REGULAR MEETING of the
Energy Planning & Resources Committee of the
Clean Power Alliance of Southern California
Wednesday, June 27, 2018
12:00 p.m.

555 West 5th Street, 35th Floor
Los Angeles, CA 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.

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

Santa Monica City Hall
Room 209
1685 Main Street
Santa Monica, CA 90401

555 W. 5th Street, Suite 3310
Los Angeles, CA 90013

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. 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.

III. REGULAR AGENDA

1. Approve Minutes from May 23, 2018 Energy Planning & Resources Committee Meeting

2. Discuss Energy Risk Management Policy

3. Update on 2018 Integrated Resource Plan

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.cleannpoweralliance.org.
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, CA 90013

MINUTES

I. WELCOME AND ROLL CALL

The meeting was called to order at 12:02 p.m. The Board Secretary, Jacquelyn C. Betha, conducted roll call.

<table>
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<th>Roll Call</th>
<th>Committee Chair</th>
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<td>1 Oxnard</td>
<td>Carmen Ramirez</td>
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<td>2 Arcadia</td>
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II. PUBLIC COMMENT

There were no comments from members of the public.

III. REGULAR AGENDA

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

Motion: Tom Tait (Arcadia). Second: Helen Cox (Thousand Oaks). Vote: The item was approved by a unanimous roll call vote.
2. **Discussed Integrated Resource Plan Assumptions & Potential Scenarios**

   Staff provided a presentation on Clean Power Alliance’s process to complete its Integrated Resource Plan (IRP), which in this round is being conducted on a tight timeframe. Staff reported on potential energy portfolio scenarios CPA is analyzing and discussed with the Committee the status of the renewable energy market supply.

3. **Resource Adequacy Contracting Update**

   Staff presented on the status of CPA’s resource adequacy contracting efforts, and stated that the reason CPA experienced a limited response is this is CPA’s first solicitation.

### IV. COMMITTEE MEMBER COMMENTS

Chair Ramirez commented that she would be attending an Energy Conference in Sacramento.

### V. ADJOURN

Chair Ramirez adjourned the meeting.
Energy Risk Management Policy
The July 12, 2018 board meeting includes an approval request for a proposed Energy Risk Management Policy (ERMP) and FY 18-19 Procurement Plan. The ERMP is a critical component of procurement cost oversight and development of future procurement strategies. The ERMP is being developed by TEA and staff and will incorporate best practices used by CCAs and other market participants. The ERMP will replace the current “percentage of annual load” procurement authority of the Executive Director with a more robust risk-based approach that includes more factors and layers of approval. The Procurement Plan will propose a solicitation schedule for energy hedges, renewable energy, RA, and carbon-free procurement for 2019-2021.
EMRP Policy Purpose

- Provide a framework for conducting trading activities and mix of short and long-term contracting to ensure CPA’s long-term viability
- Identify and measure the magnitude of risks to which CPA is exposed:
  - Market, regulatory, volumetric, model, operational, counterparty credit, and reputational risk*

*The policy is not intended to address all risks faced by CPA, only those related to procurement
The Energy Risk Management Policy will include:

- Risk management governance, including establishment of a staff-level Risk Management Committee (RMC)
  - Members include the Executive Director, COO, and Director of Power Planning & Procurement*
- Delegation of daily procurement responsibilities, including specific limits on transaction types, terms, values, and volumes
- Description of risk measurement, valuation, and stress test methodologies
- Credit policy, including max credit limits, monitoring protocols, and counterparty concentrations

*Additional members may be added as CPA brings on additional staff (e.g. CFO)
Front, Middle, Back Office

- The EMRP establishes processes, controls, and reporting requirements to ensure compliance and appropriate risk oversight of Front, Mid, and Back office functions
  - Front office – trading and contract origination
  - Mid office – market and credit risk oversight
  - Back office – settlements and billing, contract admin
- Actual front, middle, back office functions will be performed by a mixture of staff and consultants (TEA)
Open Areas

- Between now and the Board Meeting, Staff is finalizing:
  - Risk measurement metrics and limits
  - Necessary internal systems and processes to comply with ERMP controls
  - Interaction between the RMC and the Board
    - ED/RMC authority levels (Based on time, value, type, etc.)
    - Protection of sensitive market information and risk profile
  - Procurement Plan solicitation schedule – still weighted towards closing short-term positions
2018 Integrated Resource Plan (IRP) Update
Overview

- Status Update
- Modeling Inputs
- Methodology
- Modeling Results
- Key Takeaways
- Appendix – IRP Survey Results
Status Update

- The May 25, 2018 CPUC Ruling allowed LSEs to update load forecasts and associated 2030 greenhouse gas (GHG) benchmarks for their August 1, 2018 IRP filings
  - CPA submitted a Motion to update its Conforming Portfolio load forecast and 2030 GHG benchmark, which was approved on June 18, 2018
  - CPA no longer needs to submit an Alternative Scenario with updated load forecast, as the Conforming Portfolio reflects CPA’s updated forecast
- The CPUC released additional revisions to the submission templates on June 21, 2018
- E3 has replaced EES as CPA’s IRP modeling consultant
  - E3 is the developer of the CPUC’s RESOLVE model used for the IRP
- CPA received 194 responses to IRP survey, which were distributed at the Board Retreat and are provided in the Appendix
Modeling Overview

- LSEs are directed to use inputs and assumptions consistent with CPUC
  - The CPUC resource cost assumptions are out-of-date and above-market; resulting costs should only be viewed on a relative basis
  - The Confirming Portfolio uses CEC assumptions for energy efficiency, electric vehicle penetration, distributed energy resources (DER), building electrification, and demand response
  - Community and local programs are excluded from this analysis
- The CPUC IRP RESOLVE provides insight into a future with high renewables penetration and the need for integration technologies (i.e. storage)
- Modeling results show CPA’s Conforming Portfolio emissions will be in compliance
MODELING INPUTS
In-State Renewable Premiums

- REC premium estimated using net costs for a new in-state solar resource with CPUC IRP RESOLVE model cost and revenue assumptions.
- Prices escalated at 2%.
- Bucket 2 prices expected to be cheaper than Bucket 1 RECs by a constant factor of 67%.
- Clean power attribute expected to be 1/4th of the price of a Bucket 1 REC.
System and Local Resource Adequacy (RA) Prices

- Local RA prices have a premium over System RA in line with CPUC’s RA assessment.
- System RA prices are low in the near term based on CPUC’s RA assessment.
- Both system and local RA prices rise to reflect actual market contract prices reflected in FERC’s EQR database after 2023.

Prices escalated at 2%

System RA

Local RA

$/kW-yr

2018 2023 2028 2033 2038 Year

2018 IRP Update
Energy Price Forecast

- Energy prices from CPUC IRP RESOLVE model are used and may diverge from existing market prices

- However, the model demonstrates an interesting trend as additional intermittent resources are added to the portfolio
  - See next slides for annual energy price “heat maps,” where red denotes additional hours of curtailment
# 2018 Energy Prices

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CLEAN POWER ALLIANCE ENERGY COMMITTEE

Agenda Item 3 - Attachment 1
## 2022 Energy Prices

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### Notes:
- The table above shows the 2022 Energy Prices for each month and hour.
- The average prices are calculated across all hours for each month.
- The costs per hour range from $11 to $35, with an average of $43.

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**CLEAN POWER ALLIANCE**

2018 IRP Update
# 2026 Energy Prices

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<td>$42</td>
<td>$34</td>
<td>$34</td>
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<td>$20</td>
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<tr>
<td>Avg</td>
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<td>$63</td>
<td>$63</td>
<td>$64</td>
<td>$65</td>
<td>$64</td>
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<td>$32</td>
<td>$27</td>
<td>$26</td>
<td>$31</td>
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# 2026 Energy Prices

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<tr>
<th>Month</th>
<th>Hour</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
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<th>9</th>
<th>10</th>
<th>11</th>
<th>12</th>
<th>Avg</th>
</tr>
</thead>
</table>

CLEAN POWER ALLIANCE

2018 IRP Update
METHODOLOGY
Power Purchase Agreements (PPAs) Evaluated

- Solar
- Solar + storage
- Wind
- Biomass
- Geothermal
- NW hydro
- System Power

Renewable Potential Identified in RESOLVE Model
Portfolio Valuation and Ranking Process

Iterate using portfolios with various combinations of 2-18 year Power Purchase Agreements (PPAs)

1. **Determine Baseline**
2. **Calculate Value of Portfolio of PPAs**
3. **Calculate Net Cost/Benefit of Portfolio**
4. **Rank Portfolios**

Benchmark for ranking portfolios is cost of buying power in spot market.

The portfolio with the highest Net Benefit in NPV terms is preferred.
Portfolios Tested

- E3 tested a range of different portfolios to determine lowest cost procurement options for CPA
  - 2-year short-term contracts + 10-year long-term contract + 6-year long-term contract
  - 10-year long-term contract followed by 8-year long-term contract
  - 18-year long-term contracts
RESULTS
## Portfolio Selection

<table>
<thead>
<tr>
<th>Scenario</th>
<th>NPV 2019 - 2036 ($MM)</th>
<th>2030 Emissions from IRP Model</th>
<th>2030 Emissions from CPUC GHG Calc(^1)</th>
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</thead>
<tbody>
<tr>
<td>Scenario 1</td>
<td>$8,460</td>
<td>1.83 MMT (8% lower than benchmark)</td>
<td>1.69 MMT (15% lower than benchmark)</td>
</tr>
<tr>
<td>(2 + 10 + 6)</td>
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<td></td>
</tr>
<tr>
<td>Scenario 2</td>
<td>$8,680</td>
<td>1.34 MMT (33% lower than benchmark)</td>
<td>1.21 MMT (39% lower than benchmark)</td>
</tr>
<tr>
<td>(10 + 8)</td>
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<td></td>
<td></td>
</tr>
<tr>
<td>Scenario 3</td>
<td>$8,212</td>
<td>1.78 MMT (11% lower than benchmark)</td>
<td>1.65 MMT (17% lower than benchmark)</td>
</tr>
<tr>
<td>(18)</td>
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</table>

\(^1\) The CPUC GHG Calculator results in lower 2030 emissions than the IRP model due to more simplified modeling of load.
Scenario 1 – Resource Mix

[Chart showing resource mix from 2019 to 2034, with categories such as System Power, PCC 1 and PCC 2 RECs, NWH RECs purchase/sale, Proposed System power, Existing System Power, Proposed NWH PPA, Existing Carbon Free, Proposed PPAs, and Existing PPAs.]

CLEAN POWER ALLIANCE ENERGY COMMITTEE

Agenda Item 3 - Attachment 1

CLEAN POWER ALLIANCE

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2018 IRP Update
Scenario 1 - PPA Resources
Key Takeaways

- CPA’s Conforming Portfolio submission to the CPUC will achieve its 2030 GHG target.
- The CPUC IRP RESOLVE provides insight into a future with high renewables penetration and the need for integration technologies (i.e. storage).
- However, due to significantly out-of-date resource pricing inputs, the Conforming Portfolio should not be used to estimate costs to serve CPA load.
  - CPA will discuss procurement cost on a relative basis in the CPUC submission.
- Once the CPUC submission is complete, CPA plans to use E3’s model to run planning scenarios.
  - Use internally developed, market-based assumptions.
  - Incorporate CPA-specific customer, community, and local program assumptions based on Board-directed policies and community stakeholder feedback.
APPENDIX
**IRP Survey Respondents**

<table>
<thead>
<tr>
<th><em>Agoura Hills</em></th>
<th>Los Angeles</th>
<th>Santa Barbara</th>
</tr>
</thead>
<tbody>
<tr>
<td><em>Alhambra</em></td>
<td>Malibu</td>
<td>Santa Clarita</td>
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<tr>
<td>Aliso Viejo</td>
<td>Newbury Park</td>
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</tr>
<tr>
<td><em>Arcadia</em></td>
<td>Ojai</td>
<td>Thousand Oaks</td>
</tr>
<tr>
<td><em>Calabasas</em></td>
<td>Oxnard</td>
<td></td>
</tr>
<tr>
<td><em>Culver City</em></td>
<td>Palmdale</td>
<td>Torrance</td>
</tr>
<tr>
<td>Encinitas</td>
<td>Redondo Beach</td>
<td>Venice</td>
</tr>
<tr>
<td>Glendale</td>
<td>Rolling Hills Estates</td>
<td><em>Ventura</em></td>
</tr>
<tr>
<td><em>Hawthorne</em></td>
<td>Hermosa Beach</td>
<td>Westlake Village</td>
</tr>
<tr>
<td>Irvine</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Q: Please check which of the following describes you:
Q: Please select which of the following region-wide programs, funded by the Community Investment Fund, you would like to see CPA implement:
Q: Please rank the likelihood that you would personally take advantage of the following customer programs funded by the Community Investment Fund:

- Rates that incentivize demand reduction
- Rebate for energy efficiency in home/business
- Rebate for building electrification
- Rebate for electric vehicle charging infrastructure
- Shared community solar project
- Enhanced Net Energy Metering (NEM)
Q: Describe other projects/programs for the Community Investment Fund:

- Programs to directly lower rates
- Electric / alternative fuel vehicle infrastructure
- Solar for schools
- Incentives for rooftop solar
- Public solar (e.g. parking lots)
- Partnership with solar leasing companies
- Community solar for low income
- Wind / solar farms
Q: Please rank your preference for the following programs targeting disadvantaged communities:

- Transportation electrification
- Incentive for clean technology investments
- Job training and workforce development
- Rate design for vulnerable / disadvantaged communities
Q: Please provide feedback on other ideas/programs:

- Free high-speed EV chargers for renters
- Incentivize rooftop solar for homes/businesses
- Sponsor home energy audits
- Microgrids
- Explore “solar roofing”
- Community solar for low income
- EV battery storage
- Virtual net energy metering
- Smart thermostats integrated into DR programs
Q: Please provide recommendations on local permitting/zoning changes:

- Reduce setback for solar panels
- Solar permit streamlining
- Require rooftop solar on high-cube facilities
- Require solar ready rooftops
- Partnership with HOA/POAs to remove restrictions for multi-unit
- Streamline permit approval process for energy efficiency projects
- Building permit fee waivers
Q: Please provide your preferred way that CPA should continue to select ongoing community feedback for long-term resource planning

- In person community workshops
- Through community organizations
- Through elected officials
- Through online surveys