Agenda

• Call to order / Roll call

• Public Comment

• Action to set the agenda and approve consent items
Regular Agenda

7:30 – 8:00  Breakfast
8:00 – 8:15  Call to Order / Roll Call
            Public Comment
            Action to Set Agenda & Approve Consent Agenda
8:15 – 9:00  PCE Strategic Plan
            - Review Status of PCE’s Strategic Goals
            - Strategic Planning Process Update
Regular Agenda

9:00 – 10:15  PCE Risk Analysis (Part 1)
- Legislative / Regulatory Risks & Opportunities
- Restructuring of Industry / PG&E Bankruptcy

10:15 – 10:30  Break

10:30 – 12:00  PCE Risk Analysis (Part 2)
- Procurement Risks
  - Meeting regulatory requirements
  - Meeting internal goals
- Financial Risks
  - Scenarios / Stress Tests
Regular Agenda

12:00 – 12:30  PCE Marketing Strategy Update
12:30 – 12:45  PCE Organization Update
12:45 – 1:00   Conclusions and Wrap-Up
1:00           Adjourn
PCE Strategic Plan

- Review Status of PCE’s Strategic Goals
- Strategic Planning Process Update
Review of Strategic Goals

Review handout provided to board
Strategic Planning Process

Phase I. Input and Position
- Strategic Planning Sub-Committee
- Desired outcomes
- Environmental scan
- Review organizational materials
- Industry and market assessment
- Stakeholder input: Personal interviews, online survey, residential and business customer focus groups

Phase II. Develop Strategy
- Board / Staff planning sessions
- Mission and Vision
- Review input and stakeholder research findings
- Board sets strategic direction
- Affirm strategic priorities and goals
- Staff operationalizes strategic direction
- Review and incorporate existing goals as appropriate
- Resource allocation and alignment

Phase III. Build the Plan
- Develop written framework
- Clear strategic directives
- Goals and objectives
- Metrics
- Timeline
- Implementation matrix
- Departmental alignment and implementation
- Deliverables as outlined in RFP
The Process

1. Project Launch
2. Input & research
3. Develop Strategy
4. Review & Approval
5. Rollout
• Kickoff meeting with project team
• Set foundation for engagement
• Review approach and scope
• Determine project metrics
• Discuss stakeholder research
• Set specific deliverables
• Share process with Board
• Secondary review of existing materials
• Environmental scan
• Industry assessment
• Personal interviews
• Online survey
• Residential and business consumer focus groups
• Work with planning team on topics & respondents
• Additional research as requested
Develop Strategy

- Board planning retreat
  - Mission, Vision, Values
  - Set strategic direction and priorities
- Senior staff retreat
  - Develop objectives and metrics
- Create written framework / plan
Review & Approval

- Board planning subcommittee review
- Board review
- Final full Board approval

PENINSULA CLEAN ENERGY
Leverage PR opportunities
• Special rollout to key influencers and leaders
• Larger mass rollout to community, partners and stakeholders
• Earned & social media opportunities
• Share exciting future path for PCE
• Internal implementation
  ✓ Departmental alignment & cascading goals
<table>
<thead>
<tr>
<th>ITEM</th>
<th>DATE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Finalize Peninsula Clean Energy (PCE)/ Gallagher Consulting Group (GCG or Gallagher) agreement</td>
<td>Week of Sept 23</td>
</tr>
<tr>
<td>GCG/PCE planning launch meeting with project team</td>
<td>Sept 27</td>
</tr>
<tr>
<td>- Review strategic planning process</td>
<td></td>
</tr>
<tr>
<td>- Finalize timeline (set key board dates)</td>
<td></td>
</tr>
<tr>
<td>- Discuss stakeholder research topics and respondents</td>
<td></td>
</tr>
<tr>
<td>Gallagher / PCE launch meeting with Board of Directors</td>
<td>Sept 28</td>
</tr>
<tr>
<td>- Review strategic planning process</td>
<td></td>
</tr>
<tr>
<td>GCG designs stakeholder research</td>
<td>Oct 1 - 17</td>
</tr>
<tr>
<td>- Draft interview guide, moderator guide, and survey instrument to PCE</td>
<td></td>
</tr>
<tr>
<td>- Confirm respondents</td>
<td></td>
</tr>
<tr>
<td>GCG conducts stakeholder research</td>
<td>Oct 21 – Dec 13</td>
</tr>
<tr>
<td>- Interviews</td>
<td></td>
</tr>
<tr>
<td>- Online survey</td>
<td></td>
</tr>
<tr>
<td>- Industry assessment</td>
<td></td>
</tr>
<tr>
<td>- Consumer focus groups (optional)</td>
<td></td>
</tr>
<tr>
<td>GCG/PCE Board planning subcommittee conference call</td>
<td>Mid Dec / Early Jan</td>
</tr>
<tr>
<td>- Review stakeholder research key findings and implications</td>
<td></td>
</tr>
<tr>
<td>- Discuss Board planning retreat agenda / develop strategic questions</td>
<td></td>
</tr>
<tr>
<td>Board planning retreat</td>
<td>Mid/Late Jan</td>
</tr>
<tr>
<td>Staff planning retreat</td>
<td>Early Feb</td>
</tr>
<tr>
<td>GCG develops draft plan document with PCE staff input</td>
<td>Mid/Late Feb</td>
</tr>
<tr>
<td>Draft review process: Board planning subcommittee reviews and enhances draft / GCG makes revisions</td>
<td>Mid/Late Feb</td>
</tr>
<tr>
<td>Board reviews and adopts plan</td>
<td>Mar</td>
</tr>
<tr>
<td>Gallagher works with PCE staff on implementation plans</td>
<td>Mar</td>
</tr>
<tr>
<td>PCE conducts rollout of new plan to key audiences</td>
<td>TBD</td>
</tr>
</tbody>
</table>
Deliverables
As outlined in the RFP

• A dynamic, yet simple, 5-year plan that can be shared in presentation and hard-copy format

• Streamlined planning tool adaptable to various formats
  • High level strategy
  • Staff-based implementation plan

• Contents:
  • Mission and vision
  • Narrative telling PCE’s story
  • Complete listing of adopted strategic goals, objectives and tactics, segmented by year
  • Performance measures and other measurable milestones for the goals and objectives
  • A financial strategy with cost-benefit analysis
Deliverables

- Industry assessment report
- Stakeholder research findings
  - Interviews
  - Focus groups
  - Survey
- Research instruments for future benchmarking
  - Interview and moderator guides
  - Survey questionnaire
- Summary of planning sessions
- Retreat materials and tools used, e.g., agenda, worksheets, Board exercises, brainstorming results
- Implementation tracking matrix (Excel)
Legislative and Regulatory Risks and Opportunities Discussion

September 28, 2019
Joseph Wiedman – Director of Regulatory & Legislative Affairs
Jeremy Waen – Manager of Regulatory Affairs
Doug Karpa – Senior Regulatory Analyst
Overview of Discussion

1. 2019 Legislative Session Recap

2. Regulatory Risks & Opportunities
   - Power Charge Indifference Adjustment
   - Resource Adequacy
   - Integrated Resource Planning
   - Direct Access

3. Industry Restructuring & PG&E Bankruptcy
## 2019 Legislative Session Recap

<table>
<thead>
<tr>
<th>Bill Number (Author)</th>
<th>Description</th>
<th>Position</th>
<th>Status</th>
</tr>
</thead>
<tbody>
<tr>
<td>SB 520 (Hertzberg)</td>
<td>Establishes standards for provider of last resort</td>
<td>Oppose (PCE)</td>
<td>Before the Governor</td>
</tr>
<tr>
<td>AB 56 (Garcia, E)</td>
<td>Central buyer for all energy resources</td>
<td>Oppose (PCE)</td>
<td>DEAD</td>
</tr>
<tr>
<td>AB 684 (Levine)</td>
<td>EV charging at MUDs</td>
<td>Support (PCE)</td>
<td>Before the Governor</td>
</tr>
<tr>
<td>AB 1054 (Holden)</td>
<td>Wildfire liability fund</td>
<td>Watch (CalCCA)</td>
<td>Signed</td>
</tr>
</tbody>
</table>

Other bills: SB 350 (Hertzberg), AB 1362 (O'Donnell), SB 155 (Bradford), SB 676 (Bradford), SB 772 (Bradford), SB 255 (Bradford), AB 1424 (Berman), SB 774 (Stern)
Risks & Opportunities

• Power Charge Indifference Adjustment
• Resource Adequacy
• Integrated Resource Planning
• Direct Access
PCIA – Risks & Opportunities

- Power Charge Indifference Adjustment (PCIA) – what is it?
- How does the PCIA Work?
PCIA – Risks & Opportunities

PCIA - Where is it going?

PCE's Historic PCIA Rates by Class and Year ($/kWh)

2016 2017 2018 2019

Residential A-1 & 6 A-10 E-19
Streetlights Standby Agriculture E-20 T

$0.000 $0.005 $0.010 $0.015 $0.020 $0.025 $0.030 $0.035
PCIA – Risks & Opportunities

Potential Policy Risks

• Portfolio optimization is non-existent (yet)

• Poor sales framework undervalue IOU portfolios

• Ongoing methodology and policy changes in PCIA case

• Adjusted annually through 6-month forecast case

• Little-to-no forward certainty about PCIA rate changes
PCIA – Risks & Opportunities

Proactive Risk Mitigation

• Vigorous oversight of PCIA accounting and rulemaking
  – *e.g.* PCE-led Joint CCA engagement in PG&E’s 2019 forecast case shifted a potential 80% loss of revenue to an actual $6M gain for PCE

• Continued communication with decision-makers of real-world requirements

• Develop workable portfolio optimization proposals that garner support to facilitate adoption by the CPUC
Load-Serving Entities (LSEs) procure

1. to meet the total amount of electricity consumed by their customers (energy), and

2. to meet the peak demand for electricity consumption by their customers (capacity)
California’s Reliability Outlook

2020 Projected Energy Production from Resource Adequacy Fleet

Source: Reply Comments of CAISO filed in CPUC Integrated Resources Plan proceeding
California’s Reliability Outlook

2022 Projected Energy Production from Resource Adequacy Fleet

Source: Reply Comments of CAISO filed in CPUC Integrated Resources Plan proceeding
RA – Risks & Opportunities

Resource Adequacy (RA) – what is it?

**Potential Policy Risks**

- How do resources count? (e.g. solar, wind, storage, imports)
- Who should procure? (e.g. all LSEs vs. Central Buyer)
- How far in advance? (e.g. 3 year-ahead for Local RA)
- Who should build new capacity?
RA – Risks & Opportunities

Proactive Risk Mitigation

• CalCCA leadership on RA settlement negotiations
  – Settlement filed on August 30, 2019 with 8 parties co-signing:
    CalCCA, Calpines, Independent Energy Producers Association,
    Middle River Power, NRG Energy, San Diego Gas & Electric,
    Shell Energy North America, & Western Power Trading Forum

• Active involvement on CPUC RA policy making

• Engagement with CAISO on RA technical requirements
IRP – Risks & Opportunities

Statewide Integrated Resources Planning (IRP) – What is it? How does it work?

Potential Policy Risks

• Do CCA IRPs hit the benchmarks?
• How to we ensure other CCAs are not falling short?
• How do we ensure the CPUC uses the best available analysis?
• How do we protect CCA autonomy by solving problems without CPUC mandates?
• How do we address late-breaking concerns about System RA shortfalls in 2021-2023?
• Does the legislature step in to change regulatory requirements if the process isn’t working?
Proactive Risk Mitigation

• Ensure the IRPs are gold standard

• Ensure that CPUC modeling does not have serious errors by developing technical expertise

• Propose constructive frameworks for long-term procurement

• Propose and implement solutions to emerging statewide problems (e.g., System RA)

• Advocate for legally rigorous approaches to state-local coordination at the CPUC
DA – Risks & Opportunities

**Direct Access (DA)**

- DA – what is it?

- SB 237 (Hertzberg 2018) – 4000 GWh expansion

- Impact of SB 237
  - January 1, 2021 - ~46 GWh
  - January 1, 2022 – unknown at this time
  - Future Expansion possible – Phase 2 of R.19-03-019
Looking Ahead to 2020

Market Restructuring

- Expansion of Direct Access
- AB 56 “conversation”

PG&E Bankruptcy

- AB 235 (Mayes) – ”PG&E” bonds – shelved until January
- San Francisco’s $2.5 billion bid for PG&E’s T&D assets
Procurement Risks

2019 Board Retreat
September 28, 2019
Agenda

• Changing Regulatory Requirements
• Energy Costs and Hedges
• Meeting Internal Goals
Regulatory Requirements
Agenda – Regulatory Requirements

• Resource Adequacy (RA)
• Integrated Resource Plan (IRP)
• Renewable Portfolio Standard (RPS)
• AB1110 Power Content Label Reporting
• Power Charge Indifference Adjustment Reallocations
• Direct Access
Regulatory Requirements

• Changing regulatory requirements and regulatory uncertainty impact ability to procure
  o Cost impacts
  o Timing of procurement
  o Product availability
  o Product need
Resource Adequacy – Current

• Required to procure to following targets by October 31 each year:
  o 90% of system need for May – October
  o 100% of local requirements for all months

• Timing to procure: Requirements assigned by CPUC; final requirements communicated 9/20/2019

• In 2019, CPUC made two major changes to procurement requirements:
  o Increased local areas from 2 to 7 local areas
  o Required 3-year forward procurement of local RA

• Changing rules on RA imported from outside CAISO
Resource Adequacy – Future

- Move from individual LSE procurement to Central Buyer
- RA allocation through PCIA proceeding
- Changing value for intermittent resources (wind, solar)
- Retirement of thermal resources
- Unclear policy around storage resources
Resource Adequacy - Mitigants

• Limit term length for contracts
• Credit rating makes PCE attractive to more counterparties and avoids need to post collateral
• Joint procurement with 4 Bay Area CCAs
  o Aggregate open positions to allow for more efficient procurement
PCIA Allocations

• Evaluating options to allocate IOU excess resources to other LSEs
  o Resource adequacy
  o GHG Free Attributes
  o Renewables

• Impacts planning –
  o Avoid over procuring product that may be allocated
  o Risk of allocation not occurring
Integrated Resources Plan (IRP)

• History –
  o PCE Strategic IRP published December 2017
  o PCE submitted initial CPUC IRP in August 2018
• CPUC proposed decision ordering procurement in Southern California
• Next CPUC IRP due May 1, 2020
• Joint CCA Modeling efforts
• PCE preparing Procurement Risk Policy document to replace strategic IRP – expect to present to Board in Q2 2020
Renewable Portfolio Standard (RPS)

- **Renewable energy separated into 3 categories or buckets**
  - Bucket 1: In-state
  - Bucket 2: Out of state
  - Bucket 3: Unbundled RECs

- Requires minimum percentage from Bucket 1 and maximum percentage from Bucket 3

- Per PCE policy, PCE does not use Bucket 3 RECs
Renewable Portfolio Standard (RPS)

<table>
<thead>
<tr>
<th>End of</th>
<th>RPS</th>
<th>PCE Target</th>
</tr>
</thead>
<tbody>
<tr>
<td>2020</td>
<td>33%</td>
<td>50%</td>
</tr>
<tr>
<td>2024</td>
<td>44%</td>
<td>50%</td>
</tr>
<tr>
<td>2027</td>
<td>52%</td>
<td>100%</td>
</tr>
<tr>
<td>2030</td>
<td>60%</td>
<td>100%</td>
</tr>
</tbody>
</table>

- Requires minimum % of portfolio from eligible renewables
- PCE’s internal goals go above and beyond RPS
- Increasing targets, increase demand and may cause cost increases
- Beginning in 2021, minimum % renewables from long-term contracts
- As RPS target increases, long-term contracting requirement increases
2018 POWER CONTENT LABEL

- Requirements in place since 2009
- All retail sellers of electric energy to disclose “accurate, reliable, and simple-to-understand information on the sources of energy” that are delivered to their respective customers.
- The format is highly prescriptive, offering little flexibility to retail sellers when presenting such information to customers.
AB1110 & Changes to PCL Reporting

• AB1110 (Ting, 2016)

• Requires reporting and disclosure of the GHG emissions intensity associated with electricity serving retail customers

• GHG emissions reporting for geothermal, biomass, Bucket 2 (out-of-state) and Bucket 3 (unbundled) renewables

• Implementation is currently in process and will affect reporting in 2020 for 2019 electricity sales

• GHG emissions intensity (metric tons CO2e / MWh) for a generator are assigned by CEC based on reported or assigned emissions under the Mandatory Reporting Requirement
AB1110 & Changes to PCL Reporting

- Current requirements do not mandate or specify how GHG emissions should be accounted – widely debated
- With assistance from consultants, PCE has calculated emissions for ECOplus and ECO100
- Deliberately simple - All renewables except geothermal = 0 emissions

<table>
<thead>
<tr>
<th>Resource</th>
<th>PCE Current</th>
<th>AB1110</th>
</tr>
</thead>
<tbody>
<tr>
<td>Out-of-state Renewable Energy</td>
<td>Same as in-state; wind = 0 MTCO2e / MWh</td>
<td>Assigned emissions factor for unspecified power = 0.428 MT CO2e/MWh</td>
</tr>
<tr>
<td>Biomass</td>
<td>0 MTCO2e / MWh</td>
<td>Plant-specific, ~0.01 MTCO2e / MWh</td>
</tr>
<tr>
<td>Geothermal</td>
<td>Estimate 0.09 MTCO2e / MWh</td>
<td>Plant-specific, same</td>
</tr>
</tbody>
</table>
PROPOSED AB1110 POWER CONTENT LABEL

2019 POWER CONTENT LABEL

<table>
<thead>
<tr>
<th>Greenhouse Gas Emissions Intensity (in kg CO₂e/MW)</th>
<th>Energy Resources</th>
<th>Product 1 Power Mix</th>
<th>Product 2 Power Mix</th>
<th>CA Total Mix</th>
</tr>
</thead>
<tbody>
<tr>
<td>(Product 1)</td>
<td>Eligible Renewables¹</td>
<td>31.0%</td>
<td>75.0%</td>
<td>22.0%</td>
</tr>
<tr>
<td>(Product 2)</td>
<td>Biomass &amp; biowaste</td>
<td>8.0%</td>
<td>0.0%</td>
<td>3.0%</td>
</tr>
<tr>
<td>State Average</td>
<td>Geothermal</td>
<td>4.0%</td>
<td>0.0%</td>
<td>4.0%</td>
</tr>
<tr>
<td></td>
<td>Eligible hydroelectric</td>
<td>1.0%</td>
<td>0.0%</td>
<td>1.0%</td>
</tr>
<tr>
<td></td>
<td>Solar</td>
<td>16.0%</td>
<td>75.0%</td>
<td>6.0%</td>
</tr>
<tr>
<td></td>
<td>Wind</td>
<td>2.0%</td>
<td>0.0%</td>
<td>8.0%</td>
</tr>
<tr>
<td></td>
<td>Coal</td>
<td>3.0%</td>
<td>0.0%</td>
<td>6.0%</td>
</tr>
<tr>
<td></td>
<td>Large Hydroelectric</td>
<td>8.0%</td>
<td>4.0%</td>
<td>5.0%</td>
</tr>
<tr>
<td></td>
<td>Natural Gas</td>
<td>46.0%</td>
<td>10.0%</td>
<td>44.0%</td>
</tr>
<tr>
<td></td>
<td>Nuclear</td>
<td>0.0%</td>
<td>0.0%</td>
<td>9.0%</td>
</tr>
<tr>
<td></td>
<td>Other</td>
<td>0.0%</td>
<td>0.0%</td>
<td>0.0%</td>
</tr>
<tr>
<td></td>
<td>Unspecified Electricity²</td>
<td>12.0%</td>
<td>11.0%</td>
<td>14.0%</td>
</tr>
<tr>
<td></td>
<td>TOTAL</td>
<td>100.0%</td>
<td>100.0%</td>
<td>100.0%</td>
</tr>
</tbody>
</table>

Unbundled RECs retired as a percentage of these electric service products' retail sales:
- 12% for Product 1
- 25% for Product 2

¹ Unbundled renewable energy credits (RECs) represent renewable investments that do not deliver electricity to the retail supplier's customers. Unbundled RECs are not reflected in the power mix or GHG emissions intensities above.

² Unspecified power is electricity that was purchased through open market transactions and is not traceable to a specific generation source or sources.

For specific information about this electricity product, contact:

(Entity Name)  (Entity Phone Number)
(Entitiy Website)

For general information about the Power Content Label, consult:

California Energy Commission  1-844-217-4925
www.energy.ca.gov/pcl/
SB 237 - Direct Access

- Commercial customers moving from PCE to ESPs
- Avoid overprocuring resources for customers that may depart
- ~46,000 MWh departing 1/1/2021
- Further MWh departing 1/1/2022 – volume to be shared in February 2020
- Potential for increased GHG emissions if customers move to less green ESPs – meeting only the minimum RPS requirements
Energy Costs and Hedges
How CAISO Manages Grid

- Real-time balancing of supply (generating resources) and demand (load) to ensure grid reliability
- Manages transmission grid and operates power market
- Trading hubs: aggregated pricing nodes corresponding to CAISO transmission zones
- NP-15 and SP-15 are actively traded delivery points in the wholesale power market
Locational Marginal Pricing (LMP)

- Power markets work similar to stock market – prices increase and decrease according to supply and demand
- Calculation of electricity prices at thousands of points on California’s electricity grid
- Approximately each power plant is associated with a unique pricing point
Natural Gas Drives Power Market Prices

*Figure 21: Trend of gas and electric prices in the day-ahead market*

*SMEC: Power price – System marginal energy component*

Source: CAISO Price Performance in the CAISO Energy Markets; June 2019
Weather Drives Power Market Prices

- High system load, generally associated with heat waves, is correlated with higher electricity market prices

Source: CAISO Price Performance in the CAISO Energy Markets; June 2019
The Duck Curve

Net Demand = Demand minus wind minus solar

Source: CAISO Daily Outlook
The Duck Curve

Source: CAISO Daily Outlook
The Duck Curve

9/18/2019 Energy Prices

Source: CAISO Daily Outlook
The Duck Curve

California ISO average net electric load last week of March gigawatts

Source: U.S. Energy Information Administration, based on ABB Energy Velocity
Average day in California

CAISO solar output versus wholesale power price

Solar output (GWh)

Power price

Utility-scale solar

DG

Power price, SP15 Day-Ahead ($/MWh)
Hedging Strategies

• Changing market = more volatility in prices
• Hedging limits PCE’s exposure to market prices
• 2 types of hedges:
  o Financial Hedge
  o Renewable Power Purchase Agreement (PPA)
• Conduct procurements on a quarterly basis

Hedge Target Levels

<table>
<thead>
<tr>
<th></th>
<th>% of Load Procured</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Min</td>
</tr>
<tr>
<td>Current Year</td>
<td>90%</td>
</tr>
<tr>
<td>Year 2</td>
<td>75%</td>
</tr>
<tr>
<td>Year 3</td>
<td>65%</td>
</tr>
<tr>
<td>Year 4 and Beyond</td>
<td>55%</td>
</tr>
</tbody>
</table>
Analytical Work

• 2 pilot analytical projects this fall
  o  Ascend Analytics
  o  Innowatts

• Ascend: Portfolio and risk management software
  o  Stochastic modeling approach - Simulations of load, weather, pricing
  o  Assess the likelihood of individual events occurring within the range of possible future scenarios
  o  Better understand exposure to risk and how to mitigate

• Innowatts: Machine learning analytics on AMI smart meter data to better understand how PCE’s customers use electricity
Meeting PCE’s Internal Goals
Current Procurement Goals

• 100% GHG Free by 2021
• 100% Renewable by 2025
• 20 MW Local Power by 2025

Tension between goal to be 100% GHG Free and 100% Renewable
*Some Renewable Energy is not GHG Free*
Renewable v. GHG Free

- Renewable: electricity from a source that is not depleted when used, and not derived from fossil or nuclear fuel
- GHG-free: electricity that does not emit carbon or other greenhouse gases

<table>
<thead>
<tr>
<th>Renewable</th>
<th>GHG Free</th>
</tr>
</thead>
<tbody>
<tr>
<td>Biomass &amp; Waste</td>
<td>Solar</td>
</tr>
<tr>
<td>Geothermal</td>
<td>Wind</td>
</tr>
<tr>
<td>Solar</td>
<td>Small / Eligible Hydro</td>
</tr>
<tr>
<td>Wind</td>
<td>Large Hydro</td>
</tr>
<tr>
<td>Small / Eligible Hydro</td>
<td>Nuclear</td>
</tr>
</tbody>
</table>
Risks to Achieving Goals

• Biomass and geothermal are not GHG-Free
• Baseload resources; can operate all 24 hours
• Important in a 100% or heavily renewable portfolio; to meet hourly load
• They also have small amounts of emissions, which will be reported on our Product Content Label
  o Geothermal ~ 0.09 MT CO2e per MWh
  o Biomass (non-biogenic emissions) ~ 0.01 MT CO2e per MWh
Risks to 100% GHG-Free

• Availability of supply
  o Increase in CCAs -> increased demand for large hydro
  o Intermittent availability depending on precipitation
  o GHG goals in neighboring states
  o Fossil retirements in neighboring states
• Above factors driving up cost
• Potential mitigant: PG&E allocating excess hydropower to CCAs through PCIA Proceeding
Risks to 100% Renewable

Solar generation intermittent in response to cloud cover
Risks to 100% Renewable

- Wind generation can be highly variable day to day
Risks to 100% Renewable

Load is variable – factors include day of week (i.e. weekday or weekend) and weather. EVs and Electrification will drive more changes in load.

Electricity Consumption at 5 PM in June:

<table>
<thead>
<tr>
<th></th>
<th>June 2019</th>
<th>June 2018</th>
<th>June 2017</th>
</tr>
</thead>
<tbody>
<tr>
<td>Max</td>
<td>733 MW</td>
<td>633 MW</td>
<td>727 MW</td>
</tr>
<tr>
<td>Min</td>
<td>390 MW</td>
<td>371 MW</td>
<td>330 MW</td>
</tr>
<tr>
<td>Average</td>
<td>493 MW</td>
<td>524 MW</td>
<td>525 MW</td>
</tr>
</tbody>
</table>
# Annual v. Hourly Accounting

- Today: PCE accounts for renewables on an annual basis
- Future: time coincident (hourly), provided it is economically viable – by 2025

<table>
<thead>
<tr>
<th>Annual</th>
<th>Hourly</th>
</tr>
</thead>
<tbody>
<tr>
<td>Measure customer’s electricity use over the year</td>
<td>Match generation to customer use for each hour of the year</td>
</tr>
<tr>
<td>Purchase enough renewable energy to meet targets for customers</td>
<td>May require over-procuring for certain hours due to differences in load and solar and wind intermittency</td>
</tr>
<tr>
<td>Without regard for whether the renewable energy is generated at the same time that customers are using electricity</td>
<td></td>
</tr>
</tbody>
</table>

**PENINSULA CLEAN ENERGY**
Mitigants to 100% Renewable Risk

• Energy Storage
• Procuring from a diversity of resources
• Deploying distributed resources
• Demand management programs to help customers control how much electricity they use
• Setting rates to encourage preferred behavior
Conclusion

- Strategic Planning process
- Questions –
  o Items we haven’t addressed that you are concerned about?
  o What items concern you most?
Board Meeting - Retreat

Financial Risk Scenarios

September 28, 2019
# Summary of Scenarios

<table>
<thead>
<tr>
<th></th>
<th>Last 12 months</th>
<th>Last 3 years Avg</th>
<th>FY19-20 Approved Budget</th>
<th>Case (5 years)</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Base Energy Cost</td>
<td>0.0%</td>
<td>2.0%</td>
<td>2.5%</td>
<td></td>
<td>Annual changes are compounded</td>
</tr>
<tr>
<td>PCC1 Cost</td>
<td>5.0%</td>
<td>25% over PY budget</td>
<td>-5%/year*</td>
<td>Per Updated Forecast</td>
<td>+5%/year* Annually changes are compounded</td>
</tr>
<tr>
<td>Resource Adequacy Cost</td>
<td>15.0%</td>
<td></td>
<td></td>
<td>-5%/year*</td>
<td>Per Updated Forecast +5%/year* Annually changes are compounded</td>
</tr>
<tr>
<td>PCIA Rate</td>
<td>8.2%</td>
<td>15.0%</td>
<td>19.6%</td>
<td>-4% year 1; unchanged each year after</td>
<td>15% year 1; 10% each year after 20%/year Annual &quot;max&quot; 0.5 cents, or ~ 20%</td>
</tr>
<tr>
<td>PG&amp;E Generation Rates</td>
<td>3.7%</td>
<td>5.9%</td>
<td>0.0%</td>
<td>+4%/year</td>
<td>+2%/year unchanged (as budgeted)</td>
</tr>
<tr>
<td>Base Load Growth</td>
<td>0.3%</td>
<td>1.4%</td>
<td></td>
<td>+1%/year*</td>
<td>As budgeted -2%/year* Annual changes are compounded</td>
</tr>
<tr>
<td>Commerical Customers (VPA/DA)</td>
<td></td>
<td></td>
<td></td>
<td>4 of top 20 sign VPA's by EOY</td>
<td>12 of top 20 sign VPA in 3 years; no DA loss 8 of top 20 sign VPA in 3 years; 4 lost to DA 2 of top 20 sign VPA in 3 years; 8 lost to DA</td>
</tr>
</tbody>
</table>
Budget and Updated Forecast

• **Budget** was completed and approved based on:
  • Financial statements as of April 2019
  • Other information available as of Spring 2019
    • Change in Net Position FY19-20 = $33.2 million
    • Beginning Net Position = $134.8 million

• **Updated Forecast** reflects updated information as follows:
  • PG&E rate changes implemented on July 1, 2019
  • Estimated July 2019 financial statement
  • New/updated Resource Adequacy contracts/commitments
  • New/updated (increased) Resource Adequacy pricing forecast
  • New/updated Hedge Contracts signed in Spring 2019
    • Change in Net Position FY19-20 = $36.1 million (slightly better)
    • Beginning Net Position = $140.1 million (higher starting point)
Approved Budget vs. Updated Forecast

Observations:
• Some improvements in outlook since Budget was approved
• New RA contracts and increased RA prices
• Biggest impact (positive) – higher PG&E rates

<table>
<thead>
<tr>
<th>FY19-20 Updated Forecast</th>
<th>June 2024 Ending Net Position</th>
<th>$221.9</th>
</tr>
</thead>
<tbody>
<tr>
<td>FY19-20 Approved Budget</td>
<td></td>
<td>$201.3</td>
</tr>
</tbody>
</table>

Ending Net Position

FY2020 FY2021 FY2022 FY2023 FY2024
Assumptions/Conclusion:

- Compounded 5% increase and/or decrease would yield >20% change over 5-year period
- Significant impact on financial outlook
**PCC1 Cost – Ending Net Position**

**PCC1 Price Scenarios**

- **FY19-20 Updated Forecast**
- **PCC1 Change - Best Case**
- **PCC1 Change - Likely Case**
- **PCC1 Change - Worst Case**

### June 2024 Ending Net Position

<table>
<thead>
<tr>
<th>Scenario</th>
<th>Ending Net Position</th>
</tr>
</thead>
<tbody>
<tr>
<td>FY19-20 Updated Forecast</td>
<td>$221.9</td>
</tr>
<tr>
<td>PCC1 Change - Best Case</td>
<td>$223.8</td>
</tr>
<tr>
<td>PCC1 Change - Likely Case</td>
<td>$221.9</td>
</tr>
<tr>
<td>PCC1 Change - Worst Case</td>
<td>$219.6</td>
</tr>
</tbody>
</table>

**Assumptions/Conclusion:**

- Compounded 5% increase and/or decrease would yield >20% change over 5-year period
- Relatively small amount of remaining RPS requirement yields virtually no change in overall outlook through 2024
- Much more significant cost impact will result from moving to 100% renewable, even with no change in price
Resource Adequacy Cost – Ending Net Position

Updated Forecast and Likely Case are the same

Assumptions/Conclusion:
- Compounded 5% increase and/or decrease would yield >20% change over 5-year period
- Increasing prices for RA would not have a significant impact on 5-year results as significant recent increases already built in
Assumptions/Conclusion:
- Likely Case = 15% in year 1 and 10% each year thereafter (i.e. ~$0.00375 and ~$0.0025)
- Financial outlook highly dependent on PCIA
- Regulated maximum of ~20%
- Likely Case is less favorable than the current Updated Forecast
- PCIA represents biggest single threat if worst case of 20% per year happens
Assumptions/Conclusion:
- Current Budget/Forecast assumed most conservative view (no change for 5 years)
- Best Case = +4%/year
- Likely case = +2%/year (Probably upside from Current Budget/Plan)
Base Load Changes – Ending Net Position

Assumptions/Conclusion:
• Best Case ~ 2.4% growth/year
• Worst case ~0.6% growth/year
• Likely Case ~1.4% growth/year
• Small changes in Base Load would result in significant financial impact
C&I Customer Changes – Ending Net Position

Conclusion:
• Loss to Direct Access has significantly more impact than Volume Purchase Agreements

<table>
<thead>
<tr>
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</thead>
<tbody>
<tr>
<td>FY19-20 Updated Forecast</td>
<td>$221.9</td>
</tr>
<tr>
<td>Commercial Customers - Best Case</td>
<td>$227.0</td>
</tr>
<tr>
<td>Commercial Customers - Likely Case</td>
<td>$216.8</td>
</tr>
<tr>
<td>Commercial Customers - Worst Case</td>
<td>$199.4</td>
</tr>
</tbody>
</table>
## Combined “Worst Case” Scenarios

<table>
<thead>
<tr>
<th></th>
<th>Last 12 months</th>
<th>Last 3 years Avg</th>
<th>FY19-20 Approved Budget</th>
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Combined “Worst” Scenarios – Ending Net Position

Conclusion:
• While unlikely, if all Worst-Case scenarios happened, PCE would have negative ending position in 5 years
• PCIA and Energy Cost increases would have the most significant impacts

Combined Worst Scenarios

<table>
<thead>
<tr>
<th>FY19-20 Updated Forecast</th>
<th>June 2024 Ending Net Position</th>
</tr>
</thead>
<tbody>
<tr>
<td>FY19-20 Approved Budget</td>
<td>$201.3</td>
</tr>
<tr>
<td>Combined &quot;Worst&quot; Scenarios</td>
<td>($43.5)</td>
</tr>
</tbody>
</table>
## Combined “Likely Case” Scenarios

<table>
<thead>
<tr>
<th></th>
<th>Last 12 months</th>
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<td></td>
<td></td>
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<td>As budgeted</td>
<td>+5%/year*</td>
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<td>8 of top 20 sign VPA in 3 years; 4 lost to DA</td>
<td>2 of top 20 sign VPA in 3 years; 8 lost to DA</td>
</tr>
</tbody>
</table>
Conclusion:
• Combined Likely Case is more favorable than the current Updated Forecast outlook
• While annual change is expected to be less positive than in prior years, every year is still positive
Conclusion:

• Need to maintain adequate reserves to protect net position and Investment Grade Rating against Worst Case scenarios

• Per Moody’s, Investment Grade Rating is dependent on Board’s ability to set rates, as needed, to protect PCE’s financial position and reserves
Overall Conclusions

- **Combined Likely Case** is better than FY19-20 Approved Budget and better than Updated Forecast
  - Ending Cash Position at June 2024 for Combined Likely Case would be approximately $246.7 million; 347 days of unrestricted cash on hand
  - Board/Management conservative practices and policies – yielded adequate reserves to weather various shorter-term negative impacts (e.g. energy price spikes)
  - Current cash reserve policy set to 120 days; evaluating increase to 180 days (or more)

- **Combined Worst Case:**
  - Would yield negative Ending Position and negative cash at June 2024
  - Change in Net Position would grow increasingly negative ($5.3 million) for FY20-21 and negative ($34.1 million) for FY21-22
  - Ending Cash Position at June 2022 would be $118.9 million, or 160 days cash on hand
  - If this scenario started to play out, Board would have nearly 3 years from today to take action to increase rates and/or decrease program expenditures, if necessary, to mitigate any further losses and protect net/cash positions
Marketing Strategy

Update for Board Retreat 9/28/19
Business Objectives

- Maximize and maintain customer participation in PCE
- Drive participation in programs, incl ECO100
- Establish PCE as trusted industry leader

Marketing Objectives

Improve Awareness & Perception of PCE
as measured by: survey data

Meet or Exceed Program & Product Participation Targets
as measured by: program uptake vs. goals

Marketing Strategies

- Storytelling in all channels
- Improved understanding
- Integrated marketing plans
- Community Relations
Why Invest in Brand Awareness?

- Customer loyalty and retention
## Reasons for Opt Outs

<table>
<thead>
<tr>
<th>Reason</th>
<th>Cum. %</th>
<th>Recent 6 mos.*</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dislike Auto Enrollment</td>
<td>31%</td>
<td>23%</td>
</tr>
<tr>
<td>Rate or Cost Concerns</td>
<td>29%</td>
<td>42%</td>
</tr>
<tr>
<td>Other</td>
<td>18%</td>
<td>9%</td>
</tr>
<tr>
<td>Service or Billing Concerns</td>
<td>7%</td>
<td>12%</td>
</tr>
<tr>
<td>Concerns about Government-Run Power Agency</td>
<td>4%</td>
<td>1%</td>
</tr>
<tr>
<td>Concern about Reliability of Renewable Energy</td>
<td>1%</td>
<td>0%</td>
</tr>
<tr>
<td>Decline to State</td>
<td>10%</td>
<td>9%</td>
</tr>
</tbody>
</table>

* March thru Aug 2019. Source: Calpine weekly statistics
Why Invest in Brand Awareness?

• Customer loyalty and retention
• Customers as advocates (especially in the face of legislative and policy threats)
• A trusted brand forms the foundation for engaging customers in programs and behavior change
Why Invest in Brand Awareness?

Cyclops marketing recommendations focused on:

- Identifying, describing, sizing residential customer segments
- Prioritizing channels and tactics for each segment
- Highlighting key benefits for each segment

- **AWARENESS**
  *(low cost, broad reach)*

- **ENGAGEMENT**
  *(mid cost, mid reach)*

- **PARTICIPATION**
  *(high cost, low reach)*
Why Invest in Brand Awareness?

- Customer loyalty and retention
- Customers as advocates (especially in the face of legislative and policy threats)
- A trusted brand forms the foundation for engaging customers in programs and behavior change
- Overcome misperceptions
Awareness Trend

**December 2017**

- **Unaided Aware**: 3%
- **Aided Aware**: 41%
- **Total Aware**: 44%

N = 600

**January 2019**

- **Unaided Awareness**: 15%
- **Aided Awareness**: 49%
- **Total Awareness**: 64%

N = 572 (vehicle purchase decision makers)
## Perceptions (Jan. 2019)

<table>
<thead>
<tr>
<th>Perception</th>
<th>Yes</th>
<th>No</th>
<th>Don't Know</th>
</tr>
</thead>
<tbody>
<tr>
<td>Provides Cleaner Energy than PG&amp;E</td>
<td>48%</td>
<td>8%</td>
<td>44%</td>
</tr>
<tr>
<td></td>
<td>vs. 38% in Dec. 2017</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Charges Lower Rates than PG&amp;E</td>
<td>31%</td>
<td>16%</td>
<td>54%</td>
</tr>
<tr>
<td></td>
<td>vs. 20% in Dec. 2017</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Is a Public Agency in San Mateo County</td>
<td>44%</td>
<td>9%</td>
<td>47%</td>
</tr>
<tr>
<td></td>
<td>vs. 33% in Dec. 2017</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Is a Company Division/Branch of PG&amp;E</td>
<td>10%</td>
<td>52%</td>
<td>39%</td>
</tr>
<tr>
<td></td>
<td>Same as Dec. 2017</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

N = 354
Why Invest in Brand Awareness?

• Customer loyalty and retention
• Customers as advocates (especially in the face of legislative and policy threats)
• A trusted brand forms the foundation for engaging customers in programs and behavior change
• Overcome misperceptions
• Establish additional key brand attributes that go beyond lower price (may not always be able to set rates 5% below PG&E)
• Brand building is a long-term proposition
Brand Attributes

"Your Community Energy Provider"
Controlled by your community, not by investors

- Lower Rates
- Cleaner Energy
- Financially Strong
- Actively improving environment
- Supports Jobs & Local Economy
- Innovative
- Understands & responds to customer needs
- Trusted Industry Leader
- Financially Strong
- Innovate

PENINSULA CLEAN ENERGY
Why Invest in Brand Awareness?

- Customer loyalty and retention
- Customers as advocates (especially in the face of legislative and policy threats)
- A trusted brand forms the foundation for engaging customers in programs and behavior change
- Overcome misperceptions
- Establish additional key brand attributes that go beyond lower price (may not always be able to set rates 5% below PG&E)
- Brand building is a long-term proposition
- Opportunity (residential customers like how we describe ourselves)
## Marketing Strategies

<table>
<thead>
<tr>
<th>Storytelling in all Channels</th>
<th>Improved Understanding</th>
<th>Programs Marketing</th>
<th>Community Relations</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Overall communications plan (messaging, content calendar, channels, etc.)</td>
<td>• Awareness &amp; perception tracking</td>
<td>• EV Discount</td>
<td>• Partnership Strategy</td>
</tr>
<tr>
<td>• Earned media plan (PR, incl. thought leadership)</td>
<td>• Analysis &amp; research re: commercial sector</td>
<td>• Drive Forward</td>
<td>• Community partnerships</td>
</tr>
<tr>
<td>• Paid Media</td>
<td>• Qualitative input from partners &amp; events</td>
<td>• CALeVIP infrastructure</td>
<td>• Municipal relationships</td>
</tr>
<tr>
<td>• Community Impact Report</td>
<td></td>
<td>• Education program</td>
<td>• Outreach grants</td>
</tr>
<tr>
<td>• Reg/leg support</td>
<td></td>
<td>• ECO100</td>
<td>• Sponsorships</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• CAC coordination</td>
</tr>
</tbody>
</table>
2019-2020 Staffing / Resource Plan

IN-HOUSE
Current Employees

IN-HOUSE
New Hire

OUTSOURCE
as-needed

MARKETING DIRECTOR
(1 FTE)

COMMUNICATIONS MANAGER
(1 FTE)

PROGRAM MKTG MANAGER
(1 FTE)

SR. COMMUNITY RELATIONS MGR
(1 FTE)

RESEARCH FIRM

PR FIRM

PUBLIC AFFAIRS SPECIALIST
(1 FTE)

MARKETING ASSOCIATE
(1 FTE)

CREATIVE AGENCY

MEDIA BUYER

TRANSLATION SERVICES

COMMUNITY OUTREACH ASSOCIATE
(1 FTE)

MARKETING DIRECTOR
(1 FTE)

PROGRAM MKTG MANAGER
(1 FTE)

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MARKETING ASSOCIATE
(1 FTE)

CREATIVE AGENCY

MEDIA BUYER

TRANSLATION SERVICES

COMMUNITY OUTREACH ASSOCIATE
(1 FTE)
Next Steps

• Define measurable objectives
• Develop a resource plan that supports the marketing strategies
• Make hires outlined in the resource plan
• Field an awareness/perception study for early Q1 2020
• Issue RFPs for key outside services needed
• Review marketing strategy with Board Marketing Subcommittee
Organization Update

Board Retreat
September 28, 2019
Organization Status

• Current Headcount: 23
• End of December Headcount: 26
• End of 2020 Headcount: 35

(Subject to change)
Power Resources

Director of Power Resources
Siobhan Doherty

Contracts Manager
Chelsea Keys

Senior Renewable Energy Analyst
TBH

Associate Manager DER Strategy
Peter Levitt

DER Strategy
TBH

Renewable Energy and Compliance Analyst
TBH
Energy Programs

Directory of Energy Programs
- Rafael Reyes

- Energy Programs Manager
  - Phillip Kobernick

- Building Electrification Programs Manager
  - Shraddha Mutyal

- Energy Programs Specialist
  - Alejandra Posada

- Energy Programs Specialist
  - Peter Ambiel

- Energy Programs Associate
  - TBH
Legislative and Regulatory Affairs

Director of Legislative and Regulatory Affairs
Joe Wiedman

Manager, Regulatory Affairs
Jeremy Waen
Senior Regulatory Analyst
Doug Karpa
Junior Analyst
TBH
Regular Agenda

Adjourn