Valuation Technical Working Group – Agenda Overview & Define Components

October 18, 2019

Eric Poff, Manager, Energy & Finance
Agenda

• Timeline
• Overview
  - SMUD’s Electrical System
  - Average Residential Bill Components
• Review Agendas for Upcoming Meetings
  - Discuss Components of the Value of Solar & Value of Solar + Storage Study
• Questions & Feedback
Initial Implementation – High level timeline

- **August 12**
  - Project Kick-Off

- **February 1**
  - Start Value of Solar/Storage (VoS)
  - RFI Process / Study

- **September 1**
  - Start Community Working Groups

- **October 18**
  - Start Technical Working Groups

- **January 1**
  - Rate Team Performs Rate Recommendations Analysis

- **Oct/Nov**
  - Board Adopts NEM 2.0 Successor Rate

- **Q3 2019**

- **Q4 2019**

- **Q1 2020**

- **Q2 2020**

- **Q3 2020**

- **Q4 2020**

- **Q1 2021**

- **Q2 2021**

- **Q3 2021**

- **Q4 2021**

Q3 2019, Q4 2019, Q1 2020, Q2 2020, Q3 2020, Q4 2020, Q1 2021, Q2 2021, Q3 2021, Q4 2021
Features of SMUD’s Electrical System:

- **Distribution System - Open Loop**
- **Distribution Feeders -**
  - Shorter distances between substation
- **Feeder ties allow for higher reliability**
### Average Annual Residential Bill Components

<table>
<thead>
<tr>
<th>Cost Category</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Energy</td>
<td>Variable cost for providing electricity and supporting services to ensure reliability</td>
</tr>
<tr>
<td>Capacity</td>
<td>Variable cost to ensure sufficient stand-by capacity is available at all times</td>
</tr>
<tr>
<td>Security, Customer Service and other Fixed Costs</td>
<td>Non-variable costs that cover items such as Customer Service, Wildfire Mitigation, Critical Infrastructure Protection (CIP), Regulatory Compliance, Cybersecurity, etc.</td>
</tr>
<tr>
<td>Public Good Programs</td>
<td>Includes programs like Low Income Assistance, Sustainable Communities, Free Shade Trees, etc.</td>
</tr>
<tr>
<td>Transmission and Distribution</td>
<td>Costs associated with operating and maintaining a reliable electricity delivery system for all customers</td>
</tr>
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</table>

- Reliable, affordable and environmentally sustainable electricity service has many components
- SMUD Relies on variable rate charges to recover fixed costs
- Go over the future agenda items in detail and ask for feedback
- Define the components of the “Value of Solar” & “Value of Solar + Storage” study that we will be discussing over the next four months
  - Identify whether we need to add any other components to the valuation study
- Identify if any other guest speakers should be invited to discuss specific components
Agenda Metrics

Technical Working Group Agenda Time

- SMUD Presentations, 29%
- Stakeholder Presentations, 18%
- Stakeholder Feedback / Discussion, 31%
- Other (Guest Speakers, Moderator Time, Breaks), 22%


Stakeholders will have 60% of the time to present information & provide feedback
Meeting schedule

Meeting 1 & Meeting 2 (Process Overview & SMUD's Programs)

• Overview of Technical Working Group Process
• Agenda Input from Stakeholders / Review Valuation Components
• Overview of SMUD’s Tariff / Energy Storage Program

Meeting 3, 4 & 5 (Value of Solar / Storage Study Components)

• Stakeholder’s & SMUD present information on Components of Value of Solar & Value of Solar + Storage
• Review where we have consensus at the end of each meeting

Meeting 6 “This is what we heard…”

• Summarize what we agree / disagree on
• Discuss 3rd party vendors for study
• Conclude Technical Working Group

Perform Valuation Study

• SMUD performs RFI for 3rd party vendor to perform valuations studies
• Consensus inputs go into valuation study
Meeting # 2 – Nov. 7, 2019 - Agenda

Presentations
1. Justin Scott, Strategic Business Planner II, SMUD (20 min)
   - Overview of SMUD’s Current NEM Policy
   - Historical, Electrical & Financial Basics on How SMUD’s Rate Structure Handles NEM Energy

2. James Frasher, Senior Strategic Business Planner, SMUD (20 min)
   - Overview of SMUD’s Energy Storage Program
     o 1MW Behind the Meter (BTM) Storage Pilot Program

3. Matthew Tisdale, Executive Director, Gridworks (30 min)
   - META Data Overview of Other NEM Policies & Hawaii Solar + Storage Structure

Discussion and Feedback from Working Group Members (125 min)
   - SMUD’s Current NEM Policy
   - Key Components for NEM Successor Rate
## Stakeholder & SMUD Presentations on Costs & Benefits

<table>
<thead>
<tr>
<th>Topic</th>
<th>Proposed definition/components</th>
</tr>
</thead>
<tbody>
<tr>
<td>Energy Value</td>
<td>Should reflect the production cost or market value of electricity consistent with the location and timing of the solar production and balancing load and resources.</td>
</tr>
<tr>
<td>Generation Capacity Value</td>
<td>The unit value for avoided generation capacity cost during critical peak hours set to locational clearing prices.</td>
</tr>
<tr>
<td>Energy Financial Risks</td>
<td>The value of the fuel price hedge that results when the solar output displaces utility production from sources with variable fuel prices as well impacts to locational marginal prices.</td>
</tr>
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</table>
Societal Benefits of Distributed Generation (60 min)

- Guest Speakers: Invited Grid Alternatives (TBD) & Sierra Club (Luis Amezcua)
- Other speaker recommendations?

Stakeholder & SMUD Presentations on Environmental Benefits of Distributed Generation (2 hours)

- Environmental costs avoided (or benefits realized) as a result of displacing utility production with solar facility output.
- This can include carbon dioxide emissions (CO$_2$) and criteria pollutants like sulfur dioxide (SO$_2$), nitrogen oxides (NOx) and particulate matter (PM).
- Environmental benefits can include fewer impacts related to land, water, and other related issues.
# Stakeholder & SMUD Presentations on Costs & Benefits

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<td>Transmission &amp; Distribution (T&amp;D) Capacity</td>
<td>The impacts on SMUD system when a solar project allows for a reduction in, or deferral of, transmission and distribution investments, upgrades and maintenance.</td>
</tr>
<tr>
<td>System Losses</td>
<td>Impact to SMUD when solar located at or near the customer site reduces the electricity consumed and also reduces the marginal losses when energy is delivered from utility generators through SMUD’s T&amp;D system.</td>
</tr>
<tr>
<td>Grid Support Services</td>
<td>The impact to SMUD if solar leads to a reduction or increase in the need for ancillary services like reactive power, voltage control, regulation and frequency response.</td>
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• Share summary of feedback – “This is what we heard, points of consensus, and where we differ”

• Address Open Parking Lot Items

• Review Group’s Input / Recommendations for “Value of Solar” & “Value of Solar + Storage” study

• Discuss Potential 3rd Party Vendors to Execute the Studies

• Overview of Study and Community Working Group Timelines
Questions/Feedback