



2020

BUSINESS PROGRESS
REPORT

FEBRUARY



Northern California Power Agency
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Generation Costs & Reliability

Combustion Turbine Project

Unit Operation for January 2020

Unit	Availability		Production			Reason for Run
CT1 Alameda	Unit 1	Unit 2	Unit 1	566.5	MWh	CAISO / CAISO
	98.2%	78.6%	Unit 2	588.3	MWh	
Curtailments, Outages, and Comments:						
Unit 1:	1/21/20 - Alameda Unit 1 o/s vibration probe 1203-1616 OMS 8204023 1/29/30 - 1/30/20 - Alameda U1 o/s @ 2219 due to loss of lube oil temp. RTS 1/30 @ 0949 OMS 8232894					
Unit 2:	1/3/20 @ 1356 - 1/8/20 @ 1350 - Alameda U2 o/s due to fuel gas compressor trouble OMS 8147018 1/9/20 @ 1716 - 1/10/20 @ 1038 - Alameda U2 o/s due to failed temp probe OMS 6166318. 1/10/20 - Alameda U2 o/s due to oil tank heater trouble 1941-2151 OMS 8170179 1/13/20 @ 2000 - 1/14/20 @1200 - Alameda CT Unit 2 o/s at 2000 OMS 8178350 1/23/20 - @ 1000-1339 Low hydraulic pressure indication.					
Unit	Availability		Production			Reason for Run
CT1 Lodi	43.3%		0.0 MWh			CAISO
Curtailments, Outages, and Comments:						
1/6/20 -1/23/20 - Lodi CT annual maintenance. Returned at 1410 OMS 7821139						
Unit	Availability		Production			Reason for Run
CT2 STIG	100.0%		0.0 MWh			CAISO
Curtailments, Outages, and Comments:						
Normal operation.						
Unit	Availability		Production			Reason for Run
LEC	52.2%		64,887 MWh			CAISO
Curtailments, Outages, and Comments:						
1/16/20 @ 0400 - LEC plant trip ETR 5/30 OMS 8187484						

Maintenance Summary – Specific per asset above.

Geothermal Facilities

Availability/Production for January 2020

Unit	Availability	Net Electricity Generated/Water Delivered	Out-of-Service/Descriptors
Unit 1	27.02 %	19,460 MWh	U1 was off line from 1/1/20 until 1530 1/23/20 for PG&E line work/plant repowering
Unit 2	27.02 %	*5,693 MWh	U2 was off line from 1/1/20 until 1515 1/23/20 for PG&E line work/plant repowering
Unit 3	N/A %	N/A	Unit 3 remains out of service.
Unit 4	94.22 %	34,803 MWh	U4 was off line from 0100 1/21/20 until 2000 1/22/20 for 230kv line jumper install.
Southeast Geysers Effluent Pipeline	1.94 %	83.4 mgallons	Average flow rate: 1,900 gpm
Southeast Solar Plant	N/A	0 KWh	Year-to-date KWh: 2,598,995
Bear Canyon Pump Station Zero Solar	N/A	35,869 KWh	Year-to-date KWh: 3,792,591

* Accounts for an additional 108 MWh of house load for the 21KV power supply to the effluent pipeline supplied from Unit #2.

Hydroelectric Project

Availability/Production for January 2020

Units	Availability	Net Electricity Generated	Out-of-Service
Collierville Unit 1	98.62 %	7479 MWh	CV1 was out of service on 1/8/20 from 0214 to 0352 and on 1/9/20 from 0701 to 1545 for Lower Guide Bearing Oil Leak.
Collierville Unit 2	100 %	15561 MWh	No Outages to Report.
Spicer Unit 1	100 %	223 MWh	No Outages to Report.
Spicer Unit 2	94.38 %	1107 MWh	NSM Unit 2 was out of service on 1/27/20 at 2042 to 1/29/20 at 1430 for Cap Bank Trouble.
Spicer Unit 3	100 %	219 MWh	No Outages to Report.

Operations & Maintenance Activities:

- CMMS work orders
- Changed out Upper Guide Bearing Oil Level Switch on CV1

Environmental, Health & Safety (EH&S) Projects Incident Reports

- There were no Cal OSHA recordable or lost time accidents in the month of January. There was 1 vehicle accident, which occurred on January 16 at NCPA's CT facility. A forklift bumped a ballard, and both the ballard and forklift were scratched. The incident resulted in less than \$3000 in damages.
- Find below a Safety Report that highlights the following areas: recordable incidents and lost time accidents (LTAs) reported this period and this calendar year; the number of days since last recordable or LTA; the number of work hours since last recordable or LTA; and vehicle accidents reported this month and this calendar year. In September of 2012, Generation Services completed an internal audit of its records with the results reflected in this report and was updated through the payroll period ended January 18, 2020.
- The "CT Group" column reflects the combined safety numbers of all CT employees. Beginning with the November 2009 report, the CT Group Column also includes Lodi Energy Center staff.

January 2020 Generation Services Safety Report

	Hydro	GEO	CT Group *	NCPA HQ **
Cal OSHA Recordable (this month)	0	0	0	0
Cal OSHA Recordable (calendar year)	0	0	0	0
Days since Recordable	213	543	1,748	6,816
Work Hours Since Last Recordable	19,379	114,028	258,734	2,486,303
LTA's (this month)	0	0	0	0
LTA's (calendar year)	0	0	0	0
Days without LTA	4,482	1,611	9,652	5,745
Work Hours without LTA	408,276	331,003	699,278	2,108,321
Vehicle Incident (month)	0	0	1	0
Vehicle Incident (calendar year)	0	0	1	0

* CT Group: Combines CT-1, CT-2 and LEC Operations

** NCPA HQ: Roseville employees at the Main Office

Data originates from OSHA logs, HR records and payroll information.
Days and Hours are calculated through pay period ended January 18, 2020.

Power Management/NCPA Market Results

Dispatch and Schedule Coordination

- NCPA Dispatch and Schedule Coordination Center safely, reliably, and economically schedules, monitors, and manages NCPA and NCPA member power resources and loads 24 hours per day, 7 days per week on a continuous basis. This process includes balancing MSSA loads and resources on a 5-minute basis, optimizing NCPA resources and minimizing ISO costs.
- NCPA MSSA Load Data:

Current Year 2020 Data

	January 2020		Calendar Year 2020	
	Peak MW	MWh	Peak MW	MWh
NCPA Pool	336.72 1/16 @1900	197,528	336.72 1/16 @1900	197,528
SVP	472.32 1/16 @1200	316,398	472.32 1/16 @1200	316,398
MSSA	804.23 1/16 @ 1200	513,926	804.23 1/16 @ 1200	513,926

Last Year 2019 Data*

	January 2019		Calendar Year 2019	
	Peak MW	MWh	Peak MW	MWh
NCPA Pool	335.96 1/16 @1800	197,651	478.77 8/15 @ 1700	197,651
SVP	460.34 1/16 @1800	309,886	587.78 6/11 @1600	309,886
MSSA	796.31 1/16 @ 1800	507,537	1057.99 8/15 @ 1700	507,537

*Last year's data added for comparison purposes only

System Peak Data

	All Time Peak Demand	2020 Peak Demand
NCPA Pool	517.83 MW on 7/24/06 @ 1500	336.72 1/16 @ 1900
SVP	587.78 MW on 6/11/19 @ 1600	472.32 1/16 @1200
MSSA	1070.79 MW on 9/1/17 @ 1700	804.23 1/16 @ 1200

- NCPA MSSA has a Deviation Band with the CAISO, which is used as a performance measure by the CAISO. The ability to stay within this Deviation Band is a measure of NCPA Dispatch's ability to balance the MSSA Loads and Resources on a 5-minute basis. The following NCPA Deviation Band Performance table includes all deviations, including deviations from unit forced outages, metering and load outages, COTP, Western, and WECC curtailments.

NCPA Deviation Band Performance		
	January 2020	Calendar Year 2020
MSSA % Within the Band	93.03%	93.03%

- Spicer Meadows:
 - January 27 – 29, Unit 2 o/s due to cap bank trouble

- Geothermal Units:
 - January 1 – 19, Unit 1 and 2 remained off line due to Geysers 9 – Lakeville 230kV line outage
 - January 19 – 23, Unit 1 and 2 off line for Geo Plant 1 – Plant 2 transmission intertie project (shoo-fly)
 - January 21 -22, Unit 4 off line for Geo Plant 1 – Plant 2 transmission intertie project (shoo-fly)
 - January 22, Unit 4 returned to service, generating on the Geysers 9 – Lakeville 230kV line via shoo-fly connection
 - January 23, Unit 1 and 2 returned to service

- Lodi Energy Center:
 - January 16, plant off line due to combustion turbine failure. Unit remains o/s

- Alameda CTs:
 - January 3 – 8, Unit 2 o/s due to gas compressor trouble
 - January 9 – 10, Unit 2 trip due to exhaust temp issue
 - January 10, Unit 2 o/s due to oil tank temp sensor trouble
 - January 13 – 14, Unit 2 trip due to water injection trouble
 - January 15, Unit 1 failed start
 - January 21, Unit 1 trip due to vibration probe issue
 - January 23, Unit 2 failed start, low hydraulic pressure indication

- Lodi CT:
 - January 6 – 23, unit o/s for annual maintenance outage

- Collierville Units:
 - January 8, Unit 1 off line to add bearing oil
 - January 9, Unit 1 off line to repair bearing oil leak

- STIG:
 - No curtailments

Pooling, Portfolio Planning & Forecasting

- NCPA Pool load during January 2020 was 191,771 MWh, or 94.8% of forecast. Pool load through February 9th has been 55,314 MWh; about 5% lower than the same period during February 2019 on continuing mild temperatures and demand.
- Lodi Energy Center (LEC) operated every day during January, up until the forced outage on January 16, with 11,669 MWh generated for the Pool, or 47% of the pre-month forecast. LEC is expected to be offline at least through its regularly-scheduled maintenance outage in May.
- During January 2020, 3.15" of rain was recorded at the Big Trees gage. Average January Big Trees precipitation is 10.24".
- The Value of Storage (VOS) of New Spicer Meadow Reservoir (NSMR) has been maintained at \$55/MWh.
- NSMR storage as of January 31, 2020 was at 81,864 acre feet. The historical average NSMR storage at the end of January is 76,674 acre feet. As of February 11, 2020 NSMR storage is 80,944 acre feet. The current NCPA Pool share of NSMR storage is 41,446 acre feet.
- Combined Calaveras Project generation for the Pool in January 2020 totaled 12.3 GWh, slightly down from 12.9 GWh in December 2019. The Pool's 12.3 GWh in January 2020 was below the pre-month forecast of 15.6 GWh – due to below average precipitation during January.
- Western Base Resource (BR) deliveries for the Pool for January 2020 were 7,749 MWh, including Displacement energy totaling 39 MWh. The total was 38.3% of Western's pre-month forecast of pool-share 20,226 MWh. Through February 9th the Pool had received 4,982 MWh. The Pool's portion of Western's latest rolling forecast for February 2020 was 50,362 MWh.
- The PG&E Citygate gas index averaged \$2.635/MMBtu for delivery on February 10, 2020, below the average PG&E gas price during January of \$2.959/MMBtu as Western gas prices remain low, yet the highest in the country. With strong production and mild temperatures nationwide continuing, supply outweighs demand for now. The February 2020 PG&E Bidweek price is \$2.73/MMBtu, or 81 cents lower than the January Bidweek price at \$3.54/MMBtu.
- Day-ahead NP15 electricity prices averaged \$32.97/MWh (HLH) and \$29.32 (LLH) during January 2020, with the hourly TH_NP15 maximum at \$69.22 on the 6th of January.

NCPA Pool Loads & Resources Value Summary								
	Peak and Energy Summary Jan-20				Estimated Production Costs		Cost of Serving Demand	
	Coincident Peak (MW)	Total MWh	Pre-Month Forecast Values		NCPA Pool Cost/Revenue (Estimate)	Variable Cost (\$/MWh)	Totals	Avg (\$/MWh)
				Avg. MW				
Demand	336.7	191,771	202,311	257.8	N/A	N/A		
WAPA	-	7,749	15,104	10.4	\$ 962,107	\$ 124.16	\$ 6,282,029	\$ 32.76
Geothermal	-	21,873	13,490	29.4	415,593	19.00		
Hydro	-	12,300	14,667	16.5	73,800	6.00		
Stig & CTs	-	667	-	0.9	9,405	14.10		
LECs	-	11,366	25,191	15.3	368,041	32.38		
Contracts	-	113,963	102,523	153.2	4,838,632	42.46	\$ 7,614,688	\$ 39.71
Market - Net (Net Sales = Negative)	336.7	23,852	31,336	32.1	766,181	32.12		
Net Total	336.7	191,771	202,311	257.8	\$ 7,433,759	\$ 39.71		

Monthly Market Summary						
	Pool Energy (MWh)	HLH Avg MCP (\$/MWh)	Avg Variable Cost of Pool Generation (\$/MWh)	Forward Prices (EOX NP15_HLH Ask Prices)		
				NP15 1/2/2020 (\$/MWh)		2/10/2020 (\$/MWh)
				Feb-20	Mar-20	
Jul-19	212,102	\$ 33.30	\$ 56.98	Feb-20	\$ 40.55	\$ 30.62
Aug-19	224,328	\$ 34.79	\$ 37.80	Mar-20	31.21	27.17
Sep-19	200,894	\$ 37.46	\$ 40.97	Apr-20	26.63	24.76
Oct-19	186,955	\$ 38.43	\$ 33.39	Q2 2020	\$ 28.17	\$ 26.43
Nov-19	182,993	\$ 43.69	\$ 40.97	Q3 2020	51.66	46.02
Dec-19	182,993	\$ 43.69	\$ 48.09	Q4 2020	40.61	40.40
Jan-20	191,771	\$ 32.76	\$ 39.71	CY2021	\$ 41.05	\$ 38.88
Feb-20				CY2022	39.79	38.04
Mar-20				CY2023	36.99	36.00
Apr-20				CY2024	36.21	35.25
May-20				CY2025	35.90	34.92
Jun-20				CY2026	35.67	34.71

NOTES TO SUMMARY TABLE:

Peak and Energy Summary:

* Monthly generation summary of Coincidental Peak (hour in which pool demand peaked), total MWh for the month, and pre-month forecasted values for report period.

* Generation totals are for POOL SHARE of the projects.

* Hydro totals include Collierville and Spicer generation.

Estimated Production Costs:

* Fixed project costs not included except for WAPA, where total month's project costs are used to calculate the average unit cost.

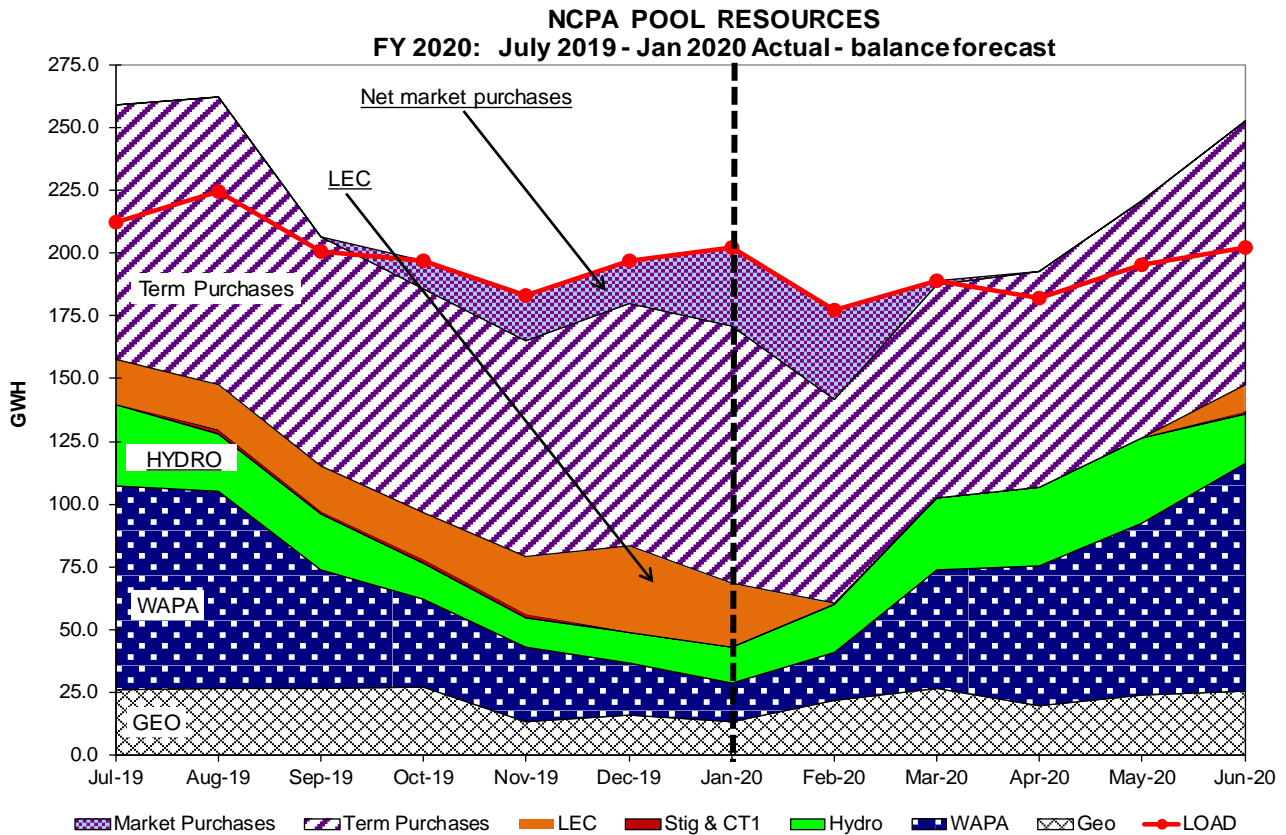
* STIG and CT costs include forward natural gas and basis hedge transactions.

* STIG & CT costs reflect \$2.60 and \$1.62/MWh variable O&M costs per 6-12-06 GSCA.

Cost of Serving Demand:

Compares price of meeting total monthly demand with (1) Hourly pool market clearing price;

(2) Variable cost of pool gen. Pool Gen is sum of estimated costs divided by sum of generation



Industry Restructuring, Contracts and Interconnection Affairs

Resource Adequacy Compliance Filings

- NCPA made the following Resource Adequacy compliance filings with the CAISO for the compliance period April 2020:
 - Monthly System Resource Adequacy Demonstration (filed January 16, 2020)
 - Monthly Supply Plan (filed January 16, 2020)

Industry Restructuring

NCPA is actively participating in a number of CAISO stakeholder initiatives on behalf of the members. The following is a brief description of key active initiatives:

Extended Day Ahead Market

- This initiative will develop an approach to extend participation in the day-ahead market to the Western Energy Imbalance Market (EIM) entities in a framework similar to the existing EIM approach for the real-time market, rather than requiring full integration into the California ISO balancing area. The extended day-ahead market (EDAM) will improve market efficiency by integrating renewable resources using day-ahead unit commitment and scheduling across a larger area.
- CAISO responded to stakeholder concerns and is extending the process to include more workshops to deal issues such as transmission cost allocation. The next meeting is scheduled for 2/11/2020.

Resource Adequacy Enhancements

- Due to the rapid transformation of the resource mix in California, the CAISO is currently re-examining the CAISO Resource Adequacy requirements and rules. This initiative will explore changes to the CAISO's Resource Adequacy requirements and rules to ensure the resources providing reserve services are effectively supporting reliable operations of the grid.
- CAISO is proposing massive overhauls to its RA program in conjunction with CPUC changes. Specific areas the CAISO is looking at are termination of the Resource Adequacy Availability Mechanism for System capacity and replacing it with "less complicated" counting rules similar to eastern RTOs, import eligibility, exemptions, and redefining Planned and Forced outages.
- CAISO published a Third Revised Straw Proposal and scheduled a stakeholder meeting for 1/7/2020. Maximum import capability calculation and allocation portions were moved to a separate and distinct placeholder initiative. CAISO removed long and fast ramp proposals. However, CAISO failed to adequately address NCPA's concerns regarding jurisdiction, hydro counting, and the UCAP deficiency tool, among others. NCPA will continue to advocate at meetings and in comments.

Day-Ahead Market Enhancements

- This initiative will explore new day-ahead products that will address ramping needs between intervals and uncertainty that can occur between the day-ahead and real-time markets.
- CASIO reviewed the need for new products along with data supporting uncertainty concerns:

- Uncertainty between day-ahead and real-time market has increased from 2017 to 2019 and CAISO operators are addressing this development with out of market actions which disrupts market efficiency
- Historically, generators had higher certainty to know if they would be scheduled in real-time
- Due to uncertainty and changing resource fleet, commitment decisions are no longer necessarily known
- Gas, hydro, storage, and imports need to cover costs to be available for dispatch in real-time – this will be accomplished with imbalance reserves
- Two new products:
 - Imbalance Reserve Product (IRP) will be designed to address granularity and uncertainty between day-ahead and real-time markets:
 - Hourly product; 15-minute dispatchable; Biddable; Covers granularity difference and uncertainty between DAM and FMM; All awards are co-optimized and settled simultaneously; DAM has no energy price formation issue because the market solves all hours in a single optimization; Stepped relaxation parameters (proposed)
 - Reliability Energy: replaces RUC process used to address gaps between bid in demand and forecast demand.
- CAISO reviewed two options for applying IRP and REN:
 - Option 1 – Financial
 - Co-optimizes bid-in demand, ancillary services and imbalance reserves
 - Imbalance reserves cover historical uncertainty between IFM cleared net load and FMM net load
 - Exceptional dispatch if IFM clears inconsistent with operational needs
 - Option 2 – Financial + Forecast
 - Co-optimizes bid-in demand, ISO reliability capacity, ancillary services and imbalance reserves
 - Imbalance reserves cover historical uncertainty between ISO's day-ahead net load forecast and FMM net load
 - Reliability capacity covers differences between ISO net load and cleared net load
 - Exceptional dispatch if IFM/RUC clears inconsistent with operational needs
- CAISO reviewed policy alignment and relationships among Day Ahead Market Enhancements, Extending Day Ahead Market to EIM, and Resource Adequacy Enhancements. Fall 2021 target.
- NCPA Comments included tentative support of Option 2 along with requests for special Load Following MSS cost allocation netting.
- The next meeting is scheduled for March

Review Transmission Access Charge Structure

- This initiative will consider possible changes to the CAISO's current volumetric Transmission Access Charge (TAC) structure for recovering participating transmission owners' costs of owning, operating and maintaining transmission facilities under CAISO operational control. The CAISO will consider stakeholder input on the initiative scope, which will include possible changes to reflect the benefits of distributed resources in reducing future transmission needs.

- CAISO’s draft final proposal includes a hybrid billing determinate consisting of volumetric and peak demand functions in order to address costs shifts as well as the full impact of high coincident peak demand, low load factor UCD areas that have relatively lower volumetric use compared to high load factor areas. It received general support from the market and will be presented to the CAISO board this year.
- NCPA performed an impact analysis and determined that NCPA members would mostly benefit or be indifferent to the new billing determinant so long as certain LFMSS benefits remain in place.

Hybrid Resources

- CAISO published a Revised Straw Proposal and held a working group meeting on December 17, 2019. The proposal further establishes barriers to Hybrid Resources (i.e., multiple technologies share a meter and resource ID) by proposing requirement to submit forecast for storage component.
- As generation developers become increasingly interested in pairing energy storage with existing or proposed generation, this initiative will explore how such “hybrid” generation resources can be registered and configured to operate within the ISO market. This initiative will develop solutions allowing developers to maximize the benefits of their resource’s configuration. Hybrid resource configurations also raise new operational and forecasting challenges that ISO plans to address during this initiative.
- CAISO refers to hybrid projects or hybrid resources as a combination of multiple technologies or fuel sources combined into a single resource with a single point of interconnection. Projects are not required to include storage to be considered hybrid resources.
- Approximately 41% of the total capacity currently seeking interconnection is hybrid resource configurations.
- Initial Objectives:
 - Promote the reliable and efficient integration of hybrid resources
 - Address additional technical questions surfaced by increasing numbers and interest in hybrid resources:
 - Configurations, metering, operations, market participation, and settlements
 - Address new operational and forecasting challenges raised by hybrid resources
 - New requirements may be needed to provide reliable participation by hybrid resources
- CAISO prefers customers to register a resource ID for each technology/fuel source for increased visibility in order to address uncertainty issues. CAISO reminds participants that separate resource IDs are required to provide forecasts for hybrid resources that include eligible/participating intermittent resources. The forecasts help to minimize uninstructed imbalance energy charges.

Western

Western Base Resource Tracking (NCPA Pool)

Western Base Resource Tracking - NCPA Pool							
	Actual			Costs & Rates			
	BR Forecast ¹ (MWh)	BR Delivered (MWh)	Difference (MWh)	Base Resource & Restoration Fund (\$)	Monthly Cost of BR ² (\$/MWh)	CAISO LMP Differential ³ (\$/MWh)	12-Mo Rolling Avg. Cost of BR ⁴ (\$/MWh)
Jul-19	95,615	81,155	(14,460)	\$2,134,816	\$ 26.31	\$ (0.02)	\$ 30.98
Aug-19	75,245	78,474	3,229	\$2,134,816	\$ 27.20	\$ (0.02)	\$ 30.65
Sep-19	46,290	47,422	1,133	\$2,049,840	\$ 43.23	\$ (0.17)	\$ 31.31
Oct-19	23,193	54,290	31,097	\$962,107	\$ 17.72	\$ 0.06	\$ 30.64
Nov-19	7,602	29,611	22,009	\$962,107	\$ 32.49	\$ 0.04	\$ 30.47
Dec-19	6,564	20,786	14,222	\$962,107	\$ 46.29	\$ 0.11	\$ 30.64
Jan-20	9,331	7,749	(1,582)	\$582,148	\$ 75.13	\$ 0.15	\$ 30.44
Feb-20	17,163	-	(17,163)	\$769,511	\$ 44.84	\$ -	\$ 30.45
Mar-20	27,643	-	(27,643)	\$962,107	\$ 34.80	\$ -	\$ 29.93
Apr-20	52,877	-	(52,877)	\$2,167,410	\$ 40.99	\$ -	\$ 29.78
May-20	84,464	-	(84,464)	\$2,167,410	\$ 25.66	\$ -	\$ 30.50
Jun-20	90,039	-	(90,039)	\$2,167,410	\$ 24.07	\$ -	\$ 30.91
1/ As forecasted in NCPA 19/20 Budget							
2/ = (Western Cost + Restoration Fund)/BR Delivered, for Pool Participants only.							
3/ = (MEEA LMP - PG&E LAP LMP) using public market information (i.e. not settlement quality).							
4/ Based on BR Delivered (Actual) when available and BR Forecast in all other cases. Includes CAISO LMP impact.							

- NCPA Pool received 7,749 MWh Base Resource (BR) energy in January 2020. This includes 39 MWh of Displacement Energy for an estimated savings of \$215 or about \$5.60/MWh.
- Pool Members' total savings under Market Efficiency Enhancement Agreement (MEEA) for Pool Members was approximately \$1,100 in January 2020. FY 2020 so far shows a net MEEA savings of negative \$400 due to lower congestion prices for import at COTP as opposed to MEEA prices (July 2019 through October 2019). Despite MEEA Benefits are negative June 2019 through September 2019, there are significant benefits for MEEA prices since the program started in December 2015. NCPA will continue to closely monitor MEEA Benefits.

Western Base Resource Scheduling Flexibility

- WAPA and BOR implemented Base Resource Min-Take Experiment 1 and Experiment 2 late February 2019. Experiment 1 allows for lower minimum takes in daylight low-value hours; while Experiment 2 allows for reduction in minimum takes in surrounding hours by raising minimum takes in the morning on-peak hours. These two experiments became the standard operating process for the BR allocation process in September 2019. Experiment 3 customer pre-disclose energy beginning operating date July 11, 2019. The intent is to potentially lower the Base Resource Min-Take even more for all Base Resource customers during the low value hours. NCPA calculated Pool Members has an increased flexible energy of 13,760 MWh and added BR Market value of \$67,516, which calculated an average of \$5.80/MWh

of additional flexibility for July 2019 through November 2019. Experiment 3 was suspended effective operating date December 16, 2019 due to decrease in BR availability. WAPA plans to discuss Experiment 3 and any future experiments in the next Customer Coordinating Committee (CCC) meeting on February 11th. More updates will be provided to members as it becomes available.

Draft 2025 Base Resource Contract

- WAPA held its final meeting with customers on the 2025 Base Resource contract on January 23, 2020. WAPA and customers reviewed draft 5 and completed the contract language during the meeting. WAPA plans to send final contracts by March 2020. Each entity will then have six months to execute the contract. NCPA will continue to provide members updates in the Pooling Committee and Federal Power Working Group meetings.

Interconnection Affairs

PG&E Update

Kincaid Fire and Geo Plants

- NCPA was able to construct the intertie between Geo Plant 1 and Plant 2. Currently all units are planned to generate onto the Lakeville line until 02-29-2020 at which point both PG&E's lines (Fulton and Lakeville) will be back in service. NCPA will likely have both Geo Plants offline prior to the 29th to remove the intertie in order to return to normal operations.

TO-20 Rate Case

- This case is close to settlement except on ROE. Partial settlement is planned to be filed at FERC by March 31, 2020 or sooner. Staff will monitor progress and report back.
- FERC 890 case/PG&E's self-approved projects stakeholder process is now part of the TO-20 settlement discussions. CPUC and Joint Interveners have proposed Stakeholder Review Process as an appendix to the TO-20 settlement. This process is very likely to be settled by March 31, 2020.

Cotenancy Agreement

- PG&E with support from NCPA and SVP filed an amendment that acknowledged CDWR's request for termination. The amendment rejected CDWR's request, pending resolution of the Cost of Removal dispute. All other matters have been delayed until this issue is resolved.
- On September 27, 2019 FERC rejected PG&E's amendment stating PG&E cannot unilaterally extend the term of the Agreement. FERC did not address the cost of removal aspect and the calculation methodology. NCPA has initiated discussions with members as to how much capacity from CDWR's share should NCPA take. Pending the outcome of the capacity discussion, NCPA and SVP will look at next steps. More updates will be provided to members they become available.

Debt and Financial Management

- The Federal Reserve voted unanimously to keep the federal funds rate unchanged maintaining a target range at 1.50% to 1.75% at its first meeting in January. Fed Chair Jerome Powell has repeatedly stated that the FOMC would need to see a material change in the economy to knock rates higher or lower. The big risks to the economic outlook come from the rest of the global economy. Most notably, the coronavirus has become an economic cause for concern, one that Powell identified early on in his press conference.
- After the Fed's statement, the 2-year Treasury fell 4 basis points to 2.54% while the 10 year yield fell 2 basis points to 2.70%. Based on the effective Fed fund futures, the probability of at least one rate cut at the June meeting was 35% and the probability of at least one rate cut at the December meeting was 77%.
- At the February Finance Committee meeting, PFM provided an update on the potential refunding opportunity regarding the 2012 Hydroelectric bonds. Interest rates have dropped since November, further improving the refunding metrics. The table below reflects an update of the two options. Taxable Refunding (12.47% NPV savings) and a Forward Starting Swap (20.50% NPV savings).

As of 2/3/2020	Taxable Advance Refunding	+50bps		-50bps
		Forward Swap Refunding	Forward Swap Refunding	Forward Swap Refunding
Delivery Date	6/10/2020	4/5/2022	4/5/2022	4/5/2022
First Interest Payment Date	7/1/2020	1/1/2023	1/1/2023	1/1/2023
UW Discount (\$/bond)	\$2.50	\$2.50	\$2.50	\$2.50
COI	472,780	472,780	472,780	472,780
Par	82,100,000	61,145,000	60,905,000	61,380,000
Total Escrow Deposit	84,017,675	78,423,279	78,330,440	78,546,467
NPV Savings (\$)	9,560,946	15,713,497	16,023,151	15,439,390
NPV Savings (%)	12.47%	20.50%	20.90%	20.14%
Arbitrage Yield	2.08%	0.85%	1.34%	0.35%
Negative Arbitrage	1,167,722	3	3	3
TIC	2.11%	0.89%	1.39%	0.39%

The Finance Committee directed staff to hold a working group meeting of the project participants to discuss this refunding opportunity. The Forward Swap refunding opportunity creates the most economic savings but requires approving swap documents. Staff plans to send a meeting invite over the next month.

Schedule Coordination Goals

Software Development

- Technology upgrade and development of the NADS application is in progress. The go-live date is scheduled to coincide with the MSG rollout for LEC.
- IS Staff is coordinating with Power Management Dispatch and Scheduling and SVP to provide manpower assistance to SVP's real-time operations during the weekend shifts. Additional computer hardware has been setup to support the extended SC and Dispatch operation. IS Staff is currently coordinating with both NCPA and SVP

Scheduling staff to establish remote session capability for training and knowledge transfer. The training activity is scheduled to last through the month of February.

- Review of the current Accounting Business Process was delayed but the intended upgrade of the main accounting system, Microsoft Dynamics GP is still anticipated to be completed middle of next year.

Network

- Progress continues to be made upgrading staff to Windows 10 with over 85% of the Agency on the new Operating System. IS Staff are working with individual departments to upgrade the few remaining Windows 7 machines and anticipate to be completed in the coming weeks.
- The Ops and Support group has been working alongside Power Management and Settlements in preparation for the CAISO MSG market simulation later this year. Part of this effort will include enhancements to SCADA control logic for LEC configurations along with updating dispatch control center screens.
- IS has begun enhancing security for Office 365 which will now require NCPA employees to use Multifactor Authentication, which requires a password and a one-time token code. IS will be working with all departments and staff to get this setup by the end of February 2020.
- IS is working with Generation Services, Power Management and CAISO to implement needed changes to accommodate the shoofly work being performed at the Geothermal plant. This includes modeling changes to our SCADA system along with how meter data values are represented within our business applications.
- IS has begun to work alongside Compliance to prepare to meet the CIP medium impact requirements. Policy and procedures are being drafted in preparation for first review by the Compliance Working Group by spring of this year.

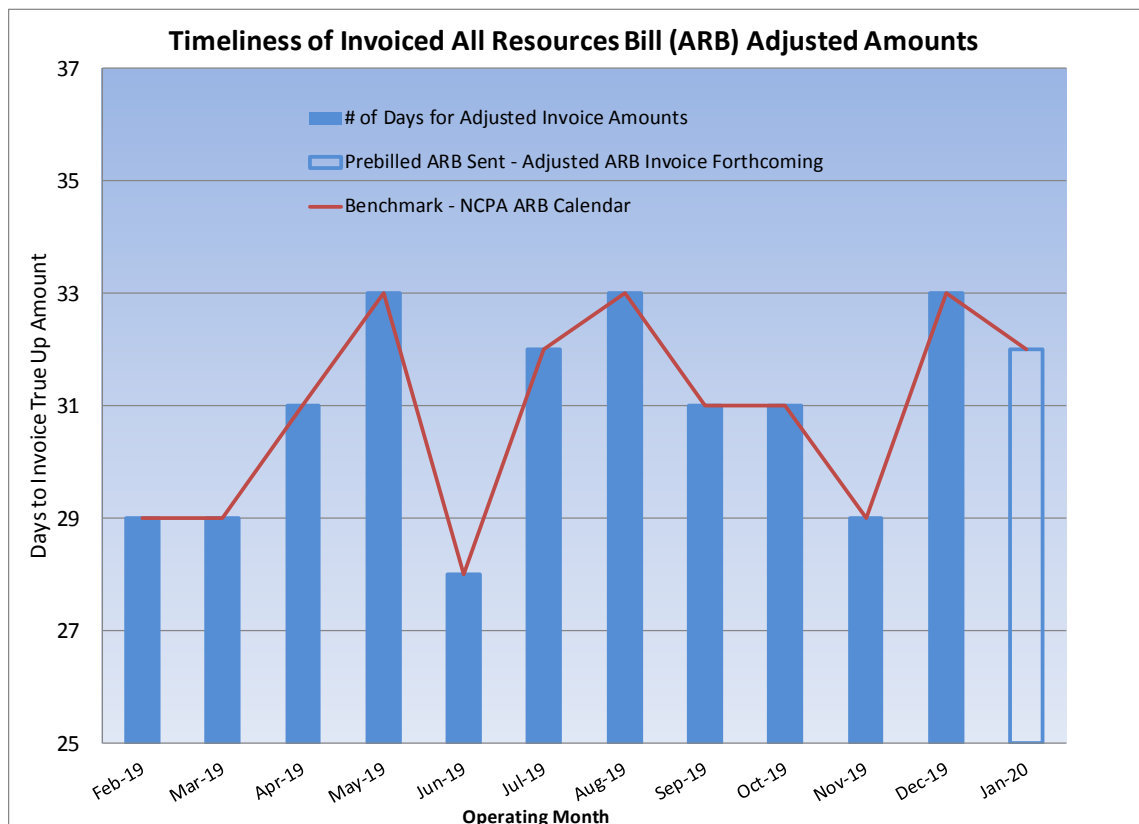
NCPA Bills & Settlements

Progress Against the Strategic Plan

Adjusted Power bills, which include CAISO transactions, invoiced to members the following month subsequent to the monthly pre-billed ARB month. Timely ARB settlements adjustments help improve members' cash flow and reconciliation of their budget performance.

The January 2020 NCPA All Resources Bill (ARB) monthly invoice sent to members on December 24, 2019 contains:

- January 2020 monthly pre-billed budget/forecast amounts;
- November 2019 (1st Adjustment) NCPA Project and CAISO Initial settlement true-ups;
- October 2019 (2nd Adjustment) NCPA Project settlement true-up and T+12 business day recalculated CAISO settlement true-up allocations;
- August 2019 (3rd Adjustment) T+55 business day recalculated CAISO settlement true-up allocations and NCPA Projects true-up;
- February 2019 (4th Adjustment) T+9 month recalculated CAISO settlement true-up allocations;
- April 2018 (5th Adjustment) T+18 month recalculated CAISO settlement true-up allocations;
- January 2017 (6th Adjustment) T+33 month recalculated CAISO settlement true-up;
- October 2016 (7th Adjustment) T+35 month CAISO settlement true-up;



Legislative & Regulatory

Political Arena State/Federal/Western Programs

- NCPA is taking steps to ensure that NCPA members can develop community solar projects in their communities as an alternative to a statewide requirement to place rooftop solar on newly-constructed residential buildings. In late January, NCPA sent a letter of support to the California Energy Commission to approve a proposal from the Sacramento Municipal Utility District (SMUD) to administer a community-shared solar system as an alternative to the onsite photovoltaic requirements mandated in the 2019 Building Energy Efficiency Standards Code. The anticipated approval of the SMUD proposal at the CEC's February 20th business meeting will open the door for NCPA members to consider community solar as an option in the future.
- On February 11, 2020, NCPA staff held a two-part member workshop on issues related to the Renewables Portfolio Standard (RPS) and wildfire policy matters. During the sessions, staff provided updates on regulatory and legislative proceedings and facilitated discussion on members' anticipated RPS Procurement Plan updates and Wildfire Mitigation Plan evaluations.
- NCPA staff continue to monitor new bill introductions and amendments as the State Legislature nears its February 21 bill introduction deadline. Bills introduced thus far include topics such as changes to Public Safety Power Shut-off procedures and utility de-energization practices, the municipalization of Pacific Gas & Electric Company, and reducing costs associated with the installation of distributed energy resources, among other topics.

Human Resources

Hires:

None

Intern Hires:

None

Promotions/Position Changes:

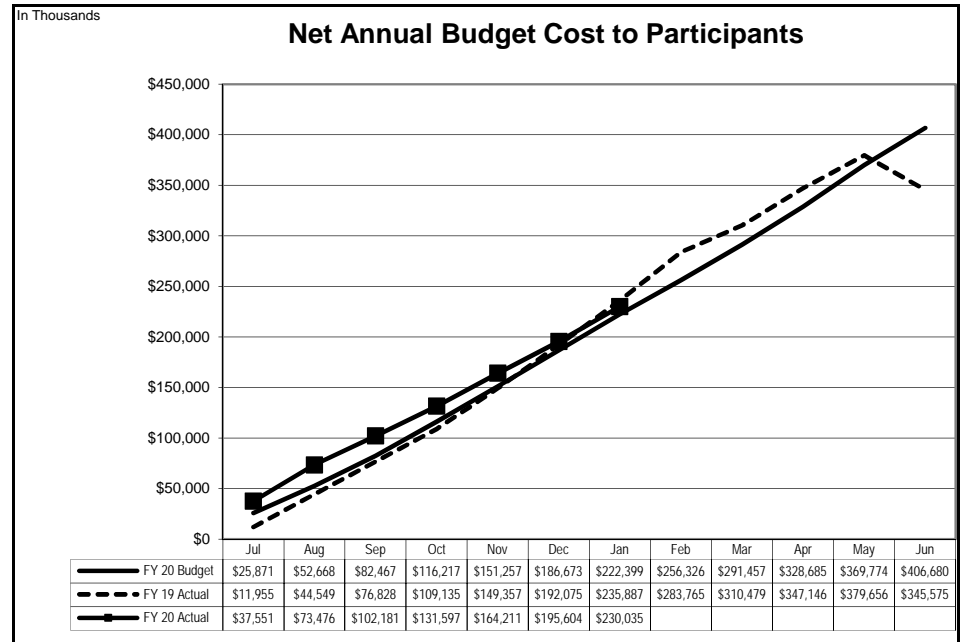
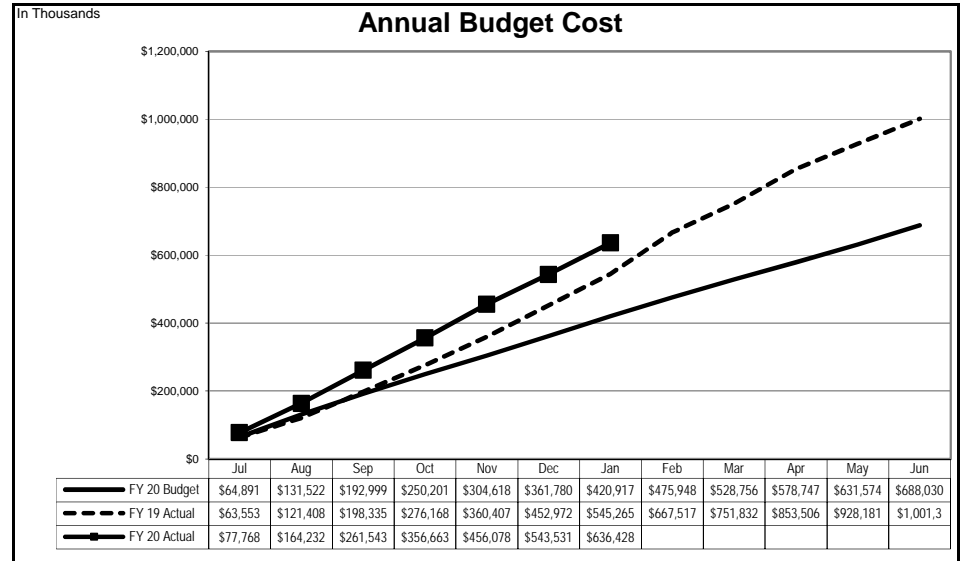
None

Separations:

- Ron Yuen, Supervisor II, Generation Services, retired from his position at our Roseville Headquarters office after over six years of service with NCPA, effective February 3, 2020
- Jeremiah Wiltron, Computer Technology Analyst III, resigned from his position at our Roseville Headquarters office to pursue other career opportunities, effective January 24, 2020.

**Annual Budget
2019-2020 Fiscal Year To Date
As of January 31, 2020**

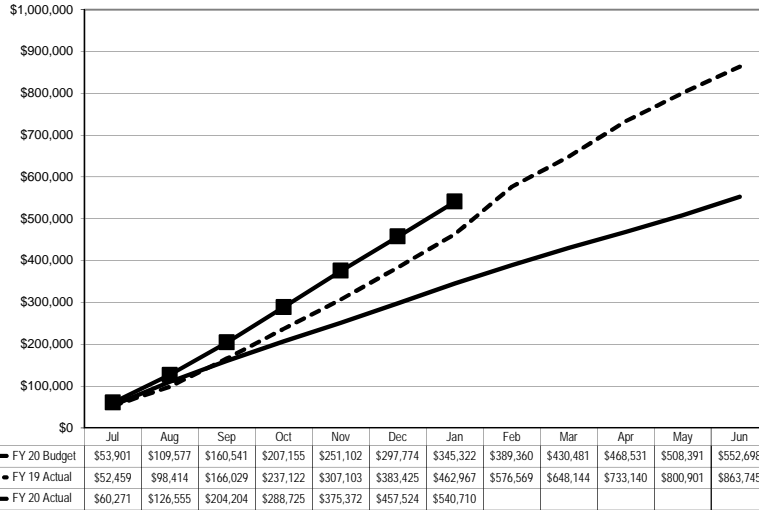
In Thousands	Program			
	Annual Budget	Actual	Under(Ovr) Budget	YTD % Remaining
GENERATION RESOURCES				
NCPA Plants				
Hydroelectric	54,074	30,428	\$ 23,646	44%
Geothermal Plant	35,311	20,655	14,656	42%
Combustion Turbine No. 1	6,170	3,402	2,767	45%
Combustion Turbine No. 2 (STIG)	9,438	5,491	3,948	42%
Lodi Energy Center	92,960	49,296	43,664	47%
	197,953	109,273	88,681	45%
Member Resources - Energy	56,229	37,065	19,164	34%
Member Resources - Natural Gas	3,541	2,703	838	24%
Western Resource	23,325	11,611	11,714	50%
Market Power Purchases	15,123	14,343	781	5%
Load Aggregation Costs - ISO	256,030	364,217	(108,187)	-42%
Net GHG Obligations	497	1,500	(1,003)	-202%
	552,698	540,710	11,988	2%
TRANSMISSION				
Independent System Operator	117,089	85,596	31,493	27%
MANAGEMENT SERVICES				
Legislative & Regulatory				
Legislative Representation	2,132	1,124	1,008	47%
Regulatory Representation	748	372	376	50%
Western Representation	745	335	410	55%
Customer Programs	424	128	296	70%
	4,049	1,960	2,090	52%
Judicial Action	625	270	355	57%
Power Management				
System Control & Load Dispatch	6,082	3,457	2,626	43%
Forecasting & Prescheduling	2,934	1,408	1,526	52%
Industry Restructuring	414	207	207	50%
Contract Admin, Interconnection Svcs & Ext. Affairs	954	527	427	45%
Gas Purchase Program	77	37	40	52%
Market Purchase Project	111	50	62	55%
	10,573	5,685	4,888	46%
Energy Risk Management	212	77	135	64%
Settlements	980	446	534	55%
Integrated System Support	243	27	216	89%
Participant Pass Through Costs	1,560	775	786	50%
Support Services	-	883	(883)	
	18,243	10,122	8,121	45%
TOTAL ANNUAL BUDGET COST	688,030	636,428	51,603	8%
LESS: THIRD PARTY REVENUE				
Plant ISO Energy Sales	127,624	59,408	68,216	53%
Member Resource ISO Energy Sales	29,156	18,117	11,040	38%
Member Owned Generation ISO Energy Sales	67,108	42,960	24,147	36%
NCPA Contracts ISO Energy Sales	15,623	11,512	4,111	26%
Western Resource ISO Energy Sales	18,304	13,344	4,960	27%
Load Aggregation Energy Sales	-	203,132	(203,132)	
Ancillary Services Sales	4,197	4,482	(285)	-7%
Transmission Sales	110	64	46	42%
Western Credits, Interest & Other Income	19,227	53,372	(34,145)	-178%
	281,350	406,393	(125,042)	-44%
NET ANNUAL BUDGET COST TO PARTICIPANTS	406,680	230,035	\$ 176,645	43%



Annual Budget Budget vs. Actual By Major Area As of January 31, 2020

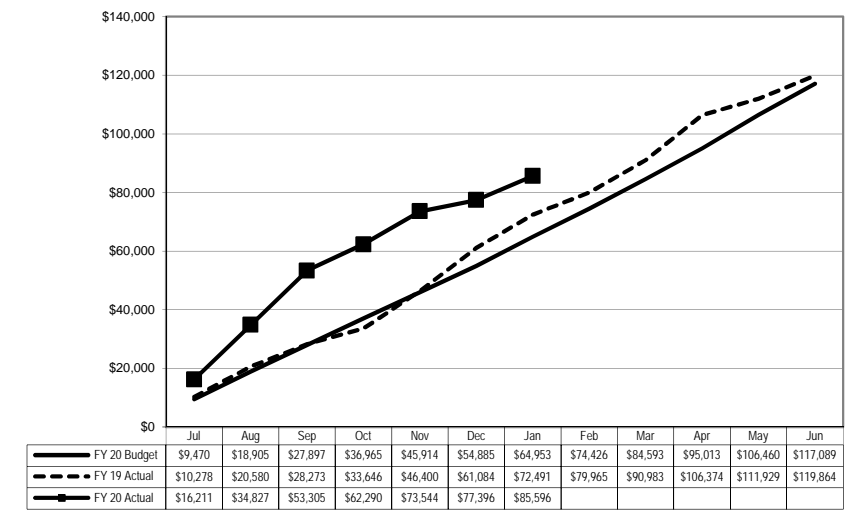
In Thousands

Generation Resources



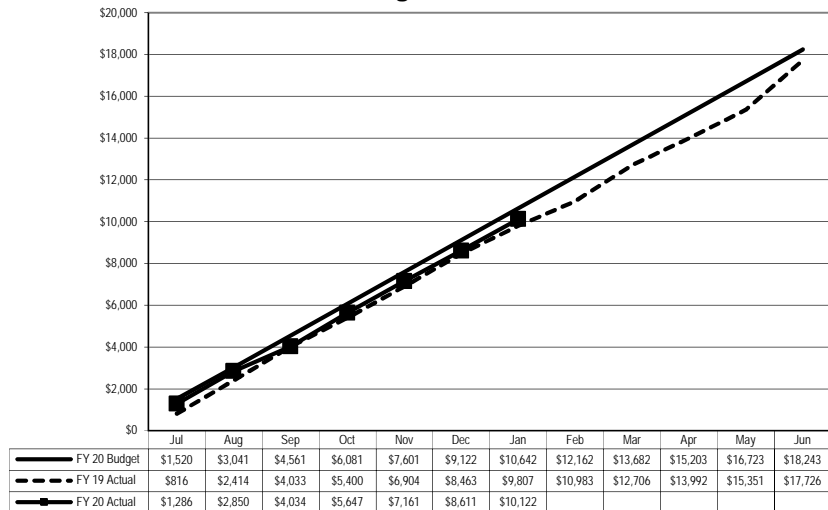
In Thousands

Transmission-ISO



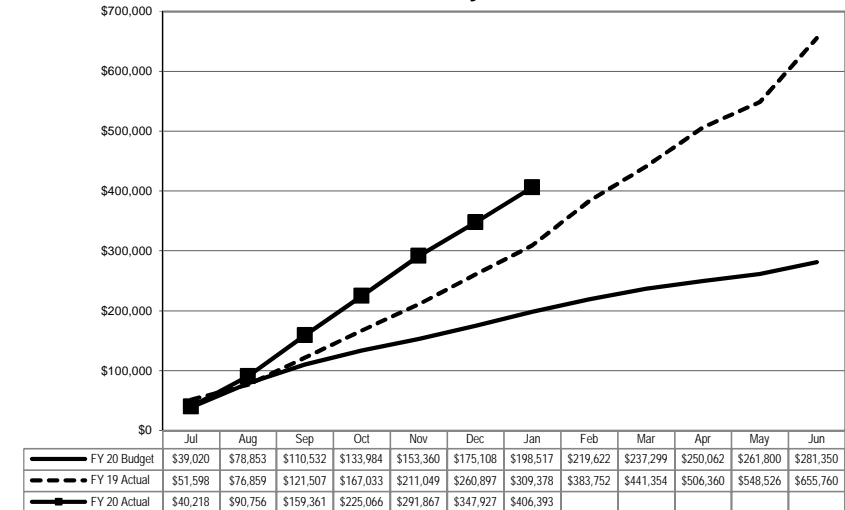
In Thousands

Management Services



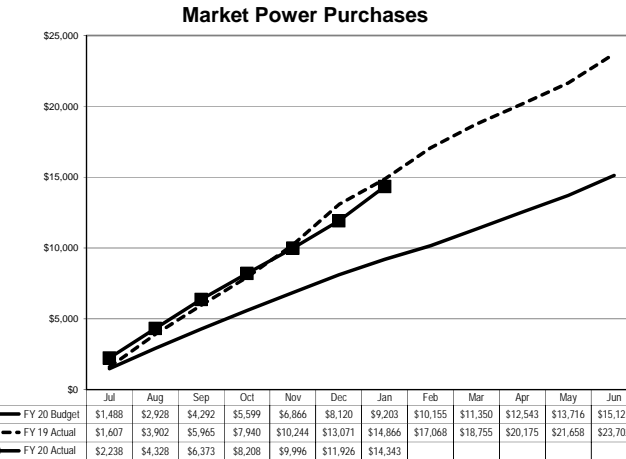
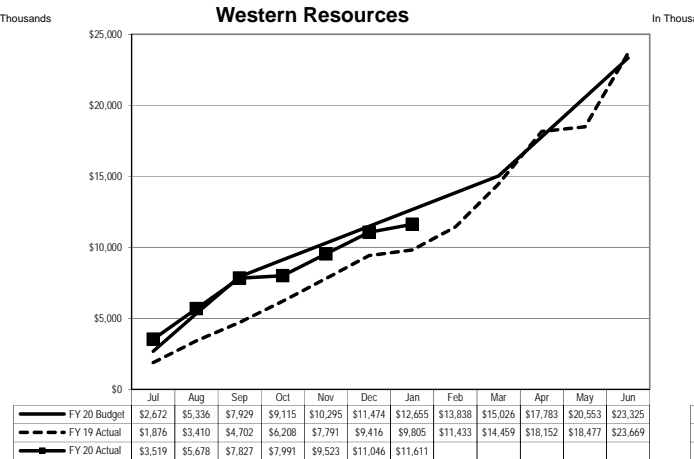
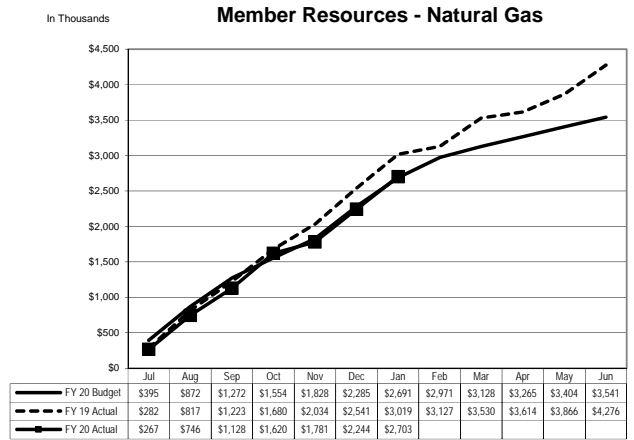
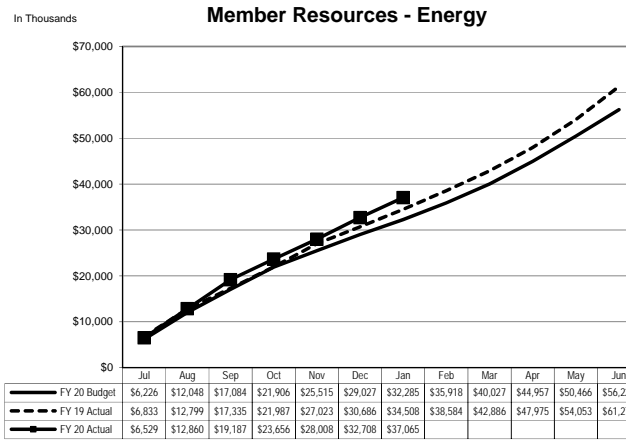
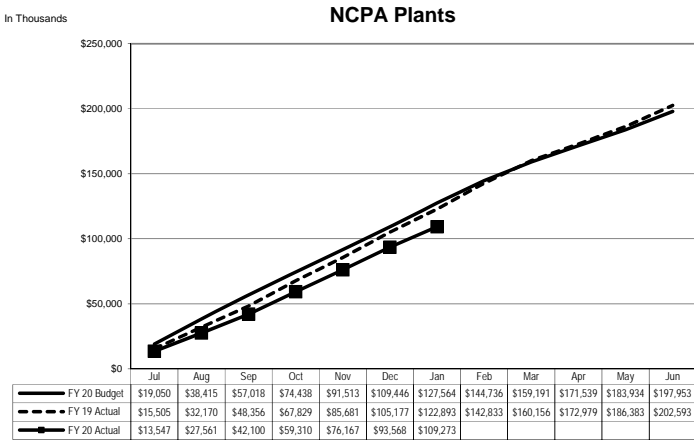
In Thousands

Third Party Revenue



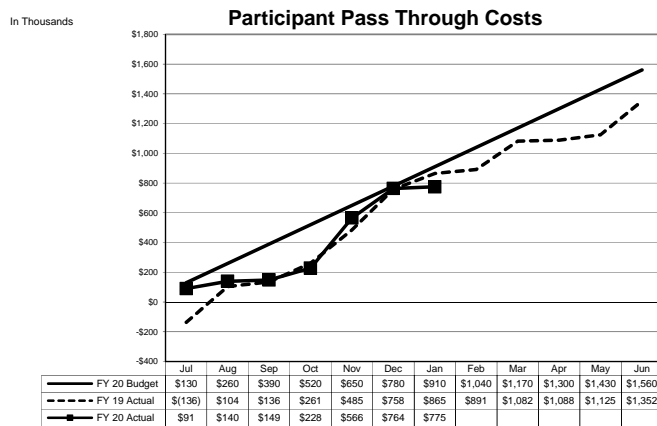
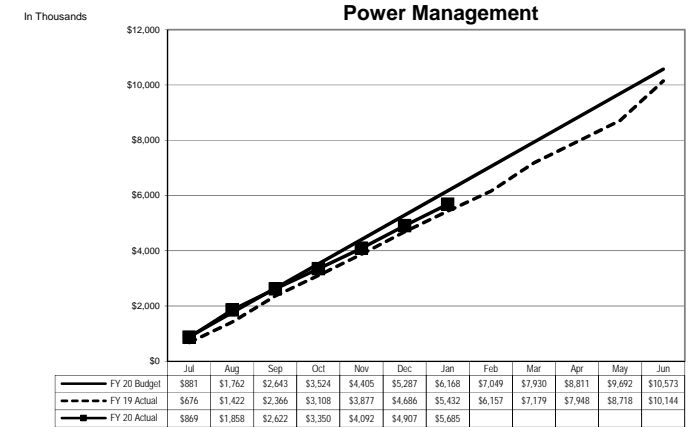
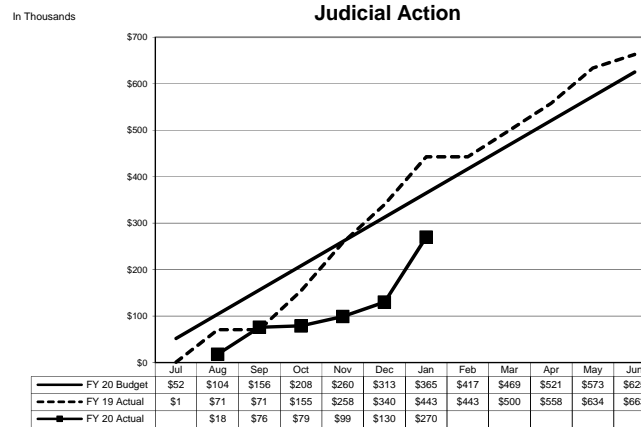
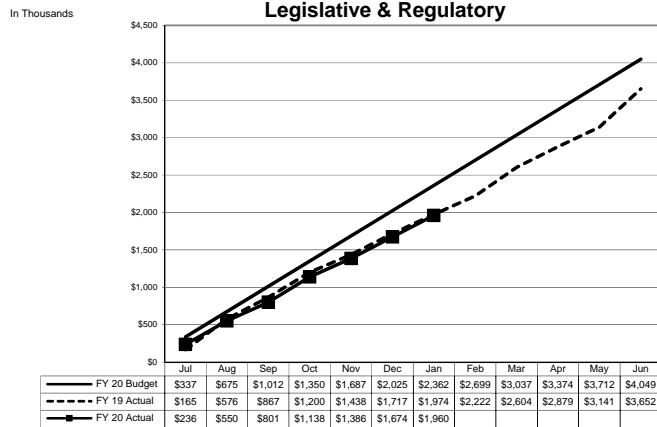
Footnote: Transmission is solely reflective of Independent System Operator (ISO) costs

**Annual Budget Cost
Generation Resources Analysis By Source
As of January 31, 2020**



Footnote: Other Resources (Graeagle, BART PV, Gridley PV) are included in Market Power Purchases

**Annual Budget Cost
Management Services Analysis By Source
As of January 31, 2020**

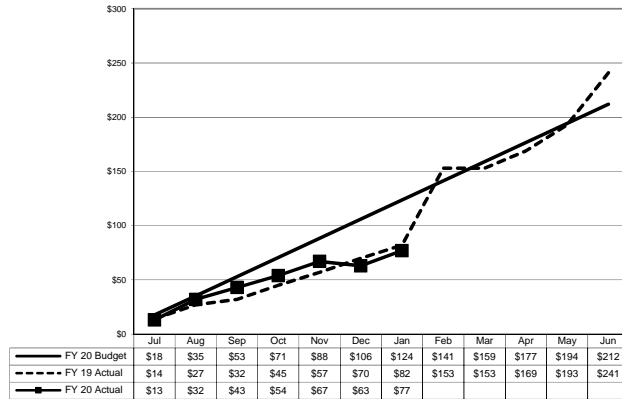


**Annual Budget Cost
Management Services Analysis By Source
As of January 31, 2020**

In Thousands

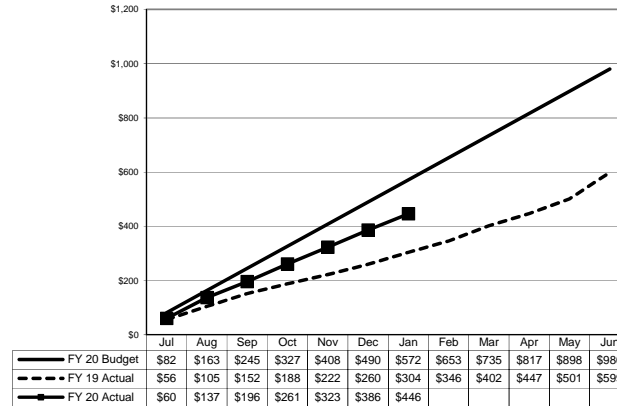
Energy Risk Management

In Thousands

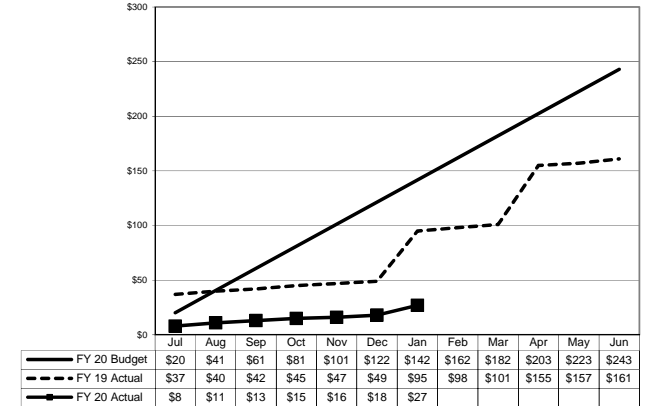


Settlements

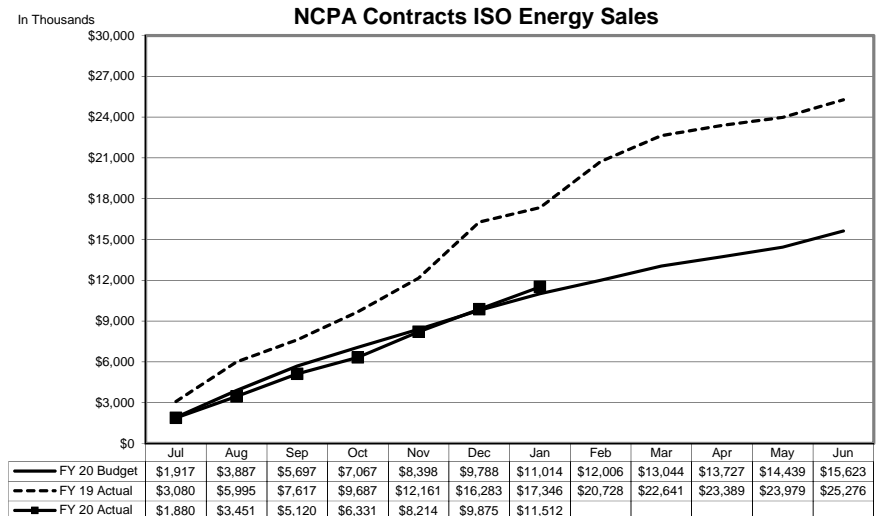
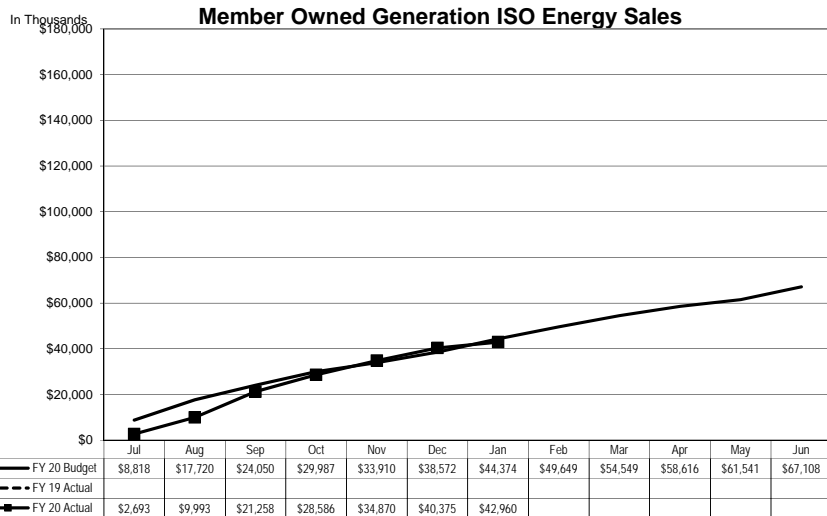
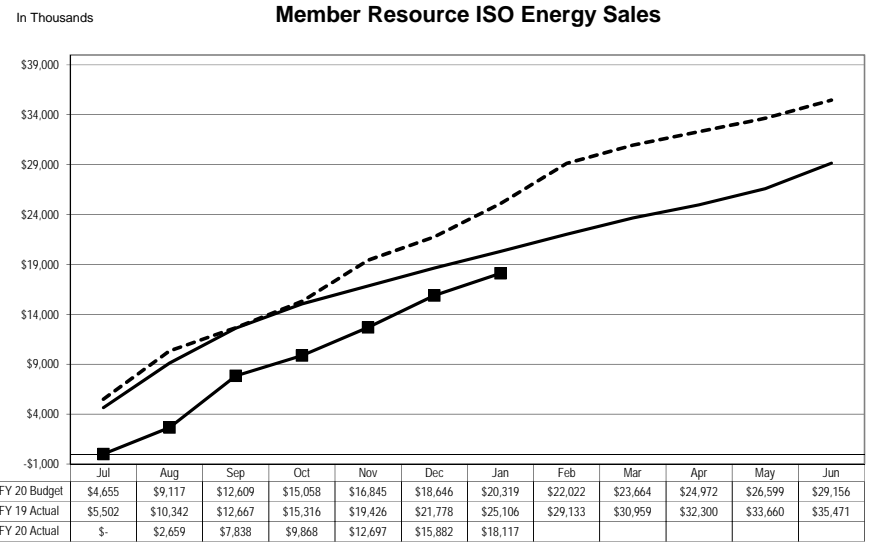
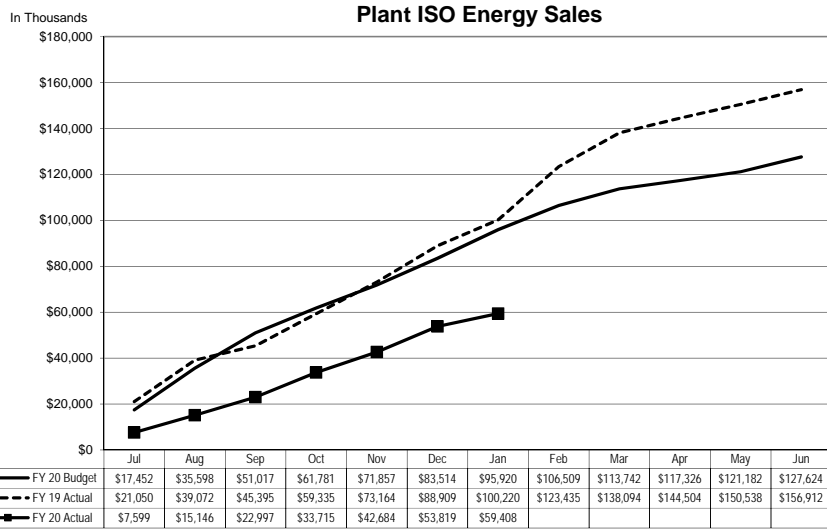
In Thousands



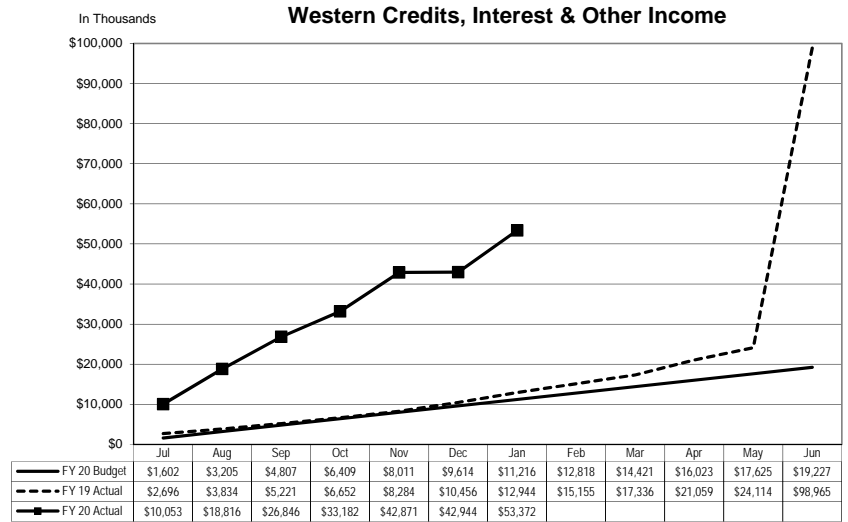
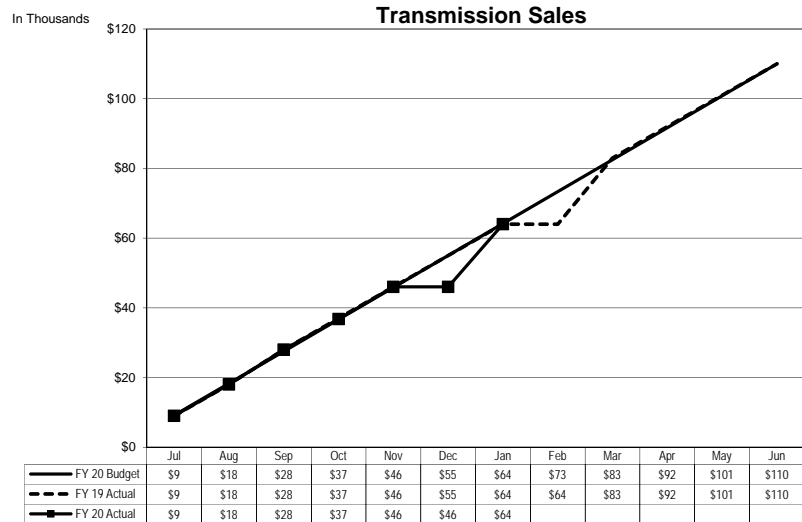
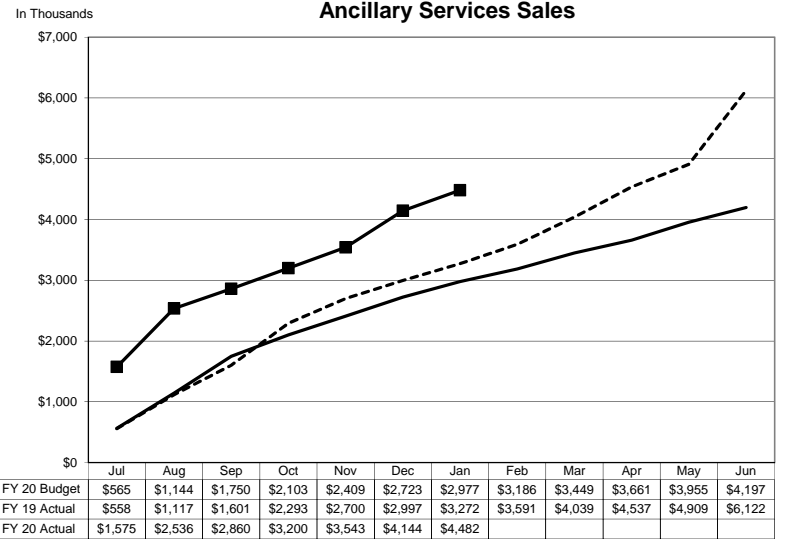
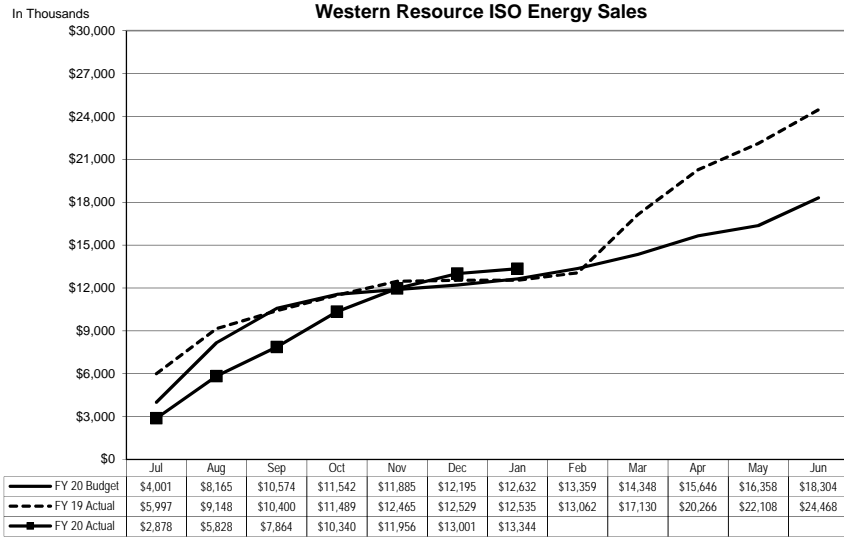
Integrated Systems Support



**Annual Budget Cost
Third Party Revenue Analysis By Source
As of January 31, 2020**



**Annual Budget Cost
Third Party Revenue Analysis By Source
As of January 31, 2020**



**Annual Budget
NCPA Generation Detail Analysis By Plant
As of January 31, 2020**

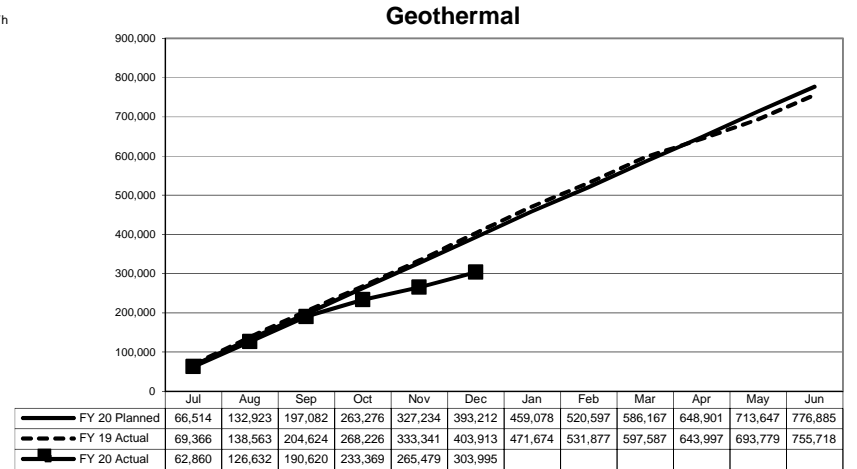
Generation Cost Analysis

\$ in thousands

	Geothermal				
	Budget	Actual	\$/MWh	Under(Over)	YTD %
			Actual	Budget	Remaining
Routine O & M	\$ 18,456	\$ 10,620	\$ 29.76	\$ 7,836	42%
Capital Assets/Spare Parts Inventories	3,645	2,360	6.61	1,285	35%
Other Costs	7,640	4,979	13.95	2,660	35%
CA ISO Charges	625	576	1.61	48	8%
Debt Service	4,946	2,120	5.94	2,826	57%
Annual Budget	35,311	20,655	57.88	14,656	42%
Less: Third Party Revenue					
Interest Income	382	155	0.43	227	59%
ISO Energy Sales	29,481	12,491	35.00	16,990	58%
Ancillary Services Sales	-	-	-	-	-
Effluent Revenues	750	578	1.62	172	23%
Misc	110	66	0.18	45	41%
	30,723	13,290	37.24	17,433	57%
Net Annual Budget Cost to Participants	\$ 4,588	\$ 7,365	\$ 20.64	\$ (2,778)	-61%
Net Generation--MWh @ Meter	776,885	356,834			
\$/MWh (A)	\$ (0.46)	\$ 14.70			

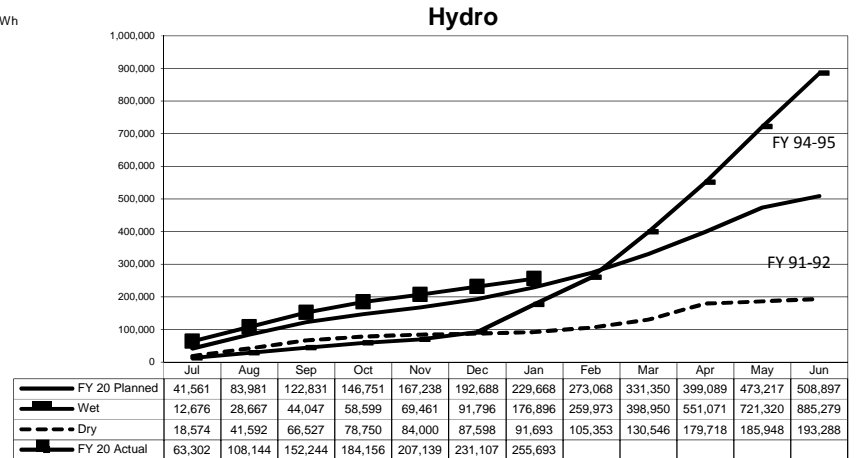
MWhs Generated

In MWh



	Hydroelectric				
	Budget	Actual	\$/MWh	Under(Over)	YTD %
			Actual	Budget	Remaining
Routine O & M	\$ 450	\$ 4,418	\$ 17.28	\$ (3,968)	-882%
Capital Assets/Spare Parts Inventories	4,775	2,837	11.10	1,938	41%
Other Costs	12,078	1,799	7.04	10,279	85%
CA ISO Charges	3,465	1,944	7.60	1,520	44%
Debt Service	33,307	19,429	75.99	13,878	42%
Annual Budget	54,074	30,428	119.00	23,646	44%
Less: Third Party Revenue					
Interest Income	670	291	1.14	379	57%
ISO Energy Sales	23,455	10,919	42.70	12,536	53%
Ancillary Services Sales	2,539	2,770	10.83	(231)	-9%
Misc	-	128	0.50	(128)	
	26,664	14,108	55.17	12,557	47%
Net Annual Budget Cost to Participants	\$ 27,410	\$ 16,320	\$ 63.83	\$ 11,089	
Net Generation--MWh @ Meter	508,897	255,693			
\$/MWh (A)	\$ (11.59)	\$ (12.16)			

In MWh



Footnotes:

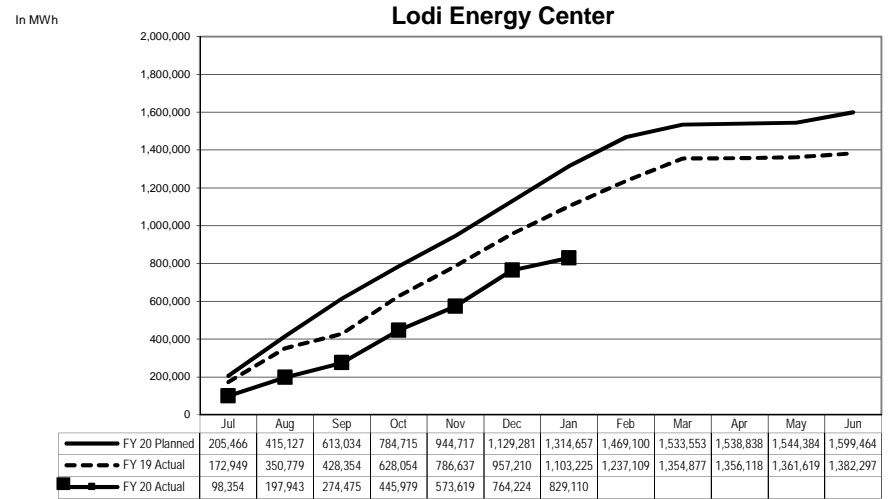
(A) Aggregate fiscal year generation in \$/MWh (excluding debt service)

**Annual Budget
NCPA Generation Detail Analysis By Plant
As of January 31, 2020**

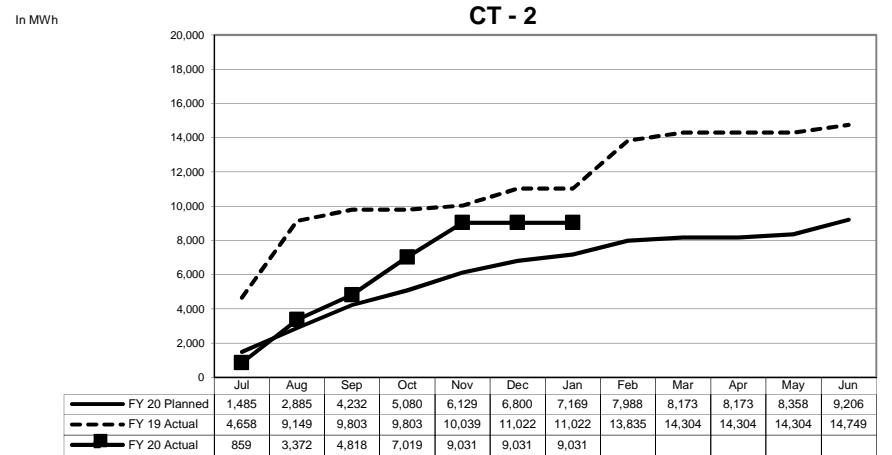
Generation Cost Analysis

	Lodi Energy Center				
	Budget	Actual	\$/MWh Actual	Under(Over) Budget	YTD % Remaining
Routine O & M	\$ 14,101	\$ 8,005	\$ 9.65	\$ 6,096	43%
Fuel	39,513	20,257	24.43	19,256	49%
AB 32 GHG Offset	-	-	-	-	0%
CA ISO Charges and Energy Purchases	4,710	2,076	2.50	2,635	56%
Capital Assets/Spare Parts Inventories	5,333	1,577	1.90	3,756	70%
Other Costs	3,249	2,184	2.63	1,066	33%
Debt Service	26,054	15,198	18.33	10,856	42%
Annual Budget	92,960	49,296	59.46	43,664	47%
Less: Third Party Revenue					
Interest Income	386	410	0.49	(24)	-6%
ISO Energy Sales	72,603	34,509	41.62	38,094	52%
Ancillary Services Sales	1,433	1,193	1.44	240	17%
Transfer Gas Credit	-	-	-	-	0%
Misc	-	2	0.00	(2)	0%
	74,421	36,113	43.56	38,308	51%
Net Annual Budget Cost to Participants	\$ 18,539	\$ 13,183	\$ 15.90	\$ 5,356	29%
Net Generation--MWh @ Meter	1,599,464	829,110			
\$/MWh (A)	\$ (4.70)	\$ (2.43)			

MWhs Generated



	Combustion Turbine No. 2 (STIG)				
	Budget	Actual	\$/MWh Actual	Under(Over) Budget	YTD % Remaining
Routine O & M	\$ 1,595	\$ 858	\$ 95.04	\$ 737	46%
Fuel and Pipeline Transport Charges	1,089	699	77.43	390	36%
Capital Assets/Spare Parts Inventories	418	218	24.13	200	48%
Other Costs	486	257	28.47	229	47%
CA ISO Charges	53	77	8.50	(24)	-44%
Debt Service	5,796	3,381	374.41	2,415	42%
Annual Budget	9,438	5,491	607.99	3,948	42%
Less: Third Party Revenue					
Interest Income	109	72	7.96	37	34%
ISO Energy Sales	819	687	76.02	133	16%
Ancillary Service Sales	-	-	-	-	0%
Fuel and Pipeline Transport Credits	1,687	997	110.37	691	41%
Misc	-	-	-	-	0%
	2,615	1,755	194.35	860	33%
Net Annual Budget Cost to Participants	\$ 6,823	\$ 3,735	\$ 413.64	\$ 3,088	45%
Net Generation--MWh @ Meter	9,206	9,031			
\$/MWh (A)	\$ 111.53	\$ 39.22			



Footnotes:

(A) Aggregate fiscal year generation in \$/MWh (excluding debt service)

**Annual Budget
NCPA Generation Detail Analysis By Plant
As of January 31, 2020**

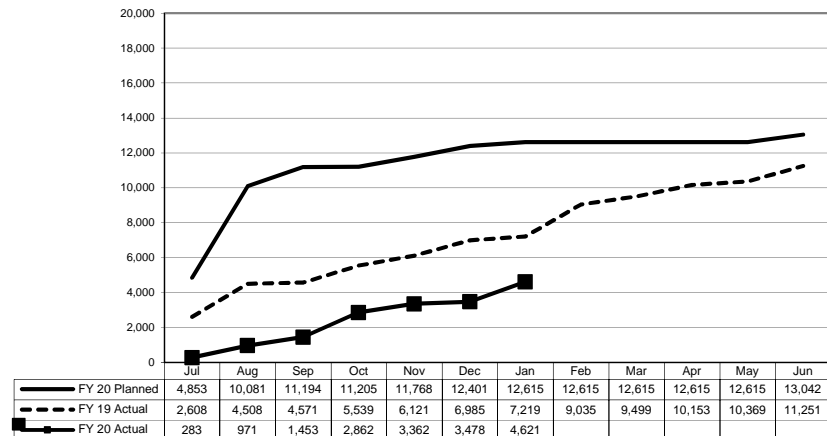
Generation Cost Analysis

	Combustion Turbine No. 1				
	Budget	Actual	\$/MWh Actual	Under(Over) Budget	YTD % Remaining
Routine O & M	\$ 2,268	\$ 1,160	\$ 250.97	\$ 1,108	49%
Fuel and Pipeline Transport Charges	975	306	66.29	669	69%
Capital Assets/Spare Parts Inventories	2,110	1,364	295.13	746	35%
Other Costs	747	401	86.82	346	46%
CA ISO Charges	69	171	37.06	(102)	-147%
Debt Service	-	-	-	-	-
Annual Budget	6,170	3,402	736.26	2,767	45%
Less: Third Party Revenue					
Interest Income	-	14	-	(14)	
ISO Energy Sales	1,266	803	173.79	463	37%
Ancillary Services Sales	-	-	-	-	0%
Misc	-	16	3.39	(16)	0%
	1,266	833	177.17	433	34%
Net Annual Budget Cost to Participants	\$ 4,904	\$ 2,570	\$ 556.11	\$ 2,334	48%
Net Generation--MWh @ Meter	13,042	4,621			
\$/MWh (A)	\$ 375.97	\$ 556.11			

MWhs Generated

In MWh

CT - 1



Footnotes:

(A) Aggregate fiscal year generation in \$/MWh (excluding debt service)