



Northern California Power Agency
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BUSINESS PROGRESS REPORT

2019

January

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Generation Costs & Reliability

Combustion Turbine Project

Unit Operation for December 2018

Unit	Availability		Production		Reason for Run
CT1 Alameda	Unit 1	Unit 2	Unit 1	417.8 MWh	CAISO / CAISO
	100.0%	95.2%	Unit 2	299.2	
Curtailements, Outages, and Comments:					
<p>12/10/18 - Alameda U2 o/s for borescope inspection, 05:11 6717505 12/11/18 - Alameda U2 o/s for borescope inspection, Return 17:02</p>					
Unit	Availability		Production		Reason for Run
CT1 Lodi	9.7%		156.5 MWh		CAISO
Curtailements, Outages, and Comments:					
<p>12/3/18 - Lodi CT, Gas Turbine Hot Gas Path Parts Failure</p>					
Unit	Availability		Production		Reason for Run
CT2 STIG	100.0%		958.1 MWh		0
Curtailements, Outages, and Comments:					
Unit	Availability		Production		Reason for Run
LEC	99.1%		170,570 MWh		CAISO
Curtailements, Outages, and Comments:					
<p>12/5/18 - LEC de-rate to 286mw due to plant trouble, OMS 6725837 12/14/18 - 5:29 hours forced out, LEC server faults. Shutdown to replace server. 12/16/18 - 1 hours delayed start. Aux boiler superheater tripped.</p>					

Maintenance Summary – Specific per asset above.

Geothermal Facilities

Availability/Production for December 2018

Unit	Availability	Net Electricity Generated/Water Delivered	Out-of-Service/Descriptors
Unit 1	100 %	20,259 MWh	U1 had no outages for the month
Unit 2	100 %	*19,317 MWh	U2 had no outages for the month
Unit 3	N/A %	N/A	Unit 3 remains out of service.
Unit 4	100 %	30,991 MWh	U4 was out of service 12/5/18 from 0700 until 1700 for PG&E relay testing
Southeast Geysers Effluent Pipeline	47.0%	113.1 mgallons	Average flow rate: 2,530 gpm
Southeast Solar Plant	N/A	42,409 KWh	Year-to-date KWh: 1,762,549
Bear Canyon Pump Station Zero Solar	N/A	32,843 KWh	Year-to-date KWh: 3,000,947

* Accounts for an additional 1,116 MWh of house load for the 21KV power supply to the effluent pipeline supplied from Unit #2.

Hydroelectric Project

Availability/Production for December 2018

Units	Availability	Net Electricity Generated	Out-of-Service
Collierville Unit 1	99.66 %	10,451 MWh	CV #1 unit was out of service on, 12/03/18 at 1652 through 1923 due to an ROV inspection of the power tunnel.
Collierville Unit 2	36.96 %	6,272 MWh	CV #2 unit was out of service on, 12/01/18 at 0000 through 12/20/18 at 1151 due to generator rewind. CV #2 unit was out of service on, 12/20/18 at 1714 through 1819 due to generator rewind.
Spicer Unit 1	98.47 %	826 MWh	NSM #1 unit was out of service on, 12/15/18 at 0659 through 1825 due to PG&E Work at Tiger Creek.
Spicer Unit 2	98.47 %	0 MWh	NSM #2 unit was out of service on, 12/15/18 at 0659 through 1821 due to PG&E Work at Tiger Creek.
Spicer Unit 3	89.77 %	130 MWh	NSM #1 unit was out of service on, 12/15/18 at 0659 through 12/18/18 at 1105 due to PG&E Work at Tiger Creek.

Operations & Maintenance Activities:

- CMMS work orders
- CV2 Generator rewind & commissioning
- ROV Tunnel inspection
- Planning for upcoming dual unit maintenance outage.

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

- No lost time accidents, recordable incidents, or vehicle accidents occurred in November.
- 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 December 22, 2018.
- 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.

December 2018 Generation Services Safety Report

	Hydro	GEO	CT Group *	NCPA HQ **
Cal OSHA Recordable (this month)	0	0	0	0
Cal OSHA Recordable (calendar year)	1	2	0	0
Days since Recordable	147	151	1,356	6,424
Work Hours Since Last Recordable	14,751	31,229	199,897	2,324,046
LTA's (this month)	0	0	0	0
LTA's (calendar year)	0	0	0	0
Days without LTA	4,082	1,219	9,260	5,353
Work Hours without LTA	375,201	248,204	641,441	1,946,064
Vehicle Incident (month)	0	0	0	0
Vehicle Incident (calendar year)	1	0	2	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 December 22, 2018

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 2018 Data

	December 2018		Calendar Year 2018	
	Peak MW	MWh	Peak MW	MWh
NCPA Pool	337.84 12/4 @1800	197,945	419.2 7/25 @1700	2,310,521
SVP	456 12/14 @1200	305,129	529.29 8/9 @1700	3,694,417
MSSA	787.46 12/3 @ 1800	503,074	945.44 8/9 @ 1700	6,004,938

Last Year 2017 Data*

	December 2017		Calendar Year 2017	
	Peak MW	MWh	Peak MW	MWh
NCPA Pool	333.3 12/4 @1900	198,634	485.85 9/1 @1700	2,383,468
SVP	462.79 12/7 @1500	308,021	586.59 9/1 @1600	3,727,192
MSSA	791.23 12/4 @ 1900	506,655	1070.79 9/1 @ 1700	6,110,660

*Last year's data added for comparison purposes only

System Peak Data

	All Time Peak Demand	2018 Peak Demand
NCPA Pool	517.83 MW on 7/24/06 @ 1500	419.2 7/25 @ 1700
SVP	586.59 MW on 9/1/17 @ 1600	529.29 8/9 @ 1700
MSSA	1070.79 MW on 9/1/17 @ 1700	945.44 8/9 @ 1700

- 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		
	December 2018	Calendar Year 2018
MSSA % Within the Band	99.48%	97.43%

- Spicer Meadows:
 - December 15 @ 0659 – 1825, all units separated from the grid for PG&E work at Tiger Creek. Unit 3 remained islanded with station service until December 18 @ 1105.

- Geothermal Units:
 - December 5 @ 0703 - 1703, Unit 4 off line for PG&E Geysers 12 – Fulton 230kV line outage.

- Lodi Energy Center:
 - December 14 @ 0018 – 0441, plant off line for server replacement
 - December 16, plant 45 minutes delay switching to ADS control due to gland steam superheater trouble on start up.

- Alameda CTs:
 - December 10 @ 0000 – December 11 @ 1703, Unit 2 o/s due for borescope inspection.

- Lodi CT:
 - December 3 @ 2225, unit o/s due to turbine damage. Unit remains o/s.

- Collierville Units:
 - December 3 @ 1652 - 1923, Unit 1 off line due to issues with ROV inspection.
 - December 20 @ 1819, Unit 2 returned to service from stator rewind outage, o/s since September 4.

- STIG:
 - December 2 @ 1657 – 2045, unit derated due to steam flow meter trouble.

Pooling, Portfolio Planning & Forecasting

- NCPA Pool load in December 2018 was 197,935 MWh, which was 97.5% of the pre-month forecast of 203,011 MWh. From January 1 through 8, 2019, NCPA Pool load was 32,100 MWh, and the January 2019 Pool load forecast is 201,906 MWh.
- The Lodi Energy Center (LEC) generated 30,674 MWh for the Pool in December 2018, running every day of the month (including weekends and holidays). The Pool's share of generation from January 1 through 6, 2019 was 6,600 MWh. Forecasted output for January 2019 is currently 38,884 MWh.
- For the month of December 2018, 4.64" of rain was recorded at the Big Trees gage. December Big Trees average precipitation is 9.58".
- The Value of Storage (VOS) of New Spicer Meadow Reservoir (NSMR) is being maintained at \$150/MWh.
- NSMR storage as of December 31, 2018 was at 76,687 acre feet. The historical average NSMR storage at the end of December is 79,372 acre feet. As of January 7, 2019 NSMR storage is 75,928 acre feet. The current NCPA Pool share of NSMR storage is 38,926 acre feet.
- Combined Calaveras Project generation for the Pool in December 2018 totaled 8.2 GWh, up from 6.3 GWh in November 2018. The Pool's 8.2 GWh in December 2018 was slightly above the pre-month forecast of 8.0 GWh.
- Western Base Resource (BR) deliveries for the Pool in December 2018 were 960 MWh, exceeding Western's zero-MWh forecast for the month. For the period of January 1 through 6, 2019, there have been no allocations of BR for the Pool, and the Displacement program is currently in hibernation. The most recent Western forecast for January 2019 continues to show zero MWh.
- The PG&E Citygate gas index averaged \$3.535/MMBtu for January 7, 2019 delivery, considerably below the December 2018 average price of \$5.02/MMBtu (and a high of \$7.015/MMBtu on December 4). The January 2019 PG&E Bidweek price is \$4.55, also well below December's Bidweek \$6.42 price.
- Day-ahead NP15 electricity prices averaged \$58.83/MWh (HLH) and \$48.95 (LLH) during December 2018, with the hourly TH_NP15 maximum at \$178.84/MWh on December 4. In January 2019, hourly on-peak prices have averaged \$47.09/MWh and off-peak prices have averaged \$39.76/MWh.

NCPA Pool Loads & Resources Value Summary								
Peak and Energy Summary Dec-18					Estimated Production Costs		Cost of Serving Demand	
	Coincident		Forecast		NCPA Pool		Totals	Avg (\$/MWh)
	Peak (MW)	Total MWh	Values	Avg. MW	Cost/Revenue (Estimate)	Variable Cost (\$/MWh)		
Demand	337.8	197,935	203,011	266.0	N/A	N/A		
WAPA	-	960	69,152	1.3	\$ 1,170,723	\$ 1,219.50	\$ 11,335,078	\$ 57.27
Geothermal	-	29,214	27,851	39.3	555,067	19.00		
Hydro	-	8,200	8,351	11.0	49,200	6.00		
Stig & CTs	-	1,080	1,307	1.5	98,943	91.64		
LEC	-	30,674	35,945	41.2	1,159,152	37.79		
Contracts	-	74,486	62,725	100.1	3,925,769	52.70	\$ 9,524,723	\$ 48.12
Market - Net (Net Sales = Negative)	337.8	53,322	66,832	71.7	1,849,857	34.69		
Net Total	337.8	197,935	203,011	266.0	\$ 8,808,710	\$ 48.12		

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 12/1/2018 (\$/MWh)	1/4/2019 (\$/MWh)	
Jan-18	195,093	\$ 34.68	\$ 43.74	Jan-19	\$ 68.58	\$ 45.44
Feb-18	173,464	\$ 32.12	\$ 43.94	Feb-19	\$ 57.84	\$ 45.22
Mar-18	190,023	\$ 31.58	\$ 39.43	Mar-19	\$ 41.73	\$ 37.38
Apr-18	175,890	\$ 26.51	\$ 39.05	Q2 2019	\$ 36.97	\$ 33.51
May-18	185,890	\$ 22.58	\$ 40.72	Q3 2019	\$ 66.85	\$ 68.20
Jun-18	193,859	\$ 30.75	\$ 38.31	Q4 2019	\$ 47.70	\$ 46.47
Jul-18	217,009	\$ 63.64	\$ 52.34	CY2019	\$ 51.89	\$ 47.72
Aug-18	211,074	\$ 55.31	\$ 44.06	CY2020	\$ 43.20	\$ 42.62
Sep-18	191,121	\$ 35.51	\$ 51.48	CY2021	\$ 43.93	\$ 43.95
Oct-18	190,756	\$ 45.30	\$ 46.39	CY2022	\$ 44.45	\$ 44.64
Nov-18	186,329	\$ 55.00	\$ 50.16	CY2023	\$ 45.43	\$ 45.36
Dec-18	197,935	\$ 57.27	\$ 48.12	CY2024	\$ 46.38	\$ 46.40

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.

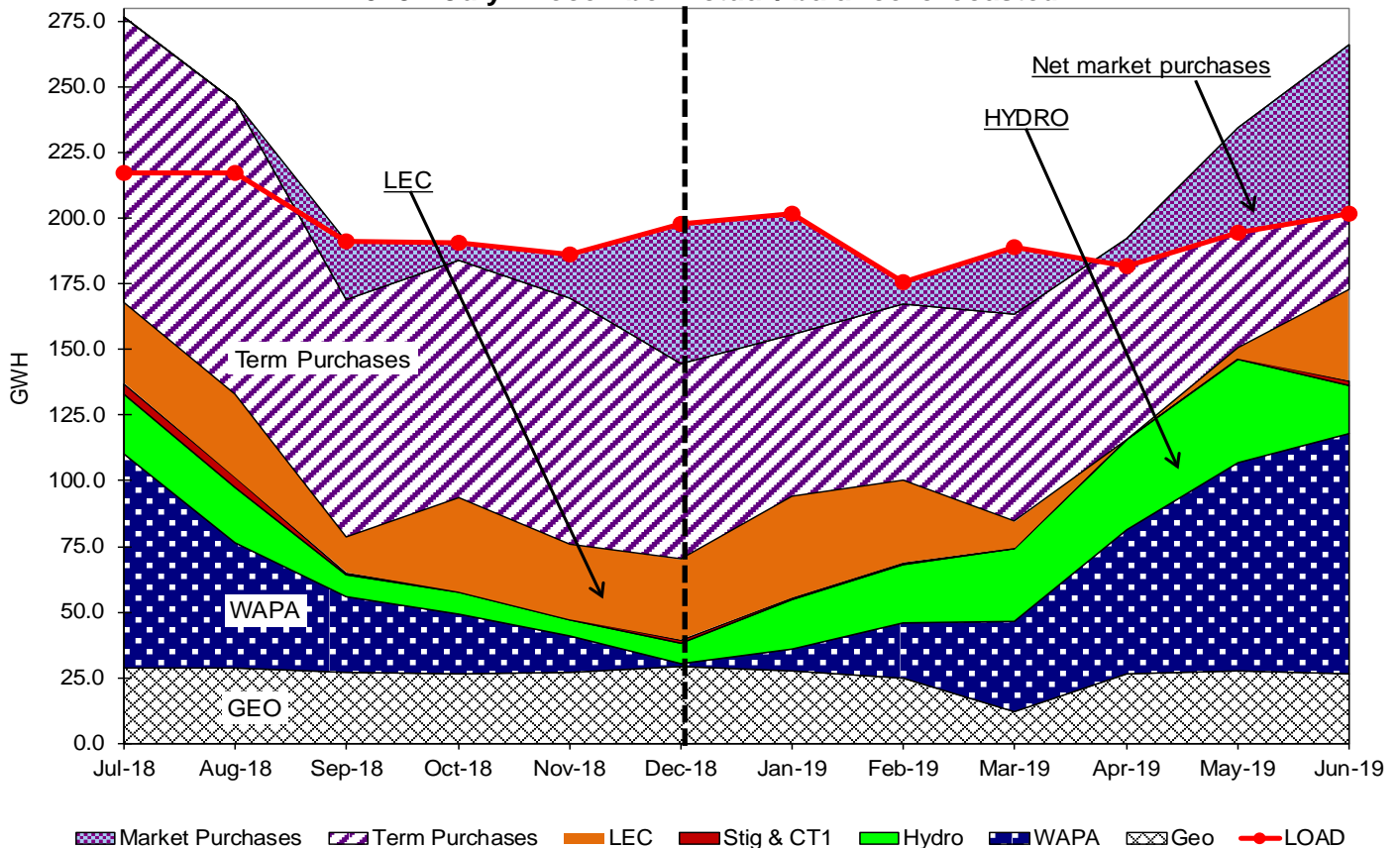
Estimated Production Costs:

* 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.

NCPA POOL RESOURCES FY 2019: July - December Actual / balance forecasted



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 March 2019:
 - Monthly System Resource Adequacy Demonstration (filed January 15, 2019)
 - Monthly Supply Plan (filed January 15, 2019)

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 the current active initiatives:

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.

Day-Ahead Market Enhancements

- In this initiative, CAISO will consider enhancements to combine the Integrated Forward Market with the Residual Unit Commitment process, change the day-ahead scheduling granularity from hourly to 15-minute, and add an imbalance reserve product. Additional design elements needed to extend the day-ahead market to EIM entities will also be considered. Recently, the CAISO indicated that they are considering breaking the DAME initiative into two (2) separate stakeholder initiatives (the details of such have not been made available).

Flexible Resource Adequacy Criteria and Must Offer Obligation (FRAC MOO Phase 2)

- This initiative will explore further enhancements to flexible capacity requirements to help address generation oversupply and ramps less than three hours. This effort also seeks new rules to allow inertie resources and storage resources' not operating under non-generator resource provisions to provide flexible capacity. Through this effort, CAISO will also assess the impact of merchant variable energy resources on flexible capacity requirements.

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.

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)	Restoration Fund (\$)	Monthly Cost of BR ² (\$/MWh)	CAISO LMP Differential ³ (\$/MWh)	12-Mo Rolling Avg. Cost of BR ⁴ (\$/MWh)
Jul-18	82,704	81,285	(1,419)	\$1,516,215	\$ 18.65	\$ 0.52	\$ 29.90
Aug-18	69,979	47,727	(22,252)	\$1,516,215	\$ 31.77	\$ (0.76)	\$ 30.07
Sep-18	59,937	28,828	(31,109)	\$2,124,730	\$ 73.70	\$ 0.03	\$ 32.14
Oct-18	57,294	23,113	(34,181)	\$1,170,723	\$ 50.65	\$ 0.16	\$ 33.95
Nov-18	29,042	13,824	(15,218)	\$1,170,723	\$ 84.69	\$ 0.18	\$ 35.33
Dec-18	16,349	960	(15,389)	\$1,170,723	\$ 1,219.50	\$ 0.34	\$ 37.64
Jan-19	20,572	-	0	\$1,170,723	\$ 56.91	\$ -	\$ 37.75
Feb-19	37,432	-	0	\$1,170,723	\$ 31.28	\$ -	\$ 37.03
Mar-19	56,569	-	0	\$1,170,723	\$ 20.70	\$ -	\$ 34.61
Apr-19	61,300	-	0	\$2,278,398	\$ 37.17	\$ -	\$ 34.02
May-19	86,402	-	0	\$2,278,398	\$ 26.37	\$ -	\$ 34.81
Jun-19	83,927	-	0	\$2,278,398	\$ 27.15	\$ -	\$ 35.75

1/ As forecasted in NCPA 18/19 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.

- The Displacement Program has shut down for the winter, effective trade date November 1, 2018. The program is scheduled to resume March 1, 2019.
- Pool members' total savings under Market Efficiency Enhancement Agreement (MEEA) pricing was about \$300 for the Pool in December 2018.

Debt and Financial Management

- At the December 19th meeting, the Federal Reserve raised interest rates for the fourth time this year, but signaled a more patient approach raising rates next year amid signs that the economy is starting to weaken. Central bankers unanimously agreed under Chairman Jerome Powell to lift the federal funds rate, which controls the cost of mortgages, credit cards and other borrowing to a range of 2.25% and 2.5%.
- The yield on the two-year Treasury bond, the coupon maturity most sensitive to Fed policy expectations, rose four basis points to 2.67%, while the benchmark 10-year Treasury note was two basis points higher at 2.79% continuing a flattening of the curve.
- The volatility of the market continues. For example, the implied probability (according to Fed Funds Futures) of a rate cut in December 2019 had risen to over 50% in early January. Going out to January 2020, the implied probability of a rate cut had increased to over 60%. This reversal could have been due to Apple's comments of slowing growth with China. After these comments, the stock market and bond yields declined significantly only to be both reversed when the jobs report announced that the economy added 312,000 jobs in December, blowing past forecasts.
- With the federal government partially shut down over the border wall and trade talks with China, it's anybody's guess where these market will go from here.

Schedule Coordination Goals

Software Development

- NCPA IS staff is assisting Santa Clara to transition its MSS portfolio from scheduling via Web Service into the use of the new client-based NCPA Scheduling Suite. Testing continues and more enhancements are being developed to further enhance the Energy and AS Bidding in the Prescheduler app. Late January is the new target for rollout.
- Staff continues to develop the replacement for the NCPA Automated Dispatch System. Completion is anticipated middle of next year.
- Work is in progress to automate and integrate members' monthly Resource Adequacy demonstrations and supply plans into NCPA's bid-to-bill system.
- Effort continues in configuring the Accounting Software for Hometown Connections Inc. Configuration inputs have been loaded into the test environment. Testing is ongoing in preparation for rollout this month.
- Work is underway to switch Pioneer's NPCE SCID into the new PCCE SCID, as well as San Jose's NJSE SCID into the new SJCE SCID. The scheduling software is being configured to prepare for the transition anticipated in February 2019.

Network

- The IS Operations and Support group completed the migration of data from the old SAN to the new HP Nimble SAN. This allowed the department to reduce operating costs on cooling and power by consolidating 22U of server equipment down to 4U while increasing capacity and performance.
- The IS department has completed the migration from SharePoint 2013 to SharePoint 2016. Subsequent clean up and fixes from the project are expected to be completed by the end of January. With this project completed, staff will begin working to implement a new records retention software by summer of 2019.
- Progress continues being made upgrading staff to Windows 10 with about 50% of the Agency on the new Operating System. The goal is to have all workstations moved over before the end of 2020.
- The IS Operations and Support is in the final stages of procuring a new backup solution to replace the EMC NetWorker software that is 5 years old. Completion is expected by February of this year.
- IS, along with Power Management and Settlements, is actively updating contingency plans for applications and services that support the bid-to-bill process. This is an effort to identify any gaps and provide recommendations to help reduce risks associated with unplanned downtime. This project is expected to be complete by the end of the fiscal year.

NCPA Bills & Settlements

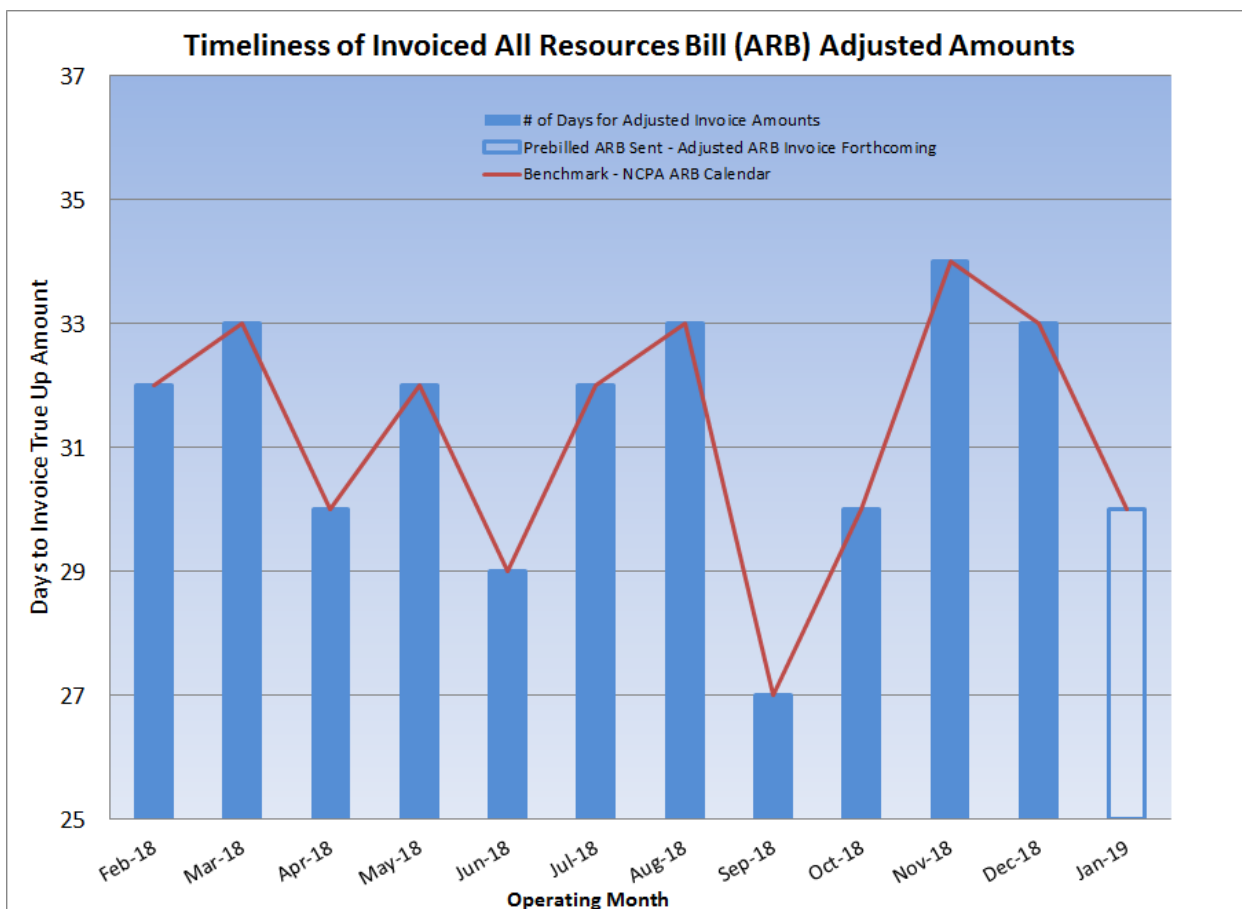
Progress Against the Strategic Plan

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 2019 NCPA All Resources Bill (ARB) monthly invoice sent to members on December 21, 2018 contains:

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

- April 2017 (5th Adjustment) T+18 month recalculated CAISO settlement true-up allocations;
- January 2016 (6th Adjustment) T+33 month recalculated CAISO settlement true-up;
- October 2015 (7th Adjustment) T+35 month CAISO settlement true-up;



Legislative & Regulatory

Political Arena State/Federal/Western Programs

- The Bureau of Reclamation's Central Valley Project Power initiative to stabilize cost, increase generation, and offer greater flexibility is underway. NCPA staff and members met with Reclamation leadership on December 11 to exchange information and educate Reclamation on the impacts of unstable CVP preference power cost and resource on customer finances. NCPA's Federal Power Working Group also met to discuss and set priorities for the CVP Power initiative. NCPA submitted the CVP power priorities on January 8 and offered solutions for Reclamation's action and consideration while simultaneously reasserting the importance and urgency to resolve CVPIA and CVP cost allocation.
- NCPA's L&R team hosted a wildfire mitigation workshop for members on January 9 as a first step to ensure that all NCPA members fully comply with the specific requirements of California Senate Bill 901. The high-profile legislation focusing on state wildfire policy requires that each California utility develop a wildfire mitigation plan by the end of 2019. The workshop is the first in a series of meetings the L&R team is planning to host for members during 2019. Included in the series will be workshops to: 1) train members how to use the new public power energy efficiency reporting tool, 2) update each NCPA member's respective RPS Procurement Plan, and 3) review acceptable expenditures associated with NCPA member public goods funds, cap-and-trade auction proceeds, and proceeds from the sale of credits in the state's Low Carbon Fuel Standard program.
- NCPA is in the process of addressing growing concerns regarding the imposition by the California Department of Water Resources' of an Annual Fee intended to recover the costs of ensuring the safety of California's dams. While not objecting to the imposition of a fee as a matter of principle, NCPA has voiced concerns about the lack of transparency associated with the use of these funds, suggesting the establishment of a public review process. NCPA's fees have increased more than 40% in the past two years, and are slated to increase another 25% next year, with little explanation for the change.

Human Resources

Hires:

None

Intern Hires:

None

Promotions/Position Changes:

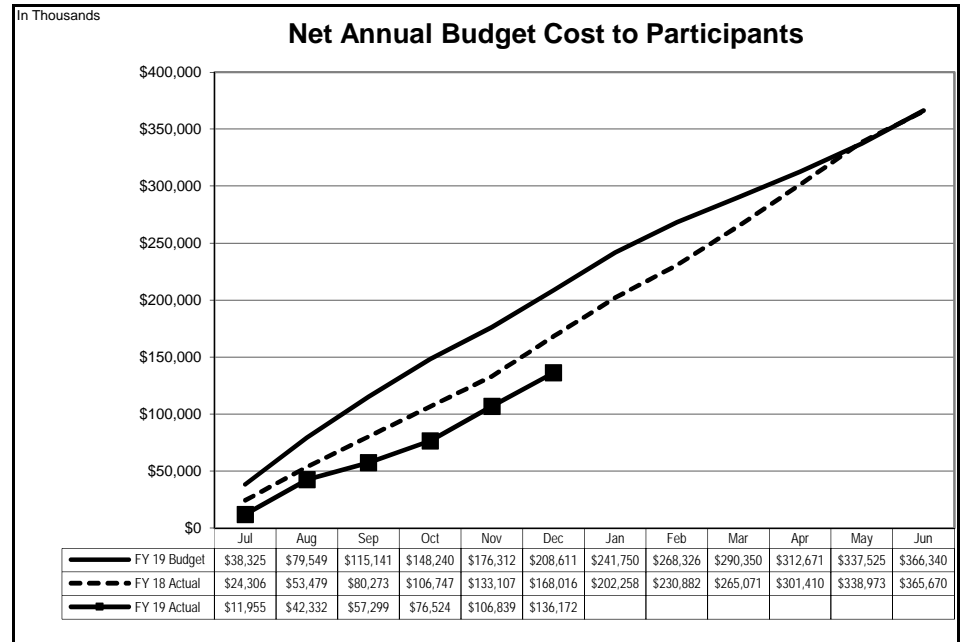
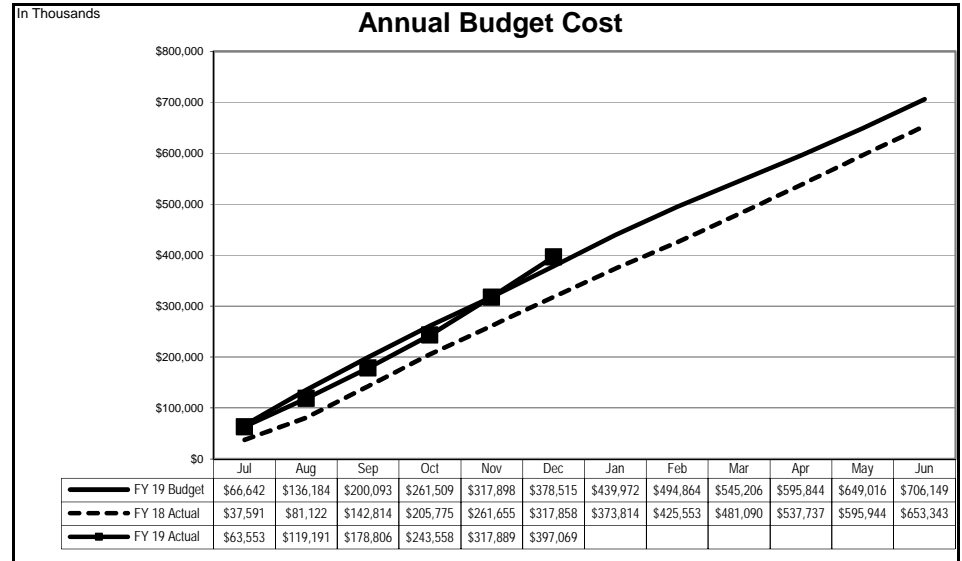
None

Separations:

Tracy Kves, Administrative Assistant/Office Administrator III, retired from our Hydroelectric Facility after 17 years of service on December 27, 2018.

**Annual Budget
2018-2019 Fiscal Year To Date
As of December 31, 2018**

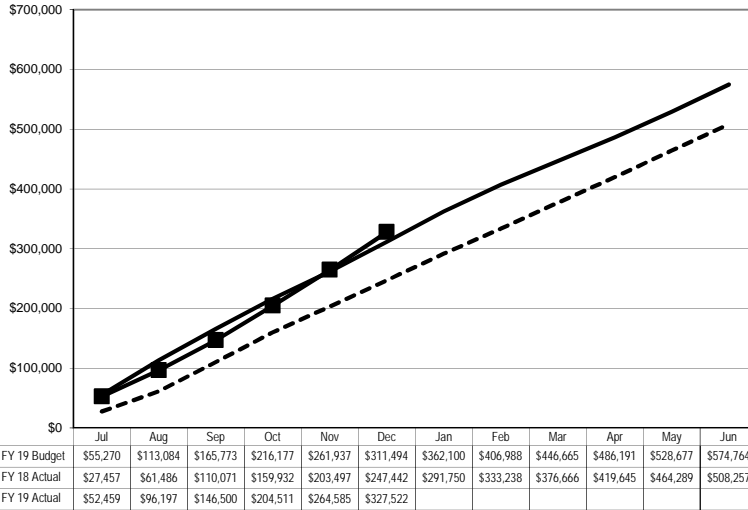
In Thousands	Program			
	Annual Budget	Actual	Under(Ovr) Budget	YTD % Remaining
GENERATION RESOURCES				
NCPA Plants				
Hydroelectric	51,857	25,651	\$ 26,206	51%
Geothermal Plant	34,425	16,993	17,432	51%
Combustion Turbine No. 1	6,606	3,662	2,944	45%
Combustion Turbine No. 2 (STIG)	8,743	4,720	4,023	46%
Lodi Energy Center	83,717	54,151	29,566	35%
	185,347	105,177	80,171	43%
Member Resources - Energy	64,449	30,686	33,763	52%
Member Resources - Natural Gas	3,098	2,541	557	18%
Western Resource	31,350	9,416	21,934	70%
Market Power Purchases	15,539	13,071	2,468	16%
Load Aggregation Costs - ISO	273,858	165,481	108,377	40%
Net GHG Obligations	1,123	1,150	(28)	-2%
	574,764	327,522	247,242	43%
TRANSMISSION				
Independent System Operator	112,822	61,084	51,738	46%
MANAGEMENT SERVICES				
Legislative & Regulatory				
Legislative Representation	2,023	993	1,030	51%
Regulatory Representation	887	268	619	70%
Western Representation	848	314	534	63%
Member Services	438	142	296	68%
	4,196	1,717	2,480	59%
Judicial Action	625	340	285	46%
Power Management				
System Control & Load Dispatch	6,107	2,844	3,263	53%
Forecasting & Prescheduling	2,775	1,224	1,552	56%
Industry Restructuring	439	151	287	66%
Contract Admin, Interconnection Svcs & Ext. Affairs	1,135	395	740	65%
Green Power Project	3	0	3	95%
Gas Purchase Program	78	30	47	61%
Market Purchase Project	112	41	71	63%
	10,649	4,686	5,963	56%
Energy Risk Management	260	70	189	73%
Settlements	941	260	682	72%
Integrated System Support	273	49	224	82%
Participant Pass Through Costs	1,619	758	861	53%
Support Services	-	584	(584)	
	18,563	8,463	10,100	54%
TOTAL ANNUAL BUDGET COST	706,149	397,069	309,080	44%
LESS: THIRD PARTY REVENUE				
Plant ISO Energy Sales	100,456	88,909	11,547	11%
Member Resource ISO Energy Sales	28,187	21,778	6,409	23%
NCPA Contracts ISO Energy Sales	14,720	16,283	(1,563)	-11%
Western Resource ISO Energy Sales	23,183	12,529	10,654	46%
Load Aggregation Energy Sales	131,329	107,890	23,439	18%
Ancillary Services Sales	4,409	2,997	1,412	32%
Transmission Sales	110	55	55	50%
Western Credits, Interest & Other Income	37,414	10,456	26,958	72%
	339,808	260,897	78,912	23%
NET ANNUAL BUDGET COST TO PARTICIPANTS	366,340	136,172	\$ 230,168	63%



Annual Budget Budget vs. Actual By Major Area As of December 31, 2018

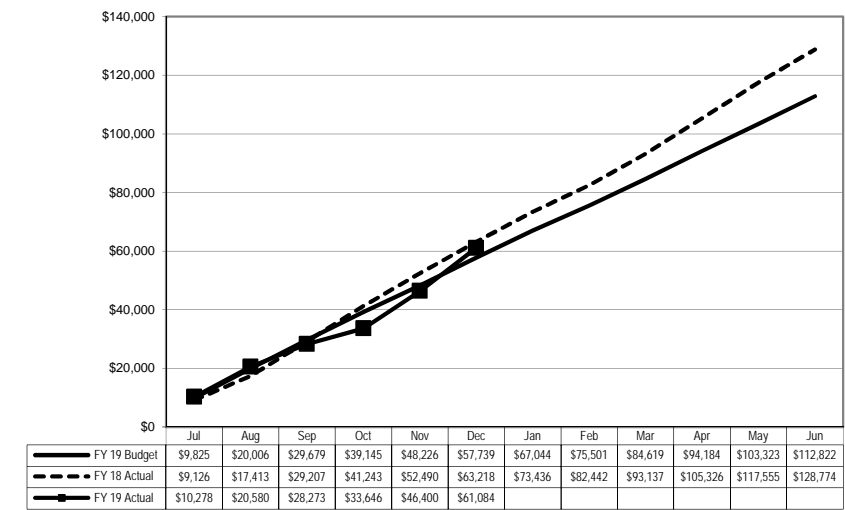
In Thousands

Generation Resources



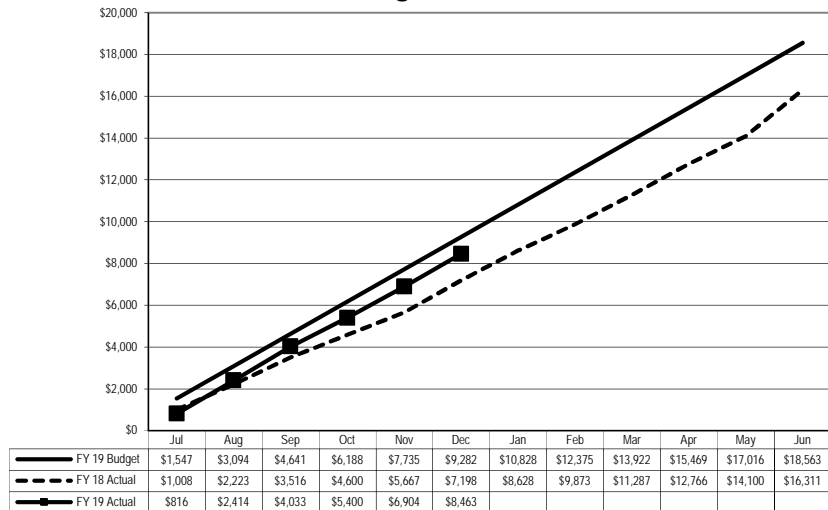
In Thousands

Transmission-ISO



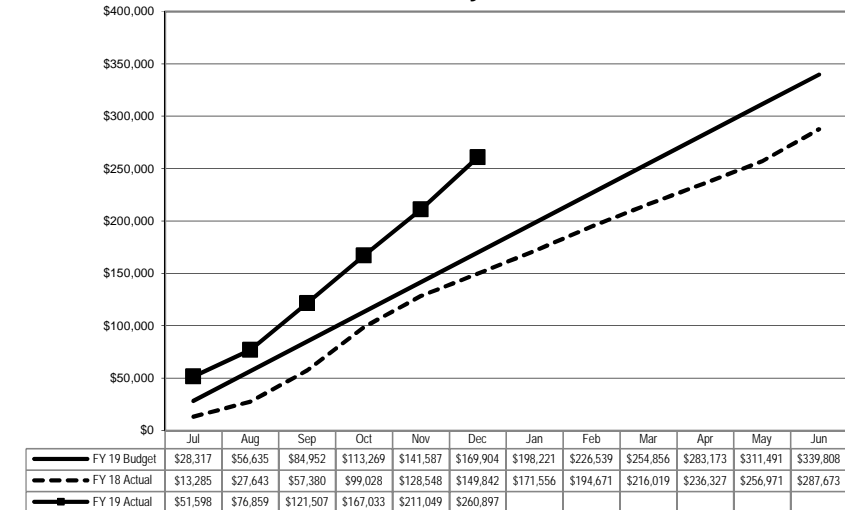
In Thousands

Management Services



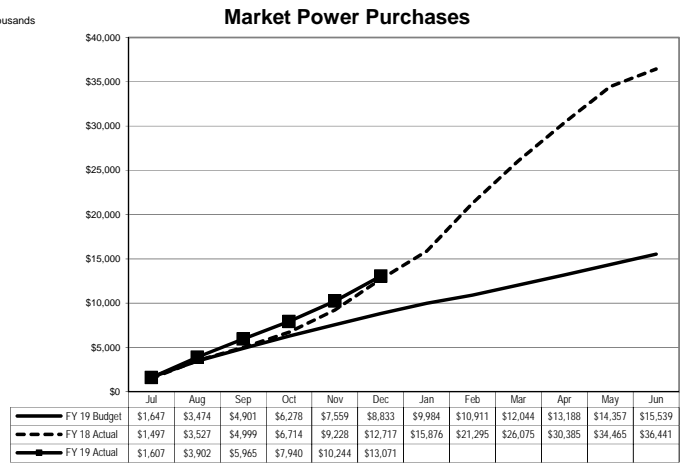
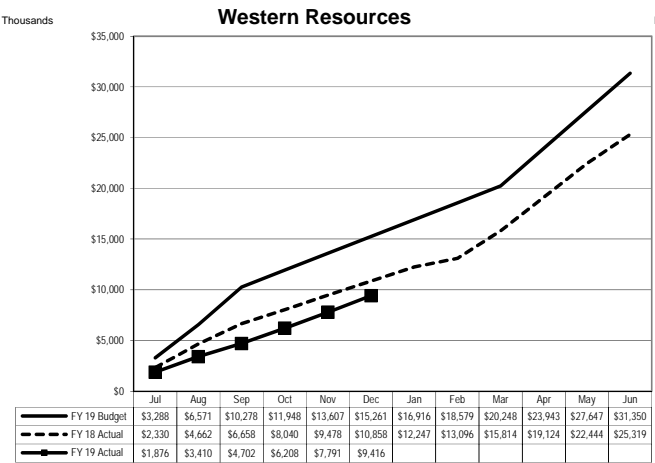
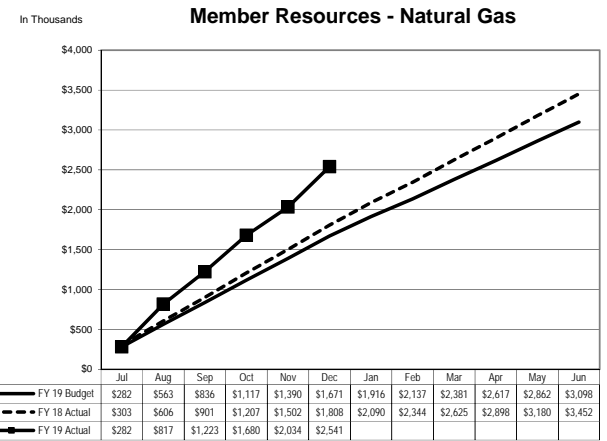
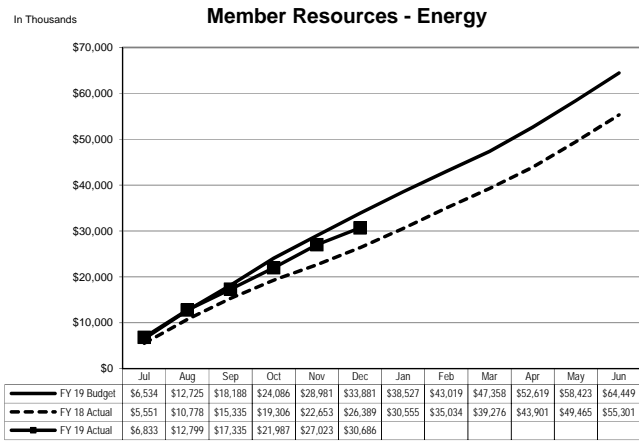
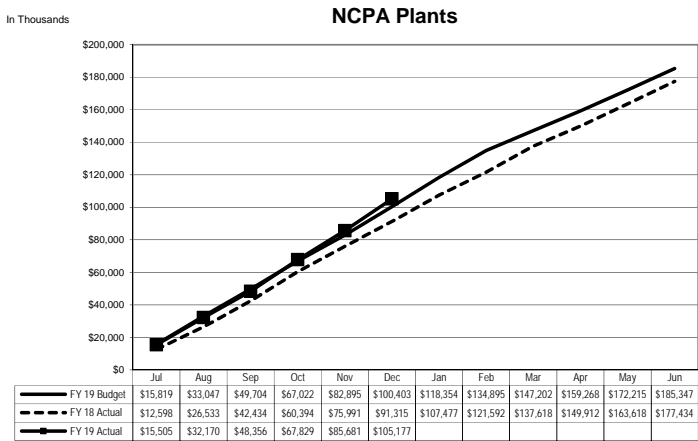
In Thousands

Third Party Revenue



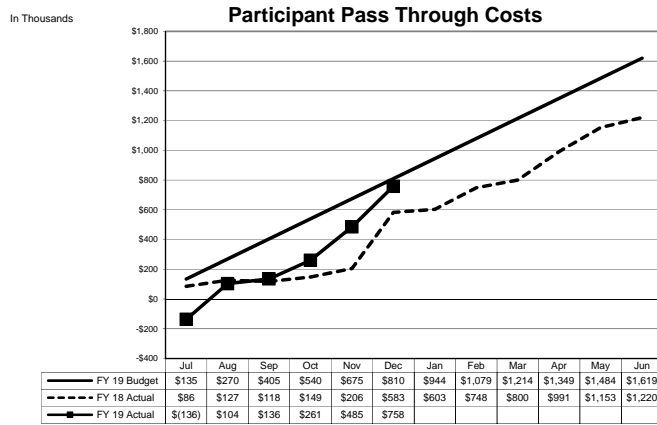
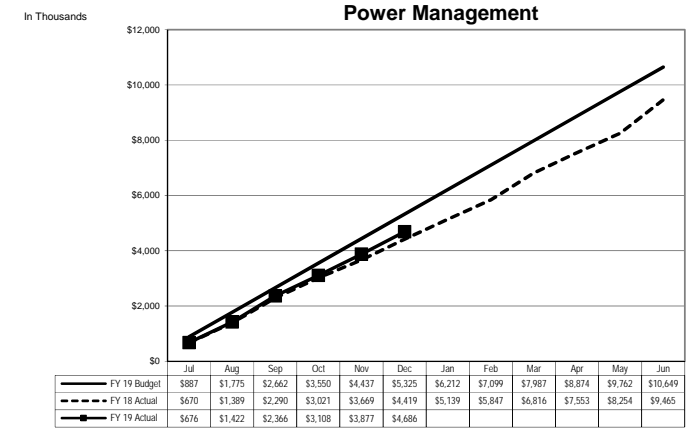
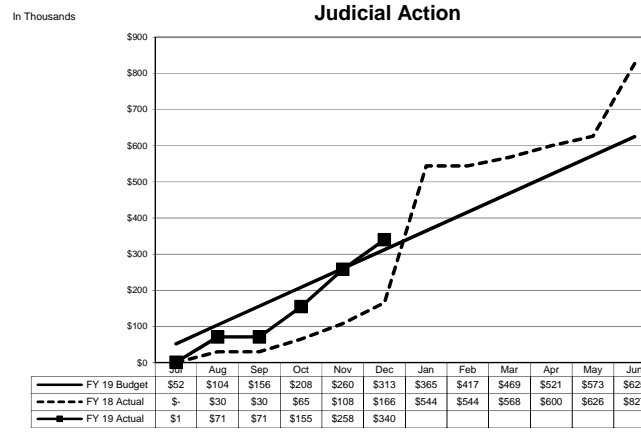
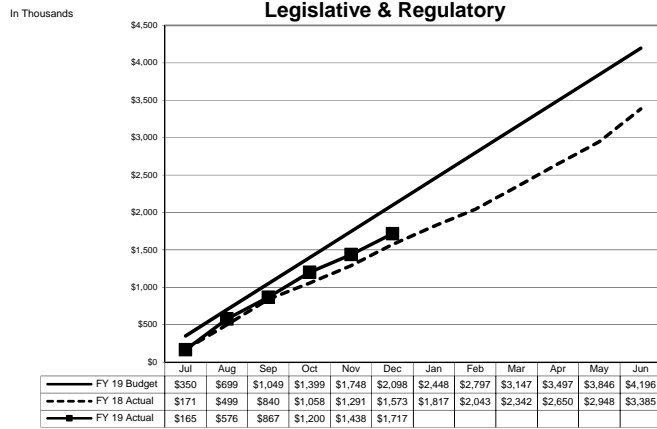
Footnote: Transmission is solely reflective of Independent System Operator (ISO) costs

Annual Budget Cost Generation Resources Analysis By Source As of December 31, 2018



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

**Annual Budget Cost
Management Services Analysis By Source
As of December 31, 2018**

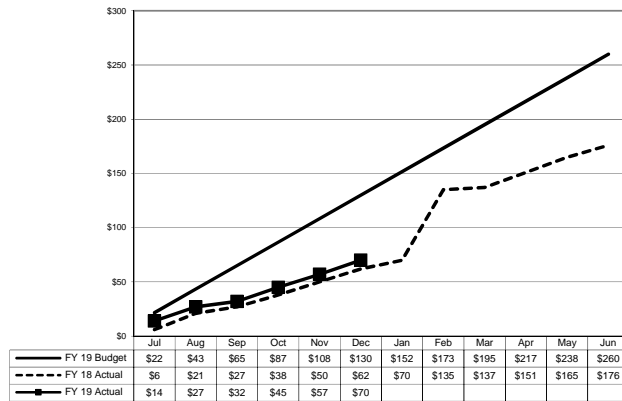


**Annual Budget Cost
Management Services Analysis By Source
As of December 31, 2018**

In Thousands

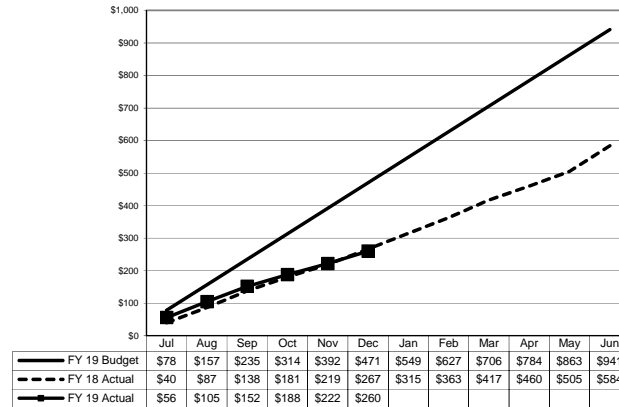
Energy Risk Management

In Thousands

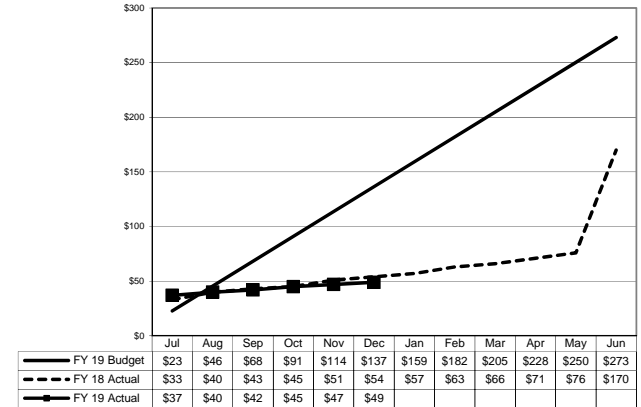


Settlements

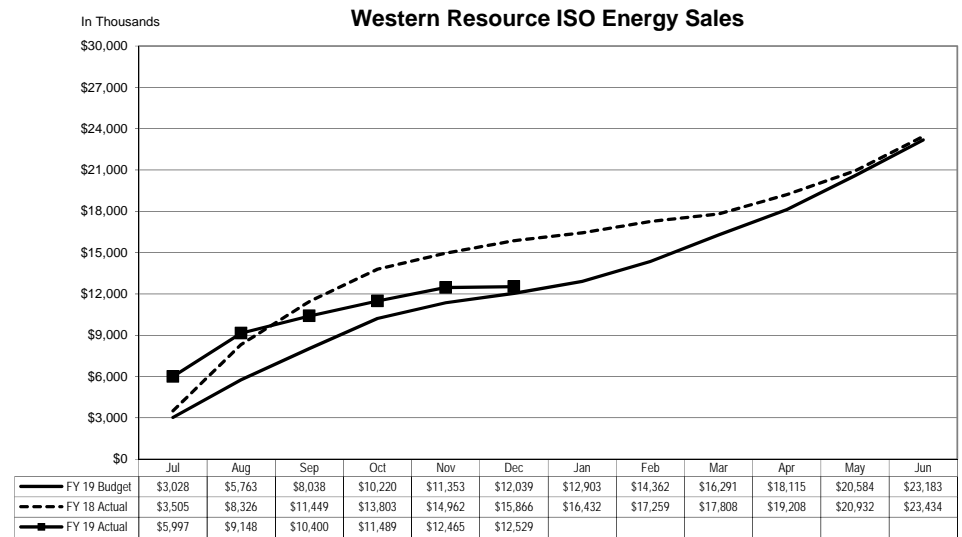
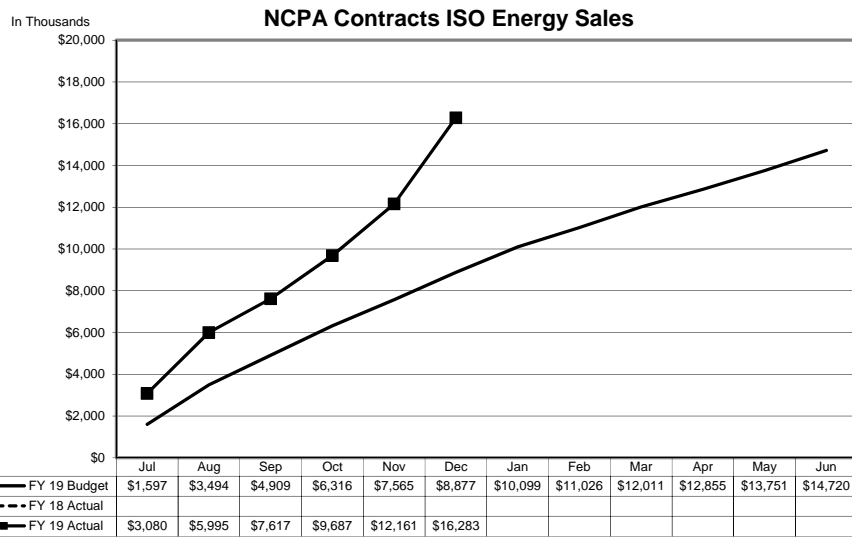
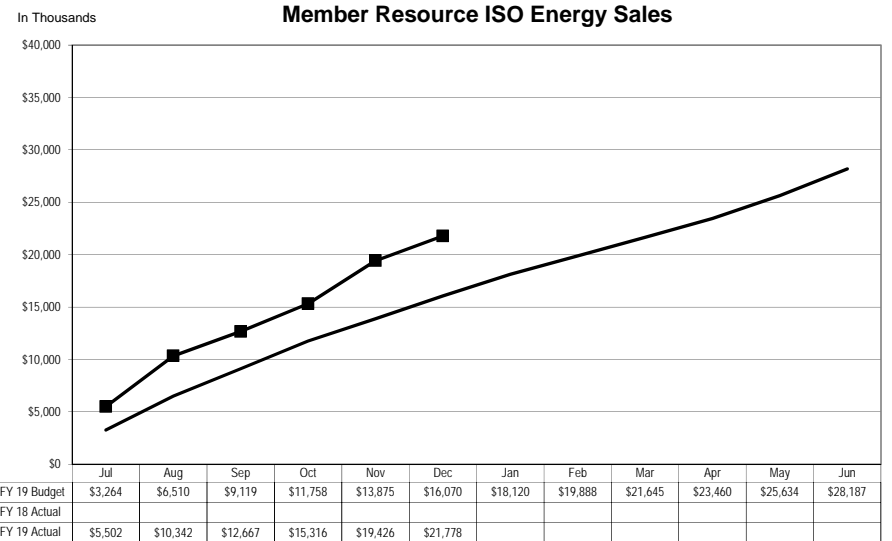
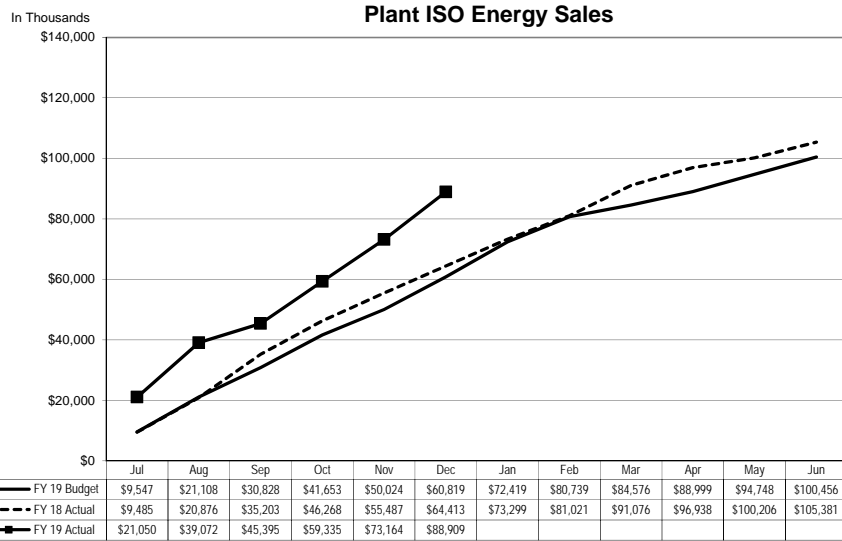
In Thousands



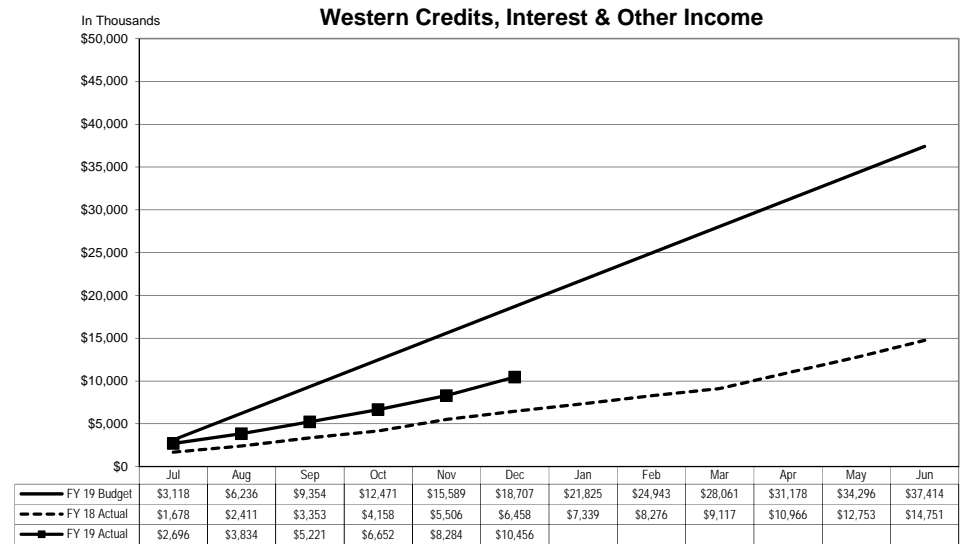
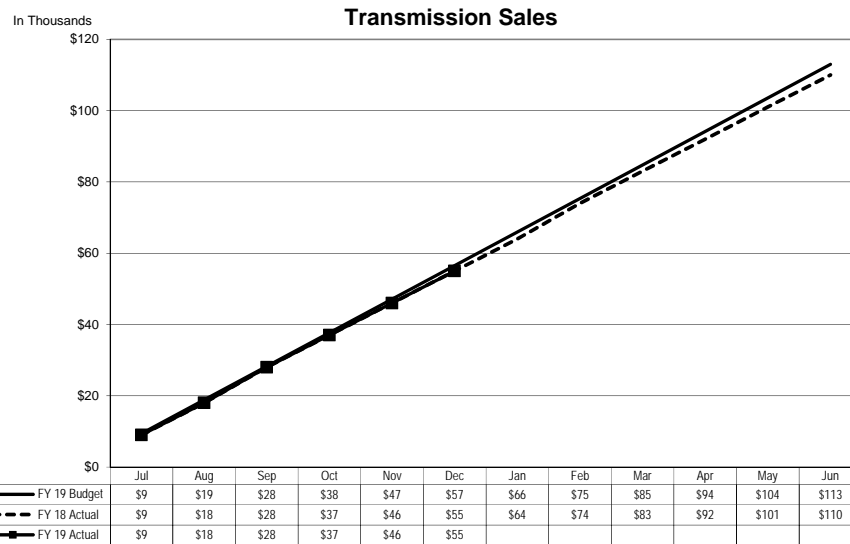
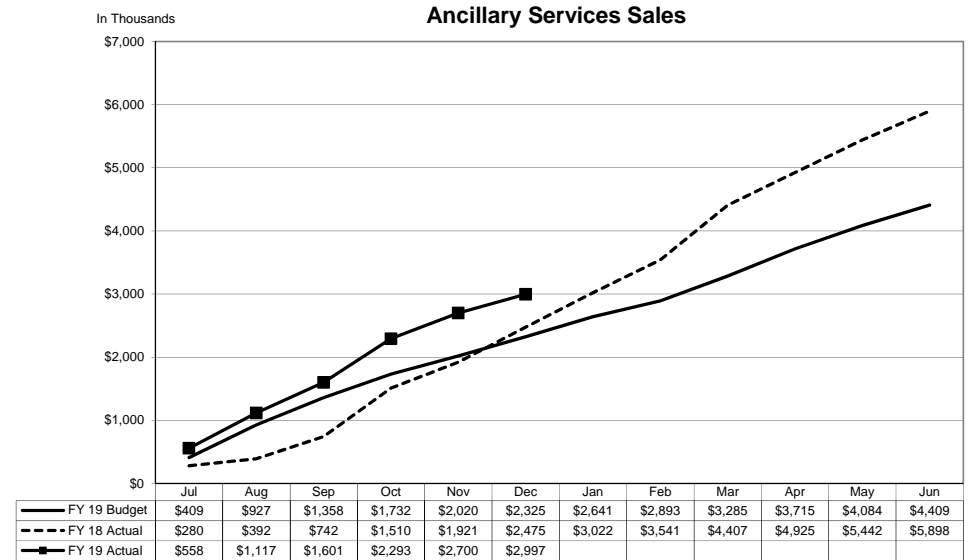
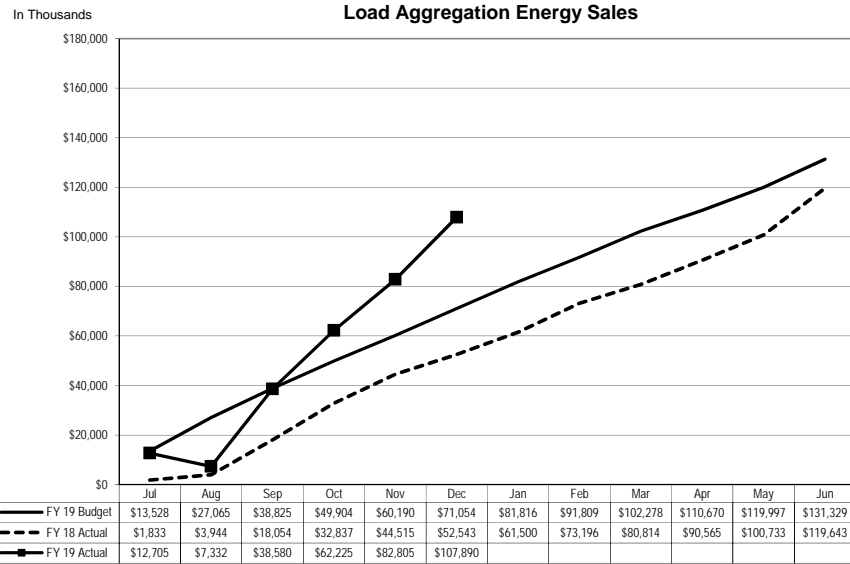
Integrated Systems Support



**Annual Budget Cost
Third Party Revenue Analysis By Source
As of December 31, 2018**



**Annual Budget Cost
Third Party Revenue Analysis By Source
As of December 31, 2018**



**Annual Budget
NCPA Generation Detail Analysis By Plant
As of December 31, 2018**

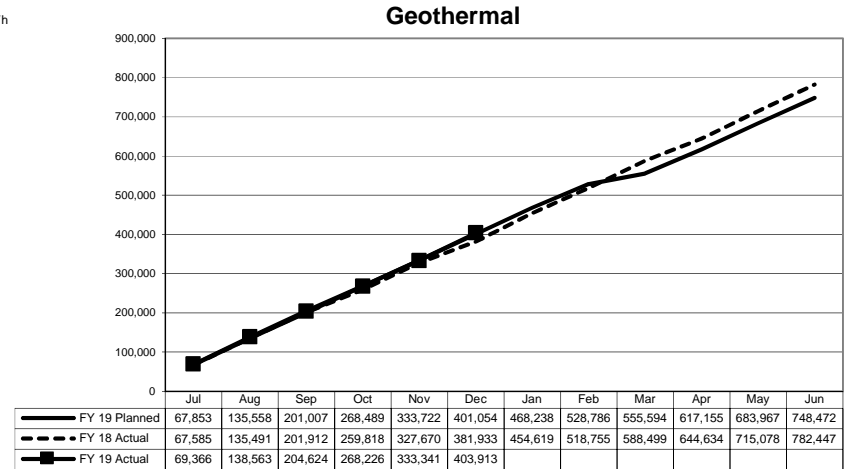
Generation Cost Analysis

\$ in thousands

	Geothermal				
	Budget	Actual	\$/MWh Actual	Under(Over) Budget	YTD % Remaining
Routine O & M	\$ 17,793	\$ 8,875	\$ 21.97	\$ 8,918	50%
Capital Assets/Spare Parts Inventories	3,267	1,602	3.97	1,665	51%
Other Costs	8,137	3,569	8.83	4,569	56%
CA ISO Charges	291	480	1.19	(189)	-65%
Debt Service	4,937	2,468	6.11	2,468	50%
Annual Budget	34,425	16,993	42.07	17,432	51%
Less: Third Party Revenue					
Interest Income	382	189	0.47	193	51%
ISO Energy Sales	26,285	20,148	49.88	6,137	23%
Ancillary Services Sales	-	-	-	-	-
Effluent Revenues	700	869	2.15	(169)	-24%
Misc	110	57	0.14	54	49%
	27,477	21,263	52.64	6,214	23%
Net Annual Budget Cost to Participants	\$ 6,948	\$ (4,270)	\$ (10.57)	\$ 11,218	161%
Net Generation--MWh @ Meter	748,472	403,913			
\$/MWh (A)	\$ 2.69	\$ (16.68)			

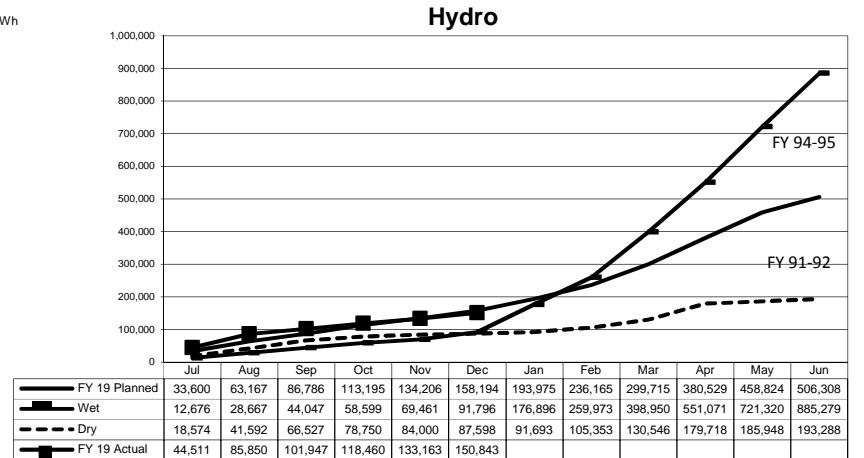
MWhs Generated

In MWh



	Hydroelectric				
	Budget	Actual	\$/MWh Actual	Under(Over) Budget	YTD % Remaining
Routine O & M	\$ 8,685	\$ 3,798	\$ 25.18	\$ 4,887	56%
Capital Assets/Spare Parts Inventories	1,975	1,173	7.77	802	41%
Other Costs	3,238	1,312	8.70	1,927	59%
CA ISO Charges	2,801	1,790	11.86	1,012	36%
Debt Service	35,157	17,578	116.53	17,578	50%
Annual Budget	51,857	25,651	170.05	26,206	51%
Less: Third Party Revenue					
Interest Income	670	235	1.56	435	65%
ISO Energy Sales	20,783	13,273	87.99	7,510	36%
Ancillary Services Sales	3,048	1,553	10.29	1,495	49%
Misc	-	1	0.00	(1)	
	24,501	15,062	99.85	9,439	39%
Net Annual Budget Cost to Participants	\$ 27,356	\$ 10,589	\$ 70.20	\$ 16,767	
Net Generation--MWh @ Meter	506,308	150,843			
\$/MWh (A)	\$ (15.41)	\$ (46.34)			

In MWh



Footnotes:

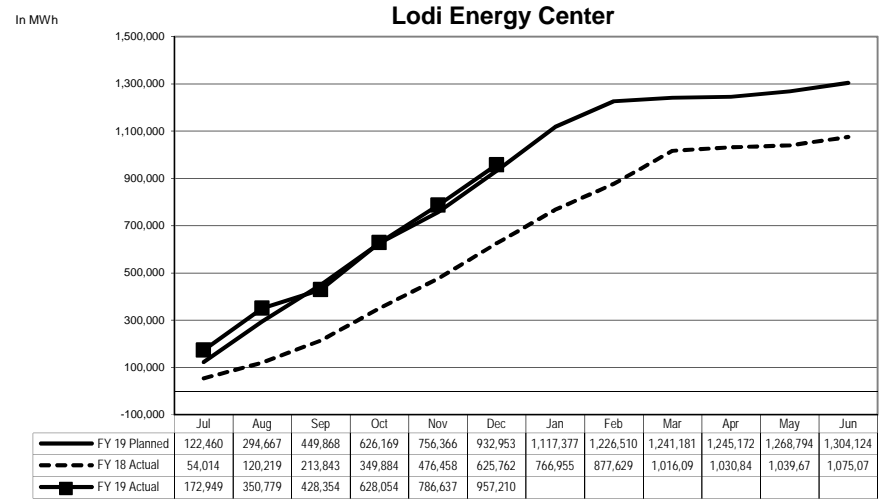
(A) Aggregate fiscal year generation in \$/MWh (excluding debt service)

**Annual Budget
NCPA Generation Detail Analysis By Plant
As of December 31, 2018**

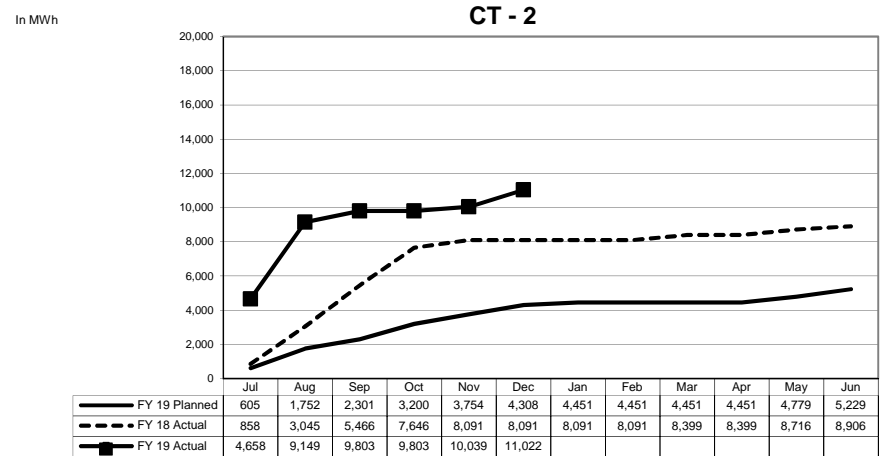
Generation Cost Analysis

	Lodi Energy Center				
	Budget	Actual	\$/MWh Actual	Under(Over) Budget	YTD % Remaining
Routine O & M	\$ 13,965	\$ 5,906	\$ 6.17	\$ 8,059	58%
Fuel	33,092	29,488	30.81	3,604	11%
AB 32 GHG Offset	-	-	-	-	0%
CA ISO Charges and Energy Purchases	5,665	3,542	3.70	2,123	37%
Capital Assets/Spare Parts Inventories	1,613	772	0.81	842	52%
Other Costs	3,302	1,404	1.47	1,898	57%
Debt Service	26,080	13,040	13.62	13,040	50%
Annual Budget	83,717	54,151	56.57	29,566	35%
Less: Third Party Revenue					
Interest Income	386	319	0.33	67	17%
ISO Energy Sales	52,415	52,455	54.80	(40)	0%
Ancillary Services Sales	1,029	987	1.03	42	4%
Transfer Gas Credit	-	-	-	-	0%
Misc	-	0	0.00	(0)	0%
	53,829	53,760	56.16	69	0%
Net Annual Budget Cost to Participants	\$ 29,887	\$ 390	\$ 0.41	\$ 29,497	99%
Net Generation--MWh @ Meter	1,304,124	957,210			
\$/MWh (A)	\$ 2.92	\$ (13.21)			

MWhs Generated



	Combustion Turbine No. 2 (STIG)				
	Budget	Actual	\$/MWh Actual	Under(Over) Budget	YTD % Remaining
Routine O & M	\$ 1,481	\$ 740	\$ 67.11	\$ 741	50%
Fuel and Pipeline Transport Charges	977	797	72.33	180	18%
Capital Assets/Spare Parts Inventories	60	8	0.74	52	86%
Other Costs	506	200	18.10	307	61%
CA ISO Charges	2	117	10.62	(115)	-5682%
Debt Service	5,717	2,858	259.32	2,858	50%
Annual Budget	8,743	4,720	428.22	4,023	46%
Less: Third Party Revenue					
Interest Income	109	50	4.54	59	54%
ISO Energy Sales	401	1,488	135.03	(1,087)	-271%
Ancillary Service Sales	-	-	-	-	0%
Fuel and Pipeline Transport Credits	990	1,049	95.13	(59)	-6%
Misc	-	-	-	-	0%
	1,500	2,587	234.70	(1,087)	-72%
Net Annual Budget Cost to Participants	\$ 7,243	\$ 2,133	\$ 193.52	\$ 5,110	71%
Net Generation--MWh @ Meter	5,229	11,022			
\$/MWh (A)	\$ 291.87	\$ (65.80)			



Footnotes:

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

**Annual Budget
NCPA Generation Detail Analysis By Plant
As of December 31, 2018**

Generation Cost Analysis

	Combustion Turbine No. 1				
	Budget	Actual	\$/MWh Actual	Under(Over) Budget	YTD % Remaining
Routine O & M	\$ 1,560	\$ 1,203	\$ 172.27	\$ 357	23%
Fuel and Pipeline Transport Charges	497	583	83.49	(86)	-17%
Capital Assets/Spare Parts Inventories	3,965	1,268	181.57	2,697	68%
Other Costs	580	243	34.73	338	58%
CA ISO Charges	3	364	52.16	(361)	-12398%
Debt Service	-	-	-	-	-
Annual Budget	6,606	3,662	524.22	2,944	45%
Less: Third Party Revenue					
Interest Income	-	1		(1)	
ISO Energy Sales	572	1,545	221.14	(972)	-170%
Ancillary Services Sales	-	-	-	-	0%
Misc	-	16	2.24	(16)	0%
	572	1,561	223.38	(989)	-173%
Net Annual Budget Cost to Participants	\$ 6,033	\$ 2,101	\$ 300.77	\$ 3,932	65%
Net Generation--MWh @ Meter	7,533	6,985			
\$/MWh (A)	\$ 800.92	\$ 300.77			

Footnotes:

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

MWhs Generated

In MWh

CT - 1

