Electric Vehicle
Renewable Alignment
Program Strategies

Citizens Advisory Committee
December 5, 2019
The Problem – Evening Ramp

Typical Spring Day

- Actual 3-hour ramp 10,802 MW on February 1, 2016
- Ramp need ~13,000 MW in three hours
- Over generation risk
- Net Load 11,683 MW on May 15, 2016
EV Charging

Source: UC Davis Plug-In Hybrid and EV Research Center
Load Shaping Impact

Weekday Load Profile

~7% of load during peak is EV charging
# Load Shaping Potential

<table>
<thead>
<tr>
<th>Segment</th>
<th>Load Shaping Potential</th>
<th>Data</th>
</tr>
</thead>
<tbody>
<tr>
<td>Single-family</td>
<td>High</td>
<td>~17,000 total vehicles</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Only ~8,000 on TOU rate</td>
</tr>
<tr>
<td>Multi-unit dwelling</td>
<td>Low</td>
<td>~3,000 vehicles</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(based on EVgo estimates)</td>
</tr>
<tr>
<td>Workplace</td>
<td>Very low</td>
<td>PG&amp;E load shape below</td>
</tr>
</tbody>
</table>

![Diagram showing load shape for workplace sites](https://example.com/diagram.png)
Overview

FLEXCHARGING

Hope Bringer
202 mi
Car is not plugged in

Charge Locations
Scheduled Leave Times
Minimum Charge Level

Friday
Delaying charging for Hope Bringer
FlexCharging will charge your car at a later time. Current state-of-charge is 54%, and will charge to 80%.

Hope Bringer is not plugged in.
Hope Bringer is at 54% charge, below your desired state of charge of 80%.
Potential in PCE Territory

Total PEV Sold All Years in SMC

- **Tesla, 37%**: 7,641 (37%)
- **GM, 16%**: 3,301 (16%)
- **Nissan, 12%**: 2,491 (12%)
- **All Others, 35%**: 7,268 (35%)

- ~20,000 EVs in San Mateo County
- 10,132 currently eligible EVs
- 6,079 (60% non-TOU, currently)
- 1,520 (25% participation)
FlexCharging Approach

Phase 1
- Beta test system functionality, vehicle OEM integrations, user experience, data acquisition/sharing, etc.
- Limited to 25 participants

Phase 2
- Behavior change and incentive structure testing to measure incentive effectiveness.
- Limited to 500 - 1,000 PCE residential customers with eligible EVs.

Phase 3
- Program rollout to all PCE customers with eligible EVs.

Phase 4
- Future DER systems integrations (smart battery storage systems, etc.), new vehicle OEM integrations, possible expansion into DR event-based response, advanced time coincidence
Questions and Discussion