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<th><strong>Docket Number:</strong></th>
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<tr>
<td><strong>Project Title:</strong></td>
<td>Integrated Resource Planning</td>
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<td><strong>Document Title:</strong></td>
<td>SMUD Plug-in Electric Vehicles Light Duty Integrated Resource Plan SB350 Input</td>
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<tr>
<td><strong>Description:</strong></td>
<td>4.18.17 Presentation by Bill Boyce of SMUD</td>
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<td><strong>Filer:</strong></td>
<td>Raquel Kravitz</td>
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<td>Energy Commission</td>
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SMUD Plug-in Electric Vehicles
Light Duty Integrated Resource Plan
SB350 Input

April 2016
SMUD Transportation Planning Maturity

• SMUD Light Duty EV plans progressing well
  – Market projections / Load information estimates are all in place
  – New customer programs launched to increase EV adoption
  – SMUD EV Strategies established in 2016 will address market adoption barriers and maximize grid value
  – New elements now being evaluated
    • New CARB Scoping Plan preliminary targets (4.2M vehicles by 2030)
    • SMUD EV Program adoption effectiveness
    • Impact projections for new Ultra fast charging stations.

• IRP Scenario Planning Ongoing
SMUD Market Adoption / Load Planning

Cumulative Vehicle Adoption

- **High (Latest Scoping Plan)**
- **Medium (Current Target)**
- **Low (Natural Adoption)**

Years: 2013 to 2030

Y-axis: Cumulative Vehicle Adoption

Values: 0, 20000, 40000, 60000, 80000, 100000, 120000, 140000, 160000, 180000
Transportation Electrification IRP Guideline Feedback for Light Duty Vehicles

• Concurrence with Guidelines
  – TE Related Market Growth and expected load profiles and associated emission estimates are all consistent with current SMUD practices
  – TE Program Investment reporting to spur EV market adoption is also consistent with ongoing SMUD activities
  – Identification of activities targeted at different customer segments is also consistent with existing practices

• Suggestions for inclusion
  – Transportation electrification-related grid impact cost data
    - What system upgrade costs can be attributed to TE impacts?
    - Anchors utility cost / benefit analyses
    - Provides insight on the charge management strategies
New 2017 Initiatives will try to drive adoption

- Enhanced residential program (≈$599/year incentive)
- Doubling advertising and outreach awareness campaign
- Full Workplace/Multi-family dwelling EVSE incentive program
  - 200 incentive per year for L2 Charging, $1500 / each
- DC Fast Charger Incentive Pilot Program
  - 6 DC Fast Chargers per year
- Community Partners School Bus electrification support
- Fleet/Workplace Charging Research Project to increase EV Adoption
- Managed charging research
- Medium and Heavy Duty Fuel Switching research
SMUD EV Support in Disadvantaged Communities

- SMAQMD / SHRA Share Car Project Support
  - SMUD is installing an additional DC Fast Charger to support the effort and providing cost overmatch to allow additional grant activities;
  - CARB Grant Supported

- SMAQMD / Twin Rivers/Elk Grove/Sacramento Unified School Districts
  - SMUD supporting charging infrastructure scope
  - CARB Grant Supported

- SMUD Fleet Expansion is located in a disadvantaged community

- Multi-family dwelling EVSE incentive program
SMUD Support for Electric Vehicle Service Providers

• Sale for Resale policy allows outside entities to resell electricity for electric vehicle applications

• Commercial EV Pilot Rate reduces demand charge exposure for low utilization rates

• Incentive programs support private investment
  – Workplace Charging
  – DCFC
Residential Grid Upgrades versus Smart Charging Costs

Annual System Upgrade Costs Vs. EV's Installed

- 6.6 kW Charging (All vehicles at 8PM)
- Smart Charging with $200/yr Network Fee
- Smart Charging with $100/yr Network Fee
- 3.3 kW Charging (All vehicles at 8PM)
- 2.0 kW Charging (All vehicles at 8PM)
- Smart Charging with $0/yr Network Fee

Year (Cumulative # EV's Installed)

- $0
- $5,000,000
- $10,000,000
- $15,000,000
- $20,000,000
- $25,000,000
- $30,000,000
- $35,000,000
- $40,000,000
Summary

- Transportation Electrification Load in SMUD resource planning since 2012

- SMUD is focused on increasing market adoption
  - Developed new EV rates for residential and commercial customers
  - Launched new incentives and awareness program in 2017
  - Deployment of DCFC to address range anxiety
    - 6 SMUD Stations now operations
    - New incentive model in 2017

- Significantly more funding for infrastructure will be needed to meet state policy goals

- SMUD is investing to support the market (beyond Federal or State Gov’t grants)

- LCFS funding is vital for supporting future infrastructure investment

- Accounting for carbon reduction shifts between the utility and the transportation sectors will be important for meeting long term goals