In accordance with AB 361, the Committee will adopt findings that meeting in person would present imminent risks to the health or safety of attendees of in-person meetings. Consistent with those findings, this Committee meeting will be held remotely. PCEA shall make every effort to ensure that its video conferenced meetings are accessible to people with disabilities as required by Governor Newsom’s March 17, 2020 Executive Order N-29-20. 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 Vanessa Shin at least 2 working days before the meeting at vshin@peninsulacleanenergy.com. Notification in advance of the meeting will enable PCEA to make best efforts to reasonably accommodate accessibility to this meeting and the materials related to it.

If you wish to speak to the Committee, please use the “Raise Your Hand” function in the Zoom platform or press *6 if you phoned into the meeting. If you have anything that you wish to be distributed to the Committee and included in the official record, please send to vshin@peninsulacleanenergy.com.

CALL TO ORDER / ROLL CALL

PUBLIC COMMENT
This item is reserved for persons wishing to address the Committee on any PCEA-related matters that are not otherwise on this meeting agenda. Public comments on matters listed on the agenda shall be heard at the time the matter is called. Members of the public who wish to address the Committee are customarily limited to two minutes per speaker. The Committee Chair may increase or decrease the time allotted to each speaker.

ACTION TO SET AGENDA AND TO APPROVE CONSENT AGENDA ITEMS

1. Approval of the Minutes for the October 13, 2022 Regular Meeting
2. Adopt Findings Pursuant to AB 361 to Continue Fully Teleconferenced Committee Meetings Due to Health Risks Posed by In-Person Meetings

REGULAR AGENDA

3. Chair Report (Discussion, est. 5 minutes)
4. Approve Citizens Advisory Committee Meeting Schedule for 2023 (Action, est. 5 minutes)

Public records that relate to any item on the open session agenda are available for public inspection. The records are available at the Peninsula Clean Energy offices or on PCEA’s Website at: https://www.peninsulacleanenergy.com.
5. Recommendation on Peninsula Clean Energy’s Strategy for Meeting 24/7 Renewable Energy Goal (Action, est. 40 minutes)

6. Update on Peninsula Clean Energy’s Goal of Creating a Minimum of 20 MW Local Power by 2025 (Discussion, est. 30 minutes)

7. Legislative Ideas (Discussion, est. 15 minutes)

8. Working Group Reports (Discussion, est. 10 minutes)

9. Marketing and Community Liaison Update (Discussion, est. 5 minutes)

10. Upcoming Topics for Discussion (Discussion, est. 5 minutes)

11. Committee Members’ Reports (Discussion, est. 5 minutes)

ADJOURNMENT
Instructions for Joining a Zoom Meeting via Computer or Phone

Best Practices:
- Please mute your microphone when you are not speaking to minimize audio feedback
- If possible, utilize headphones or ear buds to minimize audio feedback
- If participating via videoconference, audio quality is often better if you use the dial-in option (Option 2 below) rather than your computer audio

Options for Joining
A. Videoconference with Computer Audio – see Option 1 below
B. Videoconference with Phone Call Audio – see Option 2 below
C. Calling in via Telephone/Landline – see Option 3 below

Videoconference Options:

Prior to the meeting, we recommend that you install the Zoom Meetings application on your computer by clicking here https://zoom.us/download.

If you want full capabilities for videoconferencing (audio, video, screensharing) you must download the Zoom application.

Option 1 Videoconference with Computer Audio:

1. From your computer, click on the following link that is also included in the Meeting Calendar Invitation: https://pencleanenergy.zoom.us/j/84975390654?pwd=RWZwOUdHMFR3a0R0VmJtemttdmIrdz09

2. The Zoom application will open on its own or you will be instructed to open Zoom.
3. After the application opens, the pop-up screen below will appear asking you to choose ONE of the audio conference options. Click on the Computer Audio option at the top of the pop-up screen.

4. Click the blue, “Join with Computer Audio” button
5. In order to enable video, click on “Start Video” in the bottom left-hand corner of the screen. This menu bar is also where you can mute/unmute your audio.

**Option 2 Videoconference with Phone Call Audio:**

1. From your computer, click on the following link that is also included in the Meeting Calendar Invitation: 
   https://pencleanenergy.zoom.us/j/84975390654?pwd=RWZwOUdHMFR3a0R0VmJtemttdmIrdz09
2. The Zoom Application will open on its own or you will be instructed to Open Zoom.
3. After the application opens, the pop-up screen below will appear asking you to choose ONE of the audioconference options. Click on the Phone Call option at the top of the pop-up screen.

   ![Choose ONE of the audio conference options](image)

   - **Country/Region**: United States
   - **Dial**: +1 646 558 8656
   - **Meeting ID**: 849 7539 0654
   - **Participant ID**: 449701
   - **Passcode**: 2075

   1. Please dial +1 (253) 215-8782
   2. You will be instructed to enter the meeting ID: **849-7539-0654 followed by #**
   3. You will be instructed to enter in your participant ID. Your participant ID is unique to you and is what connects your phone number to your Zoom account.
   4. After a few seconds, your phone audio should be connected to the Zoom application on your computer.
   5. In order to enable video, click on “Start Video” in the bottom left hand corner of the screen. This menu bar is also where you can mute/unmute your audio.

**Audio Only Options:**

Please note that if you call in/use the audio only option, you will not be able to see the speakers or any presentation materials in real time.
**Option 3: Calling in via Telephone/Landline:**

Dial +1 (253) 215-8782

You will be instructed to enter the meeting ID: **849-7539-0654 followed by #**

You will be instructed to enter the meeting passcode **2075 followed by #**
REGULAR MEETING of the Citizens Advisory Committee of the Peninsula Clean Energy Authority (PCEA)
Thursday, October 13, 2022
MINUTES

Video conference and teleconference
6:30 p.m.

CALL TO ORDER

Meeting was called to order at 6:33 p.m.

ROLL CALL

Present:

Daniel Baerwaldt, Los Banos, *arrived at 7:30 p.m.*
Diane Bailey, Belmont
Steven Booker, Half Moon Bay
Michael Closson, Menlo Park
Joe Fullerton, Half Moon Bay
Michael Garvey, San Carlos
Kathleen Goforth, San Carlos
Katie Green, San Mateo
Margaret Li, South San Francisco, *arrived at 6:44 p.m.*
Edward Love, Half Moon Bay
Jason Mendelson, Redwood City, *Vice Chair*
Cheryl Schaff, Menlo Park, *Chair*
Desiree Thayer, Burlingame
Bryan Tran, South San Francisco

Absent:

Brandon Chan, South San Francisco

A quorum was established.

PUBLIC COMMENT

No public comment

ACTION TO SET THE AGENDA AND APPROVE CONSENT AGENDA

1. Approval of the Minutes for September 8, 2022 Regular Meeting
2. **Adopt Findings Pursuant to AB 361 to Continue Fully Teleconferenced Committee Meetings Due to Health Risks Posed by In-Person Meetings**

*Motion Made / Seconded: Garvey / Fullerton*

*Motion passed 12-0 (Absent: Baerwaldt, Chan, Li)*

**REGULAR AGENDA**

3. **Chair Report (Discussion)**
   Cheryl Schaff, *Chair*, invited Committee members to provide input on the timing of Citizen Advisory Committee meetings to help inform the development of the 2023 meeting schedule.

4. **Board of Directors September Retreat Debrief (Discussion)**
   Jason Mendelson, *Vice Chair*, highlighted the topics and strategic discussions raised during the Peninsula Clean Energy Board of Directors September Retreat. Joe Fullerton, *Committee member*, encouraged staff and the Committee to consider the social cost of carbon when evaluating emissions reductions.

5. **Reach Codes Update (Discussion)**
   Rafael Reyes, *Director of Energy Programs*, provided an overview of the 2022 building code cycle, proposed model codes for building electrification and electric vehicles, examples of measures for existing buildings, and the status of reach code adoption in San Mateo County. Rafael also presented an analysis of how Peninsula Clean Energy’s incentives can improve the economics of electric appliance replacements.

   Diane Bailey, *Committee member*, expressed concern that many cities are waiting until 2023 to consider reach codes for existing buildings and requested continued support for cities interested in existing building codes in the 2022 code cycle. Diane also recommended exploring the City of Denver’s approach to building electrification. Other Committee members asked questions about the status of reach code adoption in specific cities and requirements for water heating under the model code.

6. **Zero Percent Financing and New Appliance Rebates Marketing (Discussion)**
   Alejandra Posada, *Associate Programs Manager*, introduced Peninsula Clean Energy’s rebates for heat pump water heaters and heat pump HVAC (heating, ventilation, and air conditioning) and Zero Percent Loan, including the eligibility requirements and application process. Gerald Gottheil, *Senior Manager of Marketing Communications*, described the promotion plans for these programs. Committee members expressed enthusiasm for these programs and asked
questions about the specifics of the loan, program administration, and outreach strategies.

PUBLIC COMMENT
David Mauro commented that the interactive all-electric home page on Peninsula Clean Energy’s website is very effective. David asked for clarification on the policies for late payments or non-payment on the Zero Percent Loan.

7. Integrated Resource Plan Feedback (Discussion)

Sara Maatta, Senior Renewable Energy and Compliance Analyst, provided information on the Integrated Resource Plan process, modeling approach, and results. Sara invited Committee members to provide feedback on the selected resource portfolio, action plan, and outreach process. Committee members asked Sara to elaborate on specific technologies, such as solar thermal, included in the preferred portfolio.

8. Recommendation on Diversity, Equity, Accessibility, and Inclusion Policy (Action)

Kirsten Andrews-Schwind, Senior Manager of Community Relations, invited Committee members to discuss the draft Diversity, Equity, Accessibility, and Inclusion (DEAI) policy. Committee members expressed satisfaction with the feedback incorporated into the policy. Jason Mendelson made a motion to recommend adoption of the DEAI policy as written.

Motion Made / Seconded: Mendelson / Diane
Motion passed 13-0 (Absent: Booker, Chan)

9. Working Group Report (Discussion)

Reporting on the Role of Citizen Advisory Committees Working Group, Joe Fullerton described the ongoing development of a survey to share with the CAC’s counterparts at other community choice energy agencies. Jason Mendelson offered to serve as the lead of this working group after Joe’s resignation from the CAC. Michael Closson also joined this working group.

On behalf of the Home Upgrade Program Working Group, Diane Bailey reported successes from the Home Upgrade Program and expressed interest in evolving the goals of this working group as the program has matured.

10. Marketing and Community Liaison Update (Discussion)

Vanessa Shin, Community Outreach Specialist, announced new job openings at Peninsula Clean Energy. She also provided a reminder of Peninsula Clean Energy’s All-Electric Leadership Awards program and Community Outreach Grant Call for Applications.

Kirsten Andrews-Schwind thanked Committee members in advance for sharing information about Peninsula Clean Energy’s new programs. She also invited Diane
Bailey to provide an overview of how Committee members can get involved with supporting reach codes.

11. Upcoming Topics for Discussion (Discussion)

Kirsten Andrews-Schwind previewed upcoming topics for the October Peninsula Clean Energy Board of Directors. Kirsten suggested the following timely topics for the November CAC meeting: Recommendation on Peninsula Clean Energy’s strategy for meeting goal to deliver 100% renewable energy each and every hour of the day; update on Peninsula Clean Energy’s goal of creating a minimum of 20 MW local power by 2025.

Diane Bailey requested an update on Peninsula Clean Energy’s residential electrification marketing campaign in the future.

12. Recognizing Joe Fullerton for His Service on the Citizens Advisory Committee (Action)

Committee members and Peninsula Clean Energy staff expressed their gratitude for Joe Fullerton’s contributions to the agency, including his leadership, curiosity, humor, and commitment to cultivating of young leaders. Jason Mendelson made a motion to recommend that the Board of Directors adopt a resolution honoring Joe with the following language:

Whereas Peninsula Clean Energy’s Citizens Advisory Committee (CAC) was formed by its Board of Directors in 2017. The committee is made up of up to 15 dedicated community volunteers who give their time and expertise as community liaisons and provide feedback on priorities of the organization.

Whereas the Citizens Advisory Committee (CAC) and Peninsula Clean Energy staff would like to formally recognize and honor Joe Fullerton’s key contributions to the organization.

Whereas Joe Fullerton served as an active member of the CAC since 2017, enriching discussions with his practical experience with green buildings, electrification projects, and community education. He championed workforce development in electrification as the lead of the Work Force Working Group in 2020. As a member of working groups related to education, resiliency & distributed resources, and role of Citizens Advisory Committees, Joe lent his expertise to strengthen Peninsula Clean Energy and further the agency’s mission across several areas. Joe also served as a liaison between Peninsula Clean Energy and the San Mateo County Community College District.

Be it resolved that Peninsula Clean Energy Citizens Advisory Committee and staff expresses their deep gratitude for the contributions of Joe Fullerton to the success of the organization.

Motion Made / Seconded: Mendelson / Closson

Motion passed 13-0 (Absent: Booker, Chan)
13. Committee Members’ Reports (Discussion)

No Committee member reports

ADJOURNMENT

Meeting was adjourned at 8:58 p.m.
TO: Honorable Peninsula Clean Energy Citizens Advisory Committee

FROM: Jan Pepper, Chief Executive Officer, Peninsula Clean Energy Authority

SUBJECT: Resolution to Make Findings Allowing Continued Remote Meetings Under Brown Act

RECOMMENDATION:
Adopt a resolution finding that, as a result of the continuing COVID-19 pandemic state of emergency declared by Governor Newsom, meeting in person would present imminent risks to the health or safety of attendees.

BACKGROUND:
On June 11, 2021, Governor Newsom issued Executive Order N-08-21, which rescinded his prior Executive Order N-29-20 and set a date of October 1, 2021 for public agencies to transition back to public meetings held in full compliance with the Brown Act. The original Executive Order provided that all provisions of the Brown Act that required the physical presence of members or other personnel as a condition of participation or as a quorum for a public meeting were waived for public health reasons. If these waivers fully sunset on October 1, 2021, legislative bodies subject to the Brown Act would have to contend with a sudden return to full compliance with in-person meeting requirements as they existed prior to March 2020, including the requirement for full physical public access to all teleconference locations from which Committee members were participating.

On September 16, 2021, the Governor signed AB 361, a bill that formalizes and modifies the teleconference procedures implemented by California public agencies in response to the Governor’s Executive Orders addressing Brown Act compliance during shelter-in-place periods. AB 361 allows a local agency to continue to use teleconferencing under the same basic rules as provided in the Executive Orders when certain circumstances occur or when certain findings have been made and adopted by the local agency. On January 5, 2022, Governor Newsom extended the sunset provision of AB361 and Government Code Section 11133(g) from January 31, 2022 to April 1, 2022 due to the surge in Omicron variant related COVID-19 cases and hospitalizations.
AB 361 requires that, if the state of emergency remains active for more than thirty (30) days, the agency must make findings by majority vote to continue using the bill’s exemption to the Brown Act teleconferencing rules. The findings are to the effect that the need for teleconferencing persists due to the nature of the ongoing public health emergency and the social distancing recommendations of local public health officials. Effectively, this means that agencies, including PCEA, must agendize a Brown Act meeting and make findings regarding the circumstances of the emergency on a thirty (30) day basis. If at least thirty (30) days have transpired since its last meeting, the Boards must vote whether to continue to rely upon the law’s provision for teleconference procedures in lieu of in-person meetings.

AB 361 allows for meetings to be conducted virtually as long as there is a gubernatorially-proclaimed public emergency in combination with (1) local health official recommendations for social distancing or (2) adopted findings that meeting in person would present risks to health. AB 361 will now sunset on January 1, 2024.

On September 30, 2021, the Peninsula Clean Energy Citizens Advisory Committee approved a thirty (30) day extension of remote meetings in accordance with AB 361. Out of an abundance of caution given AB 361’s narrative that describes each legislative body’s responsibility to reauthorize remote meetings, staff and counsel brings this memo and corresponding resolution to the attention of the Citizens Advisory Committee.

On October 14, 2021, the Peninsula Clean Energy Citizens Advisory Committee approved a thirty (30) day extension of remote meetings in accordance with AB 361.

On November 4, 2021 the Peninsula Clean Energy Citizens Advisory Committee approved a thirty (30) day extension of remote meetings in accordance with AB 361.

On December 2, 2021 the Peninsula Clean Energy Citizens Advisory Committee approved a thirty (30) day extension of remote meetings in accordance with AB 361.

On January 13, 2022 the Peninsula Clean Energy Citizens Advisory Committee approved a thirty (30) day extension of remote meetings in accordance with AB 361.

On February 10, 2022 the Peninsula Clean Energy Citizens Advisory Committee approved a thirty (30) day extension of remote meetings in accordance with AB 361.

On March 10, 2022 the Peninsula Clean Energy Citizens Advisory Committee approved a thirty (30) day extension of remote meetings in accordance with AB 361.

On April 14, 2022 the Peninsula Clean Energy Citizens Advisory Committee approved a thirty (30) day extension of remote meetings in accordance with AB 361.

On May 12, 2022 the Peninsula Clean Energy Citizens Advisory Committee approved a thirty (30) day extension of remote meetings in accordance with AB 361.
On June 9, 2022 the Peninsula Clean Energy Citizens Advisory Committee approved a thirty (30) day extension of remote meetings in accordance with AB 361.

On July 14, 2022 the Peninsula Clean Energy Citizens Advisory Committee approved a thirty (30) day extension of remote meetings in accordance with AB 361.

On August 11, 2022 the Peninsula Clean Energy Citizens Advisory Committee approved a thirty (30) day extension of remote meetings in accordance with AB 361.

On September 8, 2022 the Peninsula Clean Energy Citizens Advisory Committee approved a thirty (30) day extension of remote meetings in accordance with AB 361.

On October 13, 2022 the Peninsula Clean Energy Citizens Advisory Committee approved a thirty (30) day extension of remote meetings in accordance with AB 361.

**DISCUSSION:**
Because of continuing concerns regarding COVID-19 transmission, especially when individuals are grouped together in close quarters, it is recommended that the Peninsula Clean Energy Citizens Advisory Committee avail itself of the provisions of AB 361 allowing continuation of online meetings by adopting findings to the effect that conducting in-person meetings would present risk to the health and safety of attendees. A resolution to that effect and directing staff to agendize the renewal of such findings in the event that thirty (30) days has passed since the Committee’s last meeting, is attached hereto.
RESOLUTION NO. _____________

PENINSULA CLEAN ENERGY AUTHORITY, COUNTY OF SAN MATEO,
STATE OF CALIFORNIA

* * * * * *
RESOLUTION FINDING THAT, AS A RESULT OF THE CONTINUING COVID-19 PANDEMIC STATE OF EMERGENCY DECLARED BY GOVERNOR NEWSOM, MEETING IN PERSON FOR MEETINGS OF THE PENINSULA CLEAN ENERGY CITIZENS ADVISORY COMMITTEE WOULD PRESENT IMMINENT RISKS TO THE HEALTH OR SAFETY OF ATTENDEES

WHEREAS, on March 4, 2020, the Governor proclaimed pursuant to his authority under the California Emergency Services Act, California Government Code section 8625, that a state of emergency exists with regard to a novel coronavirus (a disease now known as COVID-19); and

WHEREAS, on June 4, 2021, the Governor clarified that the “reopening” of California on June 15, 2021 did not include any change to the proclaimed state of emergency or the powers exercised thereunder, and as of the date of this Resolution, neither the Governor nor the Legislature have exercised their respective powers pursuant to California Government Code section 8629 to lift the state of emergency either by proclamation or by concurrent resolution in the state Legislature; and

WHEREAS, on March 17, 2020, Governor Newsom issued Executive Order N-29-20 that suspended the teleconferencing rules set forth in the California Open Meeting law, Government Code section 54950 et seq. (the “Brown Act”), provided certain requirements were met and followed; and
WHEREAS, on September 16, 2021, Governor Newsom signed AB 361 that provides that a legislative body subject to the Brown Act may continue to meet without fully complying with the teleconferencing rules in the Brown Act provided the legislative body determines that meeting in person would present imminent risks to the health or safety of attendees, and further requires that certain findings be made by the legislative body every thirty (30) days; and,

WHEREAS, on January 5, 2022, Governor Newsom extended the sunset provision of AB361 and Government Code Section 11133(g) to January 1, 2024 due to surges and instability in COVID-19 cases; and,

WHEREAS, California Department of Public Health (“CDPH”) and the federal Centers for Disease Control and Prevention (“CDC”) caution that COVID-19 continues to be highly transmissible and that even fully vaccinated individuals can spread the virus to others; and,

WHEREAS, the Committee has an important governmental interest in protecting the health, safety and welfare of those who participate in its meetings;

WHEREAS, on September 30, 2021, the Peninsula Clean Energy Citizens Advisory Committee approved a thirty (30) day extension of remote meetings in accordance with AB 361. Out of an abundance of caution given AB 361’s narrative that describes each legislative body’s responsibility to reauthorize remote meetings, staff and counsel bring this resolution to the attention of the Citizens Advisory Committee, and;
WHEREAS, on October 14, 2021, the Peninsula Clean Energy Citizens Advisory Committee approved a thirty (30) day extension of remote meetings in accordance with AB 361, and;

WHEREAS, on November 4, 2021, the Peninsula Clean Energy Citizens Advisory Committee approved a thirty (30) day extension of remote meetings in accordance with AB 361, and;

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WHEREAS, on October 13, 2022, the Peninsula Clean Energy Citizens Advisory Committee approved a thirty (30) day extension of remote meetings in accordance with AB 361, and;

WHEREAS, in the interest of public health and safety, as affected by the emergency caused by the spread of COVID-19, the Committee deems it necessary to find that meeting in person would present imminent risks to the health or safety of
attendees, and thus intends to invoke the provisions of AB 361 related to teleconferencing.

NOW, THEREFORE, IT IS HEREBY DETERMINED AND ORDERED that

1. The recitals set forth above are true and correct.

2. The Committee finds that meeting in person would present imminent risks to the health or safety of attendees.

3. Staff is directed to return no later than thirty (30) days, or, alternatively, at the next scheduled meeting of the Committee, after the adoption of this resolution with an item for the Committee to consider making the findings required by AB 361 in order to continue meeting under its provisions.

4. Staff is directed to take such other necessary or appropriate actions to implement the intent and purposes of this resolution.

* * * * *
## Draft Citizens Advisory Committee Meeting Schedule 2023

**Location:** Please Check Agenda for Details

<table>
<thead>
<tr>
<th>Meeting Date</th>
<th>Time</th>
<th>Location</th>
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<tbody>
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<td>November 2, 2023</td>
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<tr>
<td>December 7, 2023</td>
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Update and Discussion on 100% Renewable on 24/7 Basis by 2025

September 22, 2022
Presentation Outline

• Introduction and Recommendation
• Background
• Modeling Approach
• Results
  o Portfolios for 24/7 Renewable Energy
  o Cost of 24/7 Renewable Energy
  o Emission and Grid Impacts of 24/7 Renewable Energy
• Challenges and Risks
• Summary and Recommendation
Introduction and Recommendation
ORGANIZATIONAL PRIORITIES:

By 2025, deliver 100% renewable energy each and every hour of day.

Contribute to our community reaching a goal of 100% greenhouse gas-free in buildings and transportation by 2035.
Terminology

• Throughout this presentation, we will use the terms "24x7", "Time-coincident", and "Hourly" interchangeably to refer to our goal.
Why do we have this goal?

- Peninsula Clean Energy currently delivers to all of our customers electricity that is 100% from GHG-free or renewable resources on an annual basis
  - We have built a financially strong organization at the same time as providing cleaner energy at a 5% savings compared to PG&E
- Our goal is to match our electricity supply to consumer load on an hourly basis
  - We will not be relying on system power (methane gas plants) and can maximally reduce GHG emissions from our electricity supply
- Peninsula Clean Energy wants to take the lead to show it’s possible to provide hourly renewable energy in a cost-effective way
Progress to Date

2016
- Peninsula Clean Energy sets 100% renewable goal

2017
- Procure resources and conduct preliminary analysis

2018-2019
- Begin development of 24/7 planning model
- Get preliminary modeling results → refine model

2020
- Publish White Paper, Part I
- Finalize model development and analyze results
- Board Retreat and Subcommittee Updates
- Convene external advisory group
- Meet with 24x7 Subcommittee
- Finalize modeling work
- Developing Part II of the White Paper

2021
- Finalize model development and analyze results
- Board Retreat and Subcommittee Updates
- Convene external advisory group

2022
- Publish White Paper, Part I
- Finalize model development and analyze results
- Board Retreat and Subcommittee Updates
- Convene external advisory group
Recommendation

• Target **99% time-coincident** renewable energy on a planning forecast basis
  
  o 100% time-coincident target will be less cost-effective
  o 99% target will maximize benefits to our customers in a cost-effective way
Background
Peninsula Clean Energy currently supplies energy from 100% Carbon Free or Renewable resources on a **total annual** basis

- We currently purchase enough renewable and carbon-free supplies to meet customer demand **in the same year**

- This **annual** framework:
  - Is the current industry standard
  - Does not show whether supply and demand matched on an hourly basis
2021 Peninsula Clean Energy 24/7 Emissions Footprint
due to use of California grid energy

Color Scale: lbs CO2 / MWh of Carbon Emissions

<table>
<thead>
<tr>
<th>Hour of Day</th>
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<th>Apr 1</th>
<th>Jun 1</th>
<th>Oct 1</th>
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Annual accounting vs 24/7 accounting

- The two frameworks result in different calculated emissions footprints
- The 24/7 accounting approach is needed to understand how to reduce emissions from the California grid during every hour of the year

- Reflects our use of California grid energy
- Does not credit oversupply
- Reflective of recently adopted SB 1158 (Becker)

<table>
<thead>
<tr>
<th></th>
<th>2021 24/7 Emissions Footprint</th>
<th>2021 Annual Emissions Footprint</th>
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<tbody>
<tr>
<td>Average</td>
<td>210 lbs/MWh</td>
<td>5 lbs/MWh</td>
</tr>
<tr>
<td>Minimum</td>
<td>0 lbs/MWh</td>
<td>N/A</td>
</tr>
<tr>
<td>Maximum</td>
<td>987 lbs/MWh</td>
<td>N/A</td>
</tr>
</tbody>
</table>

- Current reporting standard
- Gives credit for oversupply in some hours
- Reflective of current Power Content Label reporting rules
Phasing our time-coincident renewable goal

Phase 1 (by 2025)
- Use Planning Forecasts
  - Target time-coincident renewable energy using planning forecasts

Phase 2 (beyond 2025)
- Use Real-Time Data
  - Continue to evaluate the cost/benefit of delivering time-coincident renewable energy in real-time
Questions?
Modeling Approach
24/7 Objective

Used the "MATCH Model" to identify the least-cost portfolio of renewable generation and storage resources that can meet our load in every hour, considering factors such as available resources and associated costs
Types of Modeling

• Deterministic
  o Assumes a single set of assumptions, and determines a single outcome
  o Can be fast and streamlined, and therefore good for optimization modeling
  o Doesn’t provide insight into range of likely outcomes

• Stochastic
  o Runs many simulations with varied inputs
  o Provides estimates on the range of likely outcomes – can evaluate risks and probabilities
  o More computationally intensive (slower), and therefore challenging to do iterative optimization
Modeling Approach

Scenario Design → MATCH model (Deterministic Portfolio Planning) → Analyze results

PowerSimm model (Stochastic Portfolio Analysis) → Analyze results → Final Recommendation
Resources considered for our 24/7 Goal

• Resources considered:
  - Solar PV
  - Hybrid Solar + Storage
  - Energy Storage
  - Onshore Wind
  - Geothermal
  - Small hydro
  - Emerging technologies (Offshore Wind, Solar Thermal, Ocean Wave)

• Not considered: Large Hydro and Nuclear
  - Not considered renewable under California RPS
  - No new (additional) capacity available
  - We cannot schedule these resources
# Renewable Goal Scenarios

<table>
<thead>
<tr>
<th>Scenario Name</th>
<th>Note</th>
</tr>
</thead>
<tbody>
<tr>
<td>Existing Portfolio</td>
<td>Represents current budget. Assumes use of Index-Plus RECs to cover the difference between annual load MWhs and contracted renewable MWhs.</td>
</tr>
<tr>
<td>100% Annual</td>
<td>Match annual load with an equal amount of contracted renewable energy.</td>
</tr>
<tr>
<td>100% Hourly</td>
<td>Match 100% of load in all hours with contracted renewable energy.</td>
</tr>
<tr>
<td>99% Hourly</td>
<td>Match 99% of load in all hours with contracted renewable energy.</td>
</tr>
<tr>
<td>95% Hourly</td>
<td>Match 95% of load in all hours with contracted renewable energy.</td>
</tr>
</tbody>
</table>

* Time-coincident Scenarios*  
* All Time-coincident hourly scenarios achieve the 100% Annual Renewable Goal.
# Market Sensitivity Scenarios

<table>
<thead>
<tr>
<th>Scenario</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Optimistic Case</td>
<td>• Based on late 2021 market conditions</td>
</tr>
<tr>
<td>Conservative Case</td>
<td>• Based on mid-2022 market conditions (incorporating market disruptions such as supply chain issues, the war in Ukraine, and potential solar tariffs)</td>
</tr>
</tbody>
</table>
Questions?
Results: Portfolios for 24/7 Renewable Energy
Current Portfolio

- All model scenarios assumed our base existing portfolio of executed contracts

- In the results that follow, we show the incremental capacity that we need to add to meet our time-coincident goal
New Capacity Required to Add to our Portfolio

• New capacity required to be added to our portfolio generally increases as time-coincident target increases.

• More firm resources are needed at higher time-coincident targets.
Excess Generation

- Time-coincident matching results in procuring more energy than load on an annual basis.

- Values above 100% show over-procurement. For example, in the 99% Hourly scenario, we observed 46% over-procurement.

<table>
<thead>
<tr>
<th>Scenario</th>
<th>Annual Volumetric %*</th>
</tr>
</thead>
<tbody>
<tr>
<td>Existing Portfolio</td>
<td>85%</td>
</tr>
<tr>
<td>100% Annual</td>
<td>102%</td>
</tr>
<tr>
<td>90% Hourly</td>
<td>114%</td>
</tr>
<tr>
<td>95% Hourly</td>
<td>126%</td>
</tr>
<tr>
<td>99% Hourly</td>
<td>146%</td>
</tr>
<tr>
<td>100% Hourly</td>
<td>180%</td>
</tr>
</tbody>
</table>

*Annual Volumetric % = Total Annual Renewable Generation divided by Total Annual Load
Questions?
Results: Cost of 24/7 Renewable Energy
Assumptions around Cost of Energy

• Our cost of energy results are dependent on whether we can resell excess RA and/or RECs
  o In the short-term, we expect to be able to resell most excess RA and RECs
  o In the long-term, there is uncertainty around ability to resell
  o We will continually procure resources as renewable energy contracts expire and our load grows, and we will be able to re-assess our portfolio with each year's procurement

<table>
<thead>
<tr>
<th>Variation</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cost of Energy, No Resale</td>
<td>Cost of Energy without reselling of any excess RA/RECs</td>
</tr>
<tr>
<td>Cost of Energy, With Resale</td>
<td>Cost of Energy with full (100%) resale of all excess RA/RECs</td>
</tr>
<tr>
<td>Expected Cost of Variations</td>
<td></td>
</tr>
</tbody>
</table>
Cost of Time-Coincident Procurement

- Based on the Conservative Case results, time-coincident renewable energy procurement up to 99% can be achieved with only 2% cost increase

<table>
<thead>
<tr>
<th>Scenario</th>
<th>Difference in Expected Cost of Energy* relative to Existing Portfolio (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Existing Portfolio</td>
<td>0%</td>
</tr>
<tr>
<td>100% Annual</td>
<td>-1%</td>
</tr>
<tr>
<td>90% Hourly</td>
<td>0%</td>
</tr>
<tr>
<td>95% Hourly</td>
<td>1%</td>
</tr>
<tr>
<td>99% Hourly</td>
<td>2%</td>
</tr>
<tr>
<td>100% Hourly</td>
<td>12%</td>
</tr>
</tbody>
</table>

*Deterministic Results
Market Sensitivity Analysis

• Our Optimistic Case showed lower cost of time-coincident procurement
  o 99% time-coincident goal can be achieved at a 1% cost decrease compared to our existing portfolio

• The recent passage of the Inflation Reduction Act may allow the market to return to late 2021 conditions, which would decrease the cost
Interpreting Stochastic Results with a Box-Plot

- Our stochastic analysis includes 50 simulations.
- We often use box-plots to show results of our stochastic analysis.
Cost of Energy: Range of Likely Outcomes

• While we have a forecast for our expected cost of energy, there’s a range of likely outcomes.

• Range of likely outcomes can be attributed to the risk around market prices and ability to resell excess RA/RECs.
Risk Premium

- Risk Premium* is a measure of the potential for cost increase in the worst-case scenario

- The 99% scenario has the lowest risk premium.

*Risk Premium is defined as the cost difference between the median (50th percentile) simulation cost and the 95th percentile simulation cost. Here, we express it as a percentage of average simulation cost.
Questions?

• How does the Board view the potential for a 2% cost increase in the Conservative Case if we pursue the 99% Hourly goal?
Results: Emission and Grid Impacts of 24/7 Renewable Energy
Emissions Reductions: Hourly Carbon Footprint

- Increasing our time-coincident target will reduce our hourly carbon footprint

* The hourly carbon footprint accounts for our use of grid energy in some hours, and does not give us "credit" for supplying excess energy in other hours

** This method is anticipated to be similar to the method adopted in SB 1158 (Becker)
Emissions Reductions: Avoided Emissions

- Increasing our time-coincident target displaces more emissions

Avoided Emissions: Grid emissions displaced by our portfolio in the long run.

Results show benefits to the entire grid
Effects on Grid: System Net Peak

• Our portfolios reduce the net peak, which improves the entire grid system operations
Real-Time Operations: Time-coincident performance

- In real-time operations, the portfolios fall short of the time-coincident target by 1% to 3%, due to variability in load and generation.
Questions?

• Is 96% to 98% an acceptable real-time performance of our time-coincident portfolio?
Challenges and Risks
Challenges and Risks

- Uncertainty surrounding the ability to resell RECs and RA
- Sensitivity to market conditions
- Ability to contract for resources
  - Will we be able to find cost-effective resources according to our planning?
  - Will we need to accept unfavorable contract terms in order to secure the contracts in the current Seller's market?
- Regulatory uncertainty
  - Will new Resource Adequacy or Integrated Resource Planning requirements inhibit our ability to build the optimal portfolio?
- There's no official tracking system or accounting framework to communicate the value of a 24/7 approach
  - SB 1158 (Becker) will help to develop such accounting frameworks and could incentivize tracking systems to develop
Summary and Recommendation
Summary

• Time-coincident renewable procurement can be cost-effective under a variety of market conditions
  o Based on the Optimistic Case, 99% time-coincident can decrease our cost by 1% (on average) compared to our existing portfolio
  o Based on the Conservative Case, 99% time-coincident would increase our cost by 2% (on average) compared to our existing portfolio

• Procuring time-coincident renewable energy results in benefits to society by reducing emissions and improving grid impacts
Recommendation

• Target 99% **time-coincident** renewable energy on a planning forecast basis
  o 100% time-coincident target will be less cost-effective
  o 99% target will maximize benefits to our customers in a cost-effective way
Next Steps

• Continue working on the White Paper Part 2

• Continue to evaluate and procure short-, medium-, and long-term resources

• Continue to evaluate cost-effectiveness based on market conditions
Thank you!

A sustainable world with clean energy for everyone.