

Solar Task Force Workshop

December 14, 2016

1:00-2:00 p.m.

Phone Bridge: 1-203-669-7563 Passcode: 9060030 #

Location Address: Join WebEx at:

<https://usdoe.webex.com/usdoe/j.php?MTID=m8cf1f2be6441e884dfafc9f2281732ad>

Meeting number: 998 487 219

Meeting password: zUy7nx73



Agenda

- Update on Contract Questions from June 30 and August 24 Workshops
- Distributed Energy Resources Integration Project Update
- Implementation Plan for Proposed BP-18 Settlement Solar Topics
- Review overall engagement schedule

Contract Questions Update



Community Solar

- How will BPA treat Community Solar in the Power Sales Contract?

Community Solar Projects (Owned by the Utility):

- Utility-owned community solar has the same contract guidelines as any other new resource owned by the Utility.
- Under the Load Following Contract utilities may add a new resource to serve load in the following circumstances:
 - to meet Above-RHWM Load or meet future (within 5 years) Above-RHWM Load
 - a small renewable resource within its service territory
 - a resource less than 200 kW nameplate (there is no contract requirement for resources under 200 kW nameplate)

Community Solar Projects (Not owned by the Utility):

- Solar owned by Consumers or Consortium of Consumers:
 - Treated as if the consumer-owners use the resource to serve their own retail loads.
 - Consumers receive credit for actual kWh generated, reducing the utility's retail service to those consumers. (Retail electric bill is reduced)
 - BPA Power Contract with utility will list the resource as "Consumer-Owned Serving Onsite Consumer Load."
- Developer sells shares of a project/investment to Consumers:
 - Developer retains ownership of actual project and power generated. Consumers own investment share.
 - Generated kWhs are sold to third parties.
 - Consumers receive financial credit or dividend but not credit for actual kWh generated. (Retail electric bill is unaffected)
 - BPA Power Contract with utility will not list the resource, but will require a meter and meter documentation.

Aggregating Small Resources

- If a utility has multiple small non-dispatchable resources that are dedicated to load, at what point would Resource Support Services (RSS) apply?

Aggregating Small Non-Dispatchable Resources

- BPA's policy is that if a utility's small, non-dispatchable resource portfolio exceeds 1 MW nameplate in aggregate, then BPA expects to apply RSS to the entire small, non-dispatchable resource portfolio.
- Possible exceptions to this policy are evaluated on a case-by-case basis.

Resource Features to Consider

- To determine on a case-by-case basis whether a resource addition would require RSS, BPA would consider the following features:
- Type of resource and anticipated resource hourly shape/capacity factor
- Size (nameplate) of:
 - individual resource and
 - resulting entire customer portfolio
- Location and proximity to other resources within the customer portfolio
- Financial impact of avoided RSS charges

Solar with Battery as a SNEER

- Can a solar project combined with a battery qualify for SNEER treatment?

SNEER Policy

- SNEER is Small Non-Dispatchable New Resources Treated Equivalently to an Existing Resource
- SNEER resources are:
 - Smaller than 1.0 MW nameplate
 - Non-dispatchable
 - Renewable
 - Connected to customer's distribution system
- Load-Following customers can add SNEER resources to serve load that otherwise would be served by Tier 1 Priority Firm Power
- Customers need not comply with otherwise required notice periods to apply these resources

Solar with Battery (Approaches we are Considering)

- BPA Power may treat solar and battery separately. If the solar qualifies, it may be a SNEER. The battery may be recognized elsewhere in the contract. (Possibly in Exhibit D.)
- If a customer is able to participate in bulk power markets, that ability may undermine the SNEER policy and may require additional metering.
- BPA may revisit this position as technologies and expertise evolve.
- BPA Power is considering potential thresholds and information requirements in Power contracts (for battery installations).

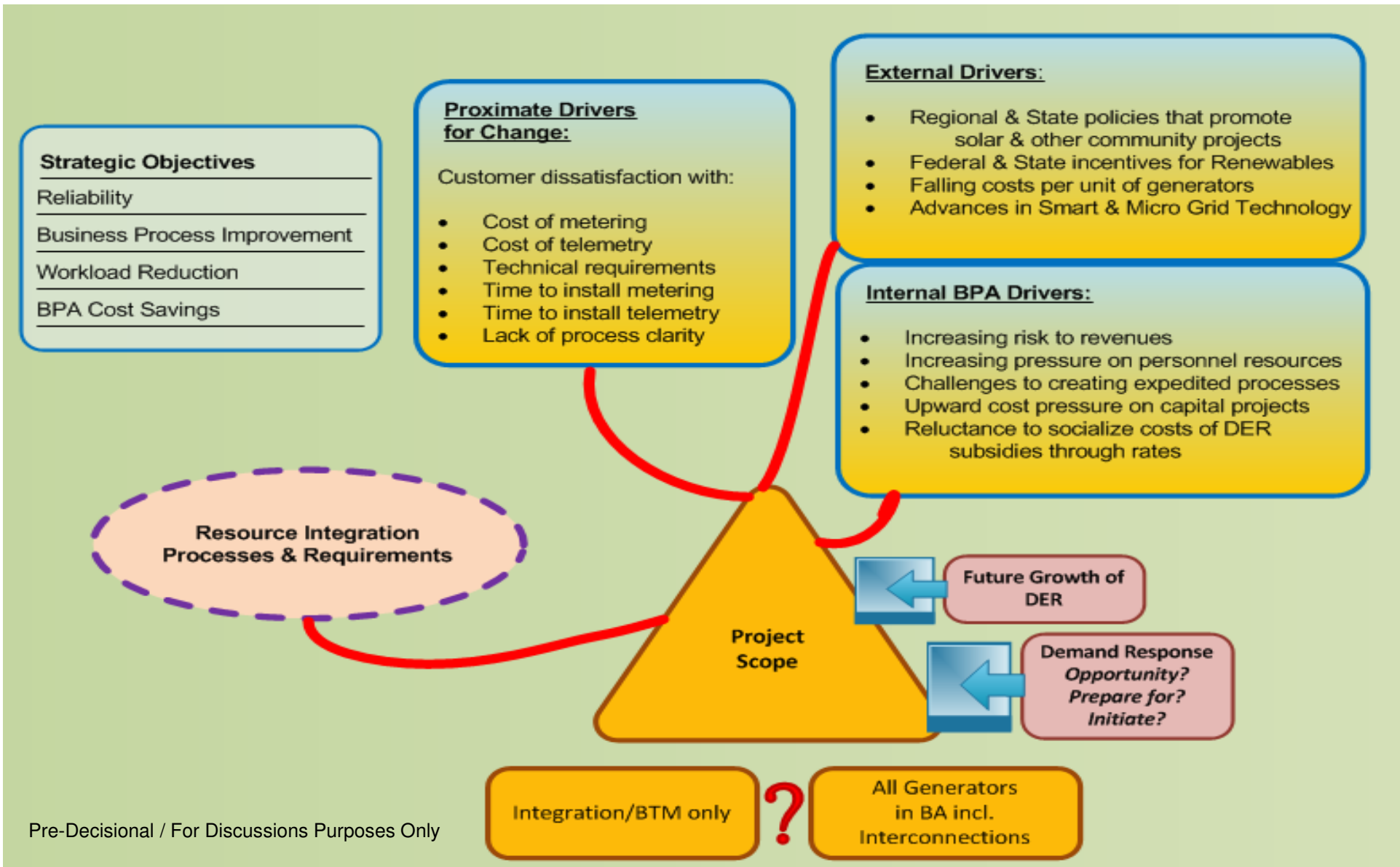
Distributed Energy Resources Integration Project Update



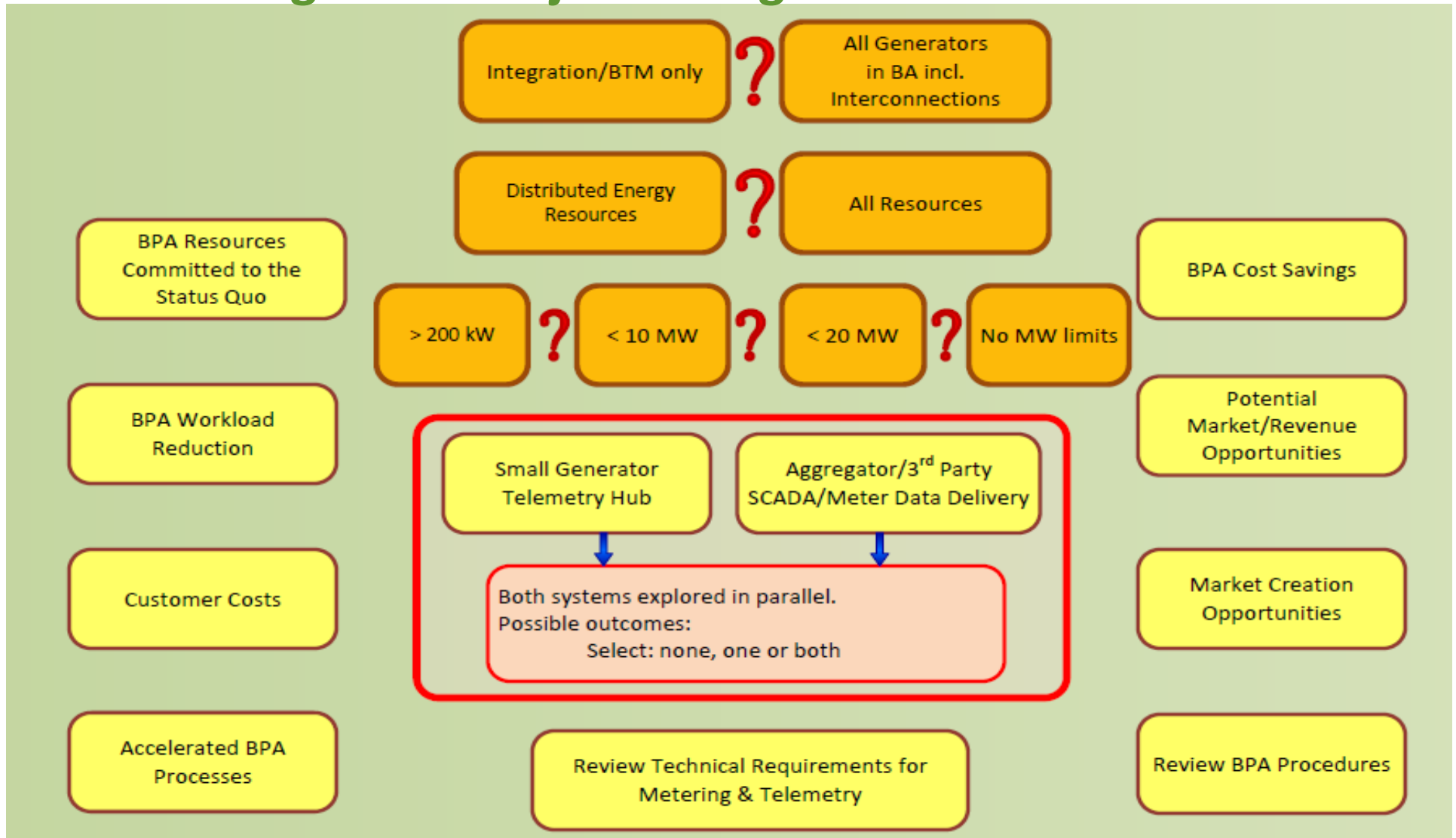
Generation Integration

- Integration of Distributed Energy Resources (DER) into BPA's Balancing Authority Area (BAA) is predicted to increase exponentially in the next five to 20 years.
- The Northwest Power and Conservation Council's Seventh Power Plan predicts 2,700 MWac of commercial solar PV installed by 2025; add residential and the forecast is ~7,000 MWac.
- By 2035, the forecasts are 8,300 MWac and 21,300 MWac respectively.

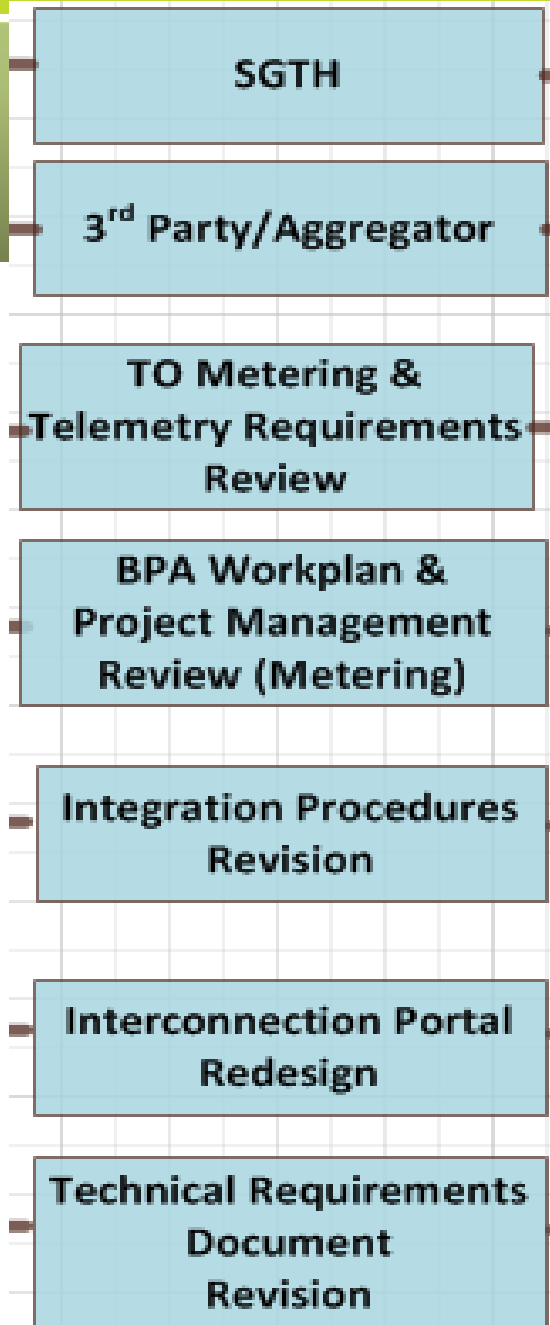
DER Integration Project Background



DER Integration Project Background



DER Integration Project Teams



Implementation Plan for Proposed BP-18 Settlement Solar Topics



Proposed Gen Inputs Settlement:

“Solar Technical Work. By January 2018, Bonneville will study and produce analysis on solar integration in Bonneville’s Balancing Authority Area (BAA), though this is not a commitment to conduct a comprehensive integration study. The intent of Bonneville’s analytical work will be to enhance Bonneville’s current methodology and inform Bonneville and stakeholders prior to workshops leading to the BP-20 Initial Proposal. This analytical work will include:

- a. A focus on the unique characteristics of integrating solar energy generation in Bonneville’s BAA contrasted to that of wind energy in the Bonneville BAA.
- b. The creation of a robust synthetic solar generation data set representative of a prospective geographically diverse build out of solar generation in Bonneville’s BAA, forecasted based on the growth of Bonneville’s interconnection queue through FY2025 as it exists on July 1, 2017 and through utilization of the University of Oregon’s Solar Radiation Monitoring Laboratory datasets.
- c. Analysis of the impacts on balancing reserves necessary to integrate solar energy in Bonneville’s BAA with regards to solar scheduling best practices and geographic diversity benefits as shown in section 10(b) of this Attachment 1.

Bonneville will also hold stakeholder workshop(s) regarding solar generation prior to the BP-20 Initial Proposal to discuss (1) potential actions that can be taken by generators and Bonneville to reduce the balancing reserve requirement, (2) solar rate design, (3) the impact of the variable cost methodology and the incremental standard deviation methodology on balancing reserves held, and (4) the potential impact of planned reserves held in shaped amounts.”

See: Attachment 1 to the BP-18 Generation Inputs and Transmission Ancillary and Control Area Serviced, Rates Settlement Agreement, September 23, 2016 BP-18-E-BPA-18 Page A-8

****Proposed****

Solar Task Force Consolidated Timeline

		D-16	J-17	F-17	M-17	A-17	M-17	J-17	J-17	A-17	S-17	O-17	N-17	D-17
Solar Task Force Workshops														
	Workshop 1 - December 14, 2016													
	Workshop 2 - Week of May 15, 2017													
	Workshop 3 - Week of October 16, 2017													
	Workshop 4 - December 11, 2017													
Solar Modeling Team														
'Creation of robust synthetic solar generation data.. Through utilization of UO's SRML datasets	Determine if UO Has Cloud Data Set													
	Determine Which Site Data is Useful													
	Determine How to Scale Up Dataset													
'with regards to solar scheduling best practices'	Create Smart Persistence Algorithm													
	Refine Algorithm to Fleet Size													
	Code Chosen Paradigms													
'utilization of University of Oregon's Solar Radiation Monitoring Laboratory sets'	Capture 7/1/17 Queue Data													
	Assign Point Source to Each Site													
	Scale Point Source Data to Queue													
'Impact on bal resrv to integrate'	Use BP-18 Code to Calc Requirements													
'Impact of ISD on bal reserves'	Presentation on ISD & Solar Profile													
Solar Balancing Reserves Policy														
'(1) potential actions that can be taken by generators and BPA to reduce the balancing reserve reqmt'	Policy Review of Solar Bal Reserves													
	Review & Eval VERBS Components													
	Brainstorm Actions to Reduce Bal Res													
ACS Rate Design														
'(2) Solar Rate Design'	Brainstorm Rate Design Element Options													
	Evaluate Rate Design Impacts based on Modeling													
	Evaluate Other Billing Determinants													
	Develop Report on Alternatives													

PRE - DECISIONAL / FOR DISCUSSION PURPOSES ONLY

Administrative Matters



Proposed
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Brainstorm Rate Design Element Options													
Evaluate Rate Design Impacts based on Modeling													
Evaluate Other Billing Determinants													
Develop Report on Alternatives													
PSS Resource Action Team													
Answer Open SNEER Questions from June & Aug Mtgs													
Additional Work As Needed													
G2i Team													
Develop Work Teams													
Initial Research													
In Depth Evaluations													
Detailed Proposals													
Review Proposals & Recommendations w/ Sponsors													
ADF Recommendations & Front Office Decision													
Solar Balancing Reserves Policy													
Get Updates into the Solar Map													
Modify Description of Projects & Status													
Outline of Business Case for Solar Map Version 2													
Solar Map Version 2 Go/No Go													

PRE - DECISIONAL / FOR DISCUSSION PURPOSES ONLY

Proposed Workshop Topics

Workshop 1 - Week of December 12, 2016

- Update on Solar Resource Questions from June 30 and August 24 Workshops (Power Services Team)
- Update on Distributed Energy Resources Integration Project (G2i Team)
- Present Proposed Solar Task Force Timeline for Gen Inputs Settlement Solar Technical Work (Team Leads)

Workshop 2 - Week of May 15, 2017

- Update on Modeling (Solar Modeling Team)
 - Preliminary Solar Data Set & Cloud Cover Data
 - Solar Data Set Scaling & Pre-Modeling Observations (Solar Modeling Team)
 - Model Parameters
- Update on G2i Analysis (G2i Team)
- Present Business Case for Solar Mapping Version 2 – Go/No Go (Solar Mapping Team)
- Respond to Any Additional Questions from first Workshop

Workshop 3 - Week of October 16, 2017

- Present Findings of Holding Reserves in Shaped Amounts (Solar Modeling Team)
- Present G2i Recommendations (G2i Team)

Workshop 4 - Week of December 11, 2017

- Present Final Findings on ACS Rate Design Impacts (ACS Rate Design Team)
- Present Findings of Variable Cost Methodology ISD Analyses (ACS Rate Design Team)
- Discuss Actions That Could Reduce Balancing Reserves (Solar Modeling Team)
- Present Findings on Solar Model (Solar Modeling Team)
- Present Final Proposed G2i Changes (G2i Team)

*Workshops to discuss specific issues identified by the Rate Case