they think they have been treated unfairly. And they know that they can go to the Commission for relief, if necessary, instead of needing to find a construction defect so that their complaint falls within the Registrar of Contractors' jurisdiction. The Commission

provides regulatory protection on all issues, ranging from adequate construction to sales practices to speedy and inexpensive dispute resolution. Regardless of their precise reasons, however, it is clear that significant customer demand exists for APS-owned residential DG, and AZ Sun DG represents an opportunity for APS to meet that demand.

II. A Targeted 10 MW Pilot Project Can Further Research Objectives, Contribute to REST Compliance, and Meet Customer Demand.

During Open Meeting, a request was made that APS suggest a revised AZ Sun DG project that could meet the different project objectives discussed by the Commission, Staff, and the parties. APS acknowledges that AZ Sun DG can be modified in a variety of ways to address both the needs described above and cost recovery, and worked with RUCO to develop appropriate project revisions. The thrust of these revisions involves APS assuming more cost-related risk and exclusively focusing installations on grid placement and under-served customers. The following are program features that APS and RUCO developed together for the Commission's consideration:

- 10 MW;
- Installations exclusively focused on strategic grid placement, and serving limited income customers or customers who cannot easily install solar through transactions with third parties;
- West or southwest oriented panels;
- Use of advanced inverters on all systems;
- Installed by third parties through a competitive bid process, with APS to decide whether to limit the RFP to Arizona-based companies;
- APS *does not* collect costs for this program through the REST adjustor, as with all other AZ Sun projects, but instead addresses cost recovery in APS's next rate case in the same manner as traditional rate base additions; and,
- APS commits to cost parity with current net metering rates, and if rate design is addressed in the future in a way that materially impacts existing NEM participants, APS will evaluate options for existing solar customers, as well as APS DG customers, to minimize any cost parity issues between the two groups and unintended impacts.

During the November Open Meeting, APS expressed an interest in pursuing a pilot project that strikes the right balance between project objectives and costs borne by customers. The modified version of AZ Sun DG described above appears to strike that balance. The solar installed will contribute to APS's REST requirement and customers will benefit from the 30% investment tax credit before the credit sunsets. APS's research with EPRI will move forward,

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potentially unlocking how rooftop solar and future technologies can be deployed to optimize the grid and benefit customers. The competitive RFP process will capture any cost reductions that third parties have to offer. And APS will address the costs incurred, as well as the project's benefits, in APS's next rate case. Finally, with an exclusive focus on strategic grid placement and providing the opportunity for solar to customers whom the third-party market has failed, this project will only involve DG installations that third parties aren't pursuing, or that are involved in EPRI's Integrated Grid study. This is truly a project in which solar wins. APS encourages the Commission to approve the modified AZ Sun DG proposal as described above.

Sincerely,



Thomas A. Loquvam

TAL/dk

c: Parties of record (see attached list)

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