Clean Energy Procurement & Integrated Resource Plan

Monica Padilla, Director of Power Resources
March 11, 2020
Goals

1. Clean Energy Procurement Status
2. Integrated Resource Planning ("IRP") Overview
   - Share initial high-level results
   - Preview next steps
Clean Energy Procurement Update

• 2017 RFP – 20% PCC1 RPS
  • Completed

• 2019 RFP – 20% PCC1 RPS
  • In process
  • 6 contracts shortlisted
    • 1 approved
    • 2nd agendized for later in this meeting
    • 4 coming up
What is IRP: The Planning Perspective

Out of all available resource types and quantities, what is the optimal mix of resources for achieving our institutional goals?

SVCE’s Preferred Portfolio Plan vs California Mandate
Key Planning Objective - Metrics

1. Decarbonization
   a. Annual Accounting of Emissions
   b. Clean Net Short - possible future requirement

2. Reliability
   a. Annual Resource Adequacy—current requirement
   b. Availability of Resource During 4 pm to 9 pm - most likely future requirement

3. Affordability
   a. 10 Year Levelized Net Cost
   b. Supply Cost Variability
Next 10 Years: How will we Meet Clean Energy Needs (2021-2030)

Need to Meet California's RPS mandates and SVCE's Clean Energy Goals (100% Carbon-free)
Board Direction on Integrated Resource Plan (IRP)

10 Year IRP (2020 IRP) – 2021 to 2030

• RPS, GHG and Reliability to be balanced with Affordability

Board direction on IRP modeling in October 2019

• Exceed RPS mandate ~50% through 2026 and 60% by 2030
• Consider PG&E Allocations
• Shopping Cart of Resources – Portfolios
• Consider Geothermal & BioX Resources with a strategy to neutralize GHG

Plan for how to close Clean Energy Net Open Position!
Alternative Portfolios to Meet Clean Energy Goals

1. Solar PV
2. Solar + Storage
3. Wind
4. Large Hydro
5. Geothermal
6. Distributed Energy Resources

PG&E Allocations

A
None

B
RPS
Large Hydro
RA

C
RPS
Large Hydro
RA
Nuclear

#2A
#2B
#2C

#3A
#3B
#3C
2020 IRP & Clean Energy Procurement Upcoming Board Action

Mar 2020
1. Approve Second Geothermal Project PPA
2. IRP Model Results (informational)

Apr 2020
3. Direction on PG&E Carbon-Free & RPS Allocation
4. Approve 1 New Solar plus Storage PPA
5. Draft 2020 IRP (tentative)

May 2020
6. Approve 2020 IRP for CPUC Submittal
7. Approve 2 New Solar plus Storage PPAs

June 2020
8. Approve 1 New Solar plus Storage PPA
9. Approve Western Area Power Administration Large Hydro Contract
Renewable Power Standard Procurement Update: Approval of Resolution Authorizing Execution of Coso Geothermal Power Holdings, Renewable Power Purchase Agreement for Geothermal Electricity

Monica Padilla, Director of Power Resources
March 11, 2020
Request

Adopt Resolution authorizing the CEO to execute in substantial form the Power Purchase Agreement (PPA) with **Coso Geothermal Power Holdings LLC.** ("Coso") and any necessary ancillary documents.

Power delivery term: January 1, 2022 to December 31, 2036 (15 years)

Amount not to exceed: $330,754,000.
Spring 2019 Request for Proposals

- Goals & Requirements
  - RPS Eligible Resources
  - Meet long-term RPS procurement mandate for CP #4 26%
  - Diversify technology, location and suppliers
  - Contract start date no later than January 1, 2023

April 2019
- Issued Joint RFP

May - July 2019
- Evaluate, Scoring, Rank & Analyze

July - August 2019
- Shortlist & Exclusivity Agreements

September 2019 - now
- Negotiation of PPAs – Terms & Conditions

- Jan 2020: Approved Ormat Geothermal
- Mar 2020: Coso Geothermal
- Negotiating: 4 new Solar with Storage
<table>
<thead>
<tr>
<th>Counterparty</th>
<th>Coso Geothermal Power Holdings, LLC (“Coso”)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Product</strong></td>
<td>Bucket 1 (PCC1) Renewable Energy, existing geothermal</td>
</tr>
<tr>
<td><strong>Delivery Term</strong></td>
<td>15 years (January 1, 2022 through December 31, 2036)</td>
</tr>
<tr>
<td><strong>Project Name</strong></td>
<td>Coso Geothermal</td>
</tr>
<tr>
<td><strong>Location</strong></td>
<td>Inyo County, California</td>
</tr>
</tbody>
</table>
| **Average Annual Contract Capacity** | Years 1 to 5: 43 MW  
Year 6 to 15: 28 MW |
| **Percentage of Retail Load Served** | Years 1 to 5: 10%  
Years 6 to 15: 6%  
Overall: 7% |
| **Contract Price Structure**     | Fixed price per MWh with annual escalator  |
SVCE’s RPS Progress

SVCE Annual RPS - Expected Case
MWh/year

- PPAs Under Negotiations
- Coso Geothermal
- Ormat Geothermal
- RE Slate Solar + Storage Upsized
- Big Beau Solar + Storage
- Duran Mesa Wind
- State RPS mandate
- LT Mandate Ave RPS-yr
- SVCE policy

SILICON VALLEY
CLEAN ENERGY
## RPS Compliance with/ Coso

<table>
<thead>
<tr>
<th>Compliance Period</th>
<th>2021-2024</th>
<th>2025-2027</th>
<th>2028-2030</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>1. State Mandated RPS per Compliance Period</strong></td>
<td>40%</td>
<td>50%</td>
<td>57%</td>
</tr>
<tr>
<td>- % of Retail Sales</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>2. State Mandated % of Mandated RPS (Row #1) to be Contracted Under RPS Long-term Contracts</strong></td>
<td>65%</td>
<td>65%</td>
<td>65%</td>
</tr>
<tr>
<td><strong>3. State Mandated % of Retail Sales with RPS Long-term Contracts (Row 2 * Row 1)</strong></td>
<td>26%</td>
<td>33%</td>
<td>37%</td>
</tr>
<tr>
<td><strong>4. SVCE: Current Compliance with Row #3:</strong></td>
<td>22%</td>
<td>24%</td>
<td>25%</td>
</tr>
<tr>
<td>- Existing RPS Achieved with Long-term Contracts</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>5. SVCE: Proposed Compliance with Row #3:</strong></td>
<td>29%</td>
<td>33%</td>
<td>31%</td>
</tr>
<tr>
<td>- RPS Achieved with Proposed Geothermal Project</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Technology Category</td>
<td>Status</td>
<td>% of 2023 Load</td>
<td>Term Length (years)</td>
</tr>
<tr>
<td>---------------------</td>
<td>-------------------------</td>
<td>----------------</td>
<td>---------------------</td>
</tr>
<tr>
<td>1 Geothermal</td>
<td>Coso Pending</td>
<td>9.6%</td>
<td>15</td>
</tr>
<tr>
<td>2 Geothermal</td>
<td>ORNI 50 Approved</td>
<td>1.4%</td>
<td>10</td>
</tr>
<tr>
<td>3 Solar + Storage</td>
<td>Under Negotiation</td>
<td>6.3%</td>
<td>20</td>
</tr>
<tr>
<td>4 Solar + Storage</td>
<td>Under Negotiation</td>
<td>3.8%</td>
<td>20</td>
</tr>
<tr>
<td>5 Solar + Storage</td>
<td>Under Negotiation</td>
<td>2.6%</td>
<td>15</td>
</tr>
<tr>
<td>6 Solar + Storage</td>
<td>Under Negotiation</td>
<td>1.4%</td>
<td>15</td>
</tr>
<tr>
<td></td>
<td></td>
<td><strong>25.1%</strong></td>
<td></td>
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Questions?