

Valuation Technical Working Group – Agenda Overview & Define Components

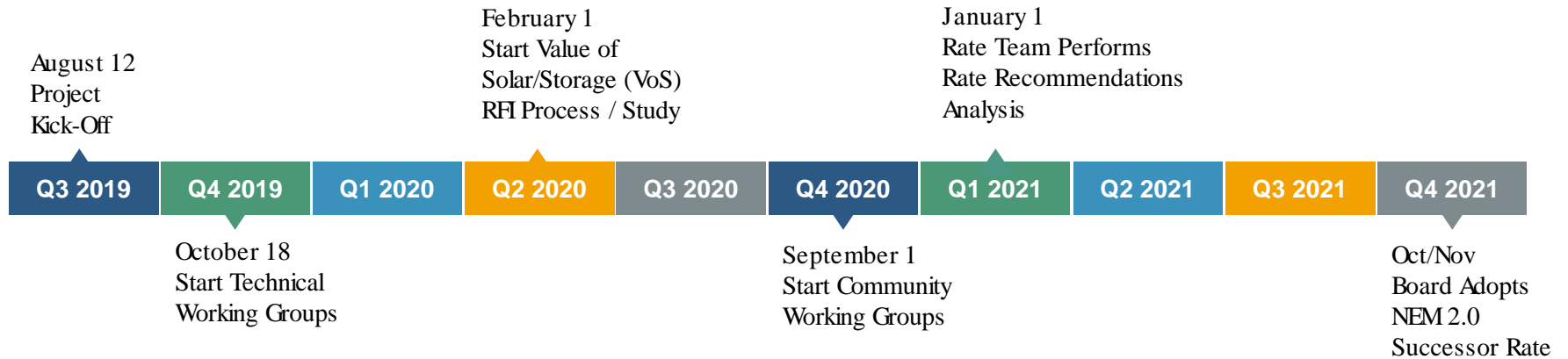
October 18, 2019

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- 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

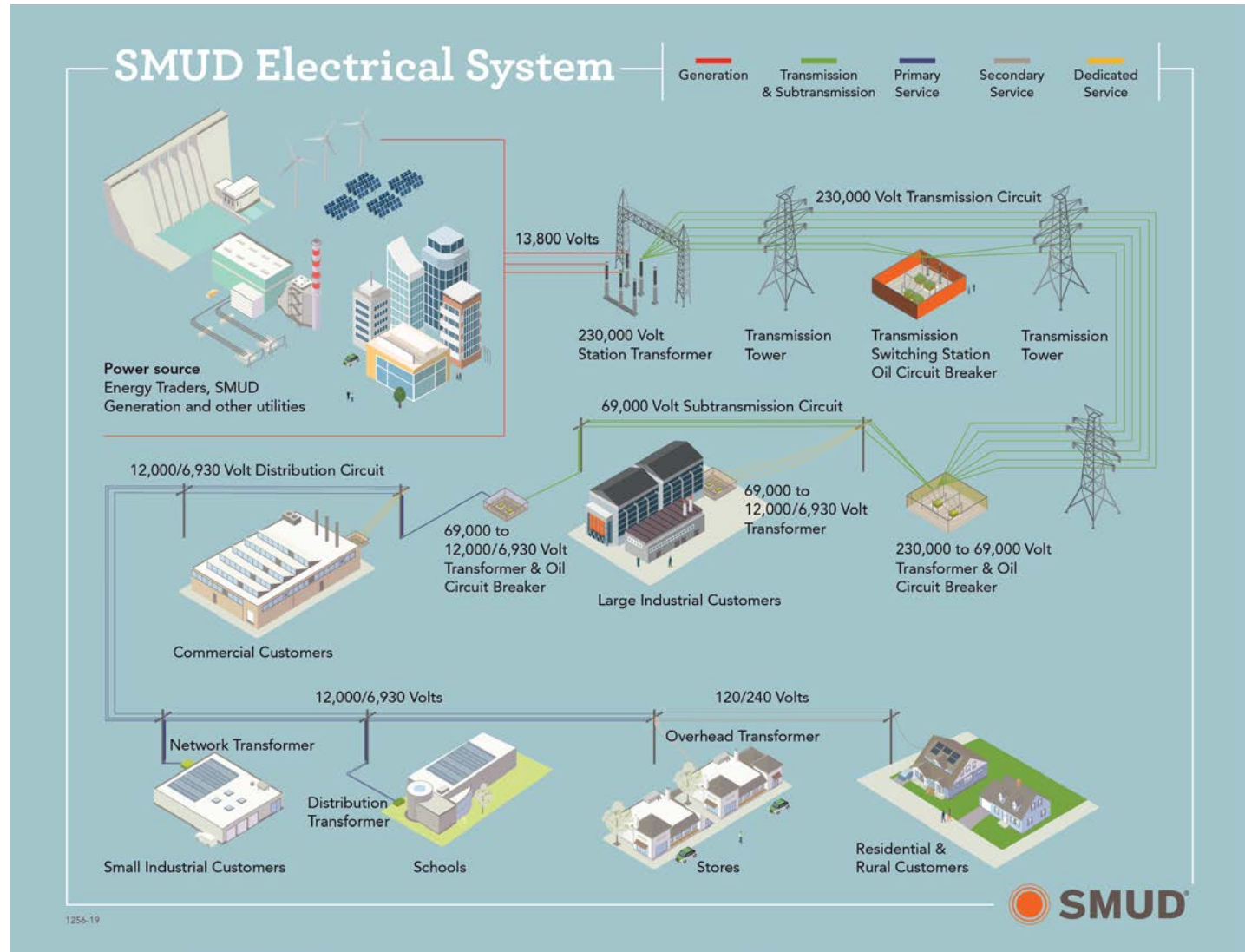


Electrical System Overview



Features of SMUD's Electrical System:

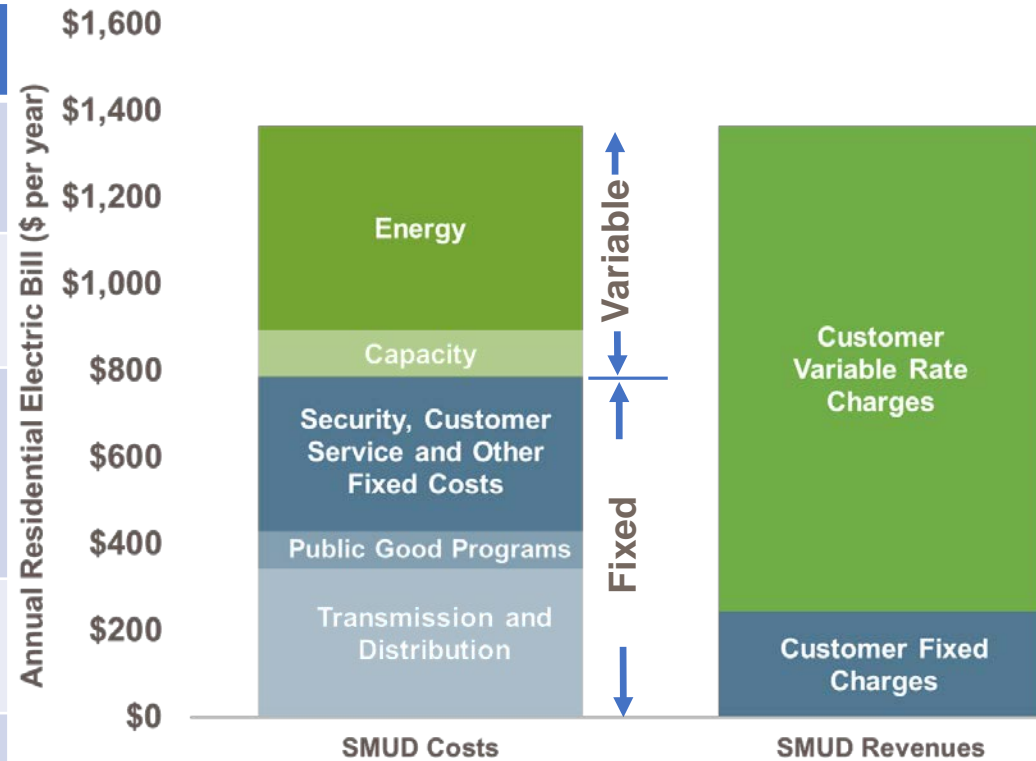
- Distribution System - Open Loop
- Distribution Feeders -
 - Shorter distances between substation
 - Feeder ties allow for higher reliability



Average Annual Residential Bill Components



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



- Reliable, affordable and environmentally sustainable electricity service has many components
- SMUD Relies on variable rate charges to recover fixed costs

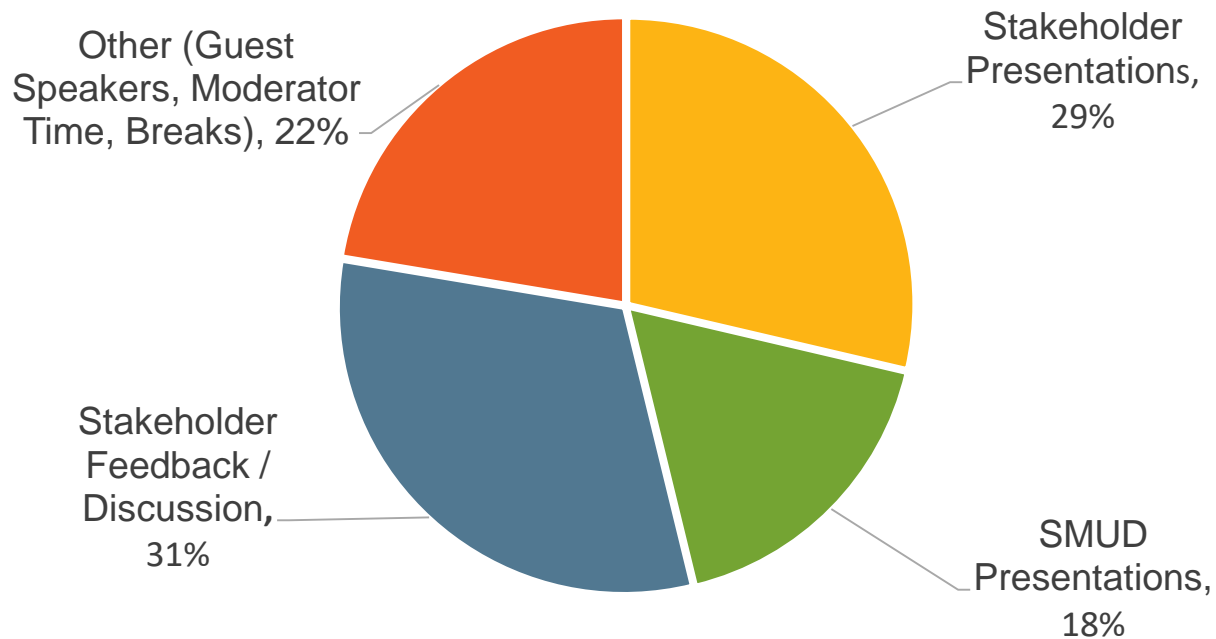
Purpose of Going Over Future Agendas



- 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

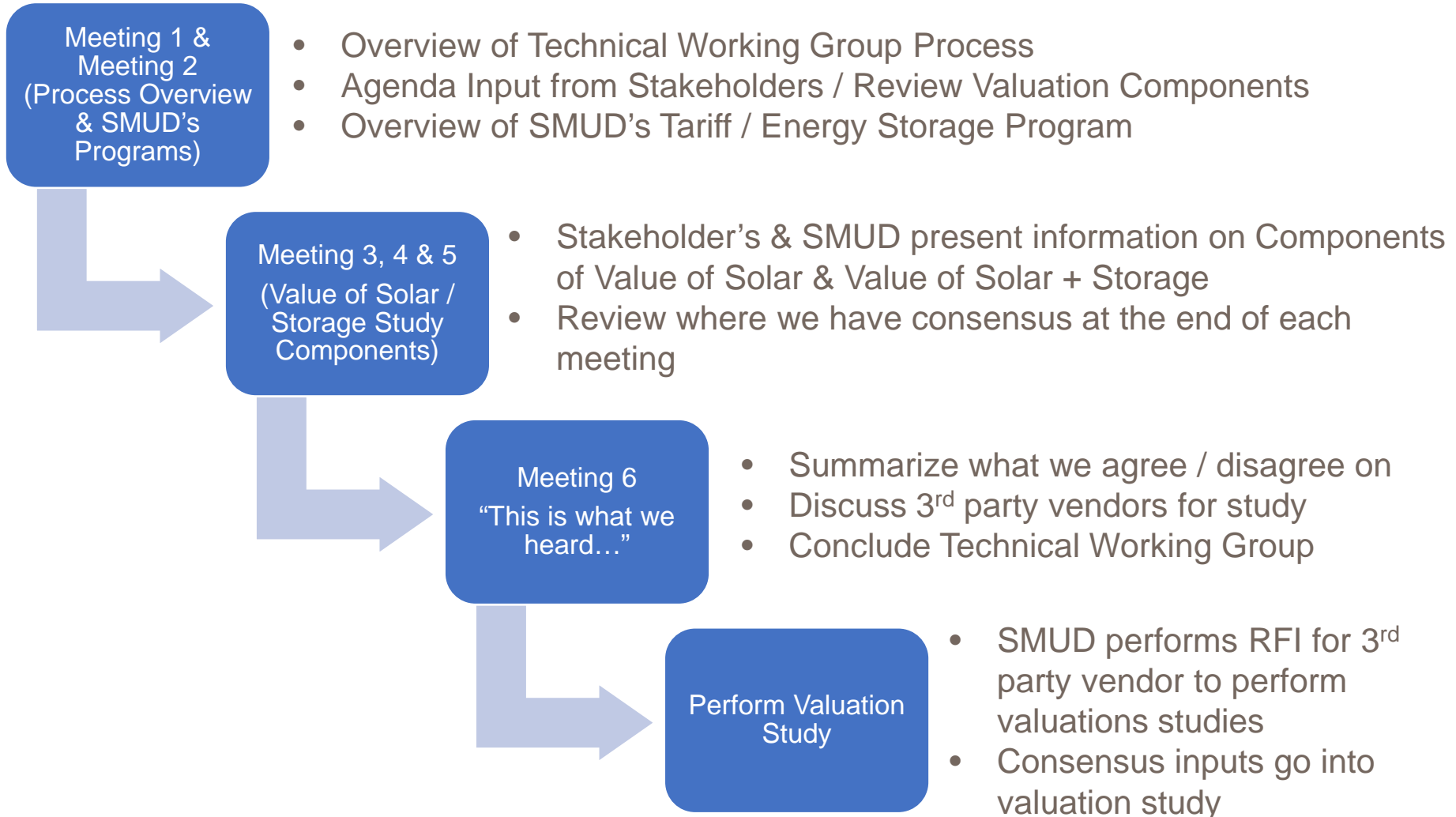


Technical Working Group Agenda Time



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

Meeting schedule





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

Topic	Proposed definition/components
Energy Value	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.
Generation Capacity Value	The unit value for avoided generation capacity cost during critical peak hours set to locational clearing prices.
Energy Financial Risks	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.



Societal Benefits of Distributed Generation (60 min)

- Guest Speakers: Invited Grid Alternatives (TBD) & Sierra Club (Luis Amezcuca)
- 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 (NO_x) and particulate matter (PM).
- Environmental benefits can include fewer impacts related to land, water, and other related issues.



Stakeholder & SMUD Presentations on Costs & Benefits

Topic	Proposed definition/components
Transmission & Distribution (T&D) Capacity	The impacts on SMUD system when a solar project allows for a reduction in, or deferral of, transmission and distribution investments, upgrades and maintenance.
System Losses	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&D system.
Grid Support Services	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.



- 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