



Peninsula Clean Energy Board of Directors Meeting

May 28, 2020

Agenda

- Call to order / Roll Call
- Public Comment
- Action to set the agenda and approve consent items

Regular Agenda

1. Chair Report (Discussion)

Regular Agenda

2. CEO Report (Discussion)

Today's Updates

- Staffing Update
- COVID-19 Update
 - Load Impact Analysis
- Avoided GHG Emissions Calculations
- Strategic Plan Update
- PG&E Bankruptcy Update
- Merced Update
- Upcoming Meetings

Staffing Update



Matthew Rutherford starting on June 15 as Regulatory Analyst

Greg Miller, PhD student from UC Davis, joining PCE as summer intern, researching 24x7 renewable energy goal

Finalist in negotiations for Manager, Distributed Energy Resource Strategy

Engaged an HR Consultant whose role will be Employee Relations and Employee Engagement, and will introduce her to staff at our all-hands staff meeting on June 17

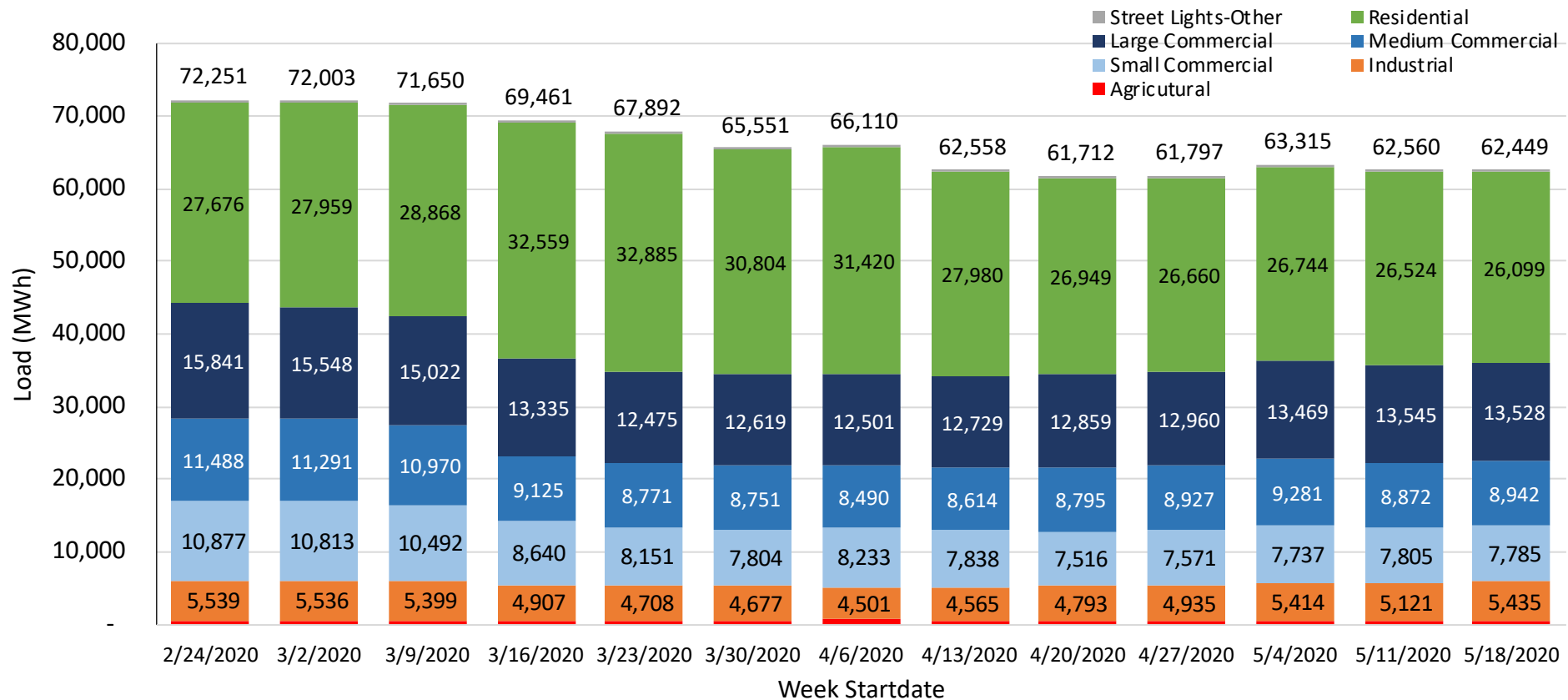
COVID-19 Load Impact Analysis

- Overall PCE load
- Weekly and Daily Load Changes
- Weekly Load by Customer Type
- Load Shape Changes

Thank you to the power resources team for this analysis!

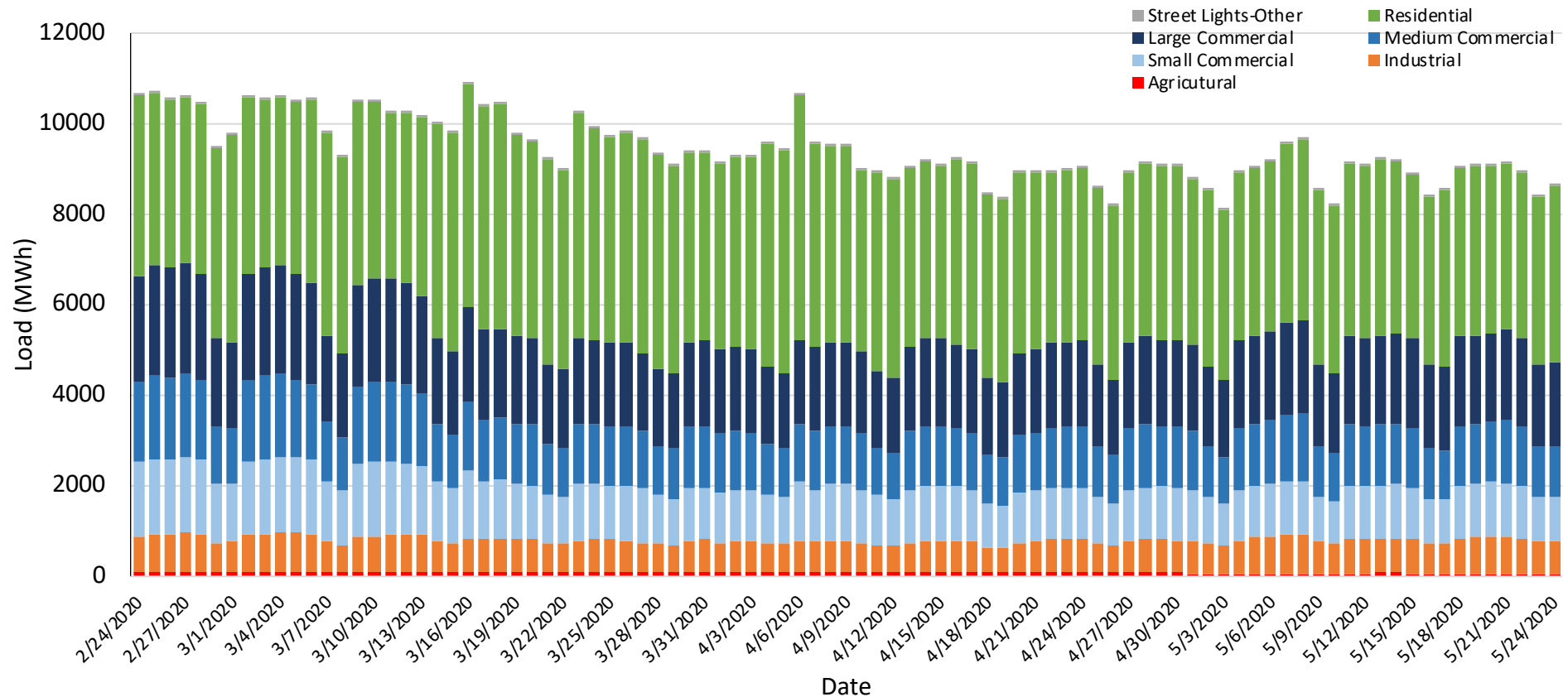
Weekly Load

- 14% decrease in Total PCE load in week of May 18th compared to last week of Feb and first two weeks of Mar

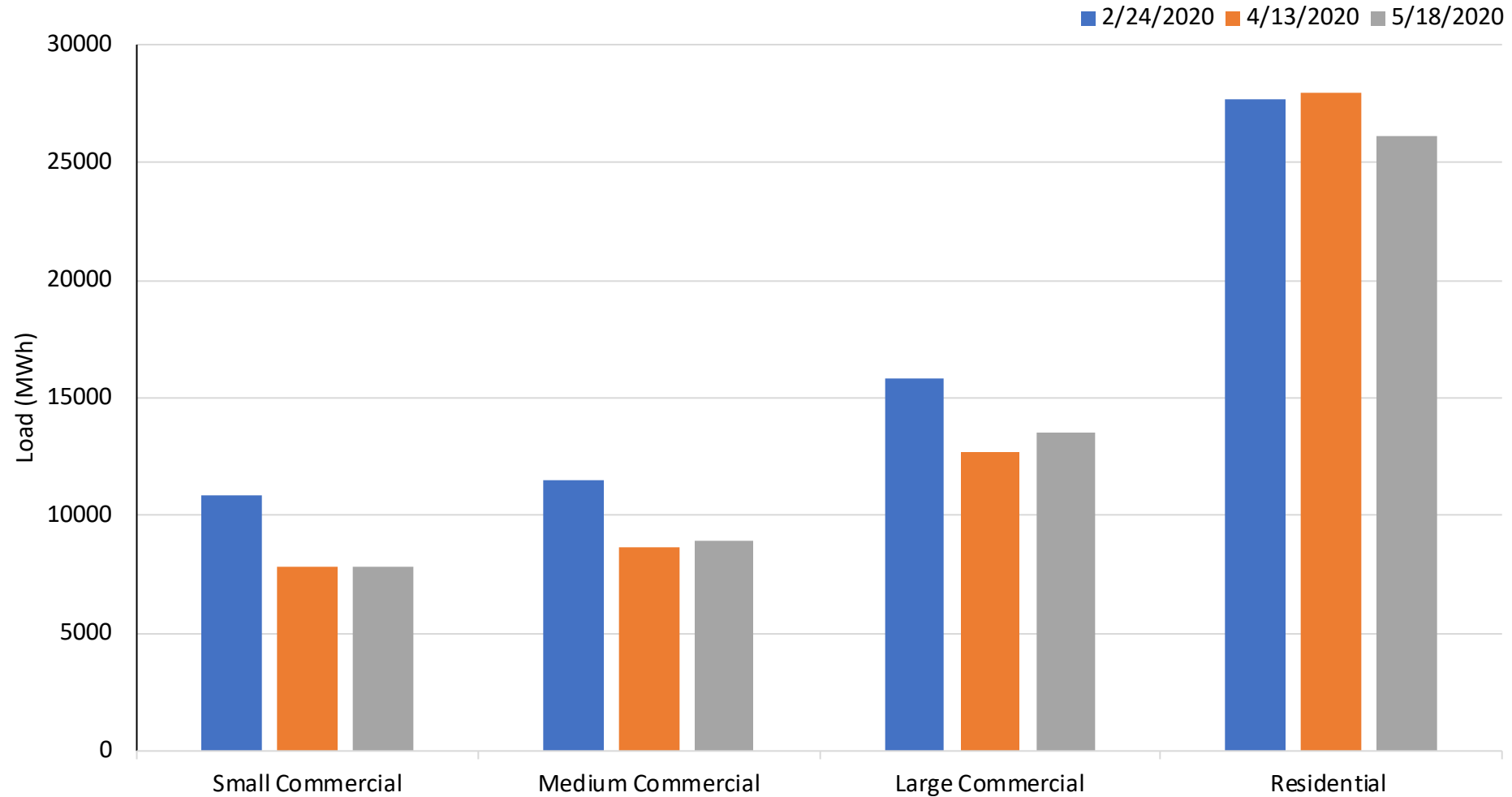


Daily Load

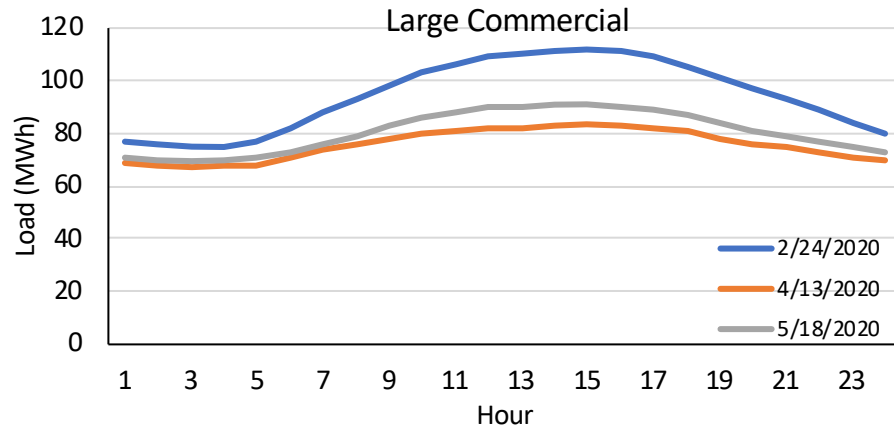
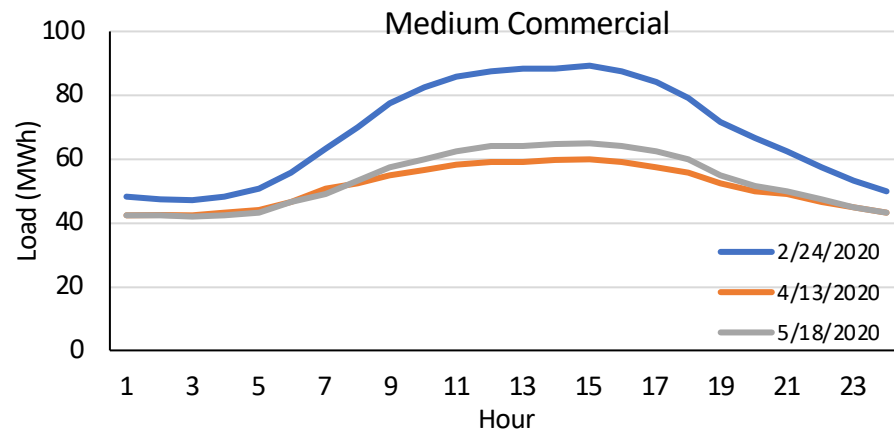
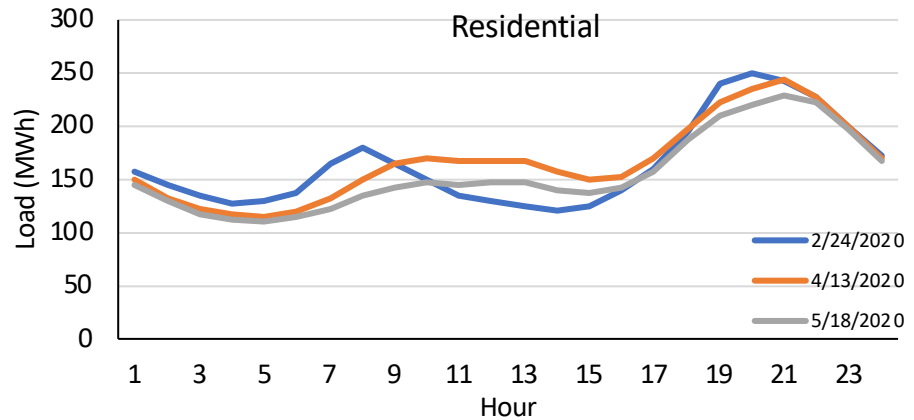
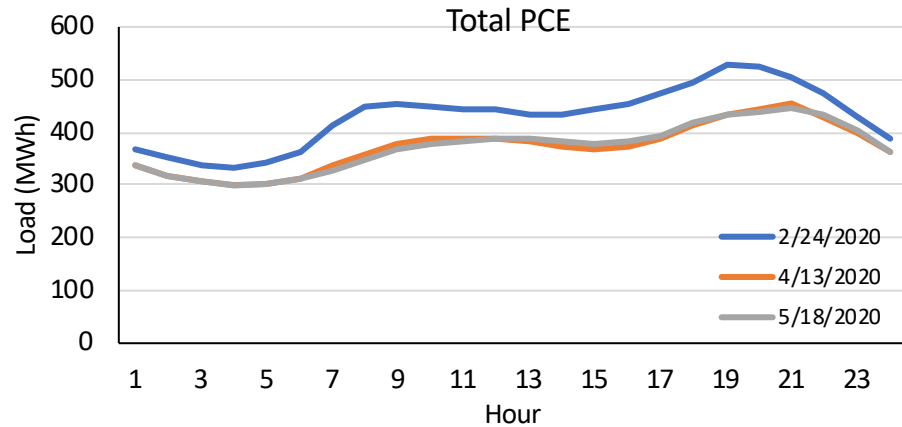
- Decrease in daily load compared to same weekdays in the weeks before shelter-in-place.



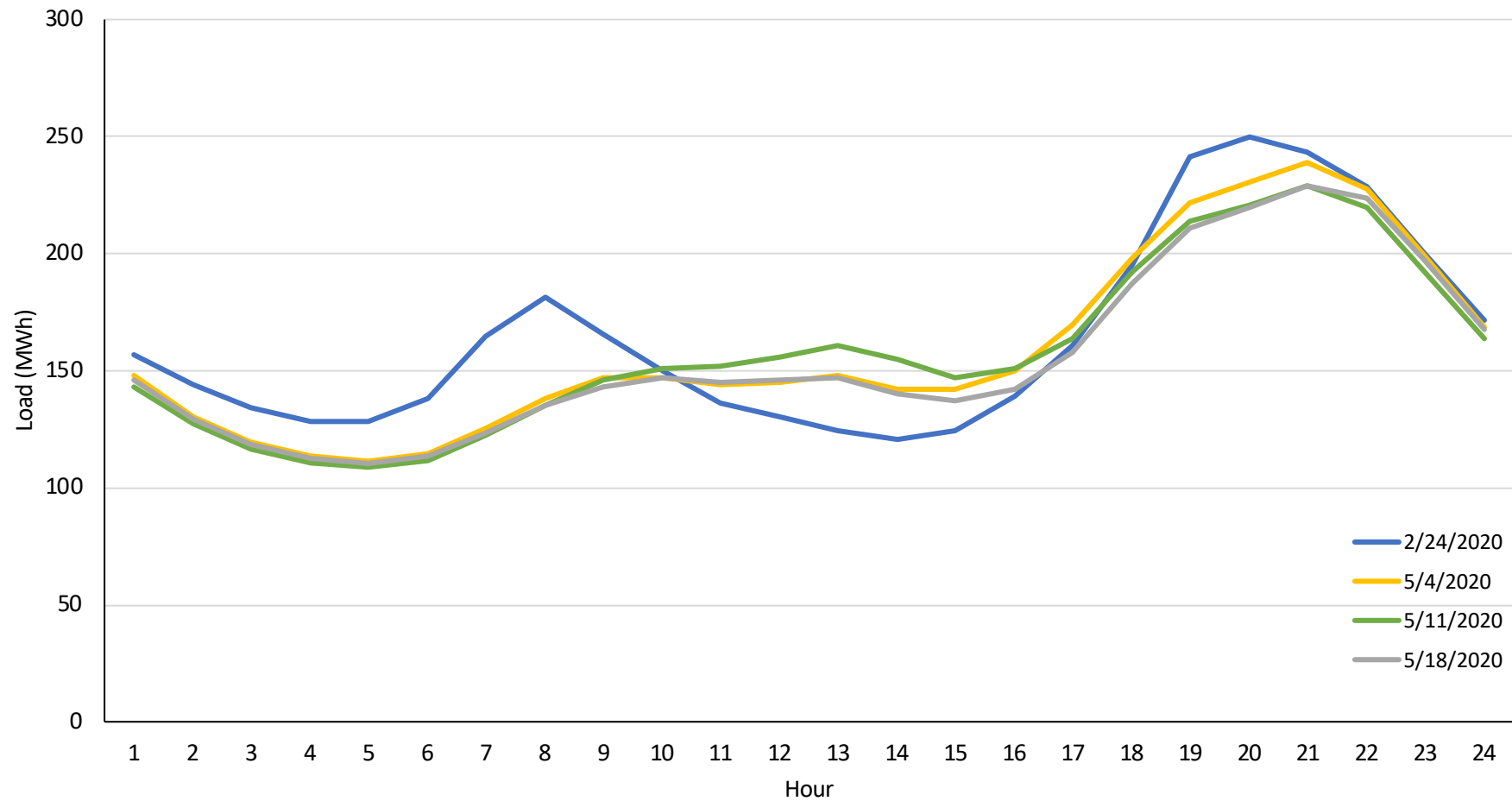
Weekly Load by Customer Type



Load Shapes



Residential Load Shape



Avoided GHG Emissions Calculations

Past method:

- Estimate emissions based on annual usage (MWh) and PCE emissions factor for that year
- Subtract emissions based on annual usage (MWh) and PG&E's emissions factor in that year
- Difference is estimated savings in GHG emissions

Problem:

- PG&E's emissions factor *would be different* if they still had to provide power to customers of CCAs in their territory
- But we don't know what that would be

GHG Emissions Calculations

New method:

- Compare PCE emissions vs. a baseline emissions factor prior to inception of PCEA
- The baseline emissions factor is the PG&E emissions factor for 2016

Note:

- This results in a larger emissions savings estimate than the other method
- It compares to a known baseline energy mix
- Does not compare PCE reductions to PG&E

GHG Emissions Calculations

	2016	2017	2018
Total ECOplus usage (MWh)		3,395,464	3,299,108
Approach: Compared to Baseline Energy Mix Prior to Inception of PCEA			
Emissions Factors (pounds per MWh)			
Peninsula Clean Energy		142.26	129.77
Baseline	294		
GHG Emissions in lbs of CO2e			
Emissions at Baseline Power Mix		998,266,552	969,937,631
Emissions with Peninsula Clean Energy Power Mix		483,038,775	428,125,192
Reduction in Emissions each year		515,227,778	541,812,439
Cumulative Reduction in Emissions vs. Baseline			1,057,040,217
Cumulative GHG Emissions Reductions in metric tons of CO2e			479,465
Approach: Compared to PG&E Emissions Factor in Each Year			
Emissions Factors (pounds per MWh)			
Peninsula Clean Energy		142.26	129.77
PG&E	294	210	206
GHG Emissions in lbs of CO2e			
Emissions with PG&E Energy Power Mix		713,047,537	679,616,163
Emissions with Peninsula Clean Energy Power Mix		483,038,775	428,125,192
Difference in Emissions each year		230,008,763	251,490,971
Cumulative Difference in Emissions each year			481,499,734
Cumulative GHG Emissions Difference in metric tons of CO2e			218,405

Strategic Plan Update

- Board approved Strategic Plan at April Board meeting
- Staff has started implementation process
 - Worked through templates with Gallagher Consulting Group on 4/29
 - Breaking higher-level objectives into specific tactics
 - Developing metrics to measure progress
- Timeline:
 - Staff implementation work through summer
 - Update for board at September retreat
- Brochure under development – high-level
 - Distribute at end of June

PG&E Bankruptcy Update (1)

- PG&E's Plan of Reorganization was mailed to stakeholders.
 - Ballots and objections to confirmation were due on May 15.
- CPUC issued its Proposed Decision on the bankruptcy on April 20.
 - CPUC approved the proposed decision today at their voting meeting, and finds the plan complies with AB 1054.

PG&E Bankruptcy Update (2)

- SB350 was introduced by Senator Jerry Hill – hearing was scheduled for Assembly committee today, but was pulled
- Mayor Liccardo sent letter of “support if amended”
 - Emphasize the primacy of converting PG&E to a Non-Profit Entity
 - Mitigate Rate Impacts on Customers by Minimizing the Cost of Capital
 - Focus PG&E on Safety and Reliability of the Grid
 - Designate CCAs as the primary procurement entity where qualified CCAs can fulfill that role

Merced Update

- PCE presentation to Los Banos City Council on June 3
 - Key objective – agree to submit request to PG&E for load data in order to conduct a technical study
- Additional Merced County jurisdictions have been invited to listen in to the meeting
- Other jurisdictions invited to participate in the technical study – due date of June 23

Upcoming Meetings

These meetings will continue to be held by video/teleconference

- Executive Committee:
 - June 8 at 8:00 a.m.
- Audit and Finance Committee:
 - June 8 at 10:00 a.m.
- Citizens Advisory Committee:
 - June 11 at 6:30 p.m.
- Board of Directors:
 - June 25 at 6:30 p.m.



Regular Agenda

3. Citizens Advisory Committee Report (Discussion)

Regular Agenda

4. Audit and Finance Committee Report (Discussion)

Regular Agenda

5. Appointments to the Executive Committee and other Standing Committees (Action)

Nominations for Committee Appointments

Executive Committee:

Jeff Aalfs

Rick DeGolia

Dave Pine

Carole Groom

Rick Bonilla

Cat Carlton

Donna Colson

Catherine Mahanpour

Julia Mates

(Wayne Lee is stepping down)

Audit and Finance Committee:

Donna Colson

Carole Groom

Laurence May

Carlos Romero

Jeff Aalfs

(no changes)

Regular Agenda

6. Appointments to the Citizens Advisory Committee (Action)

Nominations for CAC Appointments

The subcommittee on Citizens Advisory Committee Recruitment recommends the PCE Board of Directors:

- Reappoint two members whose 3-year terms expired:
 - Michael Closson from Menlo Park
 - Desiree Thayer from Burlingame
- Appoint three new appointees:
 - Kathryn Green from San Mateo
 - Terri Givens from Unincorporated San Mateo County
 - Tim Bussiek from Belmont

Qualifications are in Attachment 1 of the Resolution.

Regular Agenda

7. Review Draft Fiscal Year 202—2021 Budget (Discussion)



Fiscal Year FY2020-2021 Budget Review *Initial Draft*

Schedule – Budget Review and Approval

May 11, 2020 – Review Draft with Executive Committee - **Done**

May 11, 2020 – Review Draft with Audit & Finance Committee - **Done**

May 28, 2020 – Review Draft with Board of Directors - **Today**

June 8, 2020 – Review Final with Audit & Finance Committee

June 25, 2020 – Approve Final by Board of Directors

Draft Budget FY2020-2021 - Key Assumptions

- Rates – PG&E Generation Rates Increase of 2% on January 1, 2021
- PCIA
 - PCIA Cap of \$0.005 on January 1, 2021
 - PCIA Trigger of 58% increase on October 1, 2020 (3 months)
- Energy Prices
 - Based on latest ABB forecast (in November) – does not include effects of COVID-19
- PPA Contracts
 - Mustang (Solar) project expected to start December 1, 2020 for 15 years
 - New Wind project starting August 1, 2020 for 7 years
- Programs
 - DER/Resiliency Program ramps up at total cost of \$2 million
 - Significant expansion of Community Energy Programs
 - Approved Electric Vehicle Programs/Infrastructure - \$5 million
 - Proposed Building Electrification Program - \$950K

Draft Budget FY2020-2021 – Without COVID-19 Impact

	FY2019-2020	FY2019-2020	FY2020-2021	Variance FY2021 Budget vs. FY2020 Forecast Increase/(Decrease)	
Pre-COVID-19	Approved Budget	Forecast (FY)	Preliminary Budget	\$ Change	% Change
OPERATING REVENUES					
Electricity Sales, net	265,221,745	283,383,570	245,886,610	(37,496,960)	-13%
Green electricity premium	2,560,486	2,547,489	2,471,362	(76,126)	-3%
	267,782,231	285,931,059	248,357,973	(37,573,086)	-13%
OPERATING EXPENSES					
Cost of energy	216,549,065	209,263,330	221,136,254	11,872,924	6%
Staff compensation	4,589,149	4,429,501	6,236,981	1,807,480	41%
Data Manager	3,822,123	3,694,891	3,420,000	(274,891)	-7%
Service Fees - PG&E	1,256,056	1,253,737	1,260,000	6,263	0%
Consultants & Professional Services	896,333	792,122	2,843,340	2,051,218	259%
Legal	1,471,500	1,255,456	1,708,230	452,774	36%
Communications and Noticing	1,754,800	1,288,158	2,873,350	1,585,192	123%
General and Administrative	1,277,187	1,346,180	1,707,282	361,102	27%
Community Energy Programs	5,094,473	1,924,134	8,015,000	6,090,866	317%
Depreciation	98,400	97,039	133,728	36,689	38%
Total Operating Expenses	236,809,086	225,344,548	249,334,165	23,989,617	11%
Operating Income (Loss)	30,973,145	60,586,511	(976,193)	(61,562,704)	-102%
NON-OPERATING REVENUES (EXP.)					
Total Nonoperating Income/(Expense)	2,232,000	1,913,038	1,408,000	(505,038)	-26%
CHANGE IN NET POSITION	33,205,145	62,499,549	431,807	(62,067,741)	-99%
Net Position at the end of period	167,991,587	202,638,677	203,070,484	431,807	0%

Revenue decrease expected = \$37.6 million



Budget Impact of COVID-19

Change in Load, 2019 compared to 2020

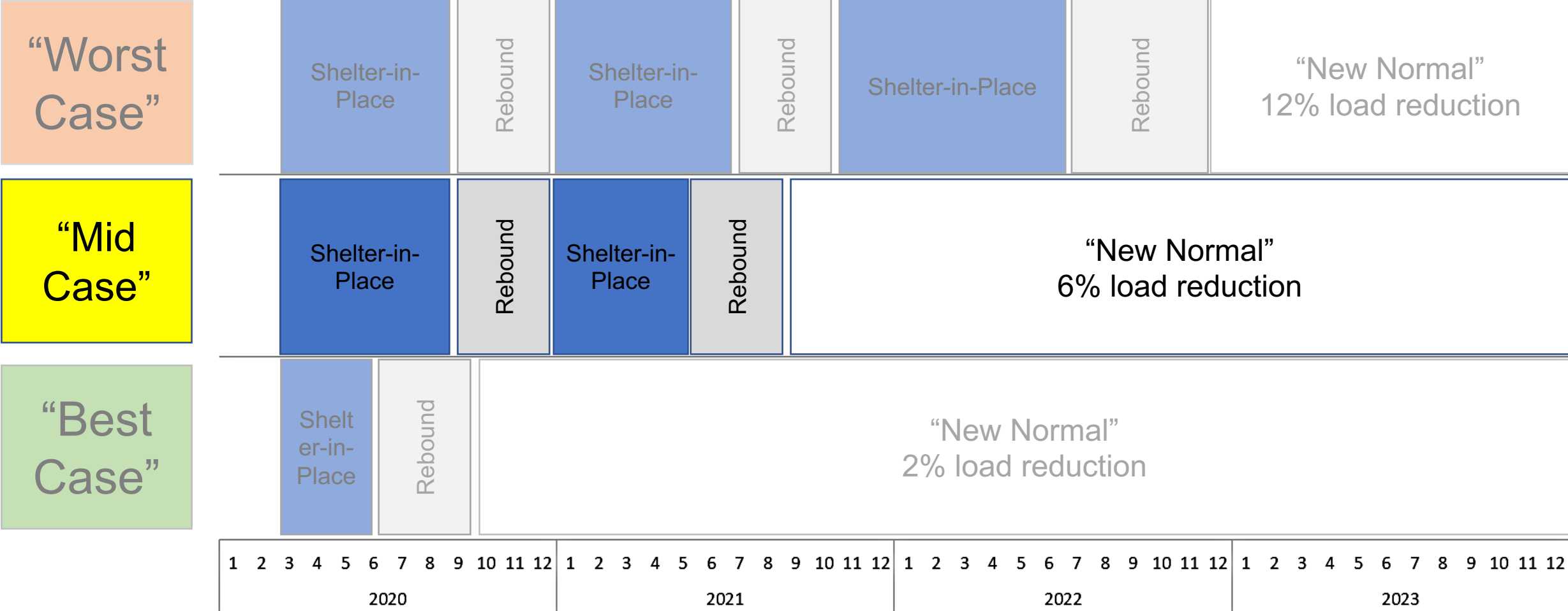
T+8 Data for 2019, AMI data for 2020							
Customer Class	2019			2020			Percent Change
	March	April (1st-20th)	Total	March	April (1st-20th)	Total	
Agricultural	2,364	1,519	3,883	2,711	1,808	4,519	16%
Industrial	25,042	16,324	41,367	21,862	12,391	34,252	-17%
Large Commercial	65,409	42,932	108,341	58,442	33,560	92,002	-15%
Medium Commercial	44,078	28,916	72,994	41,329	22,863	64,193	-12%
Small Commercial	39,605	24,734	64,339	39,084	21,571	60,656	-6%
Street Lights-Other	1,535	980	2,514	958	594	1,552	-38%
Residential	121,606	69,071	190,677	126,762	80,614	207,376	9%
Total PCE	299,639	184,476	484,115	291,149	173,401	464,550	-4%

April 2020 vs. April 2019 (20 days)

- 6% decrease in total PCE load
- 20% decrease in combined commercial and industrial load
- 17% increase in residential load

COVID-19 Scenario Timelines

- “Mid Case” Scenario used for 1st Draft FY 2020-21 Budget



Post COVID-19 Load Impact – 1st Draft Assumptions

Presented a 1st Draft Budget to Audit & Finance Committee on May 11, 2020

- Included sharp recovery, 2nd Shelter-in-place Order, and 2nd sharp recovery
- Residential – 39% of Total PCE Load
 - 12% increase through June 2021, then 3% increase for 1 year
 - 1% increase for next 3 years after
- Small/Medium Business – 29% of Total PCE Load
 - **22% decrease through June 2021, then 15% decrease for 1 year**
 - **14% decrease for next 3 years after**
- Large Commercial/Industrial – 31% of Total PCE Load
 - 20% decrease through June 201, then 10% decrease for 1 year
 - 9% decrease for next 3 years after
- Total PCE Load
 - 9% decrease through June 2021, then 6% decrease for next 4 years after
- Demand Load Assumptions
 - FY20-21 – down 15%
 - FY21-22 – down 10%
 - FY22-23 – down 5%

1st Draft Budget FY2020-2021 – (With 1st Draft COVID Assumptions)

Items	FY2019-2020	FY2019-2020	FY2020-2021	FY2020-2021	Variance FY2021 1st Draft Budget vs. FY2021 Pre-COVID Budget Increase/(Decrease)	
	Approved Budget	Forecast (FY)	Preliminary Budget (without COVID-19 Assumptions)	1st Draft Budget	\$ Change	% Change
OPERATING REVENUES						
Electricity Sales, net	265,221,745	276,972,495	245,886,610	222,756,970	(23,129,640)	-9%
Green electricity premium	2,560,486	2,498,440	2,471,362	2,265,017	(206,345)	-8%
Operating Revenues	267,782,231	279,470,935	248,357,973	225,021,987	(23,335,985)	-9%
OPERATING EXPENSES						
Cost of energy	216,549,065	206,450,797	221,136,254	204,896,561	(16,239,693)	-7%
Staff compensation	4,589,149	4,429,501	6,236,981	6,236,981	-	0%
Data Manager	3,822,123	3,694,891	3,420,000	3,420,000	-	0%
Service Fees - PG&E	1,256,056	1,253,737	1,260,000	1,260,000	-	0%
Consultants & Professional Services	896,333	792,122	2,843,340	2,843,340	-	0%
Legal	1,471,500	1,255,456	1,708,230	1,708,230	-	0%
Communications and Noticing	1,754,800	1,288,158	2,873,350	2,873,350	-	0%
General and Administrative	1,277,187	1,346,180	1,707,282	1,707,282	-	0%
Community Energy Programs	5,094,473	1,924,134	8,015,000	8,015,000	-	0%
Depreciation	98,400	97,039	133,728	133,728	-	0%
Total Operating Expenses	236,809,086	222,532,015	249,334,165	233,094,472	(16,239,693)	-7%
Operating Income (Loss)	30,973,145	56,938,920	(976,193)	(8,072,485)	(7,096,292)	727%
NON-OPERATING REVENUES (EXP.)						
Total Nonoperating Income/(Expense)	2,232,000	1,913,038	1,408,000	1,408,000	-	0%
CHANGE IN NET POSITION	33,205,145	58,851,958	431,807	(6,664,485)	(7,096,292)	-1643%
Net Position at the end of period	167,991,587	198,991,086	203,070,484	192,326,601	(10,743,883)	-5%

Impact of COVID-19 on Change in Net Position:

Down \$3.6 million in Current FY

Down \$7.1 million in Next FY

Post COVID-19 Load Impact – New Budget Assumptions

Consensus from Audit & Finance Committee on May 11, 2020 was that assumptions should be adjusted to be less optimistic.

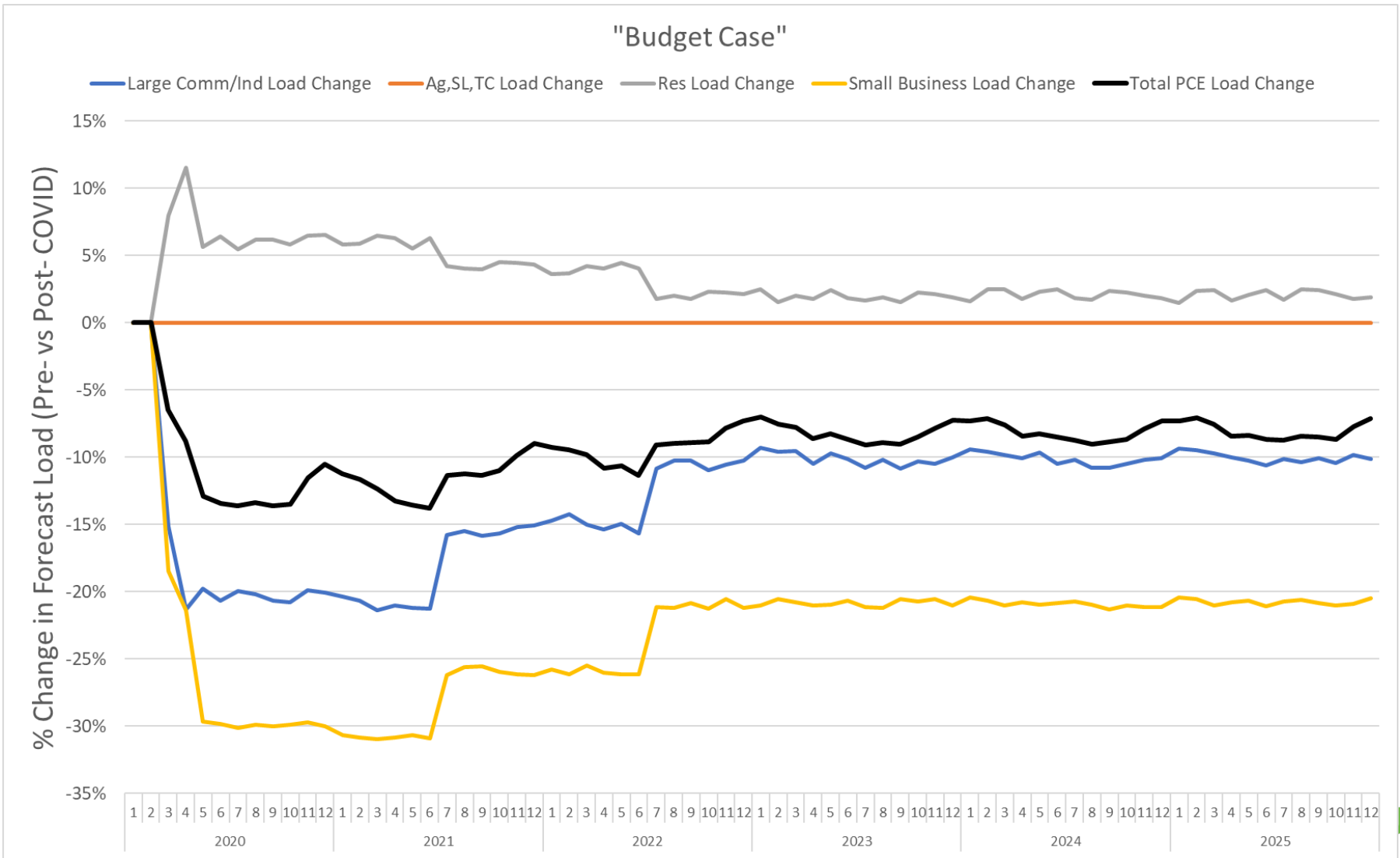
Revised assumptions:

- No sharp recovery periods
- Residential
 - 6% increase through June 2021, then 4% increase for 1 year
 - 2% increase for next 3 years after
- **Small/Medium Business (biggest change)**
 - **30% decrease through June 2021, then 25% decrease for 1 year**
 - **20% decrease for next 3 years after**
- Large Commercial/Industrial
 - 20% decrease through June 201, then 15% decrease for 1 year
 - 10% decrease for next 3 years after
- Total PCE Load
 - 13% decrease through June 2021, then 10% decrease for 1 year
 - 8% decrease for next 3 years after

Impact of Revised COVID-19 Assumptions on Total Load

		FY2020-2021	FY2021-2022	FY2022-2023	FY2023-2024	FY2024-2025
Pre-COVID Forecast		3,817	3,836	3,880	3,934	3,969
Revised Budget (GWh)		3,334	3,437	3,561	3,614	3,646
Change from Pre-COVID Forecast		-13%	-10%	-8%	-8%	-8%

Impact of Revised COVID-19 Assumptions on Load by Customer Category



Summary Revised Budget FY2020-2021 – (Per A&F Committee Input)

Revised Budget	FY2019-2020	FY2019-2020	FY2020-2021	Variance FY2021 Budget vs. FY2020 Forecast Increase/(Decrease)	
	Approved Budget	Forecast	Proposed Budget	\$ Change	% Change
OPERATING REVENUES	267,782,231	277,545,661	215,764,292	(61,781,369)	-22%
OPERATING EXPENSES					
Cost of energy	216,549,065	204,990,853	197,427,131	(7,563,722)	-4%
Staff compensation	4,589,149	4,429,501	6,236,981	1,807,480	41%
Consultants & Professional Services	896,333	792,122	2,843,340	2,051,218	259%
Marketing and Noticing	1,754,800	1,288,158	2,873,350	1,585,192	123%
Community Energy Programs	5,094,473	1,924,134	8,015,000	6,090,866	317%
Other Operating Expenses	7,925,266	7,647,303	8,229,240	581,937	8%
OPERATING EXPENSES	236,809,086	221,072,071	225,625,042	4,552,971	2%
Total Nonoperating Income/(Expense)	2,232,000	1,913,038	1,408,000	(505,038)	-26%
CHANGE IN NET POSITION	33,205,145	58,386,628	(8,452,750)	(66,839,378)	-114%
Net Position at the end of period	167,991,587	198,525,756	190,073,006	(8,452,750)	-4%

Impact of COVID-19 Assumptions on Net Position:

- 1st Draft Budget – Down \$3.6 million in Current FY19-20 FY
- 1st Draft Budget – Down \$7.1 million in Next FY20-21 FY
- Revised Budget - Down additional \$0.5 million in Current FY19-20 FY (Total of \$4.1 million)
- Revised Budget – Down additional \$1.8 million in Next FY20-21 FY (Total of \$8.9 million)

Revised Budget Draft Detail - Revenues

Revised Budget	FY2019-2020	FY2019-2020	FY2020-2021	Variance FY2021 Budget vs. FY2020 Forecast Increase/(Decrease)	
	Approved Budget	Forecast	Proposed Budget	\$ Change	% Change
OPERATING REVENUES					
Electricity Sales, net	265,221,745	275,064,547	213,603,336	(61,461,211)	-22%
Green electricity premium	2,560,486	2,481,114	2,160,956	(320,157)	-13%
	267,782,231	277,545,661	215,764,292	(61,781,369)	-22%

Significant changes in Revenue from FY2019-20 Forecast to FY2020-21 Budget:

- Reduction of \$5 million – PCIA Cap of \$0.005 implemented on May 1, 2020
- Reduction of \$16 million – PCIA Trigger (58%) on October 1, 2020 (3 months)
- Reduction of \$8 million - PCIA Cap of \$0.005 implemented on January 1, 2021
- Reduction of \$33 million – Impact from COVID-19 Load reduction assumptions (partially offset by lower energy costs)

Revised Budget Cost Detail – Cost of Energy

Revised Budget	FY2019-2020	FY2019-2020	FY2020-2021	Variance FY2021 Budget vs. FY2020 Forecast	
	Approved Budget	Forecast	Proposed Budget	Increase/(Decrease)	
OPERATING EXPENSES				\$ Change	% Change
Cost of energy	216,549,065	204,990,853	197,427,131	(7,563,722)	-4%
Net Energy Purchases	166,929,241	151,776,443	146,775,606	(5,000,838)	-3%
Resource Adequacy (Net of Resales)	21,045,015	27,934,725	31,474,662	3,539,937	13%
Forecasting and scheduling	1,313,079	1,343,006	1,477,502	134,497	10%
NEM Expense	474,380	843,659	1,000,000	156,341	19%

Net Energy Purchases - Lower

- Lower volume expected
- PPAs are producing in FY20-21 (Wright Solar for full year, Mustang for 7 months)
- REC and GHG expenses lower
 - Lower volume required
 - Production from PPAs decreases need to purchase separately

Resource Adequacy - Higher

- Higher prices expected
- Increased Volume – Requirements are based on prior year (Pre-COVID) forecast

Draft Budget FY2022-2025 - Key Assumptions

Rates – Increase of 1% on Jan 1 of each year starting on January 1, 2022

PCIA

- PCIA Cap of \$0.005 on January 1, 2022
- PCIA Trigger - no additional Trigger


PPA Contracts

- 1st Solar+Storage project starting January 1, 2023 for 20 years
- 2nd Solar+Storage project starting January 1, 2023 for 20 years
- New Solar+Storage project starting January 1, 2024 for 20 years
- Community Solar projects starting September 1, 2021

Programs Contracts

- DER/Resiliency Program ramps continues
- Significant expansion EV infrastructure- \$5 million/year in FY22 and FY23
- Allocated funds for Innovation - \$1 million/year in FY23, FY24 and FY25

Draft FY2020-2021 Budget & 5-year Plan

	 FY2020-2021	FY2021-2022	FY2022-2023	FY2023-2024	FY2024-2025
Revised Budget	Proposed Budget	Proposed Plan	Proposed Plan	Proposed Plan	Proposed Plan
OPERATING REVENUES					
Electricity Sales, net	213,603,336	226,324,486	230,173,006	238,327,485	244,396,642
Green electricity premium	2,160,956	2,346,287	2,562,620	2,761,752	2,998,512
OPERATING REVENUES	215,764,292	228,670,773	232,735,626	241,089,237	247,395,154
OPERATING EXPENSES					
Cost of energy	197,427,131	202,237,781	206,782,611	203,341,622	214,720,629
Staff compensation	6,236,981	6,786,954	7,119,219	7,468,097	7,834,419
Data Manager	3,420,000	3,454,200	3,488,742	3,523,629	3,558,866
Service Fees - PG&E	1,260,000	1,272,600	1,285,326	1,298,179	1,311,161
Consultants & Professional Services	2,843,340	3,825,940	1,658,135	1,201,572	1,182,480
Legal	1,708,230	1,706,160	1,753,260	1,797,619	1,854,449
Communications and Noticing	2,873,350	2,966,418	2,227,878	2,335,362	2,447,910
General and Administrative	1,707,282	1,771,452	1,838,462	1,908,448	1,981,552
Community Energy Programs	8,015,000	11,085,000	12,860,000	12,940,000	12,990,000
Depreciation	133,728	169,728	205,728	241,728	277,728
OPERATING EXPENSES	225,625,042	235,276,232	239,219,361	236,056,257	248,159,195
Operating Income (Loss)	(9,860,750)	(6,605,459)	(6,483,735)	5,032,980	(764,040)
NON-OPERATING REVENUES (EXP.)					
Total Nonoperating Income/(Expense)	1,408,000	1,528,000	1,648,000	1,768,000	1,888,000
CHANGE IN NET POSITION	(8,452,750)	(5,077,459)	(4,835,735)	6,800,980	1,123,960
Net Position at the end of period	190,073,006	184,995,548	180,159,813	186,960,792	188,084,752
Unrestricted Cash Days on Hand	259	240	229	242	232

Draft 5-year Plan – COVID-19 Impact

	FY2019-2020	FY2020-2021	FY2021-2022	FY2022-2023	FY2023-2024	FY2024-2025
Pre-COVID-19	Forecast	Preliminary Budget	Preliminary Plan	Preliminary Plan	Preliminary Plan	Preliminary Plan
OPERATING REVENUES	285,931,059	248,357,973	256,081,446	253,811,943	261,458,771	268,336,846
OPERATING EXPENSES	225,344,548	249,334,165	258,368,077	257,028,163	252,152,471	266,715,732
CHANGE IN NET POSITION	62,499,549	431,807	(278,631)	(1,208,219)	11,314,300	3,629,115
* Note: CINP also includes interest income						
Revised Budget	Forecast	Proposed Budget	Proposed Plan	Proposed Plan	Proposed Plan	Proposed Plan
OPERATING REVENUES	277,545,661	215,764,292	228,670,773	232,735,626	241,089,237	247,395,154
OPERATING EXPENSES	221,072,071	225,625,042	235,276,232	239,219,361	236,056,257	248,159,195
CHANGE IN NET POSITION	58,386,628	(8,452,750)	(5,077,459)	(4,835,735)	6,800,980	1,123,960
Net Position at the end of period	198,525,756	190,073,006	184,995,548	180,159,813	186,960,792	188,084,752
Unrestricted Cash Days on Hand	278	259	240	229	242	232
Net Position Impact of COVID-19	(4,112,921)	(8,884,557)	(4,798,828)	(3,627,516)	(4,513,320)	(2,505,155)
Cumulative (includes FY20 impact)	(4,112,921)	(12,997,478)	(17,796,306)	(21,423,822)	(25,937,142)	(28,442,296)

Impact from COVID-19

- \$8.9 million in FY21

- \$28 million over next 5-year period

Lower revenues offset mostly by lower costs

Draft 5-year Plan – Observations

1. COVID-19 likely to have significant impact on revenues

- Revenue decrease of \$32.6 million expected in FY20-21
- Revenue decrease of an average of \$22.5 million expected for each of next 4 years

2. Expect to be able to mitigate revenue loss with significant energy cost reductions


- Cost of Energy expected to be \$23.7 million lower than Pre-COVID in FY20-21
- Cost of Energy expected to be on average \$18.9 million less for next 4 years

3. Avg of \$5 MM/year impact to Net Position – Declining from \$8.9 MM impact in FY20-21

4. Significant Cash Reserves enables ability to weather downturn for some time and:

- Maintain Cash Reserves well above required level
- Continue to invest in community grants and energy programs

Revised Budget Cost Detail – Staff Compensation

Revised Budget	FY2019-2020 Approved Budget	FY2019-2020 Forecast	 FY2020-2021 Proposed Budget	Variance FY2021 Budget vs. FY2020 Forecast Increase/(Decrease)	
				\$ Change	% Change
OPERATING EXPENSES					
Staff compensation	4,589,149	4,429,501	6,236,981	1,807,480	41%
Employee welfare	223,550	318,547	442,592	124,045	39%
Payroll tax expense	260,809	219,429	306,797	87,368	40%
Retirement plan contributions	353,954	323,954	455,633	131,679	41%
Salaries and wages	3,725,836	3,542,914	5,006,958	1,464,044	41%
Workers comp insurance	25,000	24,657	25,000	343	1%
Temp Employee	-	-	22,500	22,500	0%

Significant assumptions of note:

- Addition of 8 employees from today's level through June 2021 (2 current open positions)
- Increase over FY19-20 forecast looks bigger because 10 current employees were hired during the year – only a portion of their full-year salaries is reflected in current year's forecast

Revised Budget Cost Detail – Data Manager/Service Fees

Revised Budget	FY2019-2020	FY2019-2020	FY2020-2021	Variance FY2021 Budget vs. FY2020 Forecast Increase/(Decrease)	
	Approved Budget	Forecast	Proposed Budget	\$ Change	% Change
OPERATING EXPENSES					
Data Manager	3,822,123	3,694,891	3,420,000	(274,891)	-7%
Service Fees - PG&E	1,256,056	1,253,737	1,260,000	6,263	0%

Significant assumptions of note:

- Data Manager expenses expected to be lower due to revised/lower contract with Calpine

Revised Budget Cost Detail – Professional Services

Revised Budget	FY2019-2020	FY2019-2020	FY2020-2021	Variance FY2021 Budget vs. FY2020 Forecast Increase/(Decrease)	
	Approved Budget	Forecast	Proposed Budget	\$ Change	% Change
OPERATING EXPENSES					
Consultants & Professional Services	896,333	792,122	2,843,340	2,051,218	259%
Accounting & Auditing	165,000	175,753	191,000	15,247	9%
Human Resources Consulting	68,000	24,465	72,000	47,535	194%
IT Consulting	48,000	59,461	60,000	539	1%
Other Consultants	290,000	233,099	302,000	68,901	30%
Power Resources Consulting	325,333	299,343	2,218,340	1,918,997	641%

Significant assumptions of note:

- \$1.5 million for Approved DER and Resiliency projects – included in Power Resources Consulting for now

Revised Budget Cost Detail – Legal



Revised Budget	FY2019-2020 Approved Budget	FY2019-2020 Forecast	FY2020-2021 Proposed Budget	Variance FY2021 Budget vs. FY2020 Forecast Increase/(Decrease)	
OPERATING EXPENSES				\$ Change	% Change
Legal	1,471,500	1,255,456	1,708,230	452,774	36%
Legislative	210,000	128,323	126,750	(1,573)	-1%
Legal Power Resources	540,000	472,199	720,000	247,801	52%
Legal Agency	240,000	199,122	240,000	40,878	21%
Legal Regulatory	481,500	455,812	621,480	165,668	36%

Significant assumptions of note:

- Increased legal effort expected in support of several new PPAs to be signed in FY2020-2021
- Increased Regulatory support expected

Revised Budget Cost Detail – Communications/Marketing

Revised Budget	FY2019-2020	FY2019-2020	FY2020-2021	Variance FY2021 Budget vs. FY2020 Forecast Increase/(Decrease)	
	Approved Budget	Forecast	Proposed Budget	\$ Change	% Change
OPERATING EXPENSES					
Communications and Noticing	1,754,800	1,288,158	2,873,350	1,585,192	123%
Advertising/Paid Media	73,000	73,520	503,850	430,330	585%
Communications consultants	420,000	281,376	375,300	93,924	33%
Sponsorships and memberships	100,000	94,610	129,000	34,390	36%
Marketing Automation/Software	14,800	4,335	77,500	73,165	1688%
Promotions & Branding	747,000	82,809	83,200	391	0%
Communications - misc expenses	50,000	42,562	12,000	(30,562)	-72%
Grants & Partner Contracts	8,000	272,086	1,297,500	1,025,414	377%
Direct Mail	-	-	87,000	87,000	0%
Collateral	-	-	72,000	72,000	0%
Required Mailings	342,000	436,860	236,000	(200,860)	-46%

Significant assumptions of note:

- Required Mailings expenses expected to decrease related to new electronic distribution of Joint Rate Mailer
- Additional funds were added for Board-approved program related to Resiliency
 - \$845K for Medically-vulnerable; grant funding to community-based organizations
 - \$220K for digital advertising for DER Resiliency
- \$208K for Building Electrification awareness previously approved by Board

Revised Budget Cost Detail – General & Administrative



Revised Budget	FY2019-2020	FY2019-2020	FY2020-2021	Variance FY2021 Budget vs. FY2020 Forecast	
	Approved Budget	Forecast	Proposed Budget	Increase/(Decrease)	
OPERATING EXPENSES				\$ Change	% Change
General and Administrative	1,277,187	1,346,180	1,707,282	361,102	27%
Bank service fee	60,000	100,581	129,312	28,731	29%
Building Maintenance	3,000	8,121	15,000	6,879	85%
Business meals	12,000	19,477	30,000	10,523	54%
Conferences & prof development	42,000	29,135	24,000	(5,135)	-18%
Equipment lease	3,600	2,932	6,000	3,068	105%
Industry memberships and dues	425,000	363,548	480,000	116,452	32%
Insurance	84,000	80,214	120,000	39,786	50%
Miscellaneous G&A	12,000	3,000	-	(3,000)	-100%
Office supplies and postage	18,000	18,704	24,000	5,296	28%
Payroll service fees	18,000	19,716	21,000	1,284	7%
Rent	381,787	429,076	531,570	102,494	24%
Small equipment & software	72,000	114,403	150,000	35,597	31%
Subscriptions	60,000	72,261	72,000	(261)	0%
Utilities	48,000	48,490	60,000	11,510	24%
Travel - Mileage/fuel	4,200	3,411	3,600	189	6%
Travel - Parking and Tolls	3,600	4,874	7,200	2,326	48%
Travel - Airfare	12,000	8,705	9,600	895	10%
Travel - Lodging	12,000	18,031	24,000	5,969	33%
Travel - Other Travel	6,000	1,500	-	(1,500)	-100%

Significant assumptions of note:

- Rent – higher due to expansion of space into additional office

Revised Budget Cost Detail – Community Energy Programs



Revised Budget	FY2019-2020 Approved Budget	FY2019-2020 Forecast	FY2020-2021 Proposed Budget	Variance FY2021 Budget vs. FY2020 Forecast Increase/(Decrease)	
OPERATING EXPENSES				\$ Change	% Change
Community Energy Programs	5,094,473	1,924,134	8,015,000	6,090,866	317%
Energy Program Consulting	1,569,447	1,007,342	2,560,500	1,553,158	154%
Programs - G&A	-	97,196	240,000	142,805	147%
Programs - Marketing	-	2,500	250,000	247,500	9900%
Programs - Incentives	3,525,026	817,096	4,964,500	4,147,404	508%

Significant assumptions of note:

- Approved Electric Vehicle Programs/Infrastructure
 - Consulting - \$1.1 million
 - Incentives - \$3.9 million
- Building Electrification Program- \$950K
- Community Pilots/Grants - \$350K
- Approved Ride & Drives - \$250K

Regular Agenda

8. Approve PG&E GHG-free Allocation (Action)



PG&E Allocation of GHG Free

Board of Directors

May 28, 2020

(Updated from May 11, 2020 presentation to Executive Committee)

Agenda

- Background
- Schedule
- COVID-19 Impacts on Load Forecast
- GHG-Free Targets and Status
- Cost Impact
- Market Research
- Other CCAs Response
- Recommendation

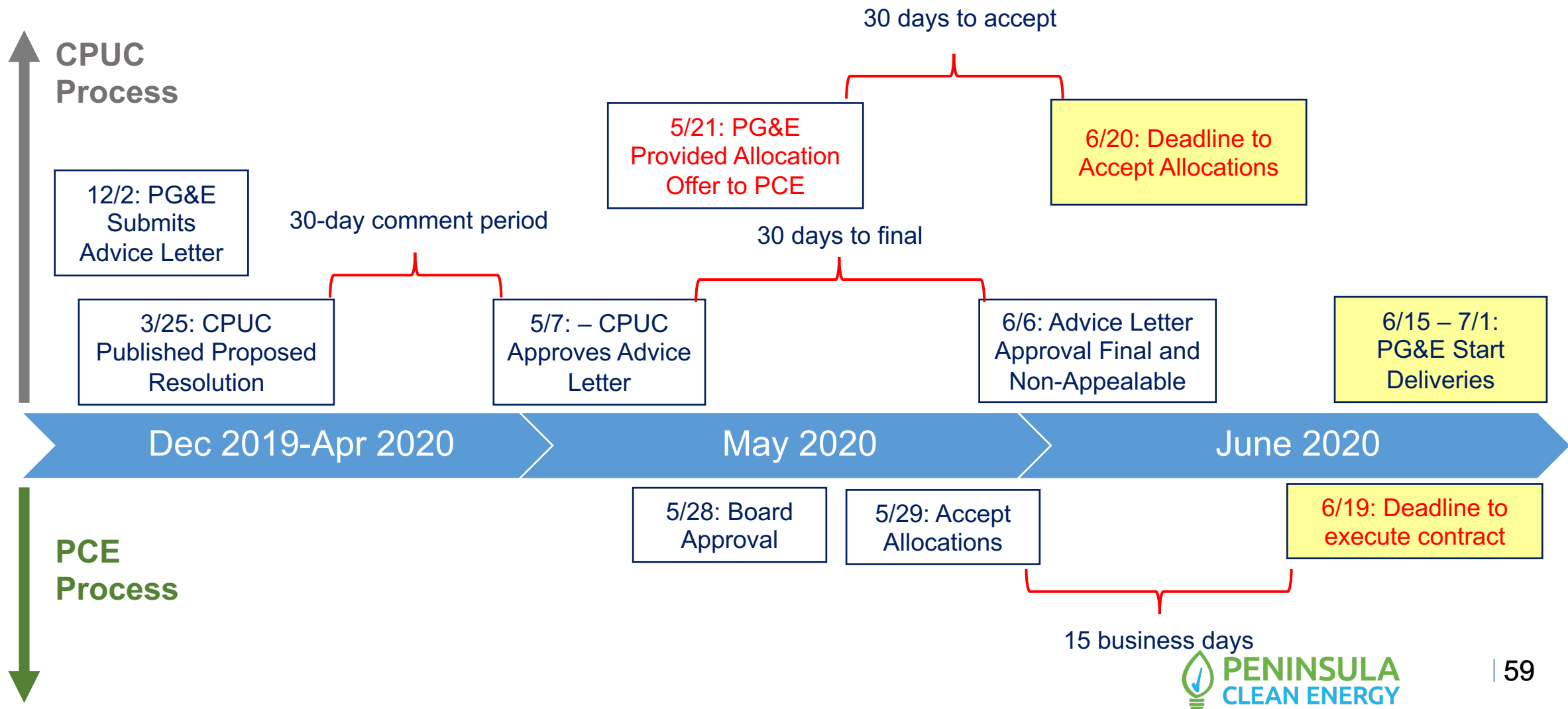
Background

- PG&E owns or contracts for GHG free energy including large hydro and nuclear resources
- In 2018, 13% of PG&E's supply was from large hydro and 34% from nuclear
- PG&E is counting these resources to meet or exceed their IRP GHG-free targets
- CCA customers pay for these resources through the PCIA
- CCAs are not currently able to claim and count the benefit of these resources for their customers on Power Content Labels or in connection with other GHG reporting
- Over the longer term, this will be addressed through the PCIA proceeding – expected in 2021

Interim Approach

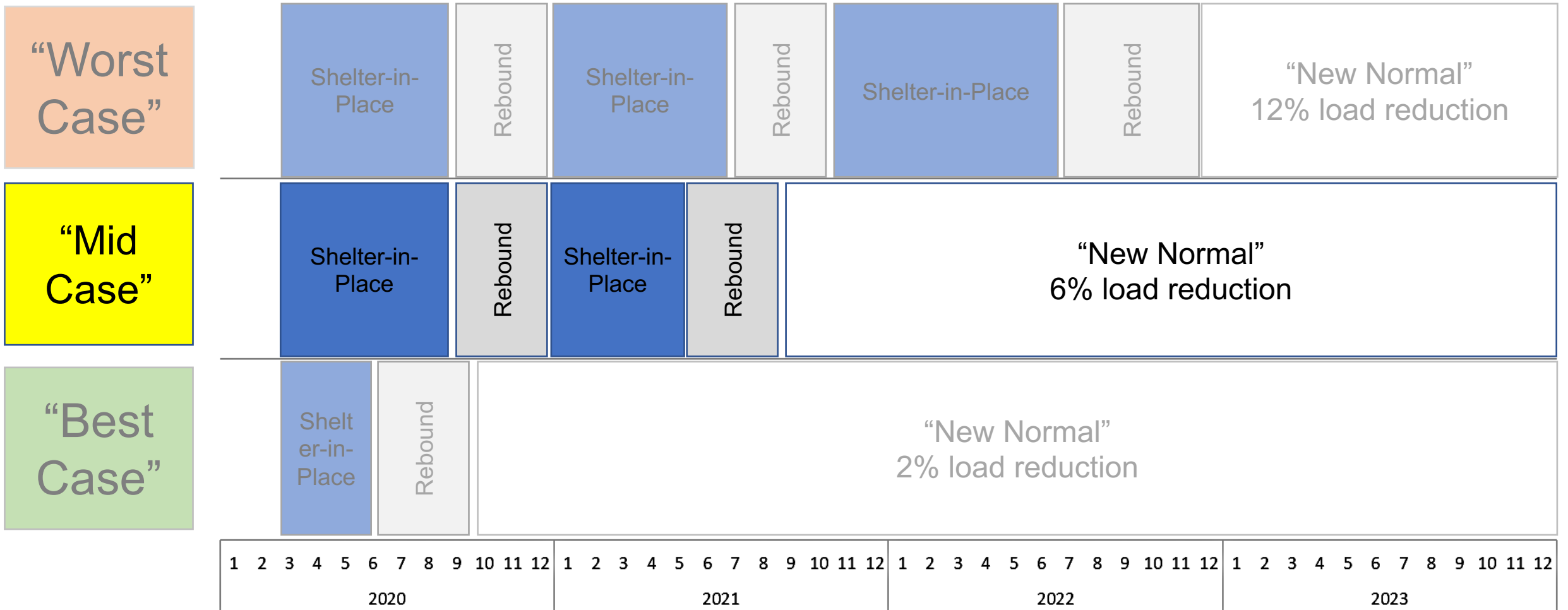
- CCAs have worked an interim approach with PG&E
- PG&E will allocate large hydro and nuclear to all load serving entities (LSEs) in PG&E's territory based on a load ratio share
- Each LSE has the option to accept each resource allocation separately
 - i.e. can accept allocation of large hydro but not nuclear, or can accept nuclear but not large hydro, or can accept both
- Volume of resource allocation is established based on actual generation
 - Rejecting a resource allocation does not impact the volumes you receive for the resource you accept
- CCA has 30 days to accept allocation

Schedule



Load Scenarios with COVID-19

- Range of scenarios with economic and epidemiological assumptions
- “Mid Case” Scenario used for original FY 2020-21 Budget



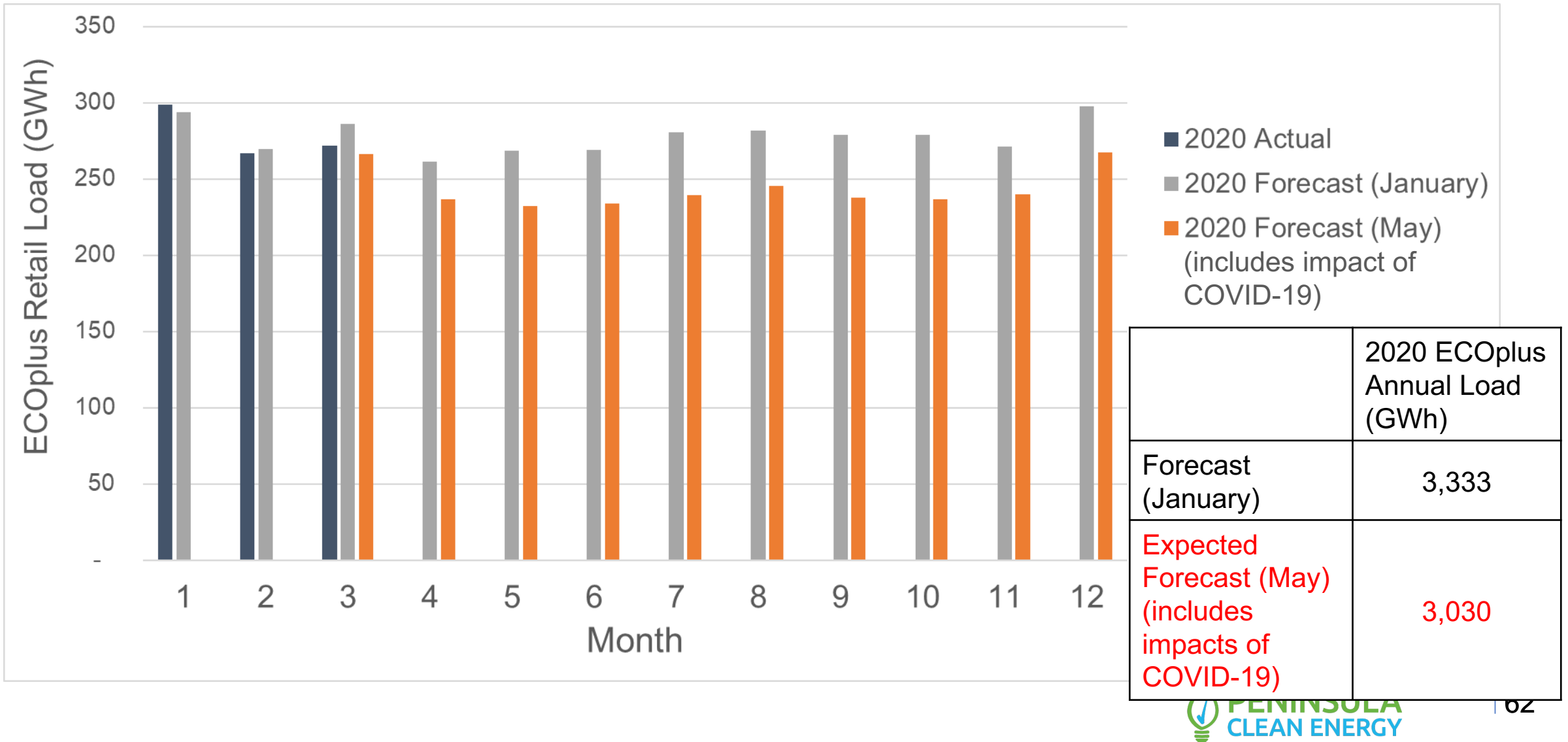
Post COVID-19 Load Impact – New Budget Assumptions

Consensus from Audit & Finance Committee on May 11, 2020 was that assumptions should be adjusted to be less optimistic.

Revised assumptions:

- No sharp recovery periods
- Residential
 - 6% increase through June 2021, then 4% increase for 1 year
 - 2% increase for next 3 years after
- **Small/Medium Business (biggest change)**
 - **30% decrease through June 2021, then 25% decrease for 1 year**
 - **20% decrease for next 3 years after**
- Large Commercial/Industrial
 - 20% decrease through June 201, then 15% decrease for 1 year
 - 10% decrease for next 3 years after
- Total PCE Load
 - 13% decrease through June 2021, then 10% decrease for 1 year
 - 8% decrease for next 3 years after

2020 ECOplus Load Forecast Updated

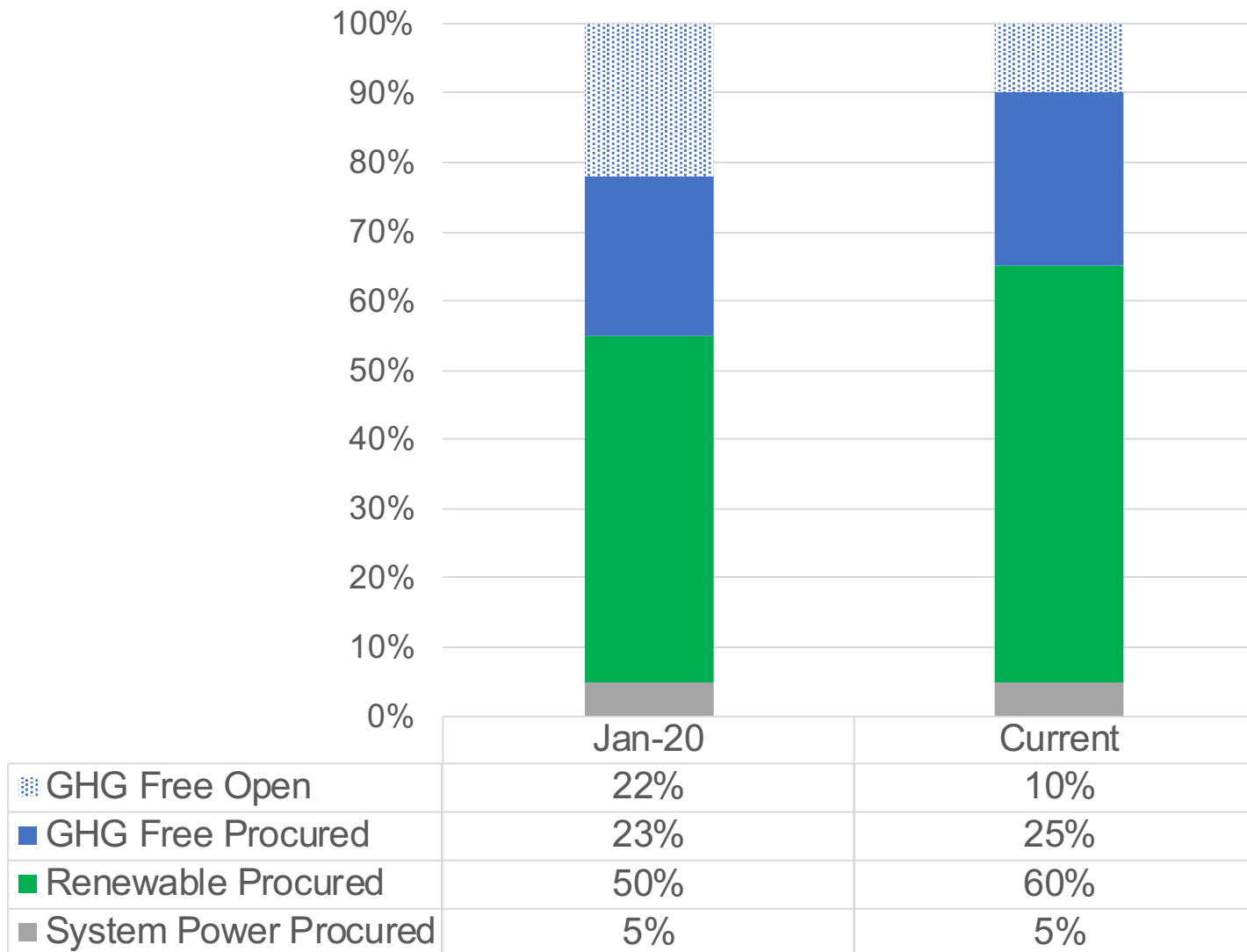


Expected Allocation Volumes

- Delay in CPUC Advice Letter Approval has resulted in decreased volumes allocated
- Current assumptions:
 - PCE receives allocations beginning July 1 (delayed from January)
 - Large hydroelectric volume based on historic snowpack-generation relationship
 - Nuclear volume based on 2019 generation

Expected 2020 PG&E Allocation	Jan 2020 Estimate	Current Estimate
Large Hydroelectric	300 GWh	156 GWh
Nuclear	700 GWh	421 GWh

Reduced Open Position for GHG-Free



- Since January, PCE has procured 176 GWh of GHG-Free
- Renewables currently exceed 50% target by 10% after revising the load forecast
- In total, GHG-Free open has decreased 12% since January

GHG Free Net Open Position

- Refer to Attachment to Board Memo

Cost Impact

	Jan 2020	Current
Ecoplus Load (GWh)	3,336	3,030
RE Procured	1,640	1,944
GHG-Free Procured	658	834
GHG-Free Open	837	313
PG&E Hydro Allocation	300	156
New Open After Hydro	537	157
Assumed Price	\$8 / MWh	\$3.25 / MWh
Cost to Procure	\$4,293,863	\$511,168
PG&E Nuclear Allocation	700	421
New Open After Nuclear	(163)	(264)

- Due to decreases in load and more renewable energy generation than expected, our current GHG-Free open position is much smaller than January
- Costs for GHG-Free resources have also decreased significantly and continue to fall
- In January presentation to board, it was estimated that the effective cost (reduced savings) to PCE of not accepting the nuclear was \$5.6 million
- At this time, the reduced savings of not accepting nuclear allocation is ten-fold less, or about \$500,000

Market Research Survey Results

- Objective: Gauge customer reactions to the addition of nuclear power to the mix of energy sources in PCE's ECOplus plan
- Fielded: February 11-19, 2020
- Random sample of 17,500 PCE residential customers
- Self-administered web-based survey in English only
- Completes: 350

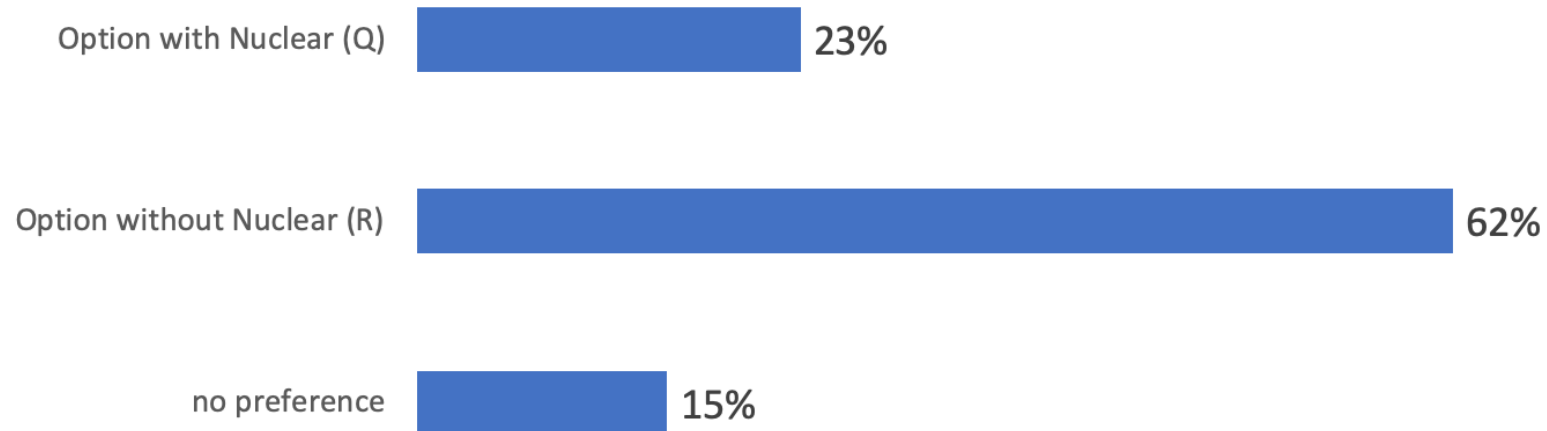
Market Research Survey Results

“If you had a choice between Options Q and R – with no difference in cost — which would you prefer, or do you not have a preference?”

	Option Q	Option R
Eligible Renewable	50%	50%
Biomass & Biowaste	12%	12%
Geothermal	2%	2%
Eligible Hydroelectric	4%	4%
Solar	20%	20%
Wind	12%	12%
Coal	0%	0%
Large Hydroelectric	27%	45%
Natural Gas	0%	0%
Nuclear	18%	0%
Other	0%	0%
Unspecified Sources of Power	5%	5%
TOTAL	100%	100%

Market Research Survey Results

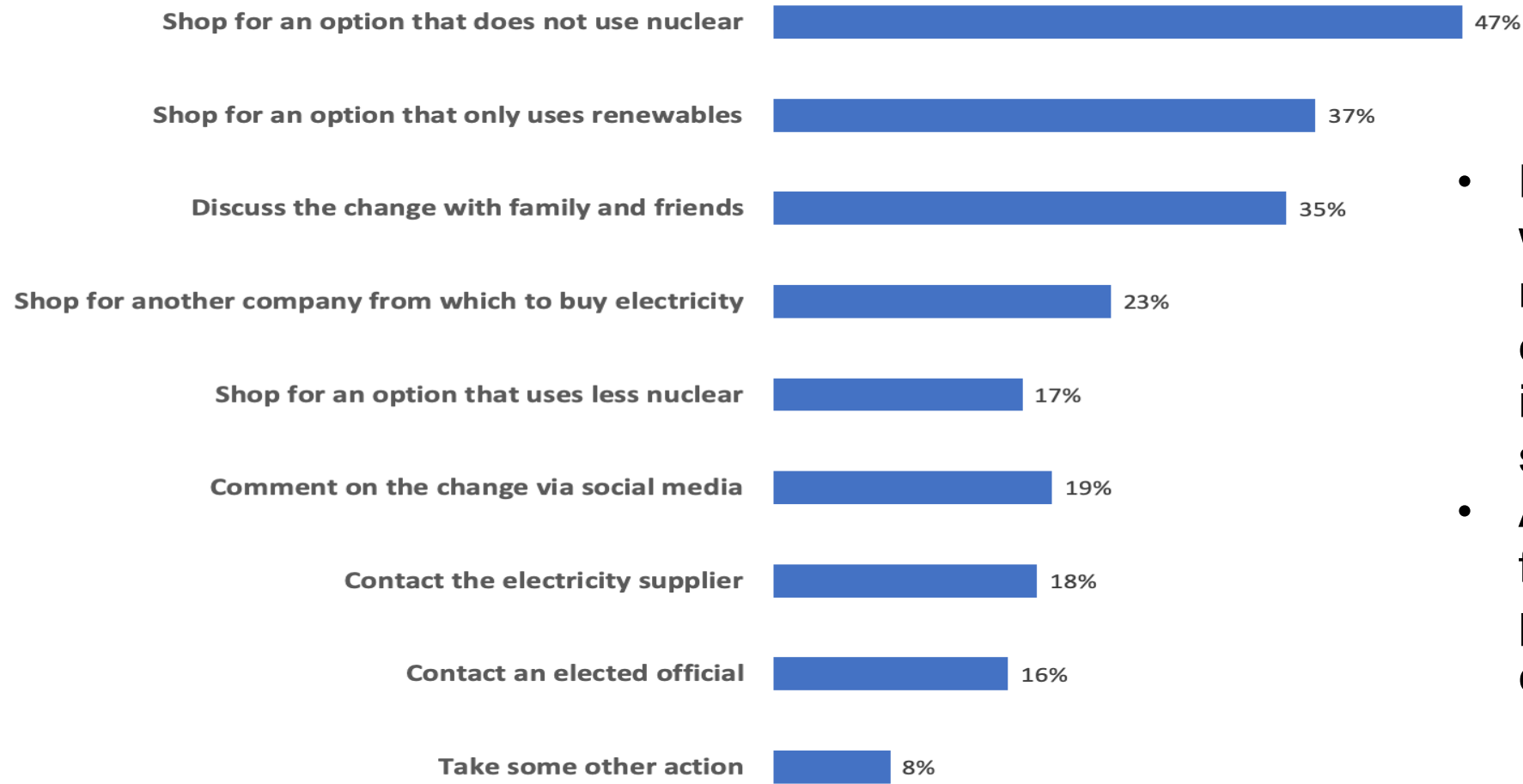
Most respondents preferred the option without nuclear but about 1 in 5 preferred the option that included nuclear.



Market Research Survey Results

Reason for Preferences	
Those Who Preferred Option with Nuclear	Those Who Preferred Nuclear-Free Option
About half of them see it as cleaner, cheaper, more reliable	Risk: Waste disposal – 30%
16% perceived large hydro as damaging to the ecosystem*	Risk: Danger of meltdown – 23%

Market Research Survey Results



- Most (76%) of those who preferred the nuclear-free option expressed an inclination to take some action
- About 2 in 5 would form a negative perception of the energy supplier

Other CCAs Approach

- CCA's who plan to accept PG&E Nuclear Allocation
 - Silicon Valley Clean Energy (SVCE)
 - San Jose Clean Energy (SJCE)
 - Monterey Bay Community Power (MBCP) – disappointed residents in SLO asking them to reconsider the decision
- CCA's who plan to reject PG&E Nuclear Allocation
 - East Bay Community Energy (EBCE)
 - Sonoma Clean Power (SCP)
 - Clean Power San Francisco (CPSF)
 - Marin Clean Energy (MCE)

Recommendation

- Changes from January
 - Delay in allocation of PG&E GHG-free energy results in smaller allocation amounts
 - Decreased load results in reduced open-position for GHG-free energy
 - Price of GHG-free has dropped significantly since January, and will likely drop further
- Continued uncertainty on impact of COVID-19 on load – load may be lower than forecasted resulting in even lower open position for GHG-free
- Market research results provide more insight into customer responses to changed power content label
- Staff recommendation:
 - Accept PG&E hydro allocation
 - Do not accept PG&E nuclear allocation
 - Wait until Q3 to fill open GHG-free position due to load uncertainty, and likelihood of even lower cost for GHG-free resources

Regular Agenda

9. Approve Expenditure of up to \$500,000 for Portable Battery Program for Medically Vulnerable Customers (Action)



Power On Peninsula Portable Battery Program for Medically Vulnerable

May 28, 2020

Presentation Outline

1. Background: PSPS Event Details, Similar Programs
2. Program Summary
3. Vendors
4. Key Considerations
5. Timeline
6. Recommendation

Relevant PSPS Details

- Three PSPS events in San Mateo County in 2019:
 - 10/9-10/12: 15k customers affected, 270 Medical Baseline
 - 10/23-10/26: 1.1k customers affected, 23 Medical Baseline
 - 10/26-10/29: 57k customers affected, 590 Medical Baseline
- 14,049 customers experienced two+ PSPS events, 1,069 on CARE, 119 Medical Baseline
- Events lasted 13-92 hours in PCE service territory
- Customers that rely on medical devices are particularly vulnerable to electricity outages

Similar Programs

- Staff are communicating with PG&E and MCE regarding their programs
- They also seem to be at an early planning stage and staff will continue to coordinate with them on lessons learned

	MCE	PG&E
Program Name	MCE Bulk Battery Purchase	Disability Disaster Access and Resources Program
\$ Allocated	\$300,000	\$5 MM
Customer Target	100	500 across PG&E territory; 50 in San Mateo County
Technology Selection	Goal Zero Yeti 3000	Goal Zero Yeti 3000
Program Structure	Equipment loan	Short-term lease; long-term lease; lease-to-own options
Partners	Long-term partnership with California Foundation for Independent Living Centers (CFILC) through Healthy Homes initiative	CFILC and local Independent Living Centers

Program Summary

- Leverage Peninsula Clean Energy's relationship to our community, non-profits, backup power battery vendors, and our medically vulnerable customers
- Provide **portable storage devices** to medically vulnerable customers most likely to experience PSPS events
- Aggregate procurement of portable storage devices to achieve a **bulk purchase discount**
- Provide portable storage devices to target customers free or at a very low cost (considering: free, rent, loan-to-own, purchase)
- Vet technology providers ahead of time to ensure products meet the needs of medically vulnerable

Program Priorities

- Target customers who are most vulnerable to the intersection of PSPS and COVID-19. **Keep costs low** for our customers to increase access.
- **Prioritize clean power solutions** over traditional diesel-fueled generators.
- Customers have a wide range of electricity needs for their medical devices. **Identify a realistic list of medical devices** that can be powered by batteries over a ~three-day power outage.
- Ensure that the **batteries are used safely** throughout distribution, storage, and operation.

Program and Vendor Recommendation

- **Vendor Selection:** Sent RFI to 8 potential Vendors –
 - SimpliPhi Power**, Freewire Electric**, Portable Electric**, Goal Zero (Yeti products; subsidiary of NRG)**, Humless**, K2, Kohler, Generac
 - **5 vendors responded as of 5/28
- **Program structure:** PCE purchases batteries and provides them to customers for small or no charge
- **Customer targets:** Limit participation to those with medical devices that can be served by one or two batteries, full list to be determined
- **Vendor shortlist:** Goalzero Yeti 3000x/6000x (3 kWh, \$2,400 & 6kWh, \$3,750), SimpliPhi ExprESS (7.6 kWh, \$8,900), or Humless Complete ESS (10 kWh, \$10,820)

Vendor Selection Key Considerations

- **Battery capacity:** Must be able to meet specific medical device charging needs
- **Uninterruptible Power Supply (UPS):** Must have UPS functionality if paired with devices that require UPS
- **Recharge time:** Needs to recharge between PSPS events
- **Price:** Competitive on a \$/kWh basis
- **Portability:** Batteries need to be portable and able to be moved into customers' homes

Program Timeline

Step	Timeframe
Coordinate with community outreach partners	April - June
Initiate Vendor Outreach	Early May
Send Informal RFI for Battery Vendors	5/14-5/15
Received RFI Responses	5/15-5/19
RFI Evaluation and Additional Diligence	5/18-6/4
Present Recommendation to Board	5/28
Finalize Diligence and Vendor Selection	6/5
Negotiate Contract	6/8 – 6/11
Customer Outreach and Enrollment	6/1 – 7/31
Expected Battery Delivery	July - September

Recommendation

- Approve Expenditure of up to \$500,000 for Portable Battery Program for Medically Vulnerable Customers
- **Indicative results**, based on \$500,000 budget:

	Price per Unit	Battery Capacity	Expected # of batteries	Total Capacity (kWh)
Goalzero Yeti 3000x	\$2,400	3.0 kWh	208	624
Goalzero Yeti 6000x	\$3,750	6.0 kWh	133	798
SimpliPhi ExpESS	\$8,900	7.6 kWh	56	426
Humless Complete ESS	\$10,820	10.0 kWh	46	460

- Staff may pursue 2 different vendors to meet different medical device needs

RFI Summary

	SimpliPhi - Big Genny	SimpliPhi - ExprESS	Freewire – Mobi Gen	Goalzero – Yeti 3000x	Goalzero – Yeti 6000x	Humless - Complete ESS	Portable Electric - VOLTstack 2.8kWh	Portable Electric - VOLTstack 5.6kWh
Delivery Date (June 25th PO)	7/23/2020	7/23/2020	11/26/2020	9/30/2020	10/30/20	8/27/2020	8/27/2020	8/27/2020
Product Capacity (kWh)	1.24	7.60	80.00	3.00	6.00	10.00	2.80	5.60
Bulk Price (\$)	\$ 2,399	\$8,900	\$55,250	\$2,400	\$3,700	\$10,820	\$8,000	\$16,000
Capacity Price (\$/kWh)	\$1,935	\$1,171	\$691	\$800	\$616	\$1,082	\$2,857	\$2,857
Product Life (Cycles or Years)	2,500	10,000	10 years	500-2,500	500-2,500	4,000	5,000	5,000
Recharge Time (hrs)	2.5	2	12	12-24	12-24	3	2.5	2.5
Weight (lbs)	366	411	1860	70	106	400	190	330

Regular Agenda

10. Approve Existing Buildings Electrification Program (Action)



Existing Buildings Electrification Program

Board of Directors, May 28, 2020

Existing Buildings Program: Request

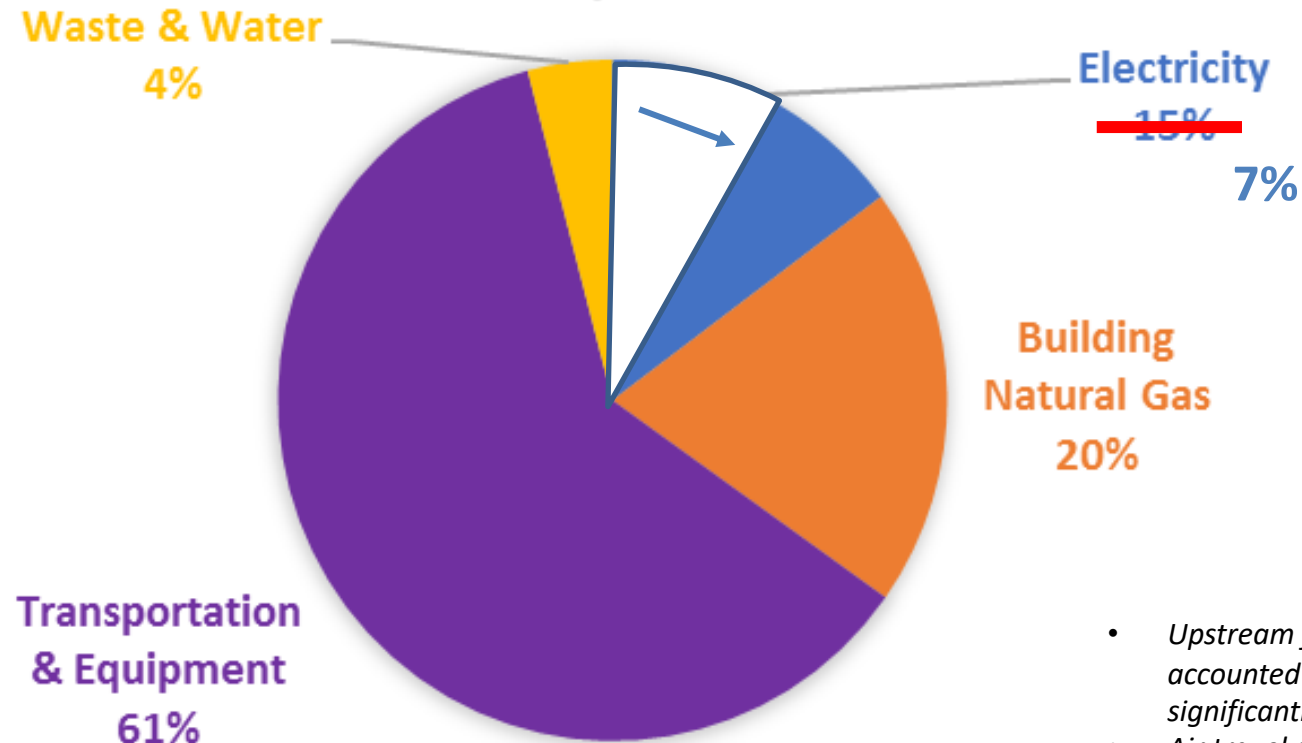
Program: Provide incentives and program support for electric appliances in existing buildings

Request: Approval of the proposed Existing Building Electrification Program

Amount: Up to \$6.1M for 4-year program

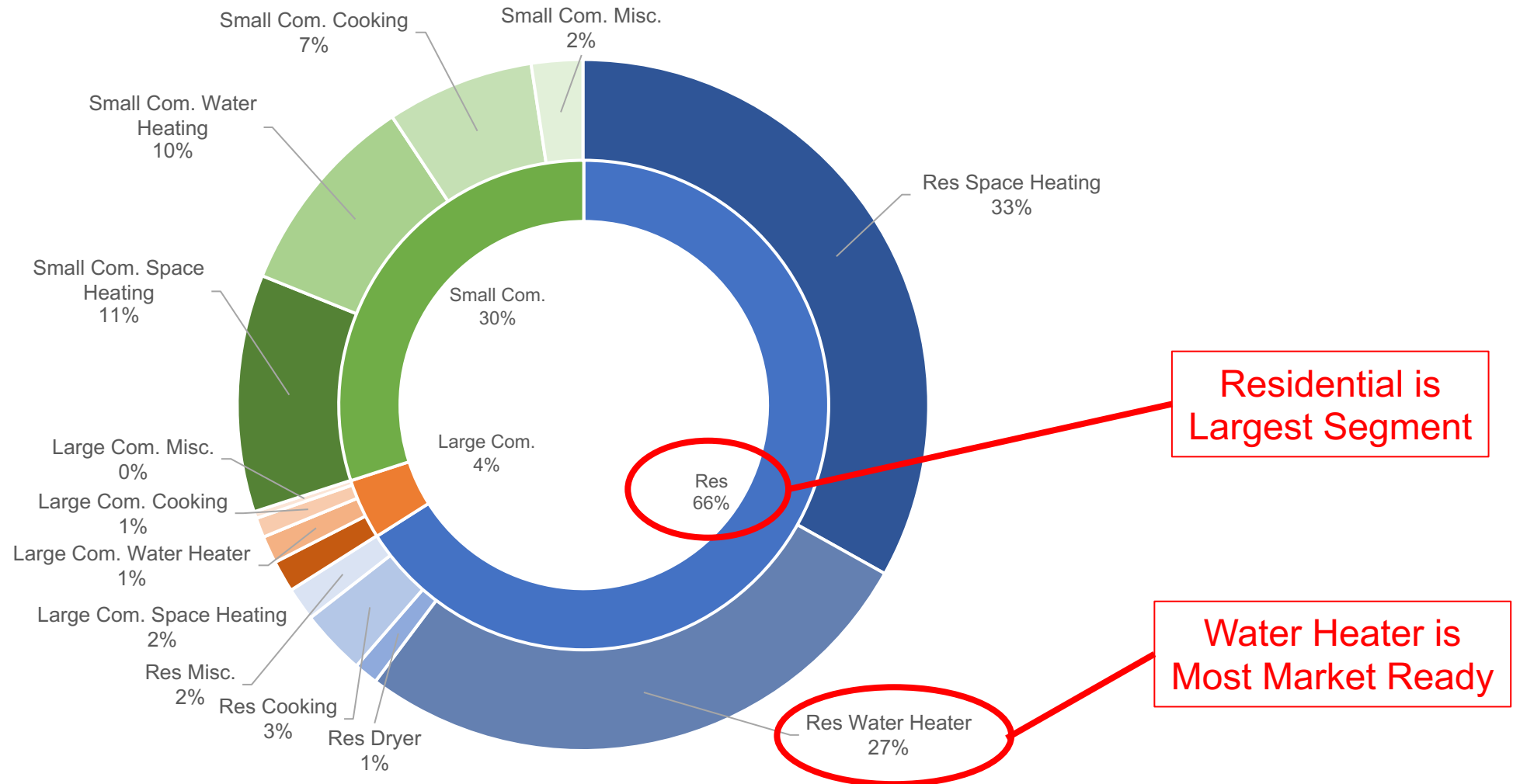
Overall Emissions – Original Estimates

~~2015~~ RICAPS EMISSIONS INVENTORY 2018 “Back of Envelope” Calculation



- Upstream fugitive emissions are not accounted for so NG impact is likely significantly higher.
- Air travel and embedded carbon of products not included

Natural Gas Emissions Breakdown in SMC



Sources:

2018 PG&E Gas data
2010 California Residential Appliance Saturation Survey,
2006 California Commercial End-Use Survey

PCE Program

Rationale

- Support meeting CA goal of being carbon neutral by 2045
- Limited state programs are insufficient for nascent market
- COVID-19 recession impacting low-income community

Objectives

- Create initial momentum and establish market
- Leverage regional and state programs
- Establish workforce readiness
- Promote economic benefits through job creation

Summary of Proposed Budget

4-Year program for \$6.1 M, includes:

1. Incentives = \$2.8 M (47%)

- Incentives for appliances and service panels

2. Low Income = \$2 M (33%)

- Turnkey program building on Healthy Homes concept + electrification

3. Other components = \$1.3 M (21%)

- Includes workforce development, load shaping, innovation pilots, electrification potential study and administration

FY 21: Heat Pump Water Heater Program

Overview & Objective

- Gas to electric heat pump water heater (HPWH) replacement incentives for single family homes
- Foster early market, develop workforce, create jobs

Scope

- Offer incentive of \$1,000 – 1,500/unit and if warranted \$1,500/service panel upgrade
- Robust contractor network fed by existing training program
- Coordinated marketing with Building Decarbonization's "The Switch Is On" campaign

Budget

- Total incentive budget of \$2.7M over 4 yrs to replace ~1,200 water heaters

Collaborations

- Align approach with SVCE and others
- Layer incentives with BayREN to offer streamlined customer experience
- Leverage Building Decarbonization Coalition and BayREN marketing

Electrification Programs in Region



- Current Rebates
 - Heat Pump Water Heaters: up to \$2,500
 - HVAC: up to \$4,000
 - Induction cooktop (Up to \$500),
 - Service panel upgrade (up to \$2,500)
- Engaged contractor network
- Residential energy advisors
- Contractor training and quality control



- Current Rebates
 - Heat Pump Water Heater: up to \$2,300
 - Bonuses: up to \$1,500 (low-income or DR)
 - Panel: up to \$2,500
- Forthcoming Phase 2 - via BayREN Home+ single family program
 - Water Heater: \$1,000 (plus BayREN \$1,000)
 - Panel: \$1,500
 - Residential energy advisors
 - Contractor training and quality control

FY 21: Low Income Program

Overview & Objectives

- Program for eligible low-income single-family residents
- Low income home improvements plus workforce employment

Scope

- Select electrification, complementary energy efficiency, PV, EV charging, and healthy home fixes
- Turn-key program covering 100% of installed cost. Max. \$8,000/home + other partner incentives
- Goal of 200-250 homes in 4 yrs

Budget

- Total Program budget of \$2M over 4 yrs

Collaborations

- Layer incentives with the Energy Savings Assistance Program (ESA), Peninsula Minor Home Repair (PMHR), Single Family Affordable Solar Housing (SASH) , BayREN and other state and federal agencies wherever possible

FY 21: Harvest Thermal Pilot Program

Overview & Objectives

- Pilot new Harvest Thermal technology in homes to prove viability
- Technology provides simultaneous water and space heating through one heat pump
- Help technology development to address market needs

Scope

- Install technology in 5 homes in SMC
- Support development of installation guidelines
- Provide detailed assessment of technology (install costs, energy, bill savings, customer satisfaction)
- Preferred pricing for PCE if technology is scaled for larger market penetration
- Independent measurement and verification

Budget

- Total program budget of \$300,000 over 2 years

4 YR Budget Breakdown

	FY 2021	FY 2022	FY 2023	FY 2024	4 yr Total	% of Total budget
Incentives	\$ 500	\$ 450	\$ 750	\$ 1,100	\$ 2,800	46%
Low Income	\$ 450	\$ 400	\$ 550	\$ 600	\$ 2,000	33%
Load Shaping	\$ 50	\$ 50	\$ 100	\$ 250	\$ 450	7%
Innovation Pilots	\$ 250	\$ 50	\$ 50	\$ 100	\$ 450	7%
Admin & Other	\$ 150	\$ 50	\$ 50	\$ 150	\$ 400	7%
Total Budget	\$ 1,400	\$ 1,000	\$ 1,500	\$ 2,200	\$ 6,100	100%

*1000s of \$\$s

Existing Buildings Program: Request

Program: Provide incentives and program support for electric appliances in existing buildings

Request: Approval of the proposed Existing Building Electrification Program

Amount: Up to \$6.1M for 4-year program

Regular Agenda

11. Background in Integrated Resource Plan (IRP) Process (Discussion)



Integrated Resource Plan Update

Siobhan Doherty, Director of Power Resources

Doug Karpa, Senior Regulatory Analyst

May 28, 2020

AGENDA

- IRP Timeline
- IRP Background
- IRP Requirements
- CPUC Modeling Framework
- CPUC Modeling Constraints
- CCA Approach
- Timeline

BACKGROUND

- This CPUC IRP was mandated by SB350, (de León, Chapter 547, 2015)
- Initial reporting year was 2018
- 2020 IRP is due 9/1/2020
- The main purpose of the CPUC IRP is to provide CPUC staff with the inputs from each LSE to forecast industry-wide procurement and determine whether load serving entities (LSEs) in CA are meeting GHG and reliability needs for 2030.

BIANNUAL PROCESS

- The CPUC IRP a two-year process.
- In odd-numbered years, CPUC will conduct modeling to recommend a GHG emissions target for the electricity sector and identify optimal portfolio – “Reference System Portfolio”.
- During even-numbered years, LSEs will submit IRP to the commission.
- CPUC will aggregate individual IRPs and conduct production cost modeling and a reliability assessment.

2020 IRP SUBMISSION TIMELINE

Date	Activity
April 6, 2020	CPUC Issued Final Decision on Reference System Portfolio
April 15, 2020 2020	CPUC Published Final Load Forecasts and GHG Benchmarks
May 12, 2020	CPUC Published Final Reporting Templates
May Board Meeting	Staff Provide Background on IRP to Board
June Board Meeting	Staff Present Preliminary Analysis to Board
July Board Meeting	Staff Present Final Analysis and Board Approves IRP Submission
August Board Meeting	Reserve for Any Final Approvals
September 1, 2020	IRP Submissions Due to CPUC

REFERENCE SYSTEM PORTFOLIO

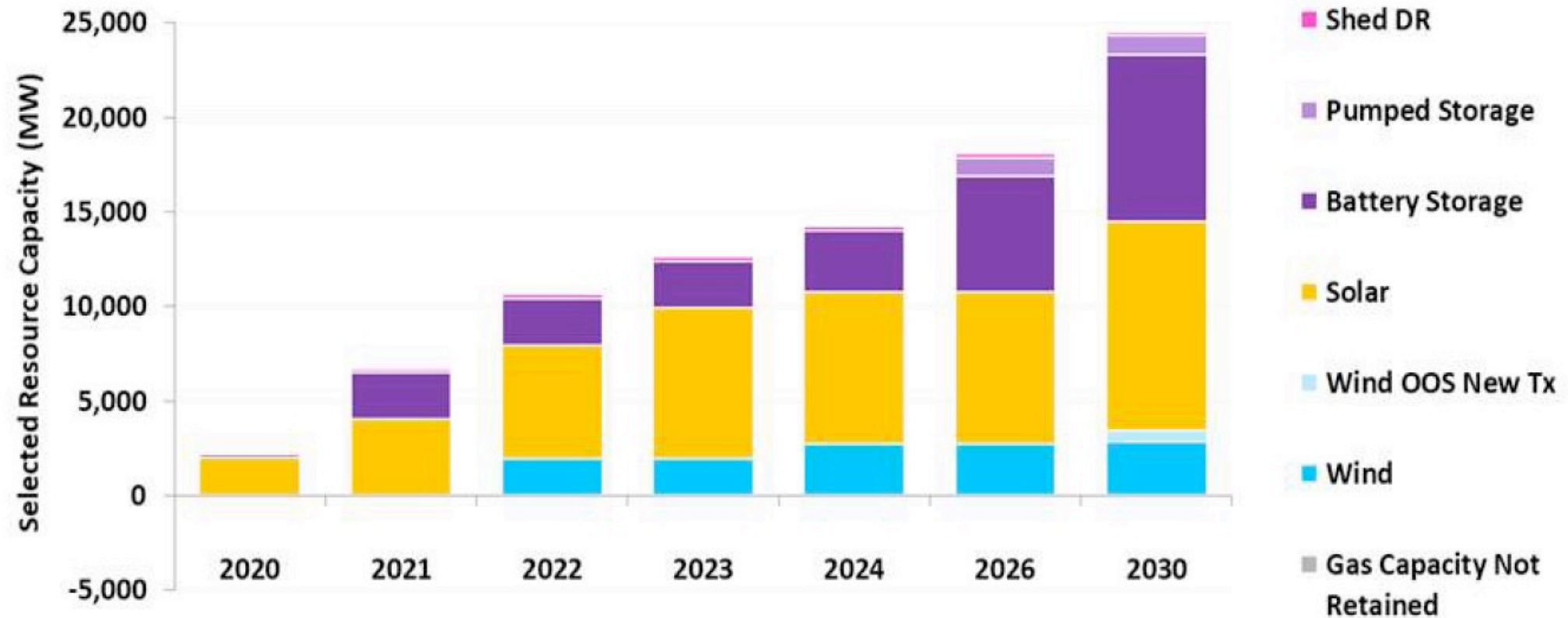
- The Reference System Portfolio (RSP) is the outcome of the modeling work done by the CPUC in the odd-numbered years of the IRP process
- The RSP provides general planning direction for how LSEs and policymakers can achieve State GHG reduction goals at least cost while ensuring electric service reliability.
- When LSEs file their individual IRPs, they must conform to the assumptions used to develop the portfolio, but actual LSE procurement may result in a buildout of a resource mix that differs from RSP

REFERENCE SYSTEM PORTFOLIO

- The 2019-20 IRP cycle targets an economy-wide GHG emissions reduction of 40% from 1990 levels by 2030 while maintaining system reliability
 - The RSP targets 46 MMT 2030 electric sector GHG emissions
- CPUC can re-evaluate this target for each IRP Cycle
- 46 MMT keeps electric sector on trajectory to meet state's zero-emissions goal by 2045
- LSEs are required to present two portfolios:
 - Target 46 MMT electric sector GHG emissions
 - Target 38 MMT electric sector GHG emissions

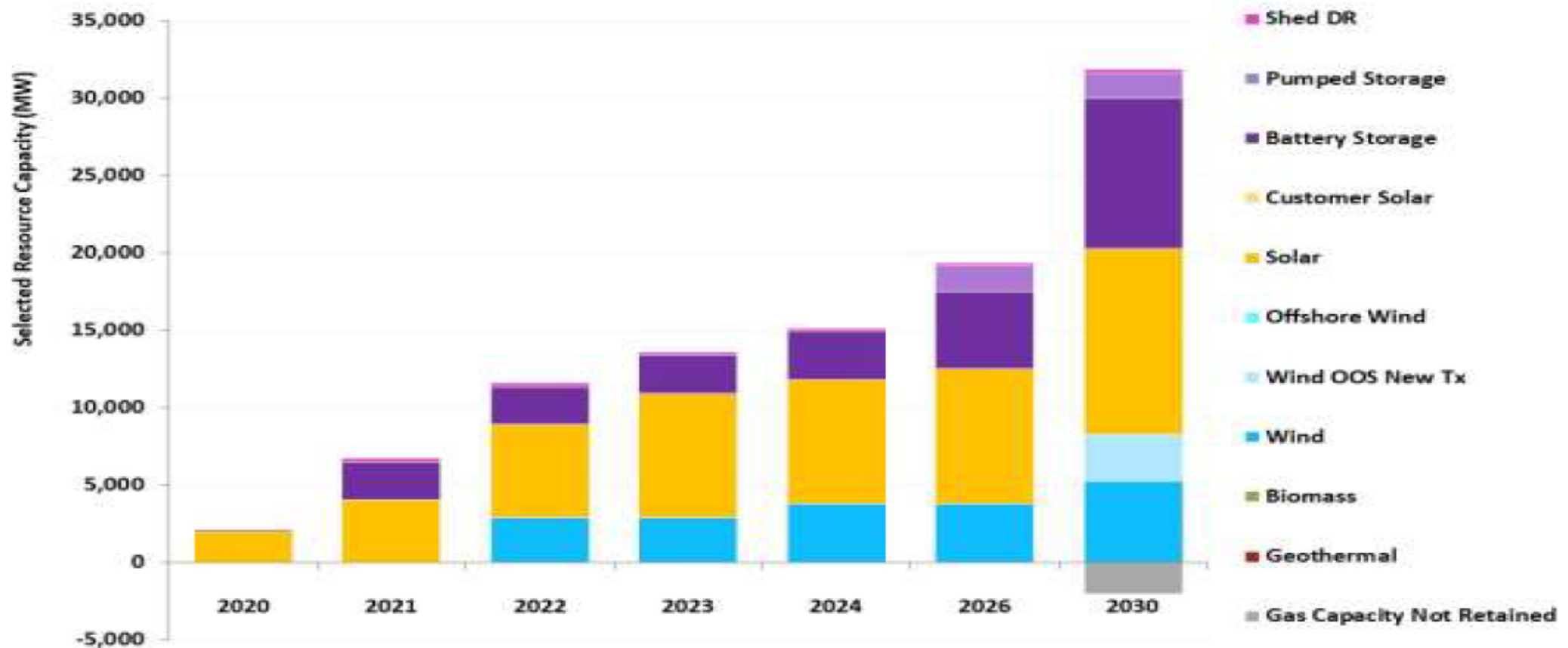
RSP – 46 MMT

Figure 2. Cumulative Buildout of New Resources in 2019-2020 RSP



RSP – 38 MMT

Figure 4: New Resource Buildout Associated with a 38 MMT GHG Target in 2030



CCA APPROACH

- Coordinating with 3 CCAs on modeling for IRP
 - - East Bay Community Energy
 - Clean Power Alliance
 - San Jose Community Energy
- Siemens is providing modeling services to PCE and other 3 CCAs
- Production cost modeling using Aurora model
- Will provide 2 Conforming Portfolios + alternative scenarios

MODELING REQUIREMENTS

- PCE must submit 2 conforming portfolios – 46 MMT and 38 MMT
- Use the assigned load forecast¹ from the CEC's 2019 Integrated Energy Policy Report (IEPR).
- Be consistent with the CPUC-adopted Reference System Portfolio:
 - Conforms to the LSE's 2030 GHG Benchmark
 - Uses inputs and assumptions matching those used by CPUC staff to develop the Reference System Portfolio

2030 Load (GWh)	2030 Emissions Benchmark – 46 MMT	2030 Emissions Benchmark – 38 MMT
3,560	0.729	0.602

1. The mid-AAEE version of Form 1.1c of the 2017 IEPR Mid-demand case

PORTFOLIO MODELING OBJECTIVES

- In addition to meeting the requirements of the CPUC filing, PCE is targeting internal objectives and IRP-strategies:
 - 100% renewable by 2025
 - Matching generation to load on an hourly basis
 - 50% new resources
 - 50% long-term contracts

MODELING CONSTRAINTS

- The CPUC requires that LSEs use certain specific assumptions in their Conforming Portfolio, including the following:
 - Load shape;
 - Energy production profiles;
 - BTM PV, EE, and EV charging profiles;
 - Battery storage dispatch profiles; and
 - Biomass/Geothermal/Hydro dispatch profiles.
- Due to these fixed constraints, arriving at a 0 MMTCO₂ emissions portfolio (load-following generation) for the IRP filing is not possible.
- We have created a conforming portfolio meeting the CPUC requirements and PCE's requirements as closely as possible while minimizing the 2030 GHG benchmark.
- We have also created an alternative portfolio which more closely follows PCE's expected load shape.

SUBMISSION REQUIREMENTS

1. Standard LSE Plan – written description of IRP, including:
 - Description of modeling process and assumptions
2. CPUC Provided Clean System Power Calculator
 - Calculates LSE's Portfolio's expected GHG Emissions
3. Resource Data Template
 - Details on current and planned resources to meet LSE's targets

CLEAN SYSTEM POWER CALCULATOR

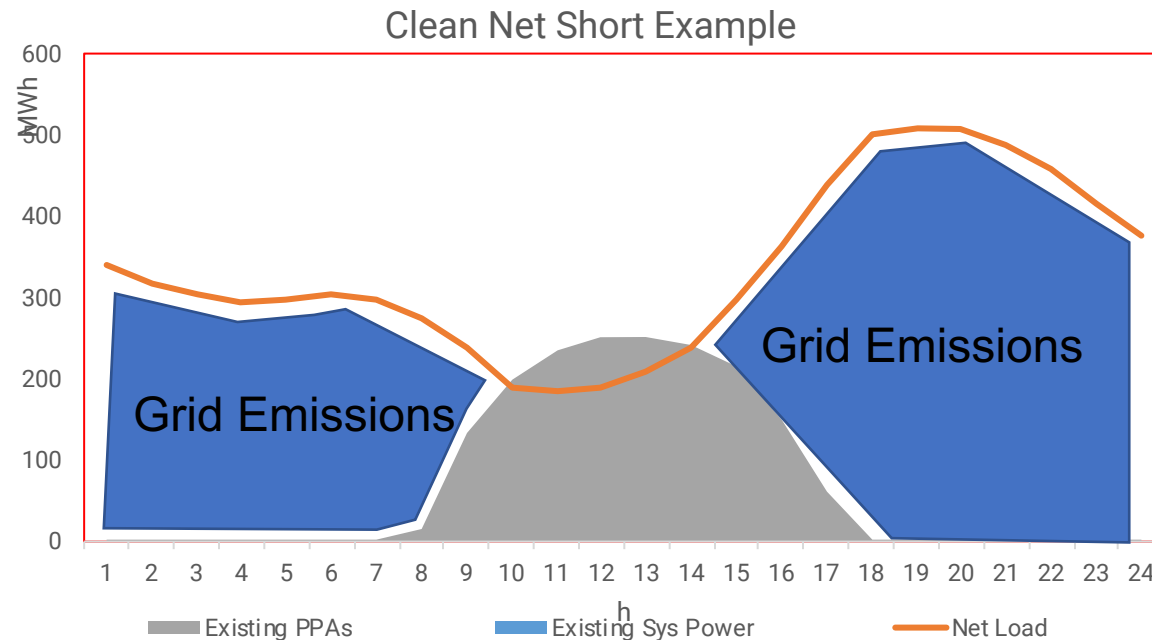
- The Clean Net Short Calculator aims to calculate expected GHG emissions based on hourly load and procurement.
- PCE subtracts its contracted (either current or planned) GHG-free generation (like renewables) from the projected hourly electricity demand (our load).
- PCE will subtract the discharging pattern (and add the charging pattern) of any storage resources contracted to PCE from the hourly profile derived in the previous step. The result is the “clean net short” (CNS) in each hour.
- The CNS will then be multiplied by the system GHG emissions intensity on an hourly basis.
 - This yields PCE’s total emissions associated with using unspecified system power for every hour of 2030.

CLEAN SYSTEM POWER CALCULATOR

For every hour, the following calculation happens:

$$\text{Assigned Emissions} = \text{Grid Emissions Factor} \times (\text{Load} - \text{Renewable Generation})$$

It is then summed to give a total annual emissions factor



NEXT STEPS

- Present initial scenarios to Board at June 2020 Board meeting
- Present final scenarios for Approval in July 2020

Regular Agenda

12. Board Members' Reports (Discussion)