Peninsula Clean Energy Board of Directors Retreat

September 28, 2019

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





Creating the Path Forward Strategic Planning Process

September 28, 2019

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.

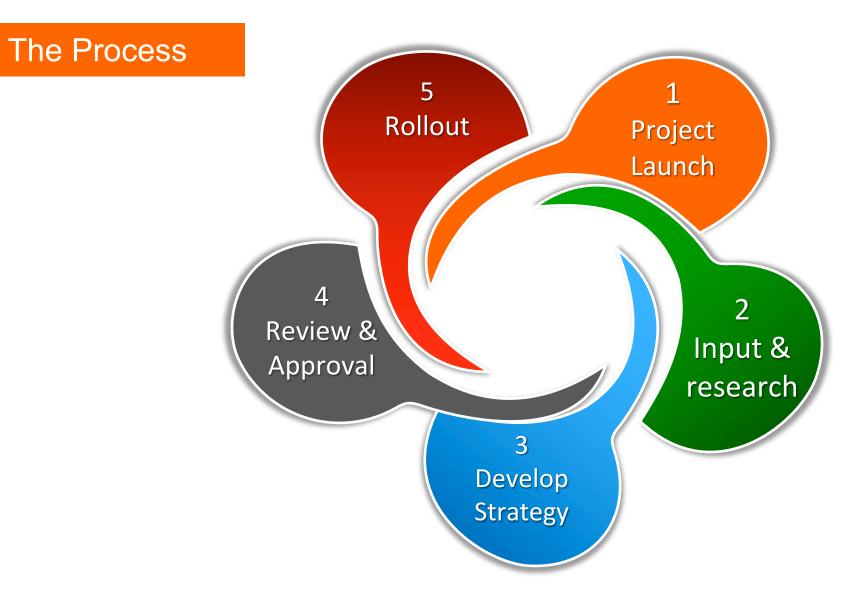
Develop Strategy

- 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 IIII.

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



Project Launch

- 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



Input & Research

- 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



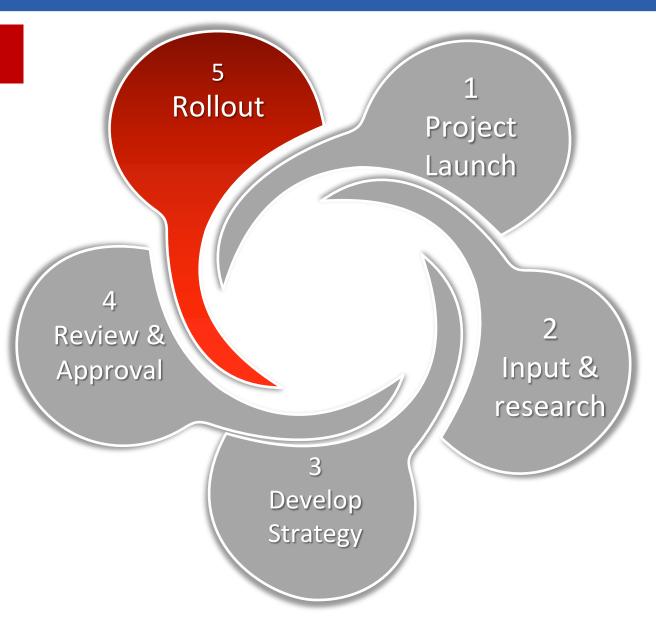
Review & Approval

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



Rollout

- 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



Timing

ITEM	DATE
Finalize Peninsula Clean Energy (PCE)/ Gallagher Consulting Group (GCG or Gallagher) agreement	Week of Sept 23
GCG/PCE planning launch meeting with project team - Review strategic planning process - Finalize timeline (set key board dates) - Discuss stakeholder research topics and respondents	Sept 27
Gallagher / PCE launch meeting with Board of Directors - Review strategic planning process	Sept 28
GCG designs stakeholder research - Draft interview guide, moderator guide, and survey instrument to PCE - Confirm respondents	Oct 1 - 17
GCG conducts stakeholder research - Interviews - Online survey - Industry assessment - Consumer focus groups (optional)	Oct 21 – Dec 13
GCG/PCE Board planning subcommittee conference call - Review stakeholder research key findings and implications - Discuss Board planning retreat agenda / develop strategic questions	Mid Dec / Early Jan
Board planning retreat	Mid/Late Jan
Staff planning retreat	Early Feb
GCG develops draft plan document with PCE staff input	Mid/Late Feb
Draft review process: Board planning subcommittee reviews and enhances draft / GCG makes revisions	Mid/Late Feb
Board reviews and adopts plan	Mar
Gallagher works with PCE staff on implementation plans	Mar
PCE conducts rollout of new plan to key audiences	TBD

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)





Thank you.

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

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

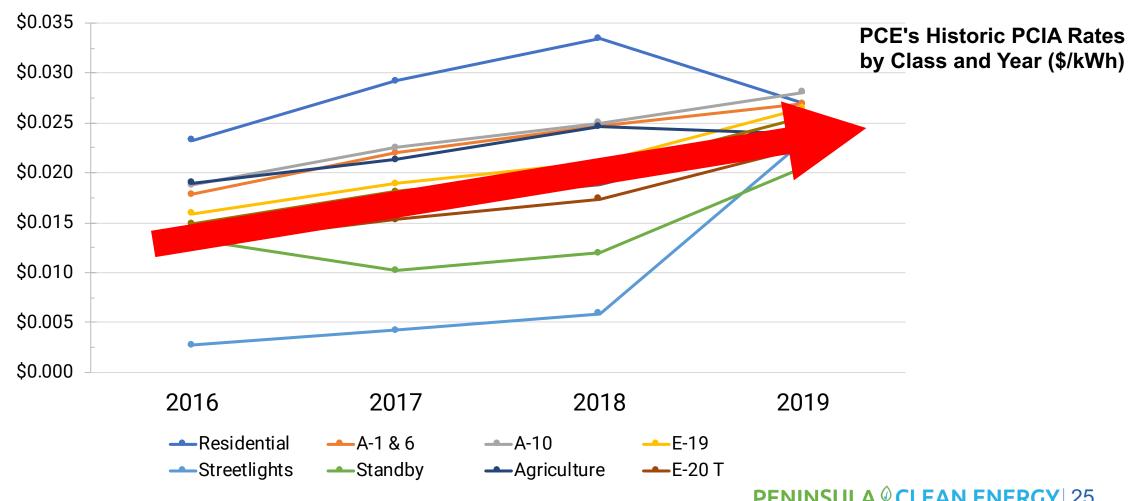
Other bills: SB 350 (Hertzberg), AB 1362 (O'Donnell), SB 155 (Bradford), SB 676 (Bradford), SB 772 (Bradford), SB 255 (Bradford), AB 1424 (Berman), SB 774 (Stern)

Risks & Opportunities

- Power Charge Indifference Adjustment
- Resource Adequacy
- Integrated Resource Planning
- Direct Access

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





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

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

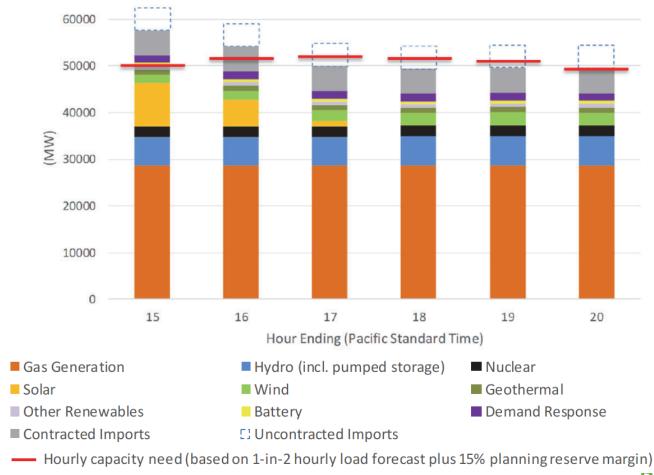
California's Reliability Outlook Understanding Capacity vs. Energy

Load-Serving Entities (LSEs) procure

- 1. to meet the total amount of electricity consumed by their customers (energy), and
- to meet the peak demand for electricity consumption by their customers (capacity)

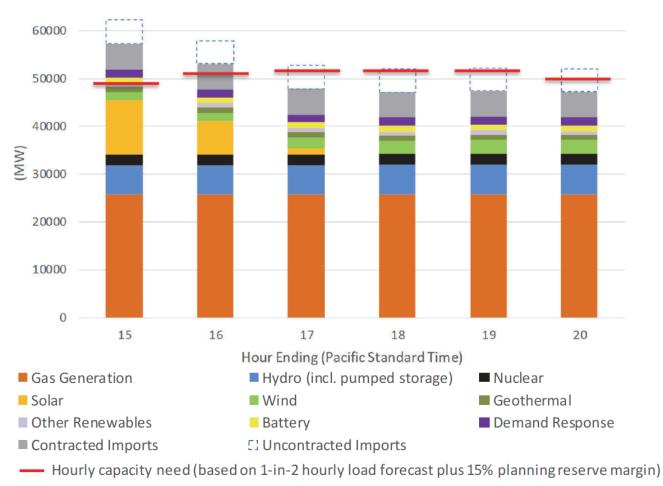
California's Reliability Outlook

2020 Projected Energy Production from Resource Adequacy Fleet



California's Reliability Outlook

2022 Projected Energy Production from Resource Adequacy Fleet



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?

Proactive Risk Mitigation

- CalCCA leadership on RA settlement negotiations
 - Settlement filed on August 30, 2019 with 8 parties co-signing:
 CalCCA, Calpine, 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

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?

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 CLEAN ENERGY | 33

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

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
 - Cost impacts
 - Timing of procurement
 - Product availability
 - Product need

Resource Adequacy – Current

- Required to procure to following targets by October 31 each year:
 - 90% of system need for May October
 - 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:
 - Increased local areas from 2 to 7 local areas
 - 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
 - Aggregate open positions to allow for more efficient procurement

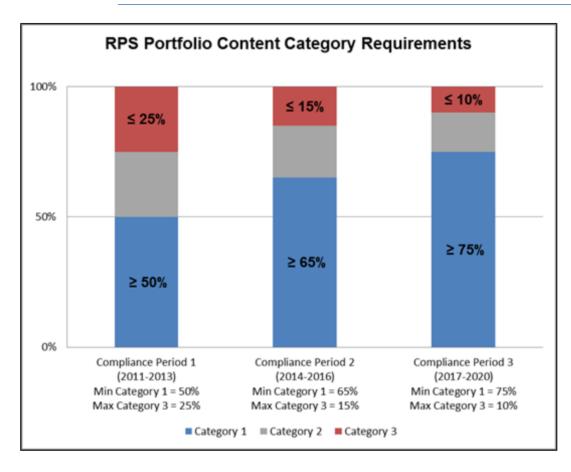
PCIA Allocations

- Evaluating options to allocate IOU excess resources to other LSEs
 - Resource adequacy
 - GHG Free Attributes
 - Renewables
- Impacts planning
 - Avoid over procuring product that may be allocated
 - Risk of allocation not occurring

Integrated Resources Plan (IRP)

- History
 - PCE Strategic IRP published December 2017
 - 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)

End of	RPS	PCE Target
2020	33%	50%
2024	44%	50%
2027	52%	100%
2030	60%	100%

- 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

Version: July 2019

2018 POWER CONTENT LABEL

- Requirements in place since 2009
- All retail sellers of electric energy to disclose "accurate, reliable, and simple-tounderstand 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.

2018 POWER CONTENT LABEL

Peninsula Clean Energy Authority

https://www.peninsulacleanenergy.com/energy-sources/

ENERGY RESOURCES	ECOplus	ECO100	2018 CA Power Mix**
Eligible Renewable	51%	100%	31%
Biomass & Biowaste	5%	0%	2%
Geothermal	2%	0%	5%
Eligible Hydroelectric	5%	0%	2%
Solar	7%	50%	11%
Wind	33%	50%	11%
Coal	0%	0%	3%
Large Hydroelectric	35%	0%	11%
Natural Gas	0%	0%	35%
Nuclear	0%	0%	9%
Other	0%	0%	<1%
Unspecified sources of power*	14%	0%	11%
TOTAL	100%	100%	100%

[&]quot;Unspecified sources of power" means electricity from transactions that are not traceable to specific generation sources.

^{**} Percentages are estimated annually by the California Energy Commission based on the electricity generated in California and net imports as reported to the Quarterly Fuel and Energy Report database and the Power Source Disclosure program.

For specific information about this	Peninsula Clean Energy Authority	
electricity product, contact:	1-866-966-0110	
For general information about the Power Content Label, please visit:	http://www.energy.ca.gov/pcl/	
For additional questions, please contact the California Energy Commission at:	Toll-free in California: 844-454-2906 Outside California: 916-653-0237	

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

Resource	PCE Current	AB1110
Out-of-state Renewable Energy	Same as in-state; wind = 0 MTCO2e / MWh	Assigned emissions factor for unspecified power = 0.428 MT CO2e/MWh
Biomass	0 MTCO2e / MWh	Plant-specific, ~0.01 MTCO2e / MWh
Geothermal	Estimate 0.09 MTCO2e / MWh	Plant-specific, same

PROPOSED AB1110 POWER CONTENT LABEL

(ENTITY NAME)

2019 POWER CONTENT LABEL

	e Gas Emissions I in kg CO₂e/MW)	ntensity	Energy Resources	Product 1 Power Mix	Product 2 Power Mix	CA Total Mix
(Product 1)	(Product 2)	State Average	Eligible Renewables ¹	31.0%	75.0%	22.0%
(1 Toddot 1)	(Froduct 2)	Oldio / Wordgo	Biomass & biowaste	8.0%	0.0%	3.0%
334	87	305	Geothermal	4.0%	0.0%	4.0%
500 —			Eligible hydroelectric	1.0%	0.0%	1.0%
			Solar	16.0%	75.0%	6.0%
400			Wind	2.0%	0.0%	8.0%
200		(Product 1)	Coal	3.0%	0.0%	6.0%
300		(Product 2)	Large Hydroelectric	8.0%	4.0%	5.0%
200		,	Natural Gas	46.0%	10.0%	44.0%
200		■ State Average	Nuclear	0.0%	0.0%	9.0%
100			Other	0.0%	0.0%	0.0%
			Unspecified Electricity ²	12.0%	11.0%	14.0%
0			TOTAL	100.0%	100.0%	100.0%
Unbundled RECs	retired as a percentag	ge of these electric	service products' retail sales:	12%	25%	

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.

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) (Entity Website)
For general information about the Power Content Label, consult:	California Energy Commission	1-844-217-4925 www.energy.ca.gov/pcl/

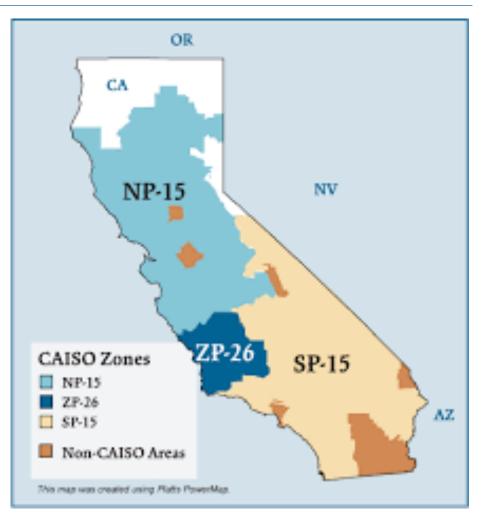
SB 237 - Direct Access

- 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

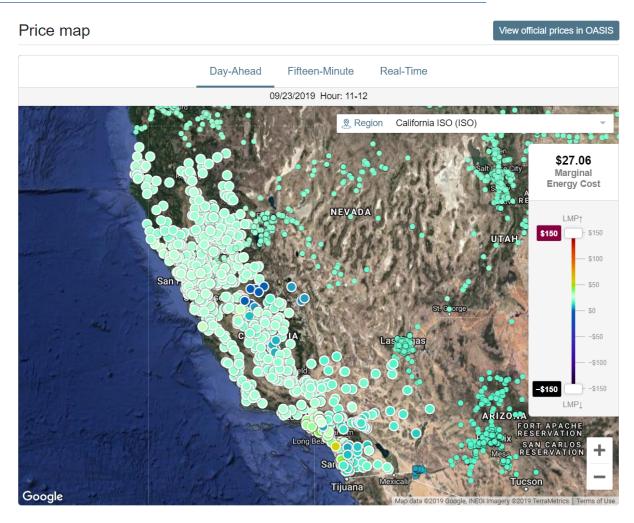
How CAISO Manages Grid

- 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



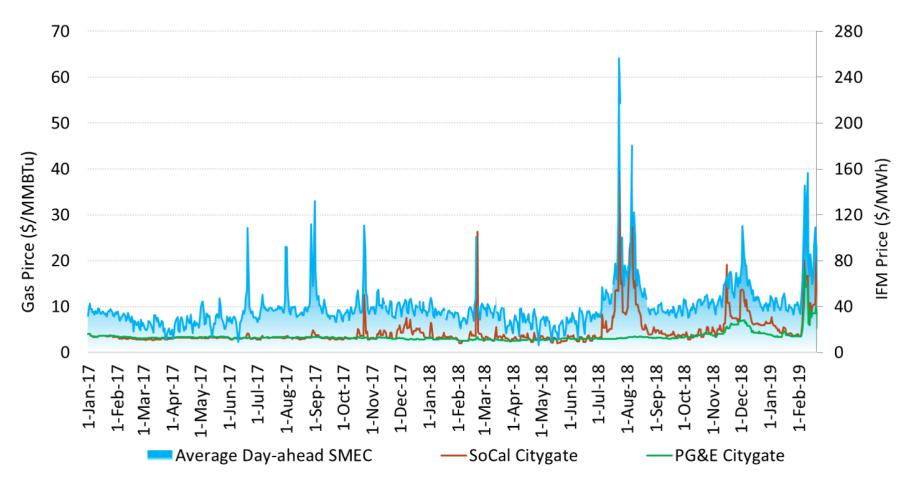
Locational Marginal Pricing (LMP)

- 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



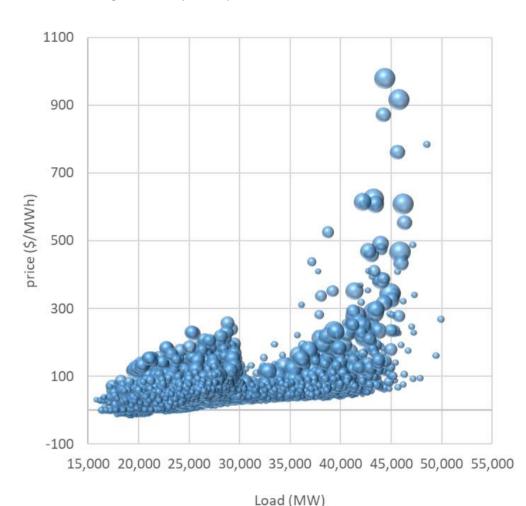
*SMEC: Power price – System marginal energy component

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

Weather Drives Power Market Prices

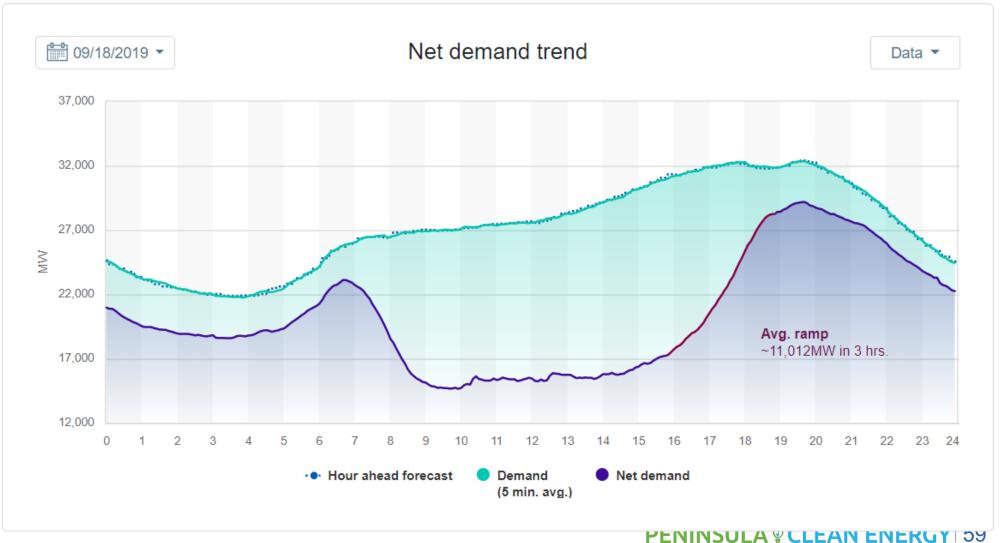
 High system load, generally associated with heat waves, is correlated with higher electricity market prices

Figure 36: Day-head prices correlated to demand level

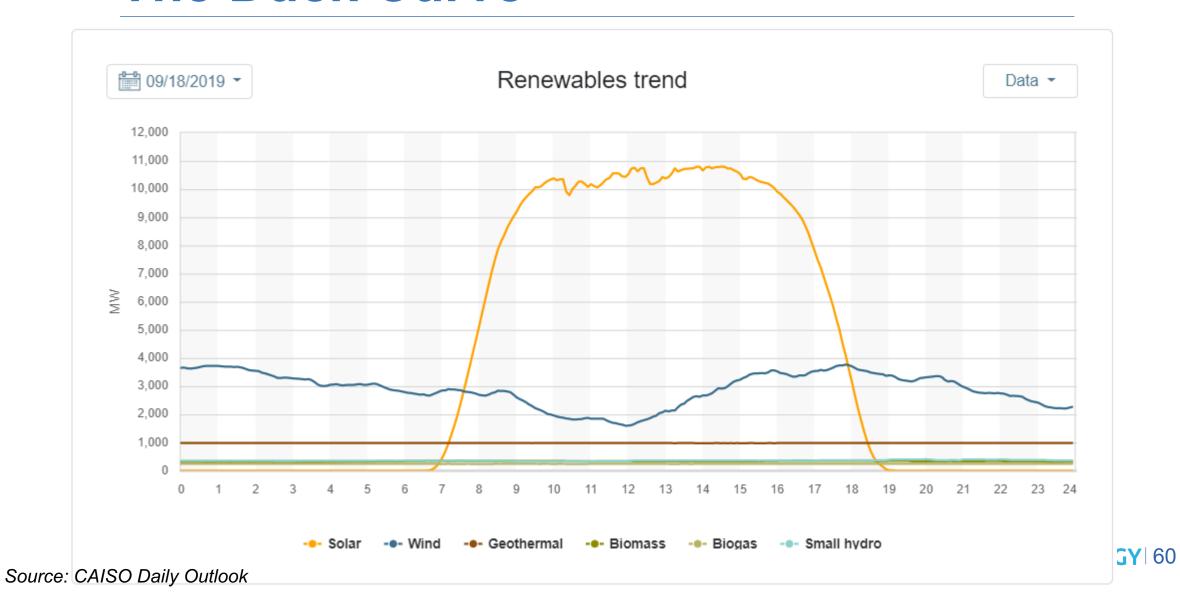


Source: CAISO Price Performance in the CAISO Energy Markets; June 2019

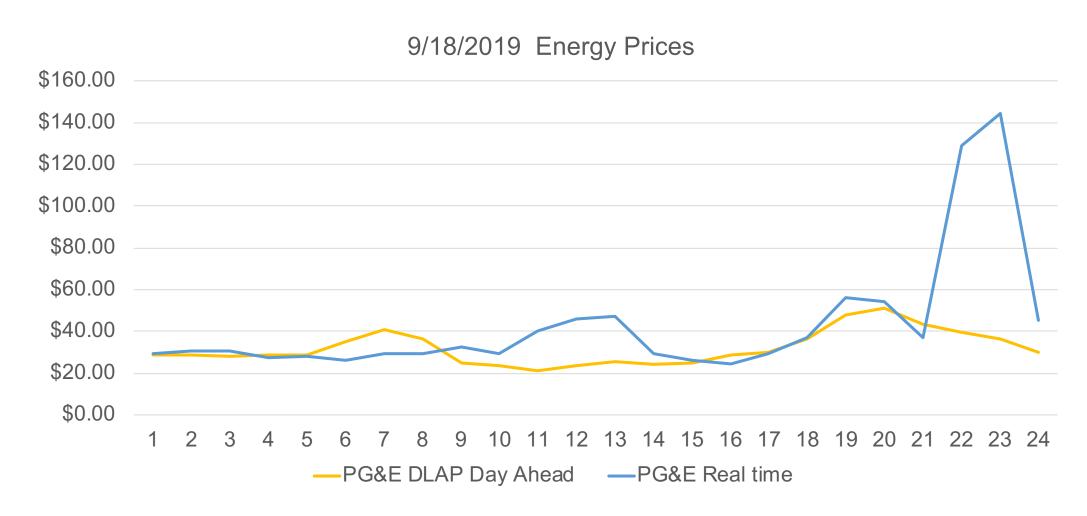
Net
Demand =
Demand
minus wind
minus solar

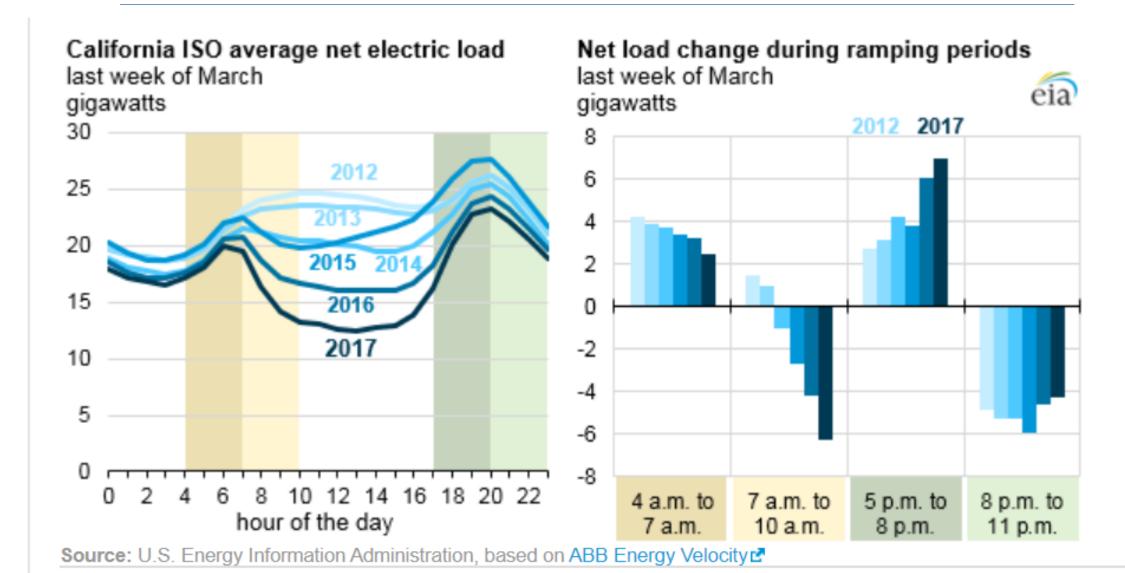


Source: CAISO Daily Outlook



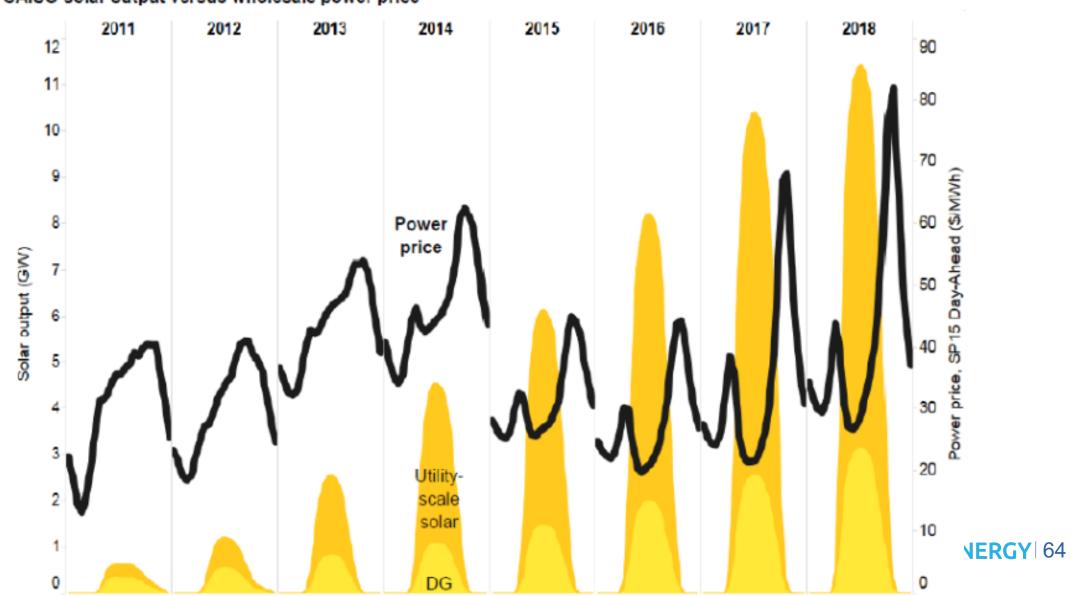






Average day in California

CAISO solar output versus wholesale power price



Hedging Strategies

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

Hedge Target Levels

	% of Load Procured	
	Min	Max
Current Year	90%	100%
Year 2	75%	90%
Year 3	65%	80%
Year 4 and Beyond	55%	70%

Analytical Work

- 2 pilot analytical projects this fall
 - Ascend Analytics
 - Innowatts
- Ascend: Portfolio and risk management software
 - Stochastic modeling approach Simulations of load, weather, pricing
 - Assess the likelihood of individual events occurring within the range of possible future scenarios
 - 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

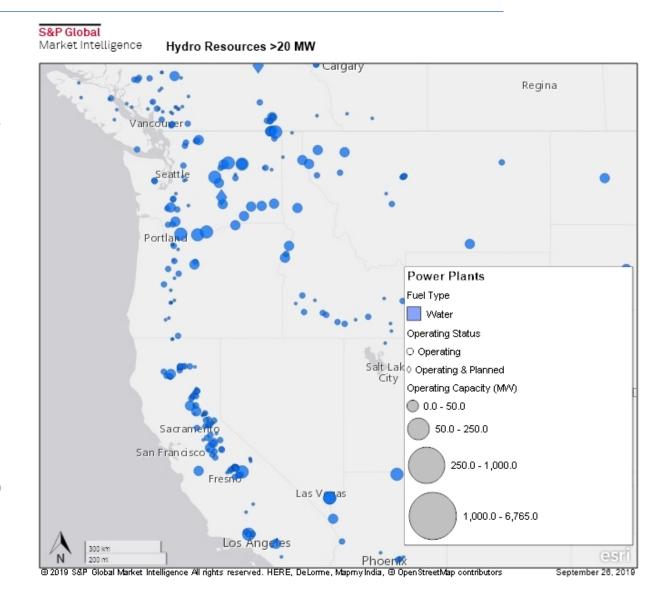
Renewable	GHG Free
Biomass & Waste	
Geothermal	
Solar	Solar
Wind	Wind
Small / Eligible Hydro	Small / Eligible Hydro
	Large Hydro
	Nuclear

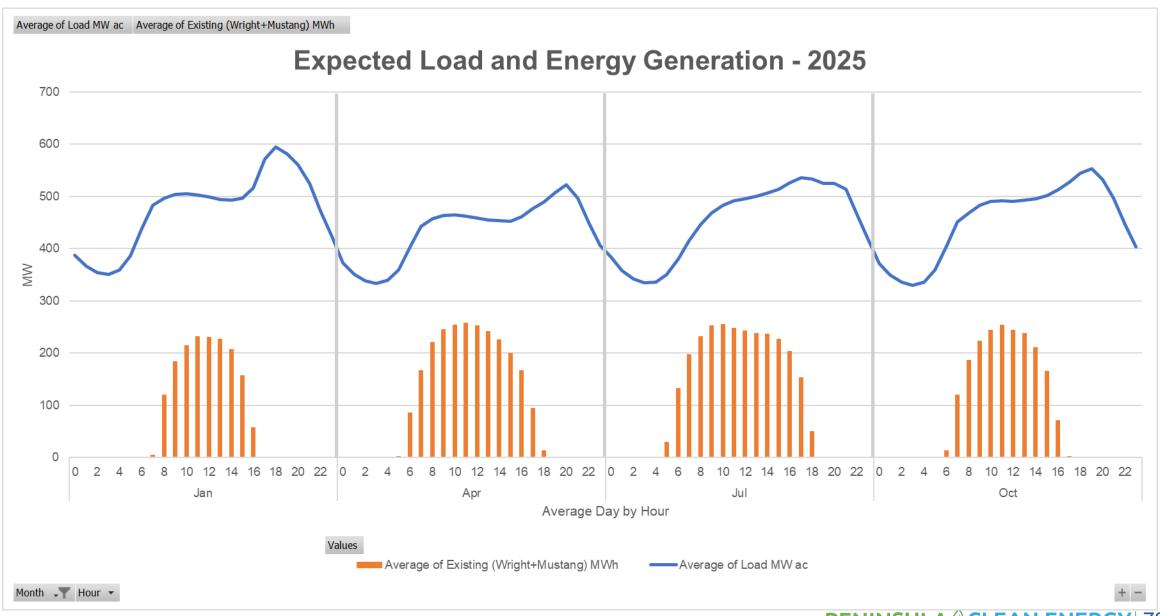
Risks to Achieving Goals

- 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
 - Geothermal ~ 0.09 MT CO2e per MWh
 - Biomass (non-biogenic emissions) ~ 0.01 MT
 CO2e per MWh

Risks to 100% GHG-Free

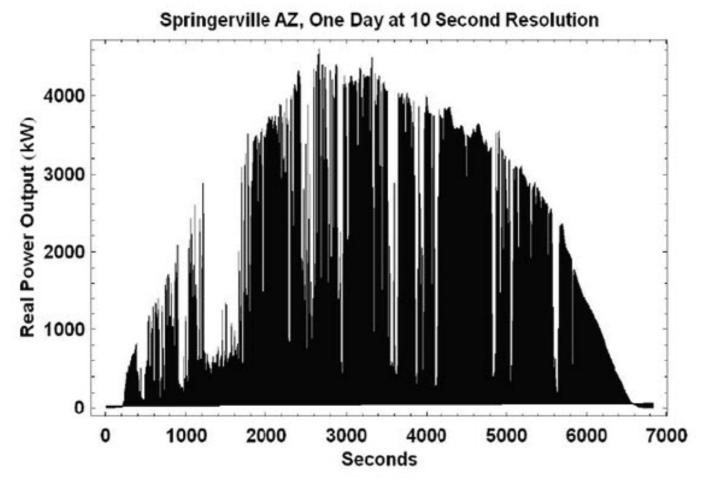
- Availability of supply
 - Increase in CCAs -> increased demand for large hydro
 - Intermittent availability depending on precipitation
 - GHG goals in neighboring states
 - Fossil retirements in neighboring states
- Above factors driving up cost
- Potential mitigant: PG&E allocating excess hydropower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





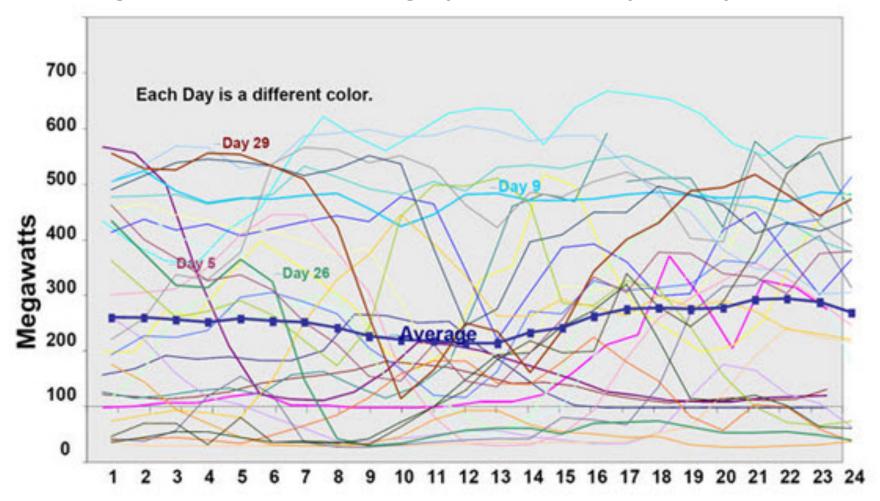
Risks to 100% Renewable

Solar generation intermittent in response to cloud cover

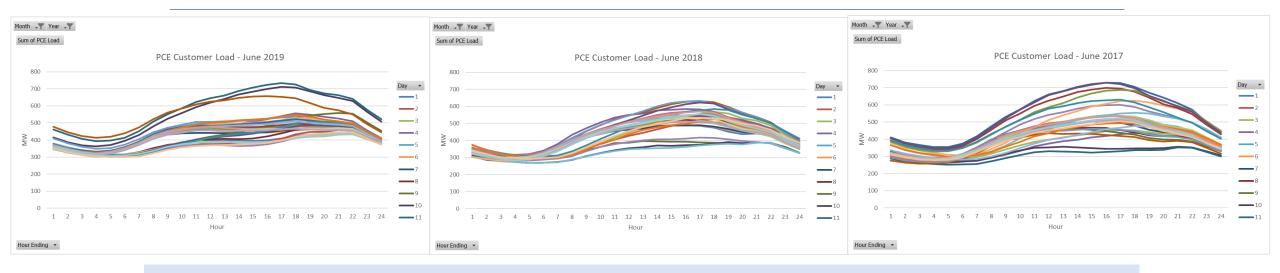


Risks to 100% Renewable

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:

	June 2019	June 2018	June 2017
Max	733 MW	633 MW	727 MW
Min	390 MW	371 MW	330 MW
Average	493 MW	524 MW	525 MW

Annual v. Hourly Accounting

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

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

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

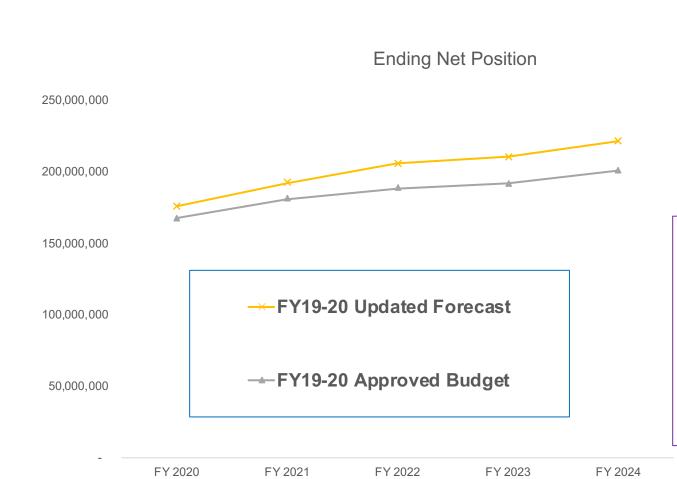
Summary of Scenarios

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

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
- <u>Updated Forecast</u> 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

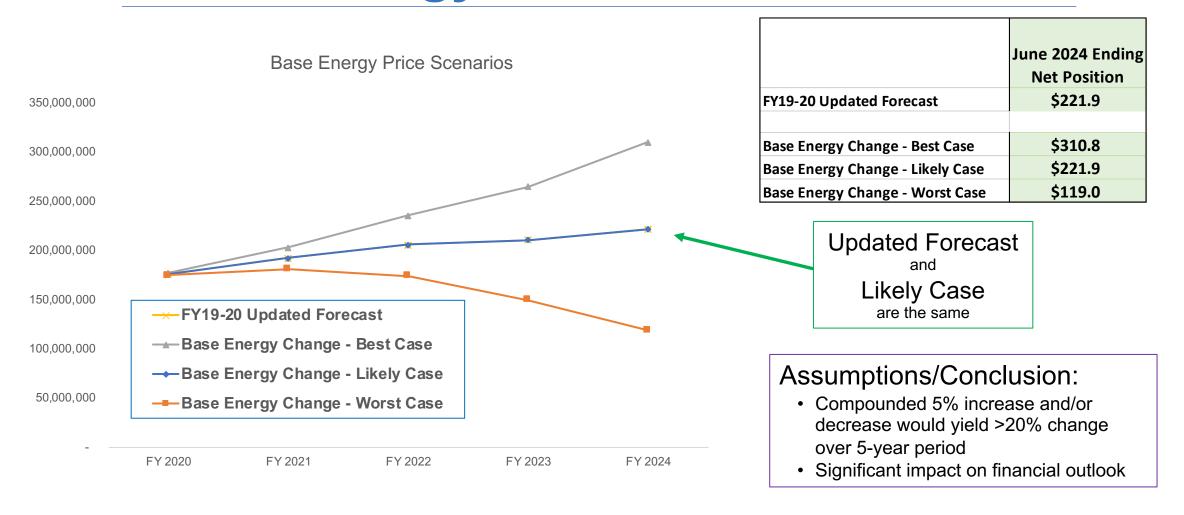


FY19-20 Updated Forecast	June 2024 Ending Net Position \$221.9
FY19-20 Approved Budget	\$201.3

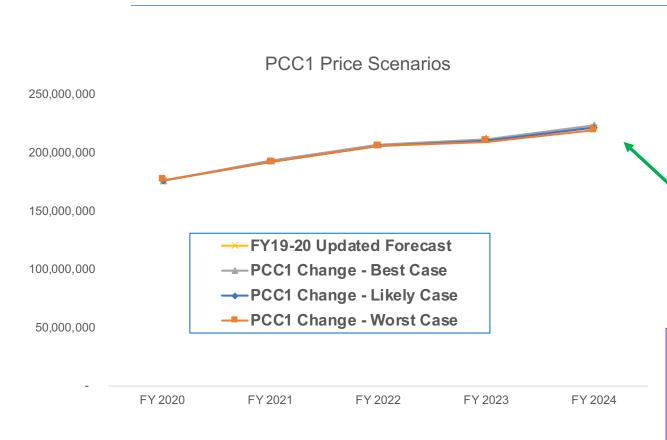
Observations:

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

Base Energy Cost — Ending Net Position



PCC1 Cost — Ending Net Position

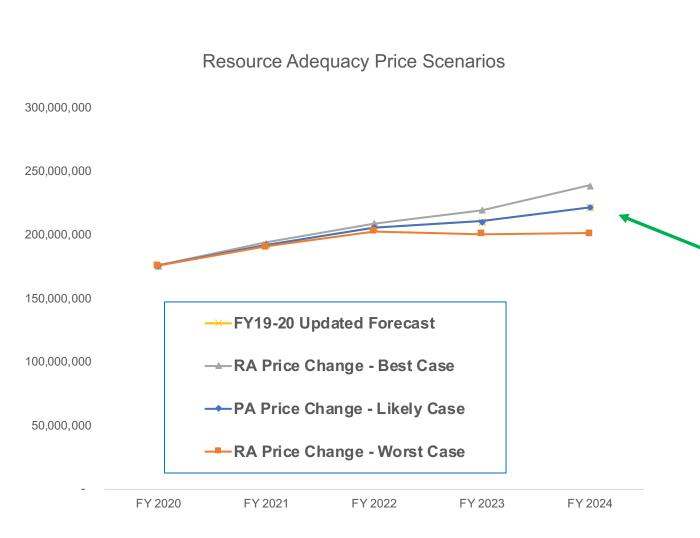


FY19-20 Updated Forecast	June 2024 Ending Net Position \$221.9
PCC1 Change - Best Case PCC1 Change - Likely Case	\$223.8 \$221.9
PCC1 Change - Worst Case	\$219.6

Updated Forecast and Likely Case are the same

- 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

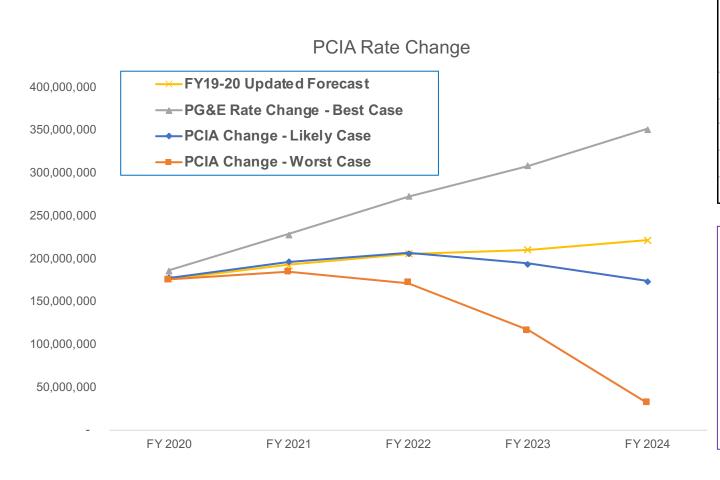


FY19-20 Updated Forecast	June 2024 Ending Net Position \$221.9
RA Price Change - Best Case	\$239.4
PA Price Change - Likely Case RA Price Change - Worst Case	\$221.9 \$201.3

Updated Forecast and Likely Case are the same

- 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

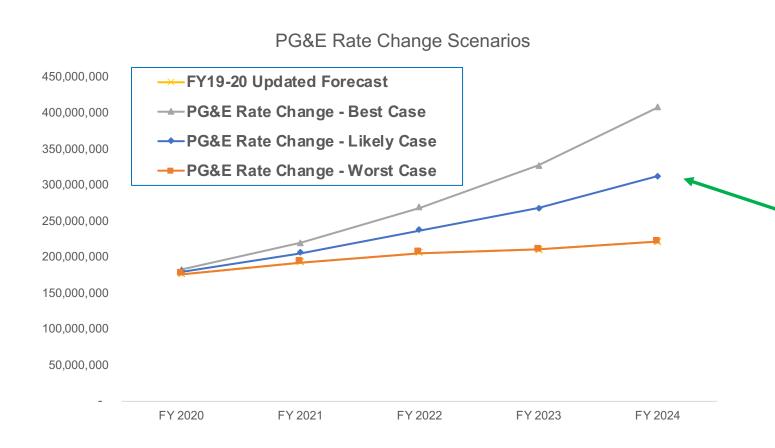
PCIA — Ending Net Position



	June 2024 Ending Net Position
FY19-20 Updated Forecast	\$221.9
PCIA Change - Best Case	\$351.8
PCIA Change - Likely Case	\$174.2
PCIA Change - Worst Case	\$31.6

- 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

PG&E Rates — Ending Net Position

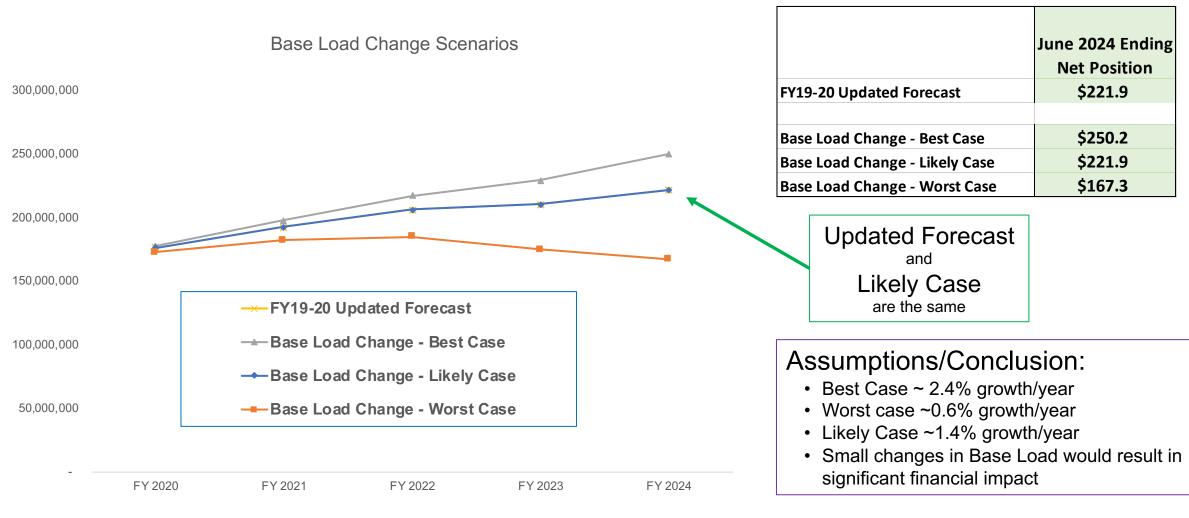


FY19-20 Updated Forecast	June 2024 Ending Net Position \$221.9
PG&E Rate Change - Best Case	\$408.1
PG&E Rate Change - Likely Case	\$312.8
PG&E Rate Change - Worst Case	\$221.9

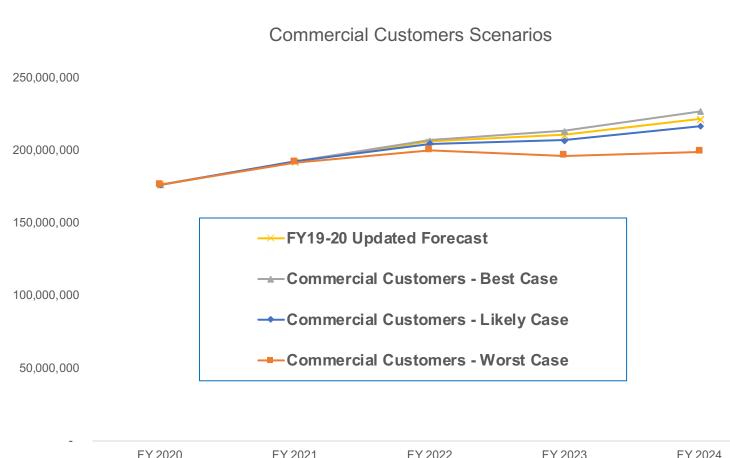
Updated Forecast and Worst Case are the same

- 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



C&I Customer Changes — Ending Net Position



	June 2024 Ending
	Net Position
FY19-20 Updated Forecast	\$221.9
Commercial Customers - Best Case	\$227.0
Commercial Customers - Likely Case	\$216.8
Commercial Customers - Worst Case	\$199.4

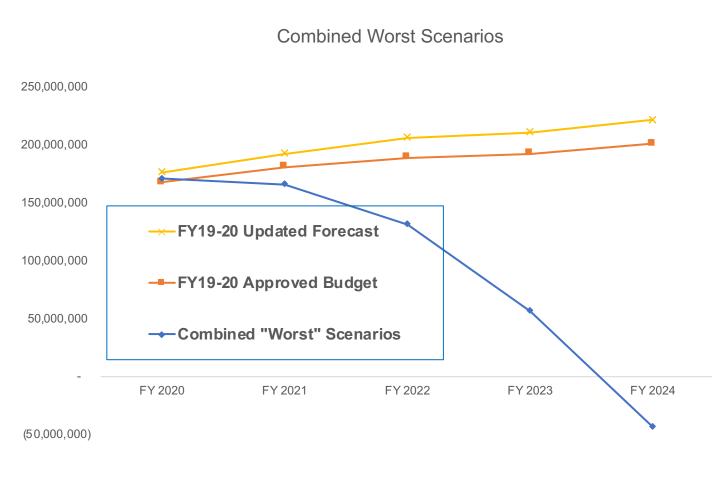
Conclusion:

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

Combined "Worst Case" Scenarios

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

Combined "Worst" Scenarios - Ending Net Position



FY19-20 Updated Forecast	June 2024 Ending Net Position \$221.9
FY19-20 Approved Budget	\$201.3
Combined "Worst" Scenarios	(\$43.5)

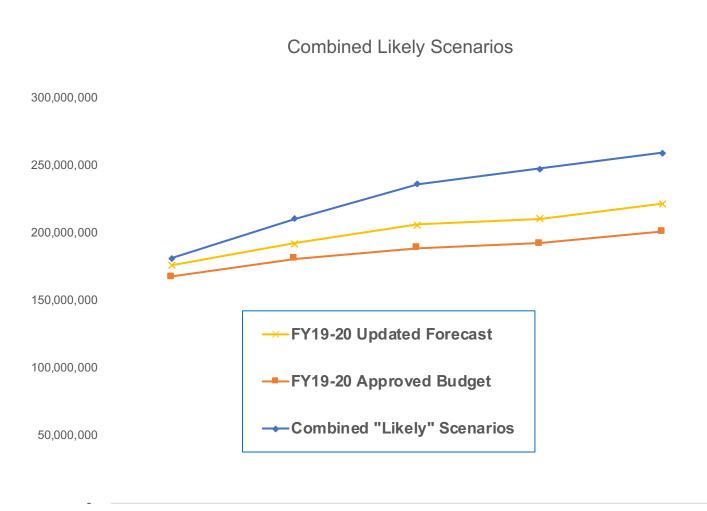
Conclusion:

- 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 "Likely Case" Scenarios

					Case (5 years)		
			FY19-20				
	<u>Last 12</u>	Last 3 years	<u>Approved</u>				
	<u>months</u>	Avg	<u>Budget</u>	<u>Best</u>	<u>Likely</u>	<u>Worst</u>	<u>Notes</u>
Base Energy Cost	0.0%	2.0%	2.5%	-5%/year*	As budgeted	+5%/year*	Annual changes are compounded
PCC1 Cost	5.0%		25% over PY budget	-5%/year*	Per Updated Forecast	+5%/year*	Annual changes are compounded
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PCIA Rate	8.2%	15.0%	19.6%	-4% year 1; unchanged each year after	15% year 1; 10% each year after	20%/year	Annual "max" 0.5 cents, or ~ 20%
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Base Load Growth	0.3%		1.4%	+1%/year*	As budgeted	-2%/year*	Annual changes are compounded
			4 of top 20	12 of top 20 sign	8 of top 20 sign	2 of top 20 sign VPA	l
			sign VPA's	VPA in 3 years; no	VPA in 3 years; 4	in 3 years; 8 lost to	
Commerical Customers (VPA/DA)			by EOY	DA loss	lost to DA	DA	

Combined "Likely" Scenarios — Ending Net Position

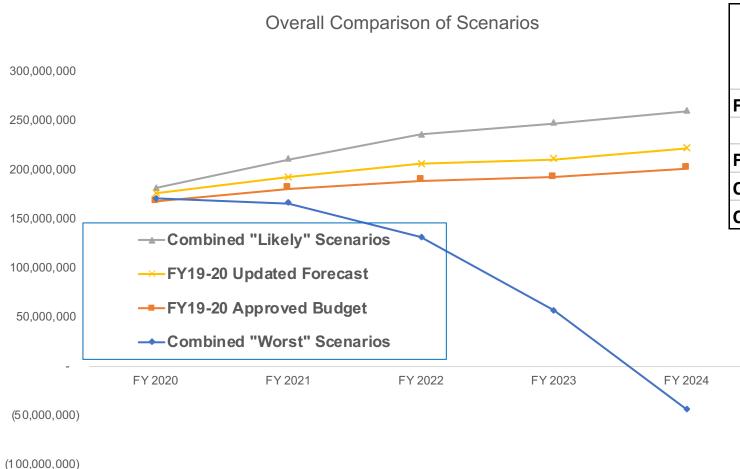


FY19-20 Updated Forecast	June 2024 Ending Net Position \$221.9
FY19-20 Approved Budget	\$201.3
Combined "Likely" Scenarios	\$259.6

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

Overall Comparison — Ending Net Position



FY19-20 Updated Forecast	June 2024 Ending Net Position \$221.9
FY19-20 Approved Budget	\$201.3
Combined "Likely" Scenarios	\$259.6
Combined "Worst" Scenarios	(\$43.5)

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

Maximize and maintain customer participation in PCE Business Drive participation in programs, incl ECO100 Objectives Establish PCE as trusted industry leader Marketing Objectives Improve Awareness & Meet or Exceed Program & Perception of PCE **Product Participation Targets** as measured by: survey data as measured by: program uptake vs. goals Marketing Strategies

Storytelling in all channels

Improved understanding

Integrated marketing plans

Community Relations

Customer loyalty and retention

Reasons for Opt Outs

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

^{*} March thru Aug 2019. Source: Calpine weekly statistics

- 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

AWARENESS

(low cost, broad reach)

Cyclops marketing recommendations focused on:

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

ENGAGEMENT

(mid cost, mid reach)

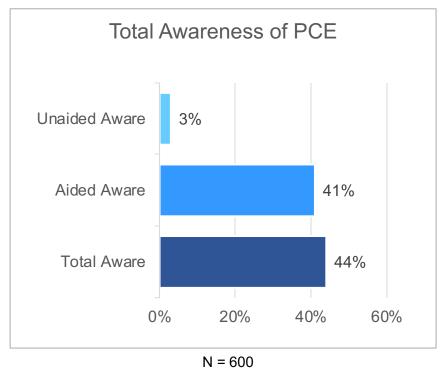
PARTICIPATION

(high cost, low reach)

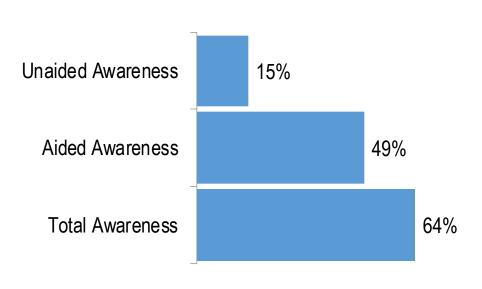
- Customer loyalty and retention
- Customers as advocates (especially in the face of legislative and policy threats)
- A trusted brand forms the foundation for engaging customers in programs and behavior change
- Overcome misperceptions

Awareness Trend

December 2017

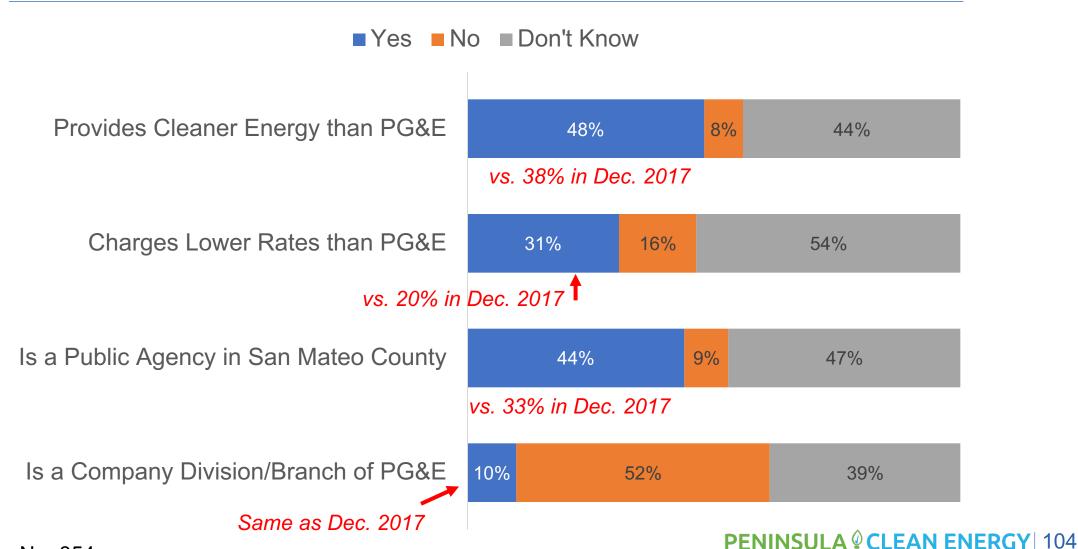


January 2019



N = 572 (vehicle purchase decision makers)

Perceptions (Jan. 2019)



N = 354

- 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

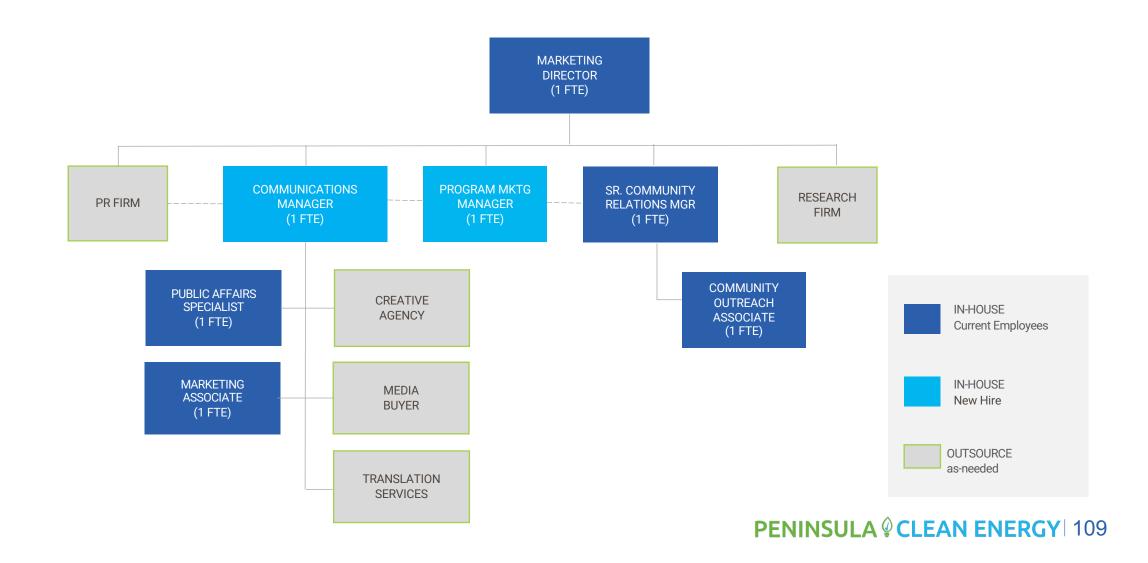


- Customer loyalty and retention
- Customers as advocates (especially in the face of legislative and policy threats)
- A trusted brand forms the foundation for engaging customers in programs and behavior change
- Overcome misperceptions
- Establish additional key brand attributes that go beyond lower 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

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

2019-2020 Staffing / Resource Plan



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

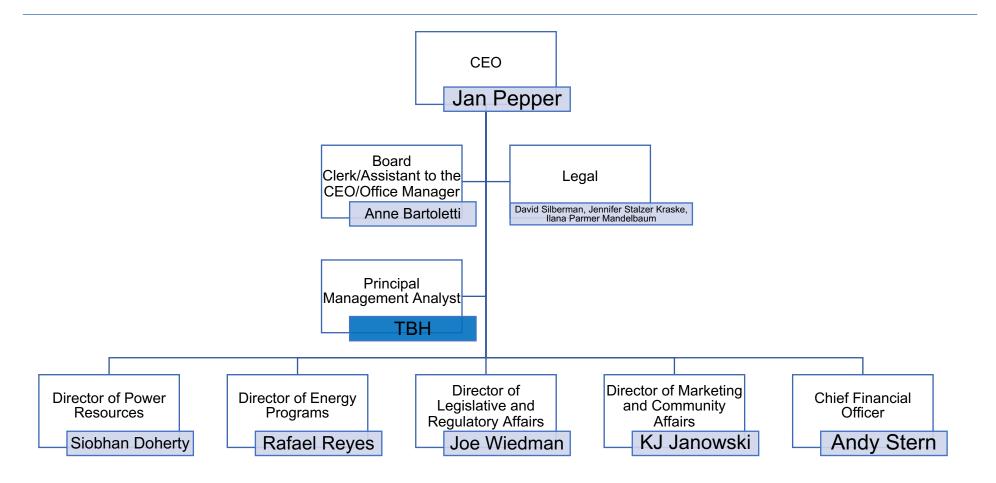
Board Retreat September 28, 2019

Organization Status

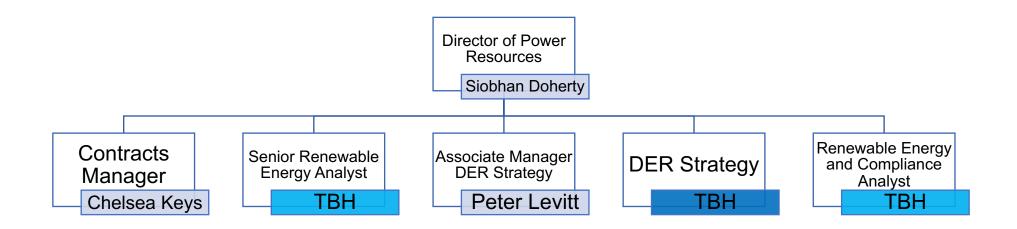
- Current Headcount: 23
- End of December Headcount: 26
- End of 2020 Headcount: 35

(Subject to change)

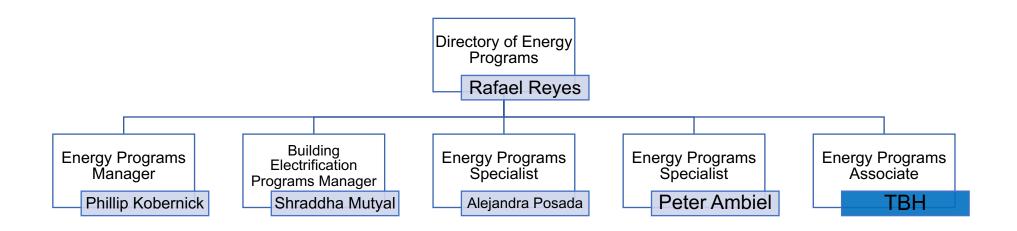
Senior Staff



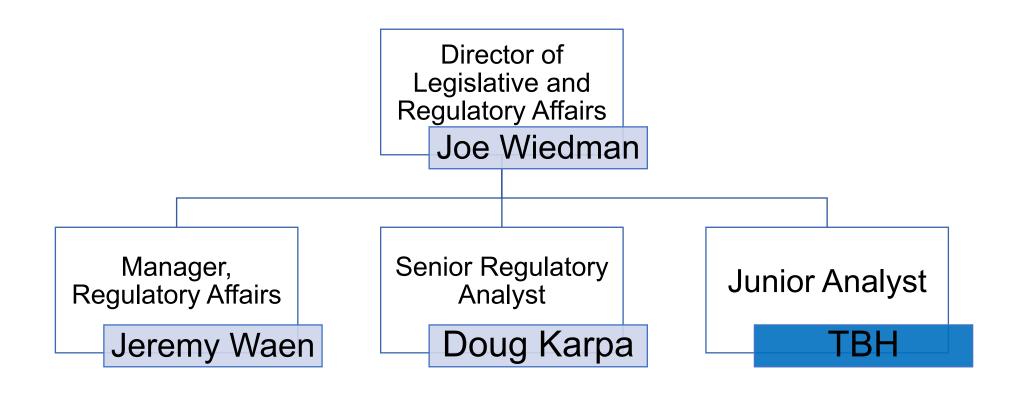
Power Resources



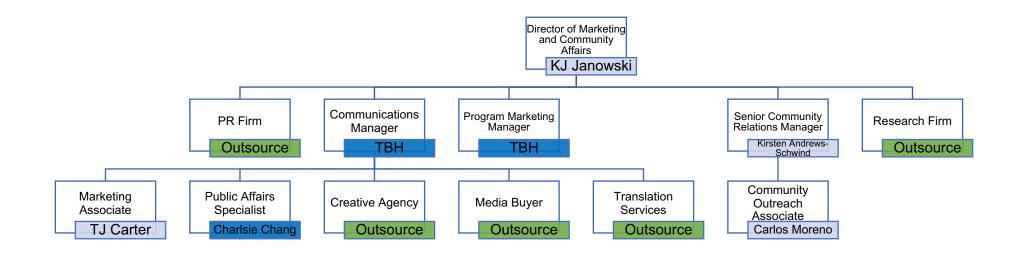
Energy Programs



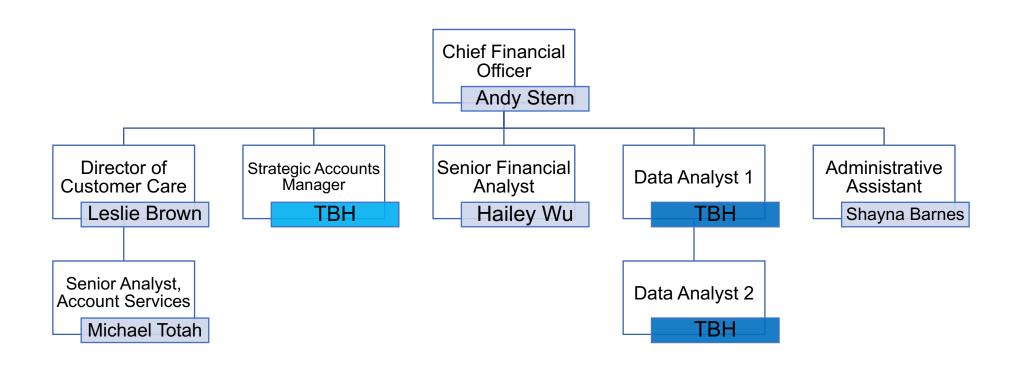
Legislative and Regulatory Affairs



Marketing Communications and Outreach



Finance, Administration, and Customer Care



Regular Agenda

Adjourn