REGULAR MEETING of the Energy Planning & Resources Committee of the Clean Power Alliance of Southern California
Wednesday, May 23, 2018
12:00 p.m.

555 West 5th Street, 35th Floor
Los Angeles, California 90013

Meetings are accessible to people with disabilities. Individuals who need special assistance or a disability-related modification or accommodation to participate in this meeting, or who have a disability and wish to request an alternative format for the meeting materials, should contact Jacquelyn Betha, at least two (2) working days before the meeting at jbetha@cleanpoweralliance.org or (213) 269-5870, ext.1001. Notification in advance of the meeting will enable us to make reasonable arrangements to ensure accessibility to this meeting and the materials related to it.

If you wish to speak to the Committee, please fill out a speaker's slip. If you have anything that you wish to be distributed to the Committee and included in the official record, please hand it to a member of the staff who will distribute the information to the Committee members and staff.

Members of the public may also participate in this meeting remotely at the following addresses:

Arcadia Public Works Service Center
11800 Goldring Road
Arcadia, CA 91066

Carson City Hall
Executive Conference Room
701 E. Carson Street
Carson, CA 90745

Malibu City Hall
23825 Stuart Ranch Road
Malibu, CA 90265

Oxnard City Hall Annex
CONFERENCE Room
300 W. Third Street, 4th Floor
Oxnard, CA 93030

Natural Resources Defense Council
1314 2nd Street
Santa Monica, CA 90401
Clean Power Alliance Energy Committee Meeting Agenda
May 23, 2018

Sierra Madre City Hall
Public Works Office
232 W. Sierra Madre Blvd.
Sierra Madre, CA 91024

Thousand Oaks City Hall
Public Works Conference Room
2100 Thousand Oaks Blvd.
Thousand Oaks, CA 91362

I. WELCOME AND ROLL CALL

II. PUBLIC COMMENT

This item is reserved for persons wishing to address the Committee on any Clean Power Alliance-related matters not on today’s agenda. Public comments on matters on today’s agenda shall be heard at the time the matter is called.

As with all public comment, members of the public who wish to address the Committee are requested to complete a speaker’s slip. Speakers are customarily limited to two minutes, but an extension can be provided at the discretion of the Chair.

III. REGULAR AGENDA

1. Approve Minutes from April 25, 2018 Energy Planning & Resources Committee Meeting

2. Discuss Integrated Resource Plan Assumptions & Potential Scenarios

3. Resource Adequacy Contracting Update

IV. COMMITTEE MEMBER COMMENTS

V. ADJOURN

Public records that relate to any item on the open session agenda for a regular Committee Meeting are available for public inspection. The Board has designated the County of Los Angeles, Chief Sustainability Office, Kenneth Hahn Hall of Administration, Room 493, 500 West Temple Street, Los Angeles, CA 90012, for making those public records available for inspection. The documents are also available on our internet website at www.cleanpoweralliance.org.
MEETING of the Energy Planning and Resources Committee of the Clean Power Alliance of Southern California

Wednesday, April 25, 2018, 12:00 p.m.
555 West 5th Street, 35th Floor
Los Angeles, California 90013

MINUTES

I. WELCOME AND ROLL CALL

Committee Chair Carmen Ramirez called the meeting to order. Board Secretary Jacquelyn Betha conducted Committee roll call:

Present
Arcadia – Alternate Director Tom Tait
Oxnard – Director Carmen Ramirez (Chair)
Santa Monica – Director Kevin McKeown
Sierra Madre – Director John Harabedian
Thousand Oaks – Alternate Director Helen Cox

Absent
Carson – Alternate Director Reata Kulcsar
Malibu – Director Skylar Peak

II. PUBLIC COMMENT

There were no public comments on items not on the agenda.

III. REGULAR AGENDA

1. Approve Minutes from March 28, 2018 Energy Planning and Resources Committee Meeting

The minutes from March 28, 2018 were reviewed and approved by a unanimous vote of those Members present.

2. Energy Contracting Update and Next Steps

Byron Vosburg, The Energy Authority, provided a presentation. The main focus is the fixed price energy from 2018 – 2020, and TEA was able to lock in rates for 2018.
There are eight suppliers for Renewable & Carbon-free/Low-carbon Energy, and CPA is negotiating with six of the suppliers that are promising. The strategy on how to optimize CPA portfolio was discussed.

Regarding Resource Adequacy (RA), offers were received from four suppliers, and negotiations are pending. There is a plan to issue a new RFO for 2018 RA.

Securing Block Energy is the highest priority due to price volatility. Six offers were received with volumes that exceed CPA needs. Thus far, we have reached 2018 target volumes and the intent is to layer in additional purchases extending through 2020.

3. Integrated Resources Plan Compliance and Discussion of Long Term Approach

Amber Nyquist, EES Consulting, Inc, provided a presentation. The Integrated Resource Plan (IRP) was discussed, with the main concern being compliance with the deadline. The IRP must be filed by August 1, 2018, and is updated on a 2-year cycle. The Committee discussed long-term IRP planning and the proposed work plan.

The CEC load forecast was discussed to extend to 2030. The Reference System Portfolio, which is determined by CEC, is used as a guide for what the Conforming Portfolio will look like. A preferred portfolio must be selected to include analysis of various components.

The Committee viewed an graph depicting load/resource balance examples and regulatory requirements and a graph depicting risk analysis and preferred portfolio details.

IV. COMMITTEE MEMBER COMMENTS

Chair Ramirez commended everyone on the collaborative CPA – RFO final pricing meeting that was held the prior free/week.

Committee Member Kevin McKeown suggested that all documents and correspondence be consistent in that they reflect the name: Clean Power Alliance, and not LACCE.

V. STAFF COMMENTS

There were no staff comments.
VI. ADJOURN

Chair Ramirez adjourned the meeting.
Integrated Resource Plan

2018 IRP
Agenda

- Integrated Resource Plan (IRP) Methodology
- Load-Serving Entity (LSE) Standard Plan
- Assumptions for Portfolio Scenarios
  - Load Forecast
  - Resource Mix
- Next Steps
- Appendix
  - IRP Overview
  - Data Sources
  - California Public Utilities Commission (CPUC) System Planning Assumptions
Introduction

- The IRP proceeding ensures the electric system is on track to help CA meet statewide 2030 GHG target at least cost.
- This decision adopts a two-year planning cycle for the Commission to conduct modeling and analysis, set greenhouse gas (GHG) emissions targets, and consider IRP filings from all LSEs.
- The CPUC’s system modeling is based on the CPUC-adopted Reference System Portfolio (RSP), to achieve a least-cost, least-risk portfolio.\(^1\)
- We are going to discuss the CPUC’s regional planning methodology and proposed CPA scenarios.

(1) RSP assumptions detailed in Appendix.
IRP Methodology

Regional Portfolio and Assumptions

- Study Period: 2018 through 2030, with only four planning years modeled (2018, 2022, 2026, and 2030)
- Modeling tools are developed by the CPUC
- LSEs must analyze, at a minimum, a “Conforming Portfolio”
  - Conforming Portfolio must utilize CEC IEPR 2017 load forecast and be consistent with the RSP
  - LSE may also study and report Alternative Portfolios
- LSEs are not required to develop their own production cost simulation models
The LSE Standard Plan is a Key IRP Deliverable

● Description of modeling approach and scenario selection for conforming and alternative portfolios
● Identification of preferred portfolio, including discussion of:
  ○ Local air pollution minimization, with early priorities on disadvantaged communities
  ○ Cost and rates
  ○ Local capacity needs
● Description of action plan for IRP implementation
● Submission of data
  ○ Baseline and new resource data templates¹
● Discussion of lessons learned

(1) Based on feedback from CCAs, CPUC will be re-releasing templates in late-May
Overview of Proposed CPA Portfolio Scenarios

- Conforming Portfolio
- Alternative Scenario #1 (updated load forecast / reference supply portfolio)
- Up to two additional Alternative Scenarios
Alternative Scenario #1 (updated load forecast / reference supply portfolio)

- Load forecast is replaced with CPA-developed forecast
- Power content mix the same across both portfolios:
  - Assumption: cities electing 50% and 100% renewable will continue to do so
  - Assumption: cities electing RPS case renewables will continue to do so as RPS ratchets up to 50% by 2030
  - Assumption: non-renewable GHG free power supply increases by 10% annually except conforming portfolio where it is held constant
Results: GHG Emissions vs. Targets

- A key output of the portfolio models will be a comparison of portfolio GHG emissions versus the CPUC-set 2030 GHG emissions target
- The goal of this is to ensure statewide carbon reduction of 42 MMT by 2030 is achieved\(^1\)

Example Conforming Portfolio

![Graph showing GHG emissions vs. targets]

<table>
<thead>
<tr>
<th>Year</th>
<th>Renewable</th>
<th>GHG Free, Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>2018</td>
<td>50%</td>
<td>92%</td>
</tr>
<tr>
<td>2022</td>
<td>65%</td>
<td>85%</td>
</tr>
<tr>
<td>2026</td>
<td>65%</td>
<td>86%</td>
</tr>
<tr>
<td>2030</td>
<td>65%</td>
<td>87%</td>
</tr>
</tbody>
</table>

\(^1\) The CPUC RSP assumes exceeding 50% RPS
Additional Alternative Portfolio Scenarios

- Staff proposes that procurement should comply with JPA and 2018 procurement requirements:
  - No nuclear or coal
  - No unbundled RECs
- We will be developing two alternative scenarios. If completed in time, they will be included in the IRP
- Potential additional alternative scenarios to facilitate internal procurement planning are:
  - Supply
    - 100% carbon-free
    - High distributed renewables
  - Demand
    - Electric vehicle / Electrification
    - Energy efficiency / demand response
Alternative Scenario Recommendations

- Given compressed schedule and desired focus on supply mix in the IRP, staff recommends limiting selection to at most two additional alternative scenarios:
  - 100% carbon-free
  - High distributed renewables
  - Electric vehicle / Electrification
  - Energy efficiency / demand response
Next Steps

- By 6/11: Develop detailed scenario assumptions
- By 6/15: Host Community Workshop to discuss key procurement inputs
  - Resource mix, disadvantaged community and air quality implications, local/community energy
- 6/23 Energy Committee Meeting: Present final portfolio assumptions
- 7/12 Board Meeting: Present draft results
- 7/25 Energy Committee Meeting: Present final IRP submission for approval
- 9/6 Board Meeting: Present robust internal long-term resource planning process
  - Key policy decisions related to: renewables and GHG-free mix, local power targets, portfolio diversification, demand-side management/energy efficiency, disadvantaged communities
Any questions?
Appendix
Regional IRP

**Background**

- Implements SB350 goals
  - Ensure electric system is on track to help CA meet statewide 2030 GHG target at least cost
  - Compliance with RPS
  - Ensure system and local reliability
- Allocates GHG benchmarks to load serving entities (LSEs)
  - 42 MMT by 2030, or 61% reduction from 1990 levels¹
  - Target based on least cost, least risk portfolio modeling in RESOLVE
- IRP process is 2-year cycle, 2019 IRP (next cycle) is due May 2020
  - 2019 and 2021 IRP cycle modeling capabilities and assumptions are being discussed at this time

(¹) Existing policies, including the 50% RPS, is equivalent to statewide GHG emissions of approximately 51 MMT
## Appendix – Data and Sources

<table>
<thead>
<tr>
<th>Assumption</th>
<th>Source</th>
</tr>
</thead>
<tbody>
<tr>
<td>Load Forecast (IEPR Form 1.1c)</td>
<td>CEC 2017 IEPR data: TN222582 LSE and BA Tables Mid Baseline Mid AAEE-AAPV (Revised CCA)¹</td>
</tr>
<tr>
<td>Resource Costs</td>
<td>RESOLVE model²</td>
</tr>
<tr>
<td>Emissions Factors</td>
<td>Emissions Factors are based on hourly average GHG emissions from dispatchable GHG-emitting resources in the 42mmt_Ref_20170831 scenario, released on 2017-09-07 as part of the CPUC Public Release</td>
</tr>
<tr>
<td>Emission Benchmark</td>
<td>Rulemaking 16-02-007 Filed 4/3/18³</td>
</tr>
</tbody>
</table>

¹ Available here: [http://docketpublic.energy.ca.gov/PublicDocuments/17-IEPR03/TN222582_20180216T094947_LSE_and_BA_Tables_Mid_Baseline_Demand_Mid_AAEEAAPV_Revised_CCA.xlsx](http://docketpublic.energy.ca.gov/PublicDocuments/17-IEPR03/TN222582_20180216T094947_LSE_and_BA_Tables_Mid_Baseline_Demand_Mid_AAEEAAPV_Revised_CCA.xlsx)


³ [http://docs.cpuc.ca.gov/PublishedDocs/Efile/G000/M212/K646/212646820.PDF](http://docs.cpuc.ca.gov/PublishedDocs/Efile/G000/M212/K646/212646820.PDF)
Statewide CPUC Regional Energy Load Forecast

2017 IEPR

Baseline Consumption  Electric Vehicles  Other Electrification
Behind-the-Meter PV  On-site Generation  Energy Efficiency
TOU Impacts  Managed Retail Sales
## Statewide CPUC Reference System Portfolio

### 42 MMT ALL Resources

<table>
<thead>
<tr>
<th>Resource Type</th>
<th>Unit</th>
<th>2018</th>
<th>2022</th>
<th>2026</th>
<th>2030</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nuclear</td>
<td>MW</td>
<td>2,922</td>
<td>2,922</td>
<td>622</td>
<td>622</td>
</tr>
<tr>
<td>CHP</td>
<td>MW</td>
<td>1,685</td>
<td>1,685</td>
<td>1,685</td>
<td>1,685</td>
</tr>
<tr>
<td>Gas</td>
<td>MW</td>
<td>30,127</td>
<td>25,877</td>
<td>25,877</td>
<td>25,877</td>
</tr>
<tr>
<td>Hydro (Large)</td>
<td>MW</td>
<td>7,844</td>
<td>7,844</td>
<td>7,844</td>
<td>7,844</td>
</tr>
<tr>
<td>Biomass</td>
<td>MW</td>
<td>725</td>
<td>725</td>
<td>725</td>
<td>725</td>
</tr>
<tr>
<td>Geothermal</td>
<td>MW</td>
<td>1,361</td>
<td>1,250</td>
<td>1,220</td>
<td>2,920</td>
</tr>
<tr>
<td>Hydro (Small)</td>
<td>MW</td>
<td>466</td>
<td>466</td>
<td>466</td>
<td>466</td>
</tr>
<tr>
<td>Wind</td>
<td>MW</td>
<td>9,071</td>
<td>9,338</td>
<td>9,338</td>
<td>10,439</td>
</tr>
<tr>
<td>Solar</td>
<td>MW</td>
<td>10,367</td>
<td>18,702</td>
<td>18,702</td>
<td>18,766</td>
</tr>
<tr>
<td>Customer Solar</td>
<td>MW</td>
<td>7,281</td>
<td>11,823</td>
<td>16,175</td>
<td>19,992</td>
</tr>
<tr>
<td>Battery Storage</td>
<td>MW</td>
<td>690</td>
<td>1,113</td>
<td>1,512</td>
<td>3,429</td>
</tr>
<tr>
<td>Pumped Storage</td>
<td>MW</td>
<td>1,832</td>
<td>1,832</td>
<td>1,832</td>
<td>1,832</td>
</tr>
<tr>
<td>Shed DR</td>
<td>MW</td>
<td>1,752</td>
<td>1,752</td>
<td>1,752</td>
<td>1,752</td>
</tr>
<tr>
<td>Shift DR</td>
<td>MW</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Hydrogen Load</td>
<td>MW</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>In-State Renewables</td>
<td>MW</td>
<td>27,207</td>
<td>37,235</td>
<td>41,557</td>
<td>47,138</td>
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<tr>
<td>Out-Of-State Renewables</td>
<td>MW</td>
<td>2,064</td>
<td>5,069</td>
<td>5,069</td>
<td>6,171</td>
</tr>
</tbody>
</table>
CPUC Developed Supply-Side Resource Costs - Renewables

- Solar PV - Rooftop: $281
- Solar Thermal - No Storage: $199
- Solar Thermal - Storage: $424
- Biomass - Distributed: $552
- Hydro - small: $523
- Biosmass - Central: $612
- Solar PV - Parking Lot: $211
- Wind - Distributed: $111
- Solar PV Fixed Tilt: $181
- Geothermal: $512
- Solar PV - Parking Lot: $78
- Wind - Distributed: $71
- Biomass - Distributed: $201
- Solar PV Tracking: $68
- Wind: $63

Levelized Cost $/kW-yr
Levelized Cost $/MWh
CPUC Developed Supply-Side Resource Costs – Non-Renewable

- **Gas - ICE**:
  - Levelized Cost: $189 per kW-yr
  - $2,225 per MWh

- **Gas - CT - Aero**:
  - Levelized Cost: $189 per kW-yr
  - $2,225 per MWh

- **Gas - CT - Frame**:
  - Levelized Cost: $143 per kW-yr
  - $1,725 per MWh

- **Gas - CCGT**:
  - Levelized Cost: $193 per kW-yr
  - $2,261 per MWh

- **Pumped Storage [Energy]**:
  - Levelized Cost: $9 per kW-yr
  - $99 per MWh

- **Pumped Storage [Capacity]**:
  - Levelized Cost: $107 per kW-yr
  - $1,223 per MWh
Energy Committee Meeting

Resource Adequacy (RA) Procurement Status Report

May 23, 2018
Resource Adequacy (“RA”)

- Offers received from 4 suppliers in April RFO
  - Offered volumes vary greatly by year (2018, 2019, and 2020) and product (System, Local LA Basin, Local Big Creek/Ventura, Flexible)
  - Engaged bilaterally with multiple additional suppliers
- Confirmations executed with 2 suppliers
  - All requirements met for July 2018
  - A portion of requirements met for balance of 2018
- Negotiations underway with multiple suppliers for supply to meet requirements for August through December 2018
  - Includes non-standard deal structures and products (e.g. Import RA)
  - Plan to execute confirmations for balance of 2018 RA requirements
- Additional 2018 RA solicitation not anticipated at this time