



Procurement and Risk Management Update

Presented to RCEA Board of Directors
October 16, 2017

Discussion Topics

- Update on 2017
 - Current headroom outlook
 - Review procurement activities
- Update on 2018
 - Preliminary headroom outlook
 - Planned procurement activities
- Legislative/Regulatory Issues and Procurement

Key Messages

- Overall, everything is going well
- Renewable and non-fossil fuel targets higher than original program goals set in January
- Actual 2017 financial results deviating from forecast are due primarily to two factors:
 - Lower opt-out rates resulting in higher customer loads have resulted in higher revenues and power supply costs
 - Price spikes in CAISO market did result in higher unit costs for energy on unhedged positions than originally expected
 - Open (unhedged) positions after October procurement will be fixed via DG Fairhaven or additional market purchases
- Execution of 2018 procurement strategy is going according to plan
- 2018 headroom is projected to tighten relative to 2017
- Legislative and regulatory risks continue placing a premium on building financial reserves

2017 Update

2017 Headroom Update

January 2017 Outlook

2017 Headroom

	\$/MWh	\$mm
PG&E Gen	\$ 96.59	\$ 40.67
RCEA Cost*	\$ 80.52	\$ 33.90
Supply	\$ 46.82	\$ 19.71
O/H	\$ 8.06	\$ 3.39
PCIA+FF	\$ 25.64	\$ 10.80
10% Opt-Out	\$ -	\$ -
Headroom	\$ 16.07	\$ 6.77

October 2017 Outlook

2017 Headroom

	\$/MWh	\$mm
PG&E Gen	\$ 96.83	\$ 42.80
RCEA Cost*	\$ 83.02	\$ 36.69
Supply	\$ 51.03	\$ 22.55
O/H	\$ 6.16	\$ 2.72
PCIA + FF	\$ 25.83	\$ 11.42
Headroom	\$ 13.81	\$ 6.10

Included Expenditures

2.7% Gen Rate Reduction	\$ 2.59	\$ 1.15
Non-Fossil Gen		
Biomass	Included	\$ 1.20
40% Renewable (Incremental)	Included	\$ 0.45
Zero Carbon Supply	Included	\$ 0.34
Net Reserves	\$ 11.22	\$ 4.90

- Power supply costs are higher than January forecasts for several reasons
 - Higher than originally forecasted loads
 - Corresponding increased retail revenue not reflected in model
 - Wholesale prices exceeded retail rates for periods during the summer
- Values shown on accrual rather than cash basis

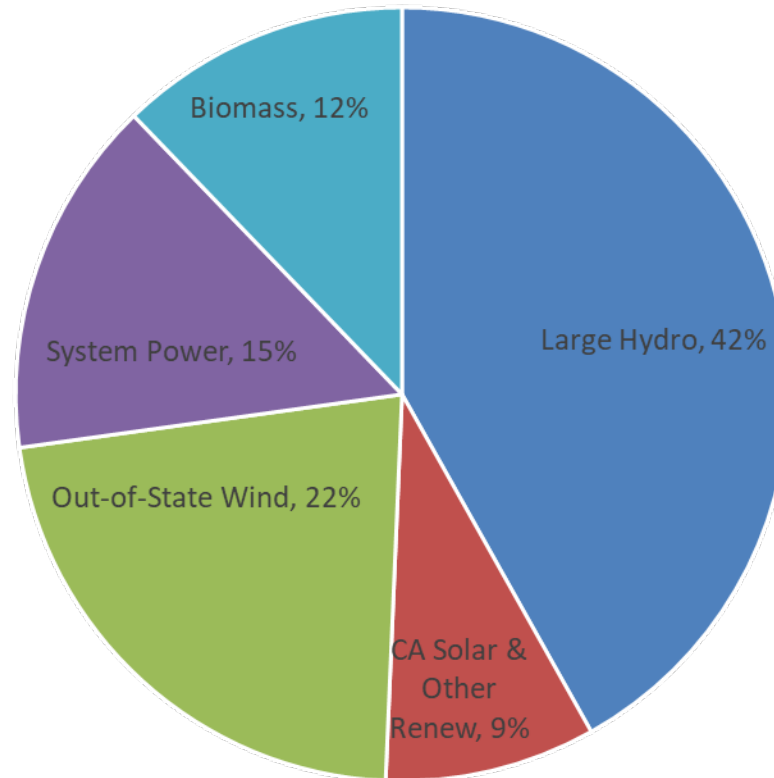
2017 Procurement Status

Procurement Update Presented April 2017

Item	Schedule / Notes
1. Energy	<ul style="list-style-type: none"> Initial market procurement complete Assess residual requirements in June/July <ul style="list-style-type: none"> Currently anticipate short-term hedges in response to market fundamentals
2. Renewable Energy Credits ("RECs")	<ul style="list-style-type: none"> Initial market procurement complete HRC expected to provide ~50k Bucket 1 RECs <ul style="list-style-type: none"> Currently planning for DG Fairhaven to provide other 20k May require incremental market purchase in 2H17 Planning to procure up to 40% renewable
3. GHG Free Supply	<ul style="list-style-type: none"> Anticipate procurement in April/May <ul style="list-style-type: none"> Planning to procure up to 80% GHG free
4. Resource Adequacy ("RA")	<ul style="list-style-type: none"> May and June procurement complete Jul-Dec procurement by end of April
5. Congestion Revenue Rights ("CRRs")	<ul style="list-style-type: none"> Load migration CRRs in late-May for June First monthly process will be June for July

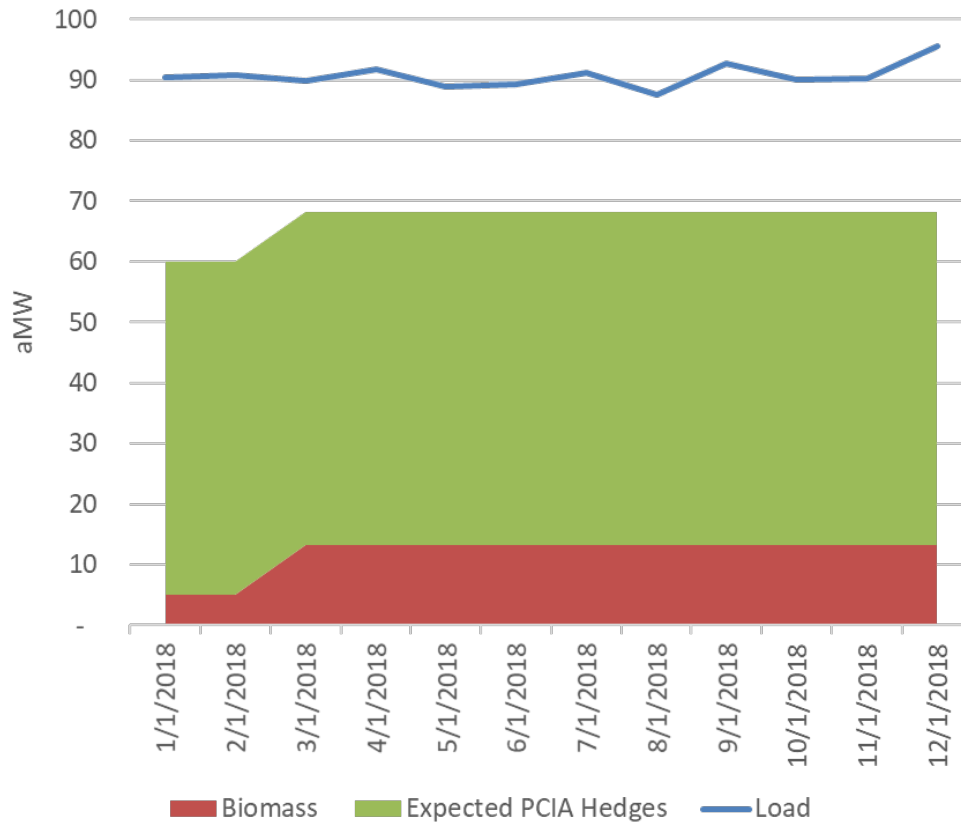
- RCEA meeting 40% renewable and 80% non-fossil fuel supply targets
- Updates to April 2017 procurement plan a result of three factors:
 - Lower opt-out rate (higher loads)
 - No DG Fairhaven purchase
 - Higher price volatility in CAISO markets
- Specific changes in procurement relative to April 2017 plan:
 - 20 MW of on-peak market energy purchased for Oct-17 through Dec-17
 - Purchased additional RECs
 - 19,000 Bucket 1 RECs
 - 27,750 Bucket 2 RECs
- Load migration CRRs have yielded approximately \$160,000 in incremental revenue during Q3

RCEA Supply Mix as of October 2017



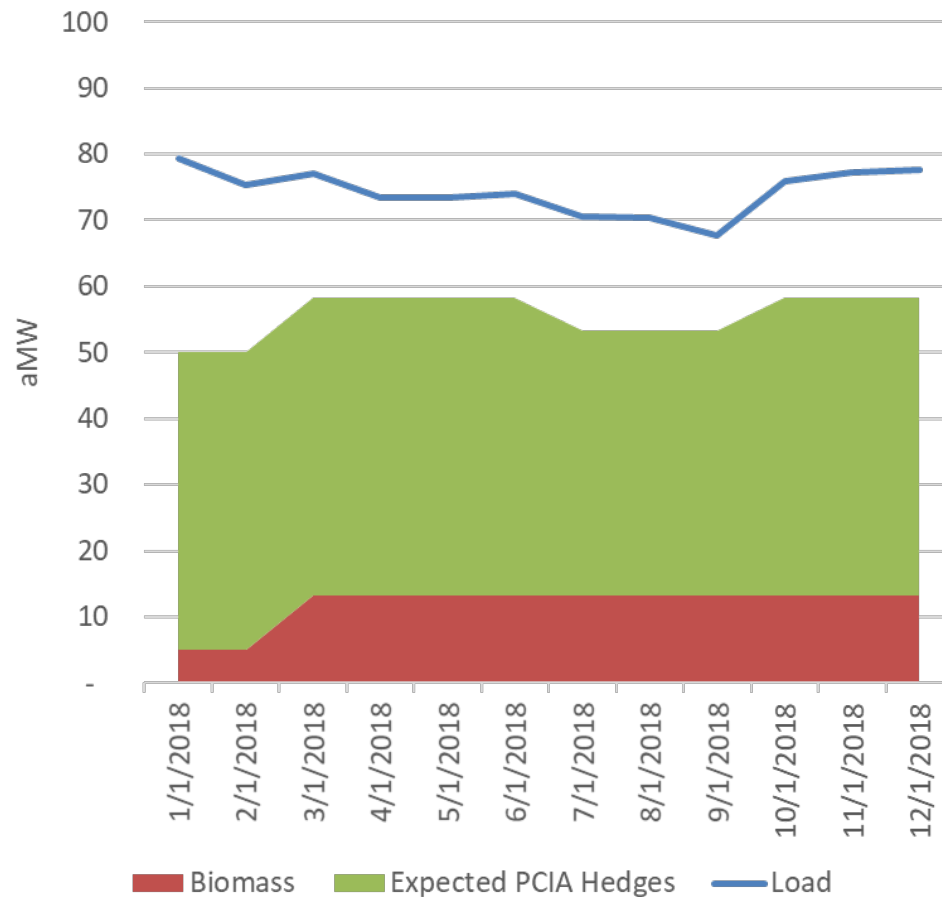
2018 Update

2018 Net Position: On-Peak Hours



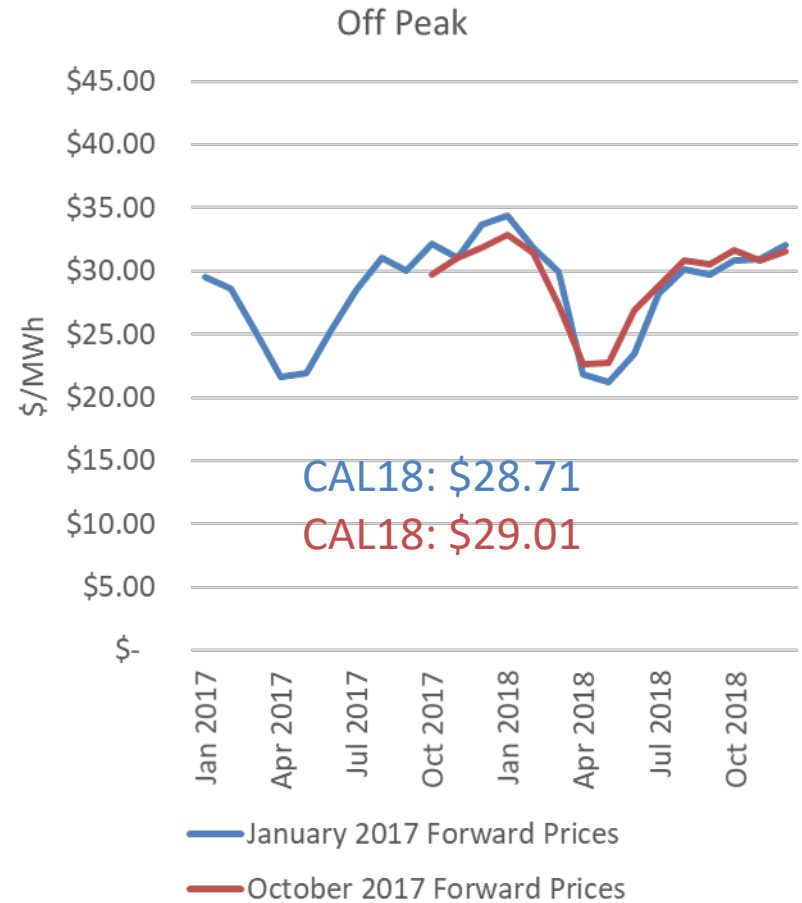
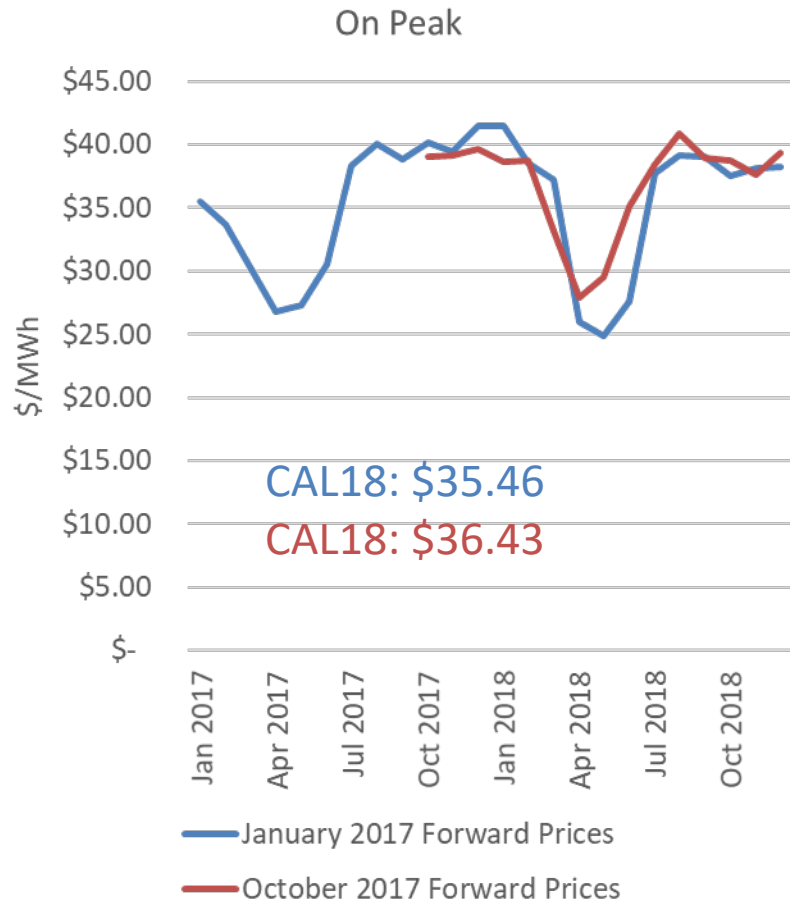
Month	Load	Executed Hedges	Remaining Hedges	Biomass	Open Position
1/1/2018	90	55	-	5	30
2/1/2018	91	55	-	5	31
3/1/2018	90	55	-	13	22
4/1/2018	92	30	25	13	23
5/1/2018	89	30	25	13	21
6/1/2018	89	30	25	13	21
7/1/2018	91	-	55	13	23
8/1/2018	88	-	55	13	19
9/1/2018	93	-	55	13	25
10/1/2018	90	25	30	13	22
11/1/2018	90	25	30	13	22
12/1/2018	96	25	30	13	27

2018 Net Position: Off-Peak Hours



Month	Load	Executed Hedges	Remaining Hedges	Biomass	Open Position
1/1/2018	79	25	20	5	29
2/1/2018	75	25	20	5	25
3/1/2018	77	25	20	13	19
4/1/2018	73	25	20	13	15
5/1/2018	73	25	20	13	15
6/1/2018	74	25	20	13	16
7/1/2018	71	25	15	13	17
8/1/2018	70	25	15	13	17
9/1/2018	68	25	15	13	15
10/1/2018	76	25	20	13	18
11/1/2018	77	25	20	13	19
12/1/2018	78	25	20	13	19

Forward NP15 Energy Prices as of 10/11/17



- Prices are down slightly (~\$0.25/MWh off-peak and \$0.50/MWh on-peak) from September
- 2018 market prices up slightly from 2017 levels, largely in Q2&Q3 periods

2018 Headroom – Current Outlook

2017 Headroom

	\$/MWh	\$mm
PG&E Gen	\$ 96.83	\$ 42.80
RCEA Cost*	\$ 83.02	\$ 36.69
Supply	\$ 51.03	\$ 22.55
O/H	\$ 6.16	\$ 2.72
PCIA + FF	\$ 25.83	\$ 11.42
Headroom	\$ 13.81	\$ 6.10

Included Expenditures

2.7% Gen Rate Reduction	\$ 2.59	\$ 1.15
Non-Fossil Gen		
Biomass	Included	\$ 1.20
40% Renewable (Incremental)	Included	\$ 0.45
Zero Carbon Supply	Included	\$ 0.34
Net Reserves	\$ 11.22	\$ 4.90

2018 Headroom

	\$/MWh	\$mm
PG&E Gen	\$ 97.26	\$ 67.91
RCEA Cost*	\$ 90.04	\$ 62.87
Supply	\$ 52.35	\$ 36.55
O/H	\$ 6.29	\$ 4.39
PCIA + FF	\$ 31.40	\$ 21.93
Headroom	\$ 7.22	\$ 5.04

Included Expenditures

2.7% Gen Rate Reduction	\$ 2.60	\$ 1.82
Non-Fossil Gen		
5 --> 13MW Biomass (Net)	Included	\$ 5.01
40% Renewable (Incremental)	Included	\$ 0.78
Zero Carbon Supply	Included	\$ 0.34
Net Reserves	\$ 4.62	\$ 3.15

- Currently planning for 21% increase in PCIA, which will tighten available headroom in 2018
- Since last month, CAISO charges, RA prices, and Imbalance charges were increased, further decreasing 2018 headroom

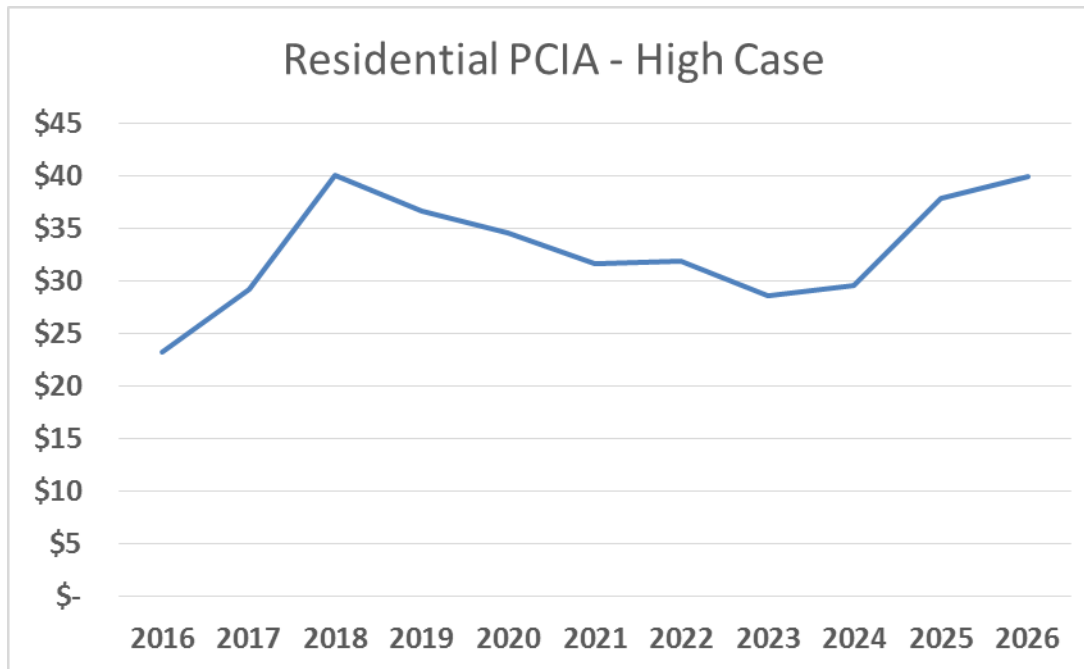
Preliminary 2018 Procurement Plan

Item	Schedule / Notes
1. Energy	<ul style="list-style-type: none"> • 13.25 aMW from HRC equivalent to 15% of energy • 60% of energy requirements in October to align with setting of PCIA charge • 75% of energy requirements hedged by end of October 2017 <ul style="list-style-type: none"> • <i>Currently anticipate balance of energy requirements procured short-term</i>
2. Renewable Energy Credits (“RECs”)	<ul style="list-style-type: none"> • RPS and GHG free supply procurement in late-17 or early-18 <ul style="list-style-type: none"> • <i>Discuss longer-term “Bucket 2” and GHG purchase at upcoming risk meeting</i>
3. GHG Free Supply	<ul style="list-style-type: none"> • RPS and GHG free supply procurement in late-17 or early-18 <ul style="list-style-type: none"> • <i>Discuss longer-term “Bucket 2” and GHG purchases at upcoming risk meeting</i>
4. Resource Adequacy (“RA”)	<ul style="list-style-type: none"> • Finalizing procurement; year ahead filing due October 31
5. Congestion Revenue Rights (“CRRs”)	<ul style="list-style-type: none"> • Annual Auction process runs August through November <ul style="list-style-type: none"> • <i>Historical load submittal in August</i> • <i>Path nominations in September</i> • <i>Results posted in November</i>

Reserves – Current Outlook for 2018

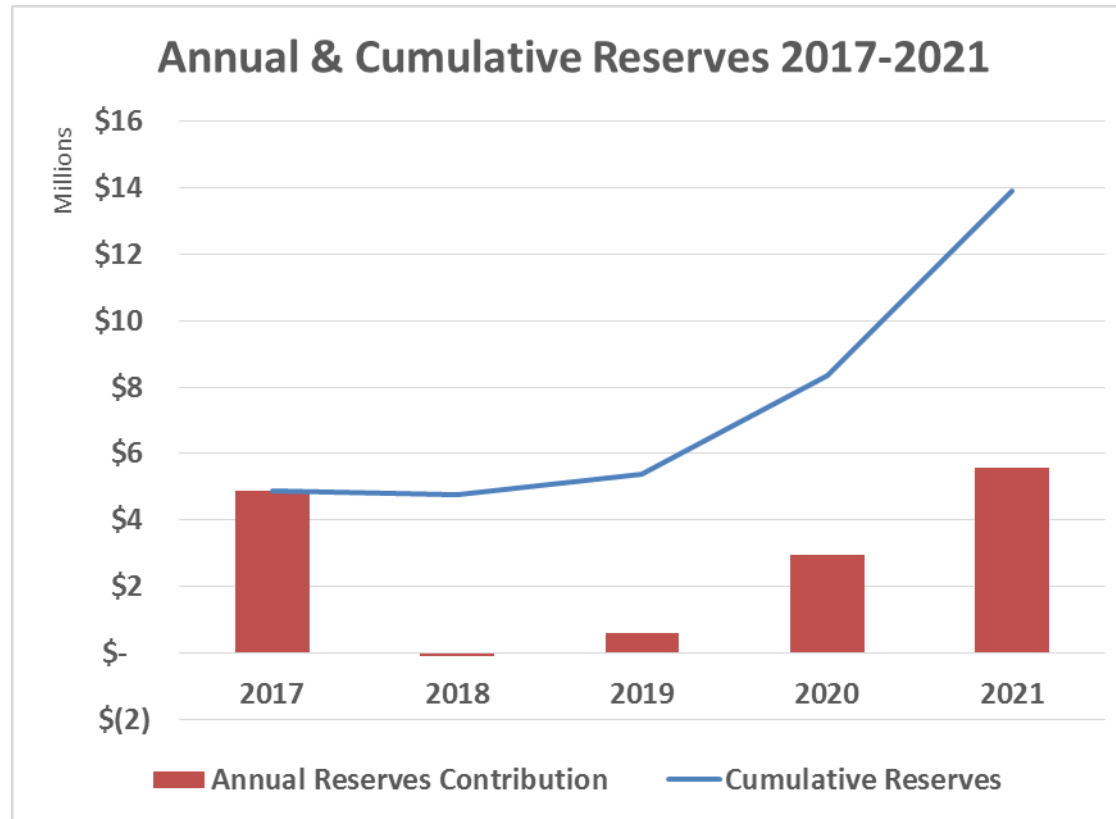
- Current Scenario
 - 40% RPS, 80% Non-thermal, 2.7% Rate Discount
- Reserves in 2018
 - Expect \$3.2mm
 - Probability of reserves > \$2mm is 69%
 - Probability of reserves <= \$0 is 5%
- Probabilities do not include uncertainty in Green Benchmark → Scenario Analysis

High PCIA Scenario



Renewable benchmark set at levels comparable to recent public power long-term PPAs for delivery beginning 2019

High PCIA Scenario



Regulatory/ Legislative Issues and Procurement

Changing Procurement Requirements and Rate Competitiveness Threats

- PCIA rule-making proceeding is ongoing
 - Workshops begin later this month
 - Proposed schedule includes testimony and hearings in March/April with proposed decision planned for July 2018
 - Soonest changes could be implemented are for 2019, more likely 2020 or later
- Upcoming changes to procurement requirements:
 - Contract for storage resource equal to 1% of peak load by 2020 and on-line by 2024
 - Effective 2021, 65% of renewable generation supply must be contracted on 10-year or greater term
- Continuing to build financial reserves critical to establishing creditworthiness needed to support long-term contracts and as risk mitigation tool

Operating Income - MCE

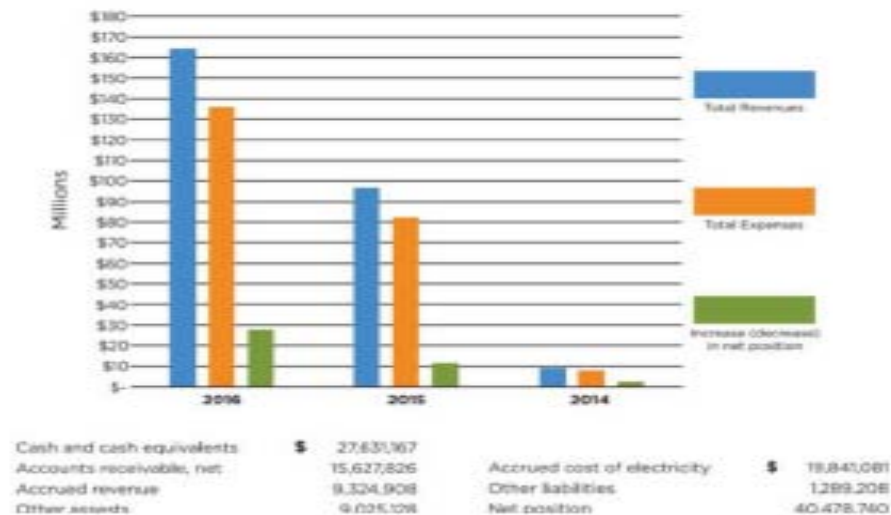
MCE's results of operations are summarized as follows for the fiscal year ended March 31:

	2017	2016	2015
Operating revenues	\$ 181,166,489	\$ 151,664,778	\$ 100,654,696
Interest income	105,271	12,179	3,716
Total income	<u>181,271,760</u>	<u>151,676,957</u>	<u>100,658,412</u>
Operating expenses	166,110,598	135,257,348	96,835,644
Interest and related expenses	32,515	144,858	124,485
Total expenses	<u>166,143,113</u>	<u>135,402,206</u>	<u>96,960,129</u>
Change in net position	<u>15,128,647</u>	<u>16,274,751</u>	<u>3,698,283</u>
Beginning net position	<u>29,531,070</u>	<u>13,256,319</u>	<u>9,558,036</u>
Ending net position	<u><u>\$ 44,659,717</u></u>	<u><u>\$ 29,531,070</u></u>	<u><u>\$ 13,256,319</u></u>

- MCE retained revenues ~10% in 2016 and 2017 accumulating \$45M in reserves

Operating Income - SCP

Financial Progress



- SCP retained revenues >10% in 2015 and 2016 accumulating \$40M in reserves

Operating Income – LCE

	Business-Type Activities		
	Enterprise Funds		
	Lancaster Power Authority	Lancaster Choice Energy	Total
OPERATING REVENUES:			
Sales and service charges	\$ 3,512,716	\$ 23,437,682	\$ 26,950,398
TOTAL OPERATING REVENUES	3,512,716	23,437,682	26,950,398
OPERATING EXPENSES:			
Purchased power	-	16,595,067	16,595,067
Administration and general	253,830	3,588,928	3,842,758
Depreciation expense	939,471	-	939,471
TOTAL OPERATING EXPENSES	1,193,301	20,183,995	21,377,296
OPERATING INCOME	2,319,415	3,253,687	5,573,102

- LCE retained revenues >10% in fiscal year ending June, 2016



Questions?



Appendix

Procurement Refresher

- Mandatory
 - Wholesale Market (CAISO)
 - Resource Adequacy (RA)
 - Renewable Portfolio Standard (RPS)
 - *Storage (needs to be under contract by 2020 w/ installation no later than 2024; volume requirement is 1% of 2020 peak)*
- Voluntary
 - Hedging for risk management (forward bilateral purchases)
 - Renewables beyond RPS requirements
 - GHG free or low carbon energy (i.e., large hydro)
 - Local generation
- Total Energy Supply = Energy + RPS + GHG free/low
- System Reliability Contribution = RA + Storage

Procurement Strategy

- RCEA needs to consider PG&E's portfolio to manage PG&E generation and PCIA rate risks
- To mitigate PCIA rate risk, procure 60% of RCEA's energy requirements one year at a time during October
- Including 13.25 aMW HRC purchase, about 75% of RCEA's 2018 energy requirements hedged by end of October
- To mitigate PG&E generation rate risk, balance of RCEA energy requirement will be hedged on a shorter-term basis

2015 POWER CONTENT LABEL		
ENERGY RESOURCES	Power Mix	2015 CA Total Mix**
Eligible Renewable	30%	22%
Biomass & biowaste	4%	3%
Geothermal	5%	4%
Eligible hydroelectric	1%	1%
Solar	11%	6%
Wind	8%	8%
Coal	0%	6%
Large Hydroelectric	6%	5%
Natural Gas	25%	44%
Nuclear	23%	9%
Other	0%	0%
Unspecified sources of power*	17%	14%
TOTAL	100%	100%

* "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 sold to California consumers during the previous year.

For specific information about this electricity product, contact:	Pacific Gas and Electric 415-973-0640
	California Energy Commission 1-844-217-4925
For general information about the Power Content Label, consult:	http://www.energy.ca.gov/pcl/