Exhibit to Agenda Item #1

Board Strategic Development Committee and Special SMUD Board of Directors Meeting
Tuesday, May 11, 2021, scheduled to begin at 5:30 p.m.
Customer Service Center, Rubicon Room
Agenda

- CAISO Summer 2020 Events and Related Changes
- Level Set
- SMUD Summer 2021 Setup
- Market Outlook for remainder of year
- Questions
CAISO Summer 2020 Events & Related Issues

- The events of August 2020 changed everything in the West.
- In addition to its own root cause analysis, CAISO initiated a stakeholder process to evaluate and recommend changes to make a better market.
- This was a long, and at times, contentious endeavor.
- SMUD & BANC participated in numerous formal sessions as well as bi-lateral talks directly with CAISO staff.
- A big “Thank You!” to CAISO staff for the open and productive engagement – it made a difference for SMUD & BANC.
What is SMUD’s Market Footprint?

- **Bi-Lateral Market** – SMUD participates in energy markets in the Western Interconnect - from the Rocky Mountains west including parts of Canada and Mexico. Transactions from next hour to years’ long complex Power Purchase Agreements (PPAs).

- **CAISO Energy Imbalance Market (EIM)** - The EIM’s advanced market system automatically finds low-cost energy to serve real-time consumer demand across the west. Since its launch in 2014, the EIM has enhanced grid reliability and generated cost savings for its participants. Besides its economic advantages, the EIM improves the integration of renewable energy, which leads to a cleaner, greener grid.

  - The EIM serves as SMUD’s primary Realtime Energy Market. SMUD went live in April of 2019 with the remainder of BANC joining in April of 2021.
How does EIM dispatch?

Every 5 minutes Automatic Dispatch System (ADS) signals are delivered to resources and energy moves across Balancing Authorities (BAs)
How significant is EIM in SMUD’s portfolio?

2020 Purchases by Market
- CAISO EIM: 30%
- ALL OTHER: 70%

2020 Sales by Market
- CAISO EIM: 34%
- ALL OTHER: 66%
SMUD Load & Resources on August 14, 2020

- Net Interchange
- Thermal
- Hydro
- Solar
- EIM Purchases
- EIM Sales
- SMUD Load

Time of Use

August 14, 2020 (Hours)
# Changes in Resource Adequacy (RA) Plan from 2020 to 2021

<table>
<thead>
<tr>
<th></th>
<th>Jul-20</th>
<th>% of Portfolio</th>
<th>Jul-21</th>
<th>% of Portfolio</th>
<th>Change 2020-2021</th>
</tr>
</thead>
<tbody>
<tr>
<td>Load</td>
<td>2,807</td>
<td></td>
<td>2,870</td>
<td></td>
<td>63</td>
</tr>
<tr>
<td>RA Obligation</td>
<td>3,177</td>
<td></td>
<td>3,249</td>
<td></td>
<td>72</td>
</tr>
<tr>
<td>Resource Locations</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>SMUD/BANC</td>
<td>2,142</td>
<td>66.3%</td>
<td>2,256</td>
<td>69.8%</td>
<td>114</td>
</tr>
<tr>
<td>SMUD Gen</td>
<td>1,884</td>
<td>58.3%</td>
<td>1,998</td>
<td>61.9%</td>
<td>114</td>
</tr>
<tr>
<td>Sutter</td>
<td>258</td>
<td>8.0%</td>
<td>258</td>
<td>8.0%</td>
<td>0</td>
</tr>
<tr>
<td>CAISO</td>
<td>390</td>
<td>12.1%</td>
<td>440</td>
<td>13.6%</td>
<td>50</td>
</tr>
<tr>
<td>Energy (RPS)</td>
<td>190</td>
<td>5.9%</td>
<td>190</td>
<td>5.9%</td>
<td>0</td>
</tr>
<tr>
<td>Non-RA</td>
<td>200</td>
<td>6.2%</td>
<td>250</td>
<td>7.7%</td>
<td>50</td>
</tr>
<tr>
<td>Western Area Power Admin</td>
<td>389</td>
<td>12.1%</td>
<td>320</td>
<td>9.9%</td>
<td>(70)</td>
</tr>
<tr>
<td>Pacific Northwest</td>
<td>212</td>
<td>6.6%</td>
<td>154</td>
<td>4.8%</td>
<td>(58)</td>
</tr>
<tr>
<td>Desert Southwest</td>
<td>97</td>
<td>3.0%</td>
<td>92</td>
<td>2.9%</td>
<td>(4)</td>
</tr>
<tr>
<td>Total Resources</td>
<td>3,230</td>
<td></td>
<td>3,261</td>
<td></td>
<td>31</td>
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</tbody>
</table>

**Additions:**
- SMUD/BANC: 114
- SMUD Gen: 114
- Western Area Power Admin: 70
- Pacific Northwest: 58

**Subtractions:**
- Desert Southwest: 4

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Board Strategic Development Committee and Special SMUD Board of Directors Meeting

May 11, 2021
Geographic diversity of 2021 RA Plan

SMUD Self Supply 61%

California ISO 13%

BANC 8%

Northwest 5%

WAPA 10%

Southwest 3%
Market Outlook Summer 2021

• BANC/SMUD Summer Readiness – Cautiously optimistic

• RA Market pricing continues to be at historic highs
  • September 2021 RA sold @ $23.00 KW/month

• Market uncertainty is reflected in elevated energy prices
  • Northwest Heavy Load for July 2021 traded @ $129.00 (July 2020 @ $41.50)
  • Northwest Heavy Load for August 2021 traded @ $172.50 (Aug 2020 @ $46.90)
  • Prices in Desert Southwest, as well as internal CAISO pricing hubs, are also at significantly higher prices as compared to 2020 prices
  • While Natural Gas prices are higher for 2021 as compared to 2020, they are not main cause behind elevated energy prices

• Required Actions
  • Small RA need for August 2021, fully supplied for all other months
RA Prices

- RAPrices continue to trend higher
- Spot Market highly volatile
There are three important regions to consider for hydrological conditions:

- **Upper American River Project (UARP)** – SMUD-owned hydro generation
- **Western Area Power Administration (WAPA) Central Valley Project (CVP)** – hydro generation contracted with WAPA from across California
- **Pacific Northwest (PNW)** - hydro generation in Oregon, Washington and British Columbia

All regions are expected to have less hydro generation than normal

<table>
<thead>
<tr>
<th>Area</th>
<th>Precipitation as snowpack (% of normal)</th>
<th>Precipitation as rain (% of normal)</th>
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<tbody>
<tr>
<td>UARP</td>
<td>65</td>
<td>65</td>
</tr>
<tr>
<td>CVP</td>
<td>75</td>
<td>55</td>
</tr>
<tr>
<td>PNW</td>
<td>100</td>
<td>85</td>
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## Additional Pressure on Supply/Demand

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<thead>
<tr>
<th>麋慮年年眉凝闊 鹃 麓</th>
<th>Pressure on Prices</th>
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<tbody>
<tr>
<td>Thermal Plant Retirements</td>
<td>![Arrow Up]</td>
</tr>
<tr>
<td>Higher CPUC RA requirements</td>
<td>![Arrow Up]</td>
</tr>
<tr>
<td>Revised Effective Load Carrying Capabilities (ELCC) and Net Qualifying Capacity (NQC)</td>
<td>![Arrow Up]</td>
</tr>
<tr>
<td>Market rule changes</td>
<td>![Arrow Up]</td>
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<tr>
<td>Northwest RA program</td>
<td>![Arrow Down]</td>
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<tr>
<td>Community Choice Aggregator Maturity</td>
<td>![Arrow Down]</td>
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<tr>
<td>Battery build out</td>
<td>![Arrow Down]</td>
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<tr>
<td>Post COVID-19</td>
<td>![Question Mark]</td>
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Questions