<table>
<thead>
<tr>
<th><strong>DOCKETED</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Docket Number:</strong></td>
</tr>
<tr>
<td><strong>Project Title:</strong></td>
</tr>
<tr>
<td><strong>TN #:</strong></td>
</tr>
<tr>
<td><strong>Document Title:</strong></td>
</tr>
<tr>
<td><strong>Description:</strong></td>
</tr>
<tr>
<td><strong>Filer:</strong></td>
</tr>
<tr>
<td><strong>Organization:</strong></td>
</tr>
<tr>
<td><strong>Submitter Role:</strong></td>
</tr>
<tr>
<td><strong>Submission Date:</strong></td>
</tr>
<tr>
<td><strong>Docketed Date:</strong></td>
</tr>
</tbody>
</table>
California Energy Commission
Business Meeting
January 26, 2022
10:00 a.m.
Pledge of Allegiance

I pledge allegiance to the Flag of the United States of America, and to the Republic for which it stands, one Nation under God, indivisible, with liberty and justice for all.
Consent Calendar: a. – d.

a. Aspen Environmental Group. Contact: Hilarie Anderson

b. University of California, Berkeley, Energy Institute at Haas School of Business. Contact: Lynn Marshall

c. Allotrope Partners LLC. Contact: Kate Reid

d. California State Pipe Trades Council (CSPTC) Amendment to Provider Application. Contact: Sam Cantrell
Benefits & Purpose of the Forecast

• Integrated Energy Policy Report (IEPR)

• Procurement and system planning at the CPUC and ISO
  • Integrated Resource Planning
  • Distributed Resource Planning
  • Resource Adequacy
  • Transmission Planning
Stakeholder Process

• 5 IEPR workshops
• 6 Demand Analysis Working Group meetings
• Joint Agency Steering Committee discussion
• Final revisions made in response to stakeholder comments
  • Corrected EV charging profiles
  • Adjusted 2021 weather-normal peak estimate
Analytic Improvements

- Forecast extended to 2035
- Climate change adjustment to peak forecasts
- Title 24 commercial PV & storage requirements
- Updated Additional Achievable Energy Efficiency
- New “Additional Achievable” scenarios for fuel substitution
Statewide Electricity Sales

Annual Growth 2021-2030

Sales (GWh)

Managed Peak Demand (CAISO)
Single Forecast Set

• IEPR forecast has many components:
  • Baseline / AAEE / AAFS scenarios
  • Annual, hourly, and peak demand
  • Extreme weather variants

• Agreement between CEC, CPUC, and ISO identifies:
  • Specific planning uses
  • Components of forecast appropriate for each
Staff Recommendation

• Adopt California Energy Demand 2021-2035 Forecast
Item 3: Update on Russell City Energy Center

January 26, 2022, Business Meeting

Presented by:
Elizabeth Huber: CME Office Manager, Siting, Transmission and Environmental Protection Division,
Nika Kjensli: ESRB Program Manager, California Public Utilities Commission, and
Kelly McAdoo, Hayward City Manager, Hayward, California
Requirements Under CEC-Approved Order
Joint Agency Investigation

- 100 RCA and Documents Reviews
- 12 Witness/First Responder Interviews
- 9 Onsite inspections
- 3 Commissioner Tours
- 1 Weeklong Audit
## CEC and CPUC Authorities

<table>
<thead>
<tr>
<th></th>
<th>CEC</th>
<th>CPUC</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Statutory Authority</strong></td>
<td>25532</td>
<td>761.3</td>
</tr>
<tr>
<td><strong>Regulations/General Order</strong></td>
<td>CCR 1770</td>
<td>GO 167-B</td>
</tr>
<tr>
<td><strong>Oversight</strong></td>
<td>Inspects and enforces compliance activities through CEQA-equivalent process</td>
<td>Implements and enforces standards for the maintenance and operation of power plants</td>
</tr>
<tr>
<td><strong>California benefit</strong></td>
<td>Assures jurisdictional power plants operate in compliance with air and water quality, public health and safety, and specific conditions of certification</td>
<td>Ensures power plants are effectively and appropriately maintained and efficiently operating, and ensures electrical reliability and adequacy</td>
</tr>
</tbody>
</table>
Electric Safety and Reliability Branch

Regulates power plants owned by generating asset owners (GAO), by enforcing General Order 167-B.

Purpose of this order is to implement and enforce operation and maintenance standards to ensure reliable electric generation.
Joint Agency Working Group
Plan Review and Project Restart
Item 4: Draft Report to the CPUC on Supply-Side Demand Response

January 26, 2022 Business Meeting

Erik Lyon, Advisor
Office of Vice Chair Gunda
Benefits to Californians

Demand Response (DR):

- Provides greater reliability to the grid
- Reduces costs
- Reduces fossil fuel consumption
- Aligns electric demand with renewable energy generation
- Reduces the need for new power plants and transmission lines

Source: Grounded Analytics
Overview

What is the best way to measure DR's contribution to reliability?

CPUC requested CEC to take a fresh look

CEC established stakeholder working group

CEC staff developed recommendations for the CPUC
CEC Working Group Approach

Robust stakeholder process with weekly meetings including utilities, DR and storage providers, customers, energy consultants, agencies, and the ISO

Phase 1
1. Principles Working Group
2. Methodologies Working Group

Phase 2: Combined Working Group
Recent focus on interim solutions for 2023
Findings Overview

- Interrelated challenges for DR need to be addressed holistically
- Planned timeline incompatible with developing a permanent solution by 2023
- Two proposals are viable to temporarily address key challenges
Key DR Challenges

**Crediting:** Most utility DR resources not subject to ISO’s rules for ensuring reliability

**QC Methodology:** Current approach does not accurately value contribution to reliability

**Incentive Mechanisms:** Penalties for underperformance not designed for DR

**Settlements:** Baseline methods do not accurately account for weather-sensitive resources

**Process:** Onerous, expensive, opaque, and inflexible
Timeline Issues

2023 Compliance Year
- QC process already underway by December 2021
- Insufficient time to develop permanent methodology by 2023

2024 Compliance Year (and beyond)
- RA reform working group proposing significant changes
- Slice-of-Day framework likely to be recommended and adopted
- CEC Working Group must wait for recommendations to ensure compatibility
Interim Proposals

LIP-Informed Effective Load Carrying Capability (ELCC)
What is the amount of ‘perfect capacity’ a DR resource can replace without impacting reliability?

Incentive-based “PJM/NYISO” Approach
How much capacity will DR providers offer if they will be penalized for failing to deliver?
Interim Recommendations

- Status quo DR counting methodology to continue for another year
- Two new methodologies for 2023
- DR providers can choose between status quo and new methodologies
- California ISO provide exemptions for new methodologies
- Direct investor-owned utilities to move DR onto supply plans
Long-term Recommendations

- Extend CEC stakeholder working group process
- Develop a comprehensive, permanent solution for subsequent years
- Ensure alignment with changes to resource adequacy framework
Next Steps

Public comment period through February 4

CEC staff consider revisions to report

Request CEC adoption at February 16 business meeting

Submit report to CPUC
Item 5: Pecho Energy Storage Center
January 26, 2022, Business Meeting

Eric Knight, Manager
STEP, Siting & Environmental Office
Proposed Order No. 22-0126-5

• Find Pecho application for certification (21-AFC-01) incomplete
• Adopt list of deficiencies
• Direct applicant and staff to file Notice of Intention exemption information
• Appoint a committee
Pecho Project Location
Pecho Project Simulation
Staff Recommendation

Adopt Order No. 22-0126-5
Item 6: Gem Energy Storage Center
January 26, 2022, Business Meeting

Eric Knight, Manager
STEP, Siting & Environmental Office
Proposed Order No. 22-0126-6

• Find Gem application for certification (21-AFC-02) incomplete
• Adopt list of deficiencies
• Direct applicant and staff to file Notice of Intention exemption information
• Appoint a committee
Gem Project Location
Gem Project Simulation
Staff Recommendation

Adopt Order No. 22-0126-6
Item 7: Electric Vehicle (EV) Ready Communities Phase II - Implementation

January 26, 2022 Business Meeting

Patrick Brecht, Energy Commission Specialist II
Fuels and Transportation Division, Transportation Integration and Production Office
Benefits to Californians

- **Improve** access to EV charging infrastructure
- **Reduce** barriers to zero emission transportation
- **Increase** mobility options in disadvantaged communities (DAC)
- **Support** green job creation
San Francisco Department of the Environment $2,384,797

- Increase Public Awareness
  - Establish EV Ombudsperson
- Expand Charging Infrastructure
  - 100 Level 2 and 25 DCFCs
  - 3 public fast-charging plazas
- Accelerate Mode Shift
  - Delivery-app workers to use e-bikes
County of Los Angeles Internal Services  $2,500,000

- Will deploy light-duty EV infrastructure through DAC EV infrastructure project
- Expand Charging Infrastructure
  - 130 Level 2 chargers for Public Agency DAC Program
  - 60 Level 2 chargers for Multi-Family Program
- Provide holistic approach to regional transportation electrification issues
Kern Council of Governments
$1,799,485

- Install 32 minimum Level 2 and DCFCs at 10 sites minimum throughout Kern County
- Expand and support MioCar electric carsharing business
- Install additional EVSE to support workforce development
- Conduct outreach and education activities
Staff Recommendation

- Approve agreements/amendments
- Adopt determination that projects are exempt from CEQA
Item 8: Santa Clara Valley Transportation Authority – (VTA) ZVI-21-012

January 26, 2022 Business Meeting

Esther Odufuwa, Energy Commission Specialist I
Fuels and Transportation Division
Medium and Heavy Duty Zero Emission Technologies Office, Freight & Transit Unit
Benefits to California

Replicable solutions
Reduced emissions
Increased resiliency

Photo credit: Santa Clara Valley Transportation Authority
VTA Microgrid Project Overview

Infrastructure & Microgrid Development for VTA’s Transition to Zero Emission Bus Fleet
Overview of Route Services

Santa Clara Valley Transportation Authority Service Map
Overview of Equipment

Proterra 1.5 MW Chargers

Proterra Charging Dispensers

Photo credit: Santa Clara Valley Transportation Authority
Overview of Equipment contd.

4 MWh / 1MW Battery Energy Storage System

Overhead Inverted Pantograph

Photo credit: Santa Clara Valley Transportation Authority

Photo credit: Santa Clara Valley Transportation Authority
California Market Potential

≈ 700 MW flexible capacity

≈ 700,000 homes could be powered

≈ 11,500 transit buses in California
Staff Recommendation

Approve

- 1 grant agreement for $4,676,000

Adopt

- Staff's determination that action is exempt from CEQA
Item 9: Bringing Rapid Innovation Development to Green Energy (BRIDGE) 2020 (GFO-20-301)

January 2022 Business Meeting

Michael Ferreira
Energy Deployment & Market Facilitation Office
Energy Research & Development Division
Benefits to CA Ratepayers

• Advances clean energy economy
  o Supports clean energy entrepreneurs
  o Quicker transition from fossil fuels

• Improves grid resilience and reliability

• Increases renewable energy production
Swift Solar, Inc.

High Efficiency Perovskite Tandems for Solar EVs

- More solar power from same surface area.
- Could add 17-21 miles/day, meeting 50-100% typical charging needs.
- Target markets: aerospace, electronics and solar roofing.
- Would provide peak load reduction, avoided infrastructure upgrades.
Advanced Power Electronics to Enable Fast Charging while Avoiding Grid Upgrades

• Fast charging capability using 100A circuit (175 fast chargers typically require 350A)
• Capable of providing peak shaving, demand charge reduction
• Underground battery housing improves safety, reduces operating costs, saves space, and removes siting issues
• 10% market penetration = 4,790 installations resulting in 750 MW peak load reduction
Icarus RT

Hybrid PV/Thermal Solar Storage Cogeneration System

• Attaches to rear of solar panel installation
• Heat extractors reduce panel temp up to 18 °C = 12% increase in efficiency
• 280kW hybrid system demo:
  o 50,000 kWh/year more from improved efficiency ($15,000 value)
• Target markets: multifamily, commercial and industrial, represents $5 b in CA as of 2020
Carnot Compressor Field Testing

- 20% reduction in power consumption
- No oil/filter change and disposal
- Reduced maintenance needs
- $40 billion/year global air compressor market by 2025
Staff Recommendation

Approve and adopt staff’s findings that these projects are exempt from CEQA.