



Northern California Power Agency
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BUSINESS PROGRESS REPORT

2019

MARCH

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Generation Costs & Reliability

Combustion Turbine Project

Unit Operation for February 2019

Unit	Availability		Production		Reason for Run
CT1 Alameda	Unit 1	Unit 2	Unit 1	1,170.4 MWh	CAISO
	100.0%	4.2%	Unit 2	662.5	
Curtailments, Outages, and Comments:					
No Comment for U1. / 2/22/19 05:30 to 10:05 - Alameda Unit 2 failed to start due to an oil pressure permissive.					
Unit	Availability		Production		Reason for Run
CT1 Lodi	0.0%		0.0 MWh		O/S
Curtailments, Outages, and Comments:					
LodiCT1 - Out of Service due to warranty repairs to the Hot Gas Path Turbine sections.					
Unit	Availability		Production		Reason for Run
CT2 STIG	100.0%		2,506.6 MWh		CAISO
Curtailments, Outages, and Comments:					
No Comment for STIG.					
Unit	Availability		Production		Reason for Run
LEC	87.2%		133,893 MWh		0
Curtailments, Outages, and Comments:					
2/16,17,19,20 ended 1400 - LEC o/s for exhaust expansion joint repair OMS 6946727 2/22 19:48 - LEC auto unloaded due to control system digital input card failure. LEC returned to AGC at 2/23 03:00.					

Maintenance Summary – Specific per asset above.

Geothermal Facilities

Availability/Production for February 2019

Unit	Availability	Net Electricity Generated/Water Delivered	Out-of-Service/Descriptors
Unit 1	97.62 %	17,118 MWh	U1 was off line 2/2/19 from 1815 until 2/3/19 @ 0900 due to Stretford repair U1 was off line 2/4/19 from 1440 until 1600 for WECC testing U2 was off line 2/5/19 from 1305 until 1355 for WECC testing
Unit 2	97.32 %	*15,094 MWh	U2 was off line 2/2/19 from 1815 until 2/3/19 @ 1100 due to Stretford repair U2 was off line 2/5/19 from 1305 until 1355 for WECC testing
Unit 3	N/A %	N/A	Unit 3 remains out of service.
Unit 4	99.85 %	27,984 MWh	U4 was out off line 2/6/19 from 1440 until 1520 for WECC testing
Southeast Geysers Effluent Pipeline	88.10%	223.7 mgallons	Average flow rate: 4,930 gpm
Southeast Solar Plant	N/A	44,508 KWh	Year-to-date KWh: 1,852,637
Bear Canyon Pump Station Zero Solar	N/A	39,776 KWh	Year-to-date KWh: 3,073,065

* Accounts for an additional 2,186 MWh of house load for the 21KV power supply to the effluent pipeline supplied from Unit #2.

Hydroelectric Project

Availability/Production for February 2019

Units	Availability	Net Electricity Generated	Out-of-Service
Collierville Unit 1	100 %	33,684 MWh	CV #1 unit was out of service on, 2/14/19 at 1147 through 2/15/19 at 0400 due to high tailwater.
Collierville Unit 2	100 %	37,879 MWh	CV #2 unit was out of service on, 2/14/19 at 1147 through 2/15/19 at 0400 due to high tailwater.
Spicer Unit 1	95.48 %	454 MWh	NSM #1 unit was out of service on, 2/6/19 at 1809 through 2/7/19 at 1413 due to the unit failing to start remotely. NSM #1 unit was out of service on, 2/19/19 at 0139 through 1202 due to the unit failing to start remotely.
Spicer Unit 2	100 %	482 MWh	NSM #2 unit no reportable outages.
Spicer Unit 3	100 %	175 MWh	NSM #3 unit no reportable outages.

Operations & Maintenance Activities:

- CMMS work orders
- Safety Training
- Cloud seeding activities suspended due to hitting suspension criteria
- Collierville-Bellota 230kv circuit 2 repaired
- Storm response

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

- There were no Cal OSHA Recordable items, Lost Time Accidents, or Vehicle Incidents that occurred in February 2019.
- 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 February 16, 2019.
- 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.

February 2019 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	0	0	0
Days since Recordable	35	207	1,412	6480
Work Hours Since Last Recordable	2,691	41,284	207,577	2,344,116
LTA's (this month)	0	0	0	0
LTA's (calendar year)	0	0	0	0
Days without LTA	4,138	1,275	9,316	5,409
Work Hours without LTA	379,278	258,259	648,121	1,966,134
Vehicle Incident (month)	0	0	0	0
Vehicle Incident (calendar year)	0	0	0	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 February 16, 2019

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 CAISO costs.
- NCPA MSSA Load Data:

Current Year 2019 Data

	February 2019		Calendar Year 2019	
	Peak MW	MWh	Peak MW	MWh
NCPA Pool	335.8 2/4 @1900	180,866	335.96 1/16 @1800	378,494
SVP	450.01 2/7 @1400	277,100	460.34 1/16 @1800	586,985
MSSA	782.47 2/12 @ 1900	457,966	796.31 1/16 @ 1800	965,479

Last Year 2018 Data*

	February 2018		Calendar Year 2018	
	Peak MW	MWh	Peak MW	MWh
NCPA Pool	328.99 2/20 @1900	173,471	419.2 7/25 @1700	368,578
SVP	473.34 2/9 @1500	280,325	529.29 8/9 @1700	587,345
MSSA	779.21 2/20 @ 1900	453,796	945.44 8/9 @ 1700	955,923

*Last year's data added for comparison purposes only

System Peak Data

	All Time Peak Demand	2019 Peak Demand
NCPA Pool	517.83 MW on 7/24/06 @ 1500	335.96 1/16 @ 1800
SVP	586.59 MW on 9/1/17 @ 1600	460.34 1/16 @ 1800
MSSA	1070.79 MW on 9/1/17 @ 1700	796.31 1/16 @ 1800

- 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.

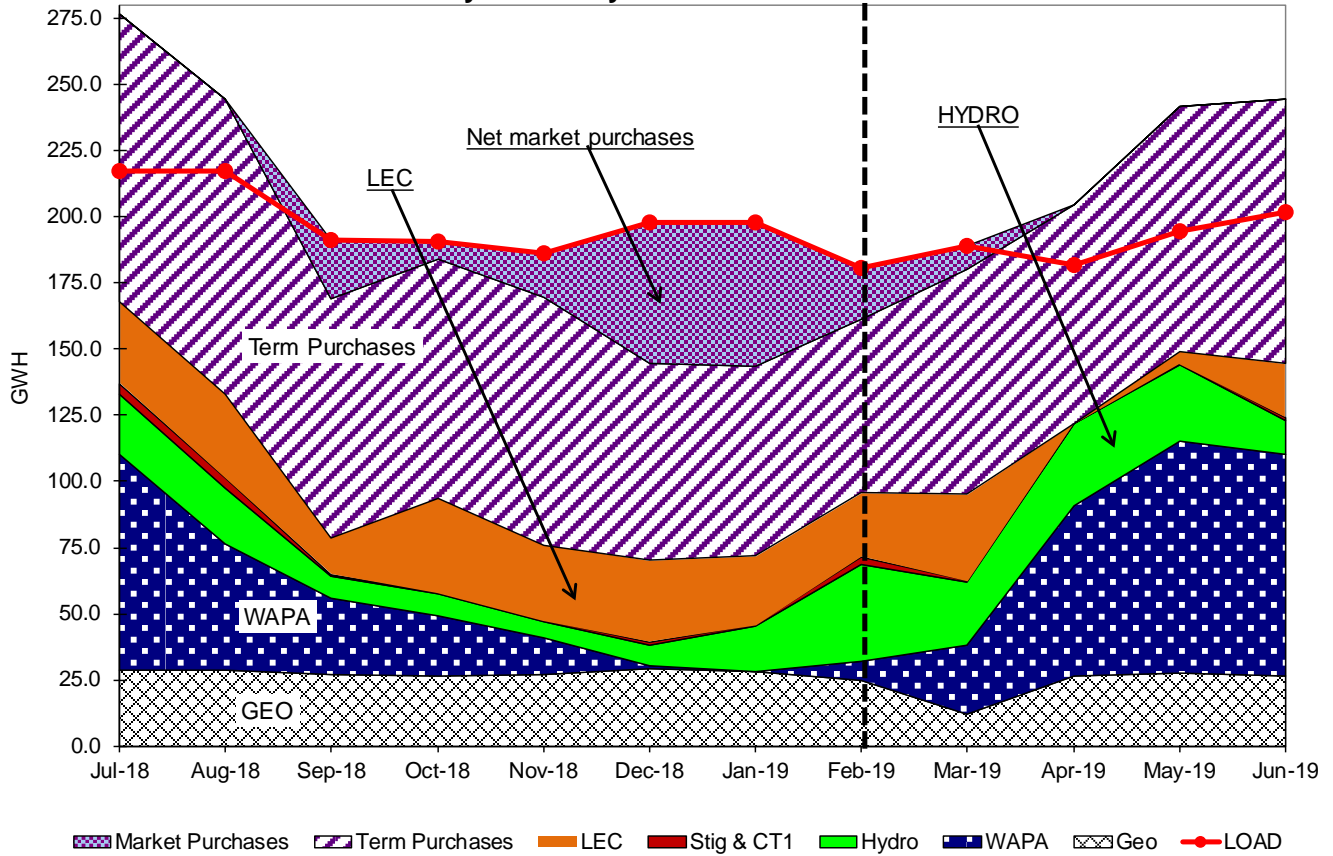
NCPA Deviation Band Performance		
	February 2019	Calendar Year 2019
MSSA % Within the Band	95.56%	97.27%

- McKays spilled from February 14 @ 0950 – February 15 @ 1230 due to high natural flows. Avery flows peaked above 5300cfs.
- Spicer Meadows:
 - February 6 @ 1809 – February 7 @ 1413, Unit 1 o/s due to failed remote start
 - February 19 @ 0139 - 1202, Unit 1 o/s due to failed remote start
- Geothermal Units:
 - February 2 @ 1812 – February 3 @ 1044, Unit 1 and 2 off line due to Stretford system oxidizer tank leak
 - February 4 @ 1459 – 1607, Unit 1 off line for WECC testing
 - February 5 @ 1302 - 1351, Unit 2 off line for WECC testing
 - February 6 @ 1435 – 1521, Unit 4 off line for WECC testing
 - February 14 @ 0652 – 0930, Unit 4 derated due to wet weather causing turbine steam seal trouble, high back pressure
- Lodi Energy Center:
 - February 16 – 20, plant off line for replacement of turbine exhaust expansion joint
 - February 22 @ 1947- February 23 @ 0218, plant o/s due to DCS trouble
- Alameda CTs:
 - February 22 @ 0540 - 1006, Unit 2 failed start due to emergency lube oil pump trouble
- Lodi CT:
 - February 1 - 28, unit o/s for turbine repair and annual maintenance
- Collierville Units:
 - February 14 @ 0950 – February 15 @ 1230, McKays spilling
 - February 14 @ 1147 – February 15 @ 0400, Collierville units derated due to high tailwater
- STIG:
 - No curtailments

Pooling, Portfolio Planning & Forecasting

- NCPA Pool load in February 2019 was 180,866 MWh, three percent (3%) greater than forecasted; temperatures remained below normal most of the month. Between March 1 and 13, 2019, NCPA Pool load was 80,444.
- Lodi Energy Center (LEC) generated 24,075 MWh for the Pool in February 2019. The plant did not operate during a four-day forced outage. The Pool's share of generation between March 1 and 13, 2019 was 12,222 MWh.
- For the month of February 2019, 19.09" of rain was recorded at the Big Trees gage. February Big Trees average precipitation is 10.00".
- The Value of Storage (VOS) of New Spicer Meadow Reservoir (NSMR) has been reduced from \$75/MWh to \$60/MWh.
- NSMR storage as of February 28, 2019 was at 78,863 acre feet. The historical average NSMR storage at the end of February is 75,509 acre feet. As of March 18, 2019 NSMR storage is 70,493 acre feet. The current NCPA Pool share of NSMR storage is 36,323 acre feet.
- Combined Calaveras Project generation for the Pool in February 2019 totaled 36.8 GWh, up from 17.5 GWh in January 2019. The Pool's 36.8 GWh in February 2019 was more than double the pre-month forecast of 15.8 GWh. This was due to above average precipitation and high LMPs during February 2019.
- Western Base Resource (BR) deliveries for the Pool in February 2019 were 7,063 MWh, exceeding Western's zero-MWh forecast for the month. For March 2019 Pool BR allocations are forecasted at 25,873 MWh. The Displacement program became operational on March 1, 2019, with 5,631 MWh received through March 13, 2019.
- The PG&E Citygate gas index averaged \$3.685/MMBtu for delivery on March 14, 2019, substantially lower than the average PG&E gas price during February 2019 of \$7.553/MMBtu as gas demand for heating moderates. The March 2019 PG&E Bidweek price is \$4.29, up from February's \$3.64/MMBtu – half of February's actual average price.
- Day-ahead NP15 electricity prices averaged \$78.94/MWh (HLH) and \$72.31 (LLH) during February 2019, with the hourly TH_NP15 maximum at \$249.50/MWh on February 11, 2019. During March 2019, hourly on-peak prices have averaged \$48.02 per MWh (HLH) and \$45.55 (LLH) through the 14th of the month.

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



NCPA Pool Loads & Resources Value Summary									
	Peak and Energy Summary Feb-19				Estimated Production Costs			Cost of Serving Demand	
	Coincident Peak (MW)	Total MWh	Forecast Values		NCPA Pool		Totals	Avg (\$/MWh)	
				Avg. MW	Cost/Revenue (Estimate)	Variable Cost (\$/MWh)			
Demand	335.8	180,867	175,939	269.1	N/A	N/A			
WAPA	118.0	7,063	2,828	10.5	\$ 1,170,723	\$ 165.75	\$ 14,310,996	\$ 79.12	
Geothermal	-	24,921	25,072	37.1	473,505	19.00			
Hydro	-	36,800	15,778	54.8	220,800	6.00			
Stig & CTs	-	2,705	496	4.0	278,477	102.96			
LEC	-	24,075	33,247	35.8	909,800	37.79			
Contracts	32.0	65,714	68,891	97.8	3,650,581	55.55	\$ 7,518,136	\$ 41.57	
Market - Net <small>(Net Sales = Negative)</small>	185.8	19,589	29,627	29.1	1,522,766	77.74			
Net Total	335.8	180,867	175,939	269.1	\$ 8,226,652	\$ 41.57			

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 2/1/2019 (\$/MWh)	3/15/2019 (\$/MWh)	
Jul-18	197,935	\$ 63.64	\$ 52.34	Apr-19	\$ 30.56	\$ 33.06
Aug-18	211,074	\$ 55.31	\$ 44.06	May-19	28.31	30.71
Sep-18	191,121	\$ 35.51	\$ 51.48	Jun-19	40.60	43.63
Oct-18	190,756	\$ 45.30	\$ 46.39	Q3 2019	\$ 53.74	\$ 69.43
Nov-18	186,329	\$ 55.00	\$ 50.16	Q4 2019	42.40	48.83
Dec-18	197,935	\$ 57.27	\$ 48.12	Q12020	42.67	46.22
Jan-19	197,652	\$ 42.93	\$ 45.13	CY2020	\$ 41.52	\$ 43.27
Feb-19	180,867	\$ 79.12	\$ 41.57	CY2021	43.67	44.90
Mar-19				CY2022	44.38	45.71
Apr-19				CY2023	44.86	46.53
May-19				CY2024	45.68	47.24
Jun-19				CY2025	46.68	48.36

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 May 2019:
 - Monthly System Resource Adequacy Demonstration (filed March 17, 2019)
 - Monthly Supply Plan (filed March 17, 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 key 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 be made available).

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	-	(20,572)	\$1,170,723	\$ 56.91	\$ -	\$ 37.75
Feb-19	37,432	7,063	(30,369)	\$1,170,723	\$ 165.75	\$ 0.05	\$ 39.55
Mar-19	56,569	-	0	\$1,170,723	\$ 20.70	\$ -	\$ 36.75
Apr-19	61,300	-	0	\$2,278,398	\$ 37.17	\$ -	\$ 36.04
May-19	86,402	-	0	\$2,278,398	\$ 26.37	\$ -	\$ 36.82
Jun-19	83,927	-	0	\$2,278,398	\$ 27.15	\$ -	\$ 37.80

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.

- NCPA Pool had 7,063 MWh Base Resource (BR) energy in February 2019. The lack of BR for December 2018 through February 2019 was mainly due to pumping load.
- The Displacement Program was shut down for the winter, effective trade date November 1, 2018. The program resumed March 1, 2019.
- Pool members' total savings under Market Efficiency Enhancement Agreement (MEEA) pricing was \$360 for the Pool in February 2019.

Western Base Resource Minimum Take Ideas Survey

WAPA and BOR conducted a survey on Base Resource Minimum Take ideas for customer feedback. Customers generally expressed interest in pursuing the experiments proposed. WAPA and BOR implemented the first two experiments beginning operating date March 1st, 2019 so customers can benefit from the increased scheduling flexibility at the soonest. WAPA and BOR will evaluate the results and report to customers, for customer feedback. WAPA and BOR will also continue to work with customers on other scheduling flexibility ideas.

Debt and Financial Management

- Following the widespread market volatility late last year, 2019 year-to-date is much rosier: equity markets have rebounded strongly across the board; volatility is back to normal for stocks and bonds and fixed income credit spreads have returned to last October's levels.
- Federal Reserve (Fed) Chair Jay Powell did his part to calm the markets when he commented in recent statements that the Fed will employ a "wait and see" approach, stressing patience on rate guidance. Others may see the return to stability as a parallel to the Federal government's return to stability after Congress and President Trump agreed to a funding plan in advance of the February 15 expiration of stopgap spending authority.
- U.S. Treasury yields have remained within a narrow range so far in 2019. In February, the curve steepened slightly, bucking a three-month flattening trend. While yields on maturities less than two years generally increased three to five basis points (bps) over the month, the longer end of the curve (maturities greater than five years) increased by seven to 10 bps.
- On March 13th, NCPA staff successfully finalized the refunding of the 2010A Hydroelectric bonds saving the project participants over \$1.6 million per year in annual debt service savings. The savings will be reflected in the FY2020 budget.

Schedule Coordination Goals

Software Development

- Beginning on the 03/01/2019 Operating Date, Santa Clara began Realtime scheduling of their MSS portfolio directly into PAGES. Simulation for their MSS DA Scheduling using Prescheduler is ongoing and is anticipated to go in production on the 04/01/2019 Operating Date.
- Staff continues to develop a 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.
- IS staff is configuring the necessary systems in anticipation of East Bay's EBCE and San Jose's SJCE SCID transition.

Network

- Progress continues upgrading staff to Windows 10 with over 50% of the Agency on the new Operating System. The goal is to have all workstations moved over before the end of 2020.

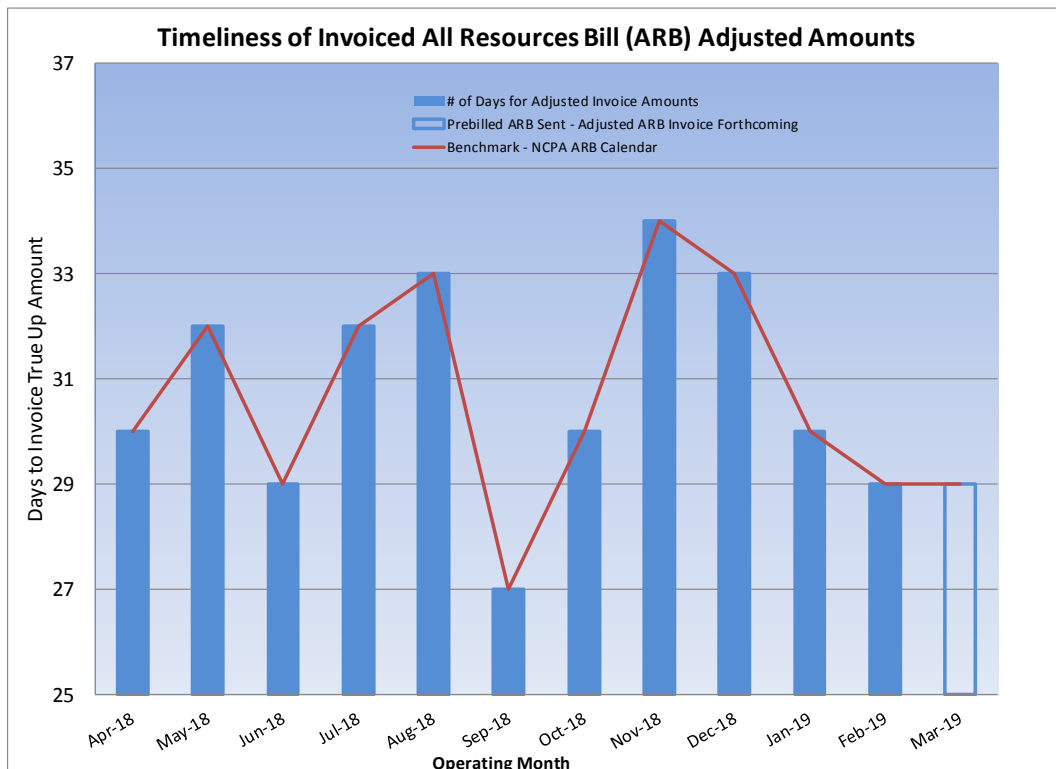
- The Ops and Support group purchased a new backup software VEEAM to retire the older EMC Networker. Plans are being made to schedule the transition to the new software and configure new backup methodologies.
- IS, along with Power Management and Settlements, is actively updating contingency plans for 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.
- System and Administration training for a new records retention software, Collabware, took place in February. This solution will integrate into NCPA's SharePoint Intranet to automate the workflow process to properly retain, approve and destroy records per the Agency Records Retention policy.
- The IS department participated in the NERC CIP Low Impact audit and helped to provide and explain evidence to the WECC auditors. There were no findings from WECC and was determined to be a successful audit. The final report will be delivered to the compliance department.
- The Ops and Support team worked with Generation Services to successfully complete the migration and update of the Computer Maintenance and Management System (CMMS) to version 8.4.
- IS has started reviewing possible replacements for old firewall systems that are used to protect the control center's ICS network. Evaluations of several possible vendors is underway as well as gathering technical requirements that will be used to determine the appropriate solution.
- Multiple feature updates have been made to the NCPA Automated Dispatch System, which includes enhancements for Real Time Contingency Dispatch across multiple SCID and new logic for CAISO supplemental decrement instruction for several solar projects.

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 March 2019 NCPA All Resources Bill (ARB) monthly invoice sent to members on February 22, 2019 contains:

- March 2019 monthly pre-billed budget/forecast amounts;
- January 2019 (1st Adjustment) NCPA Project and CAISO Initial settlement true-ups;
- December 2018 (2nd Adjustment) NCPA Project settlement true-up and T+12 business day recalculated CAISO settlement true-up allocations;
- October 2018 (3rd Adjustment) T+55 business day recalculated CAISO settlement true-up allocations and NCPA Projects true-up;
- April 2018 (4th Adjustment) T+9 month recalculated CAISO settlement true-up allocations;
- June 2017 (5th Adjustment) T+18 month recalculated CAISO settlement true-up allocations;
- March 2016 (6th Adjustment) T+33 month recalculated CAISO settlement true-up;
- December 2015 (7th Adjustment) T+35 month CAISO settlement true-up;



Legislative & Regulatory

Political Arena State/Federal/Western Programs

- NCPA staff and members participated in the American Public Power Association's (APPA) Legislative Rally at the end of February in Washington D.C. NCPA offered two resolutions during the Association's Legislative and Resolutions Committee meeting: the first resolution calls on the Bureau of Reclamation to provide timely and complete action on the "croffsets" due to Central Valley Project (CVP) power customers; the second resolution places the Association in support of these efforts. In addition, NCPA gathered signatures from members of its congressional delegation for a joint letter submitted to the Bureau of Reclamation this month, similarly pressing for action on the "croffsets" for CVP power customers for prior overpayments.
- On March 4th, NCPA held a webinar for members to provide an overview of key bills that have been introduced this state legislative session as of the February 22nd bill introduction deadline. NCPA is continuing to assess introduced legislation and is in the process of gathering additional information to inform potential positions for the agency. Amongst the many issues addressed in state legislation this year are topics such as renewable energy procurement, distributed energy resources and energy storage, centralized electricity procurement, wildfire mitigation, and various issues related to the transitioning energy industry via the rapid emergence of community choice aggregators.
- NCPA Legislative and Regulatory Affairs staff held two member workshops on March 5th focusing on utility program implementation issues. The morning workshop addressed recent legislative and regulatory changes to the states' Renewable Portfolio Standard (RPS); NCPA staff highlighted specific areas that need to be incorporated in upcoming revisions to utilities' RPS procurement plans. In the afternoon, workshop participants discussed the myriad of public funding sources available to utilities and how best to maximize use of public funds to support utility activities.
- NCPA is actively monitoring meetings of the state's Commission on Catastrophic Wildfire Costs and Recovery, which is tasked with making recommendations to the Governor and the Legislature on possible solutions to equitably distribute costs associated with catastrophic wildfires. The Commission has held two hearings to date. NCPA was successful in securing a seat on a panel in the second hearing for Plumas-Sierra Rural Electric Cooperative to testify on utility insurance matters.

Human Resources

Hires:

None.

Intern Hires:

None.

Promotions/Position Changes:

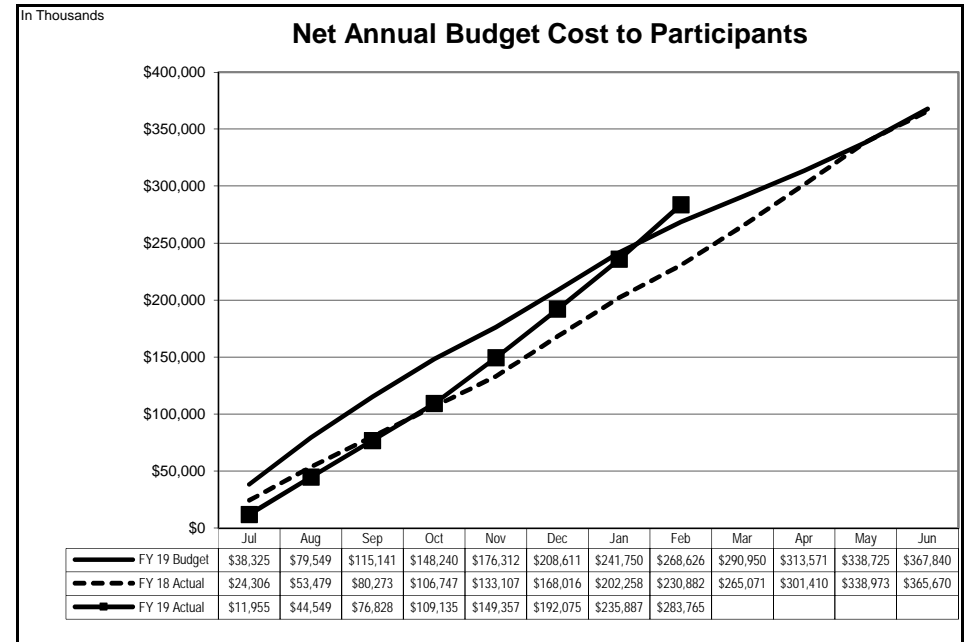
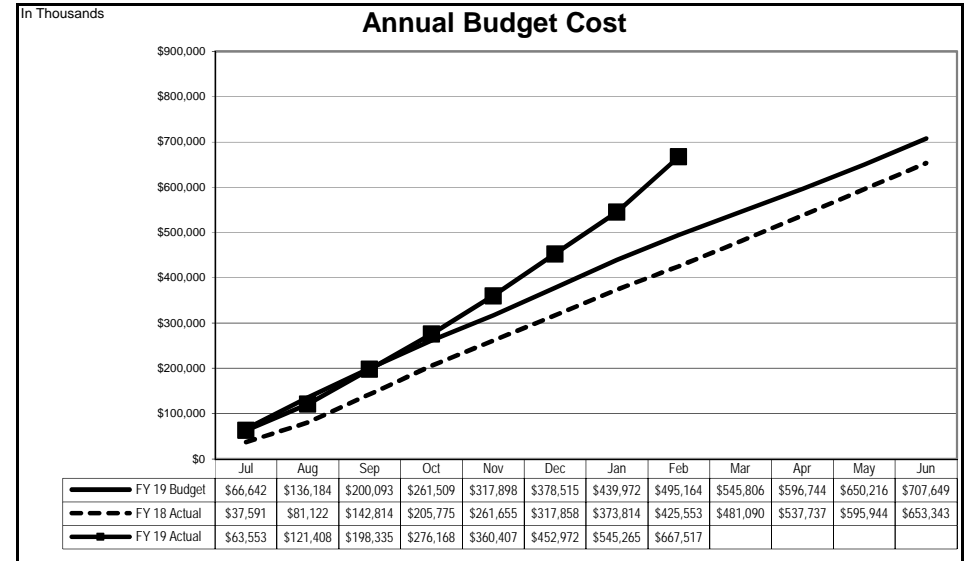
None.

Separations:

Thomas Johnson, CT Specialist IV, retired from the Lodi Energy Center after 14 years of service on March 20, 2019.

**Annual Budget
2018-2019 Fiscal Year To Date
As of February 28, 2019**

In Thousands	Program			
	Annual Budget	Actual	Under(Ovr) Budget	YTD % Remaining
GENERATION RESOURCES				
NCPA Plants				
Hydroelectric	51,857	34,021	\$ 17,836	34%
Geothermal Plant	34,425	22,687	11,738	34%
Combustion Turbine No. 1	8,106	5,033	3,073	38%
Combustion Turbine No. 2 (STIG)	8,743	6,160	2,583	30%
Lodi Energy Center	83,717	74,933	8,784	10%
Member Resources - Energy	186,847	142,833	44,014	24%
Member Resources - Natural Gas	64,449	38,584	25,865	40%
Western Resource	3,098	3,127	(29)	-1%
Market Power Purchases	31,350	11,433	19,917	64%
Load Aggregation Costs - ISO *	15,539	17,068	(1,529)	-10%
Net GHG Obligations	273,858	361,401	(87,543)	-32%
	1,123	2,124	(1,001)	-89%
	576,264	576,569	(305)	0%
TRANSMISSION				
Independent System Operator	112,822	79,965	32,857	29%
MANAGEMENT SERVICES				
Legislative & Regulatory				
Legislative Representation	2,023	1,290	733	36%
Regulatory Representation	887	355	531	60%
Western Representation	848	415	433	51%
Member Services	438	163	276	63%
	4,196	2,222	1,974	47%
Judicial Action	625	443	182	29%
Power Management				
System Control & Load Dispatch	6,107	3,708	2,399	39%
Forecasting & Prescheduling	2,775	1,611	1,164	42%
Industry Restructuring	439	223	216	49%
Contract Admin, Interconnection Svcs & Ext. Affairs	1,135	522	613	54%
Green Power Project	3	0	3	93%
Gas Purchase Program	78	40	37	48%
Market Purchase Project	112	53	59	53%
	10,649	6,157	4,491	42%
Energy Risk Management	260	153	107	41%
Settlements	941	346	595	63%
Integrated System Support	273	98	175	64%
Participant Pass Through Costs	1,619	891	728	45%
Support Services	-	673	(673)	
	18,563	10,983	7,580	41%
TOTAL ANNUAL BUDGET COST	707,649	667,517	40,132	6%
LESS: THIRD PARTY REVENUE				
Plant ISO Energy Sales	100,456	123,435	(22,979)	-23%
Member Resource ISO Energy Sales	28,187	29,133	(947)	-3%
NCPA Contracts ISO Energy Sales	14,720	20,728	(6,007)	-41%
Western Resource ISO Energy Sales	23,183	13,062	10,121	44%
Load Aggregation Energy Sales	131,329	178,584	(47,256)	-36%
Ancillary Services Sales	4,409	3,591	818	19%
Transmission Sales	110	64	46	42%
Western Credits, Interest & Other Income	37,414	15,155	22,259	59%
	339,808	383,752	(43,944)	-13%
NET ANNUAL BUDGET COST TO PARTICIPANTS	367,840	283,765	\$ 84,076	23%

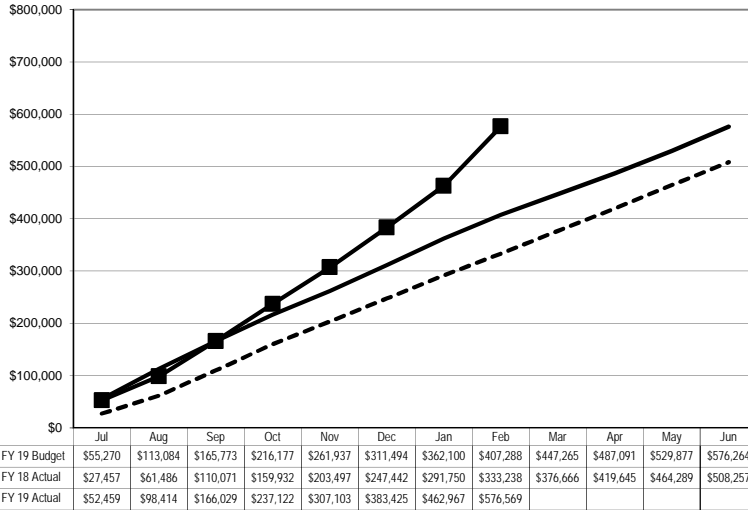


* Load Aggregation Costs - ISO adjusted to include year to date customer ISO Load Aggregation Costs (non-budgeted). Costs of \$76 million were incurred during the months of July 2018 through January 2019.

Annual Budget Budget vs. Actual By Major Area As of February 28, 2019

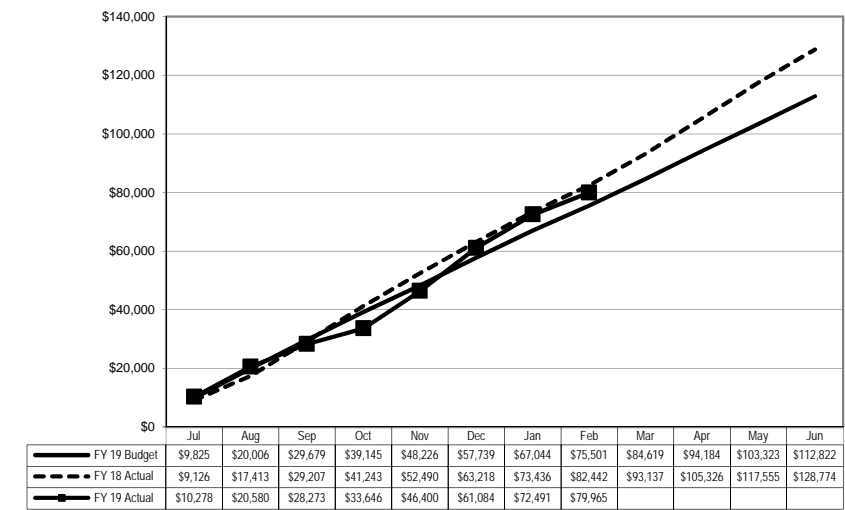
In Thousands

Generation Resources



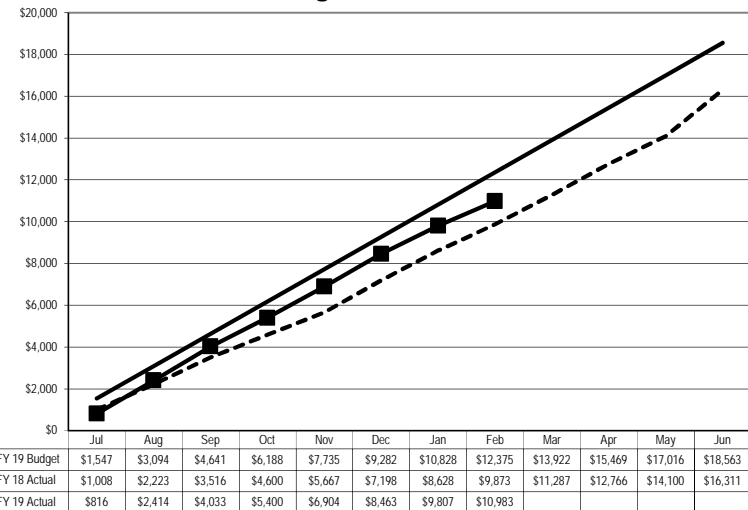
In Thousands

Transmission-ISO



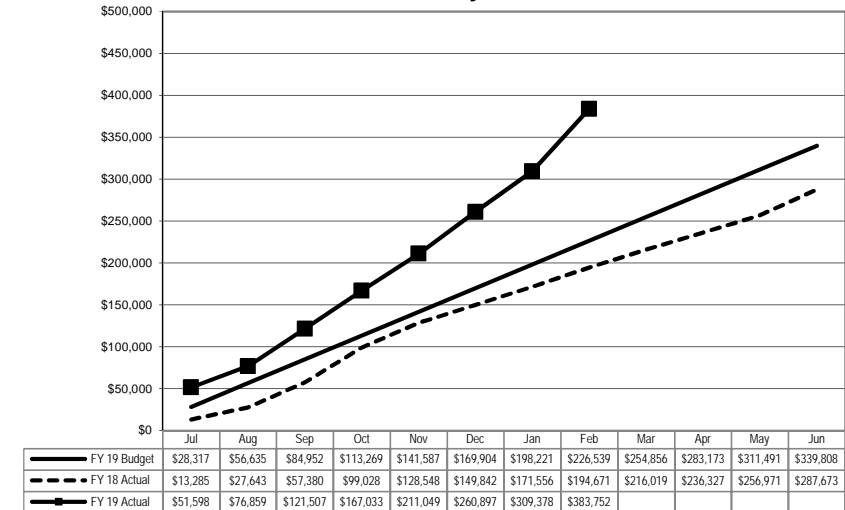
In Thousands

Management Services



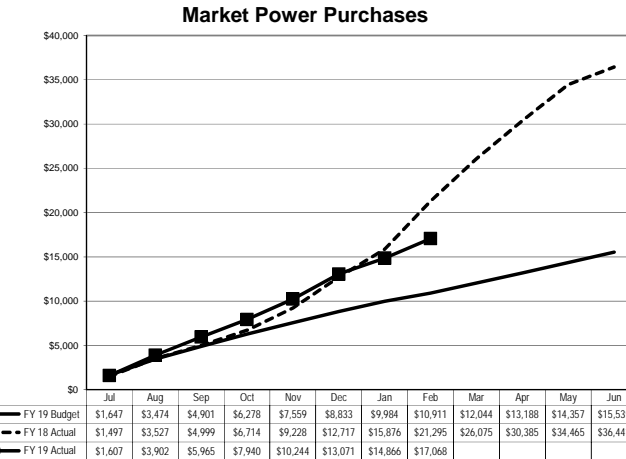
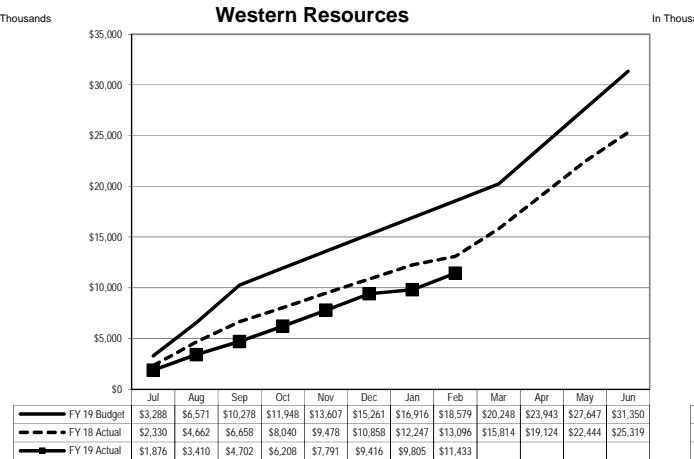
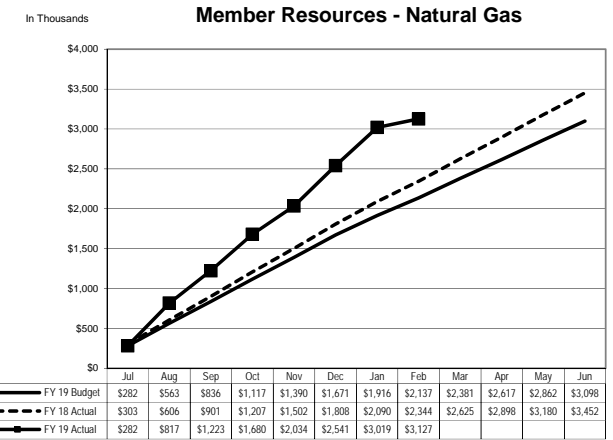
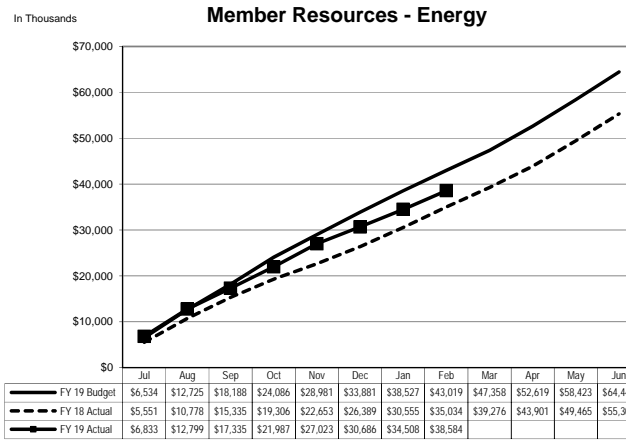
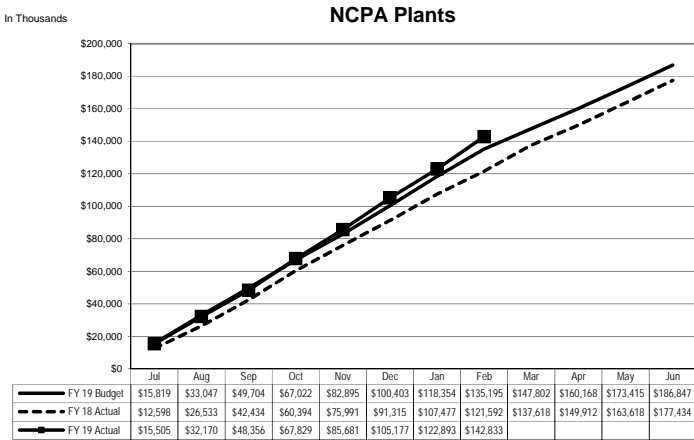
In Thousands

Third Party Revenue



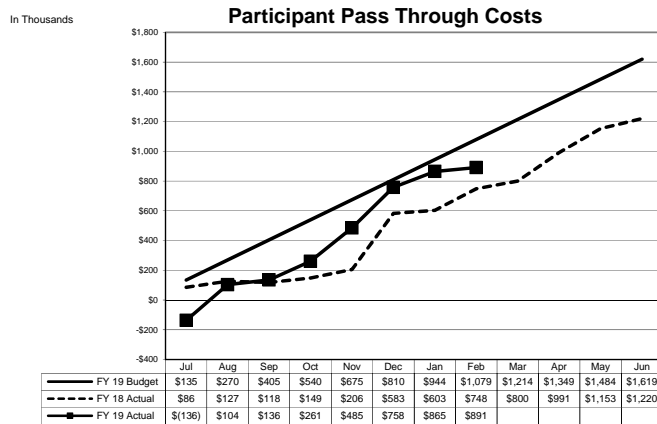
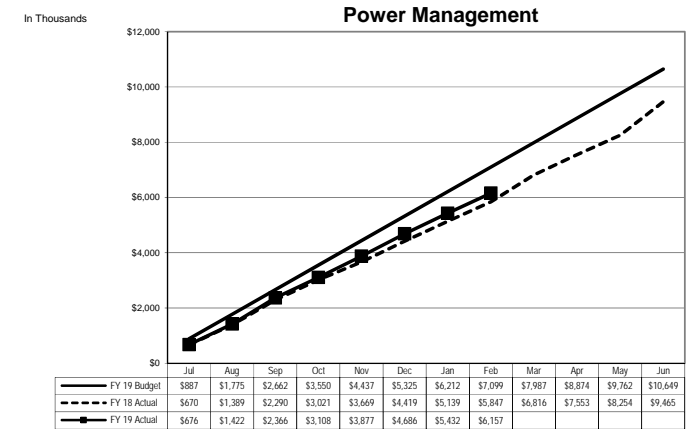
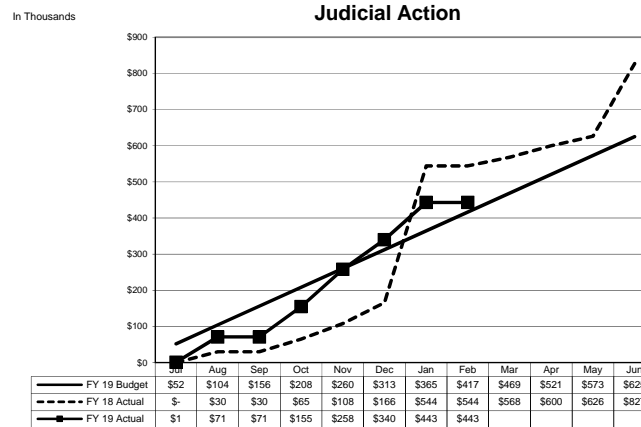
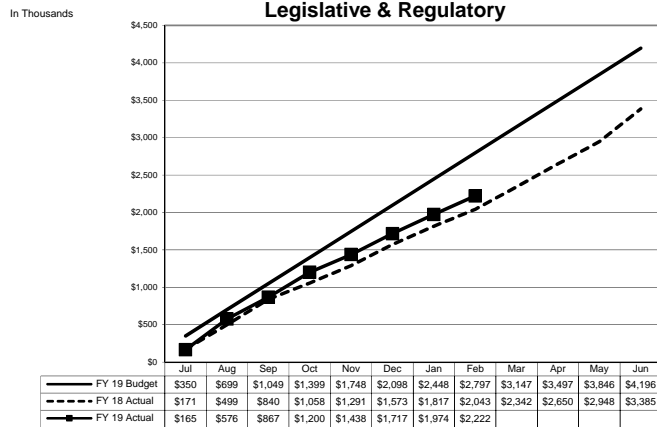
Footnote: Transmission is solely reflective of Independent System Operator (ISO) costs

**Annual Budget Cost
Generation Resources Analysis By Source
As of February 28, 2019**



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

Annual Budget Cost Management Services Analysis By Source As of February 28, 2019

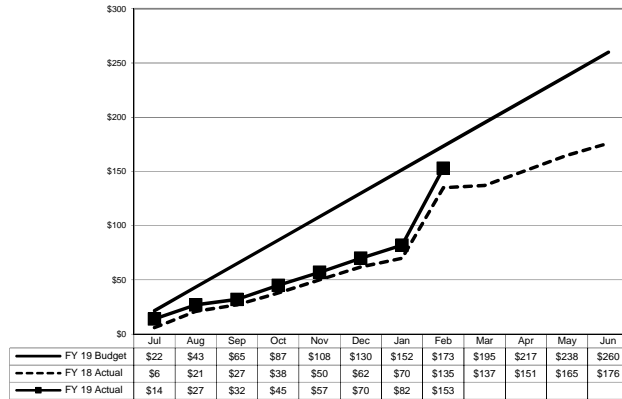


**Annual Budget Cost
Management Services Analysis By Source
As of February 28, 2019**

In Thousands

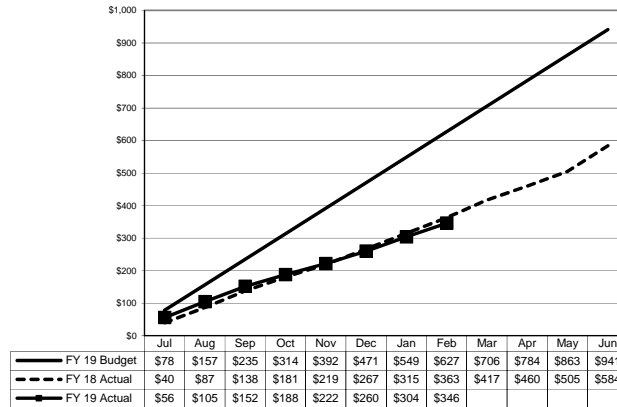
Energy Risk Management

In Thousands

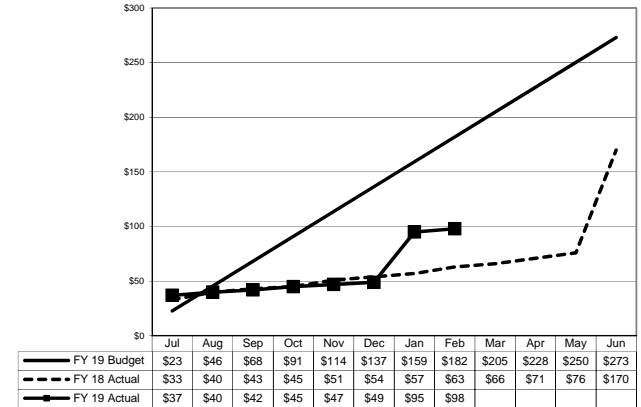


Settlements

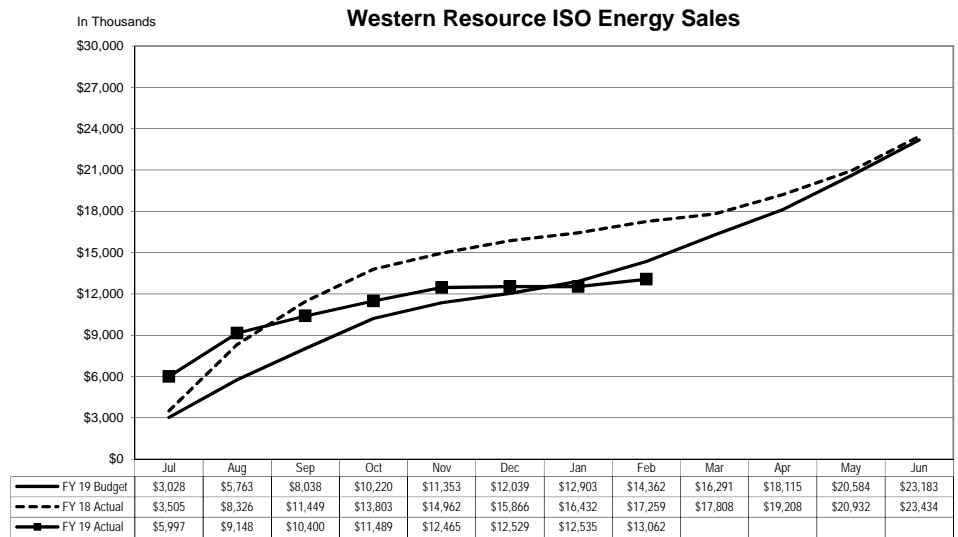
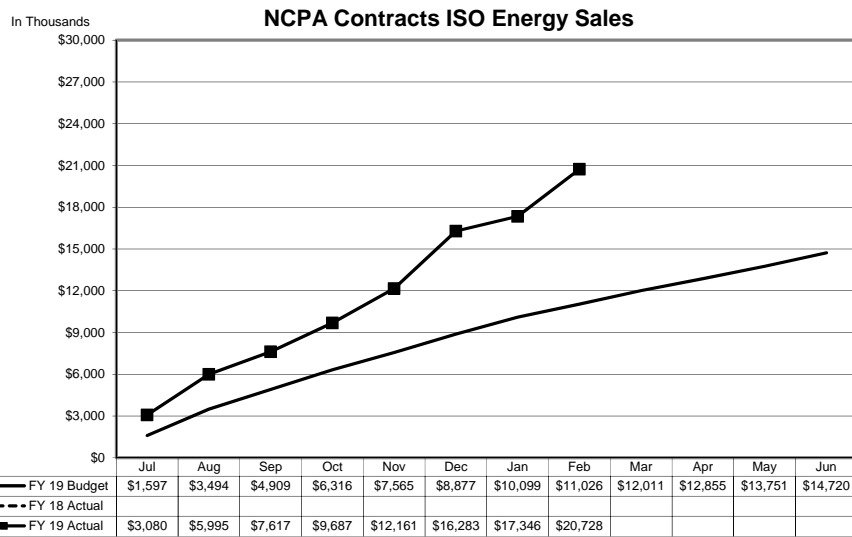
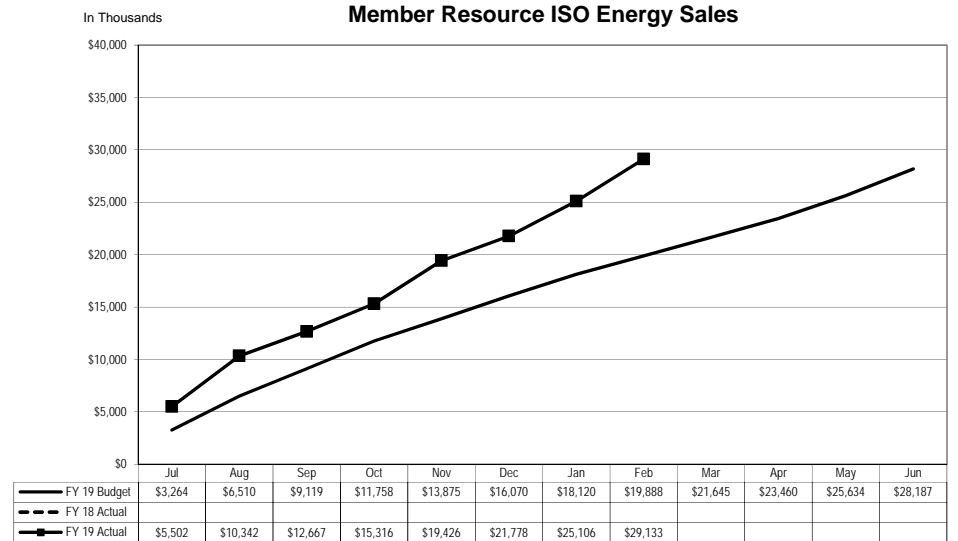
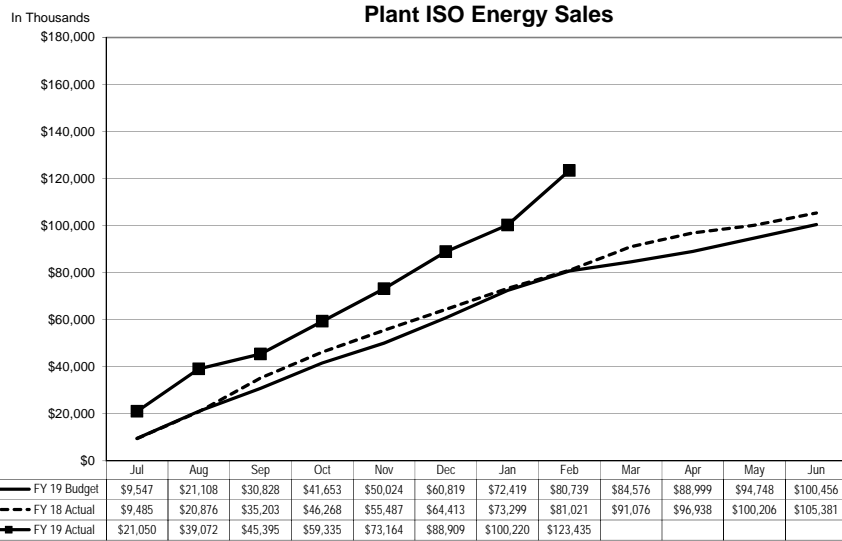
In Thousands



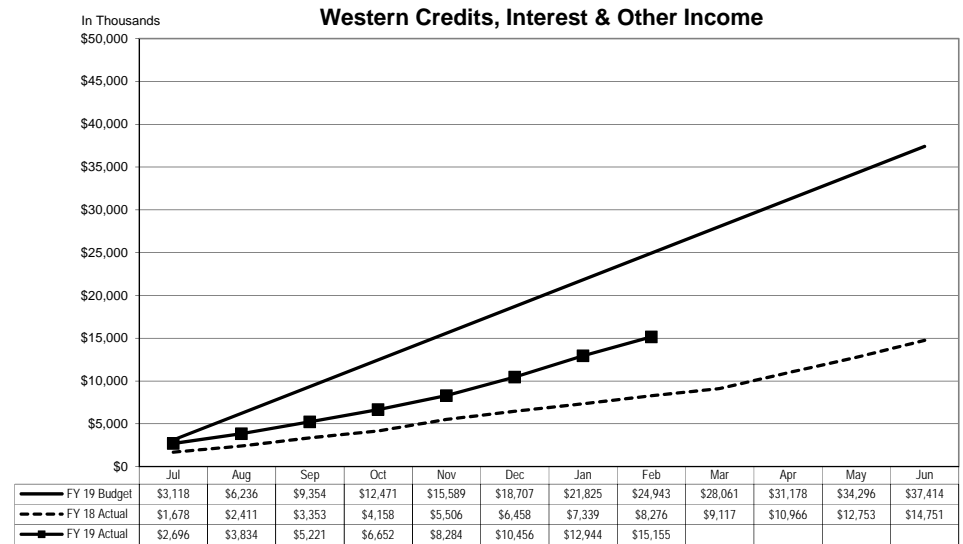
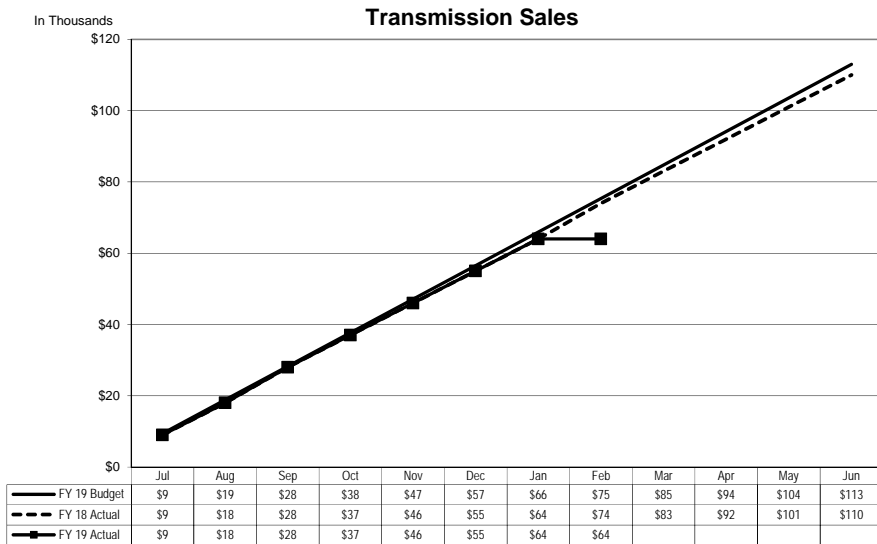
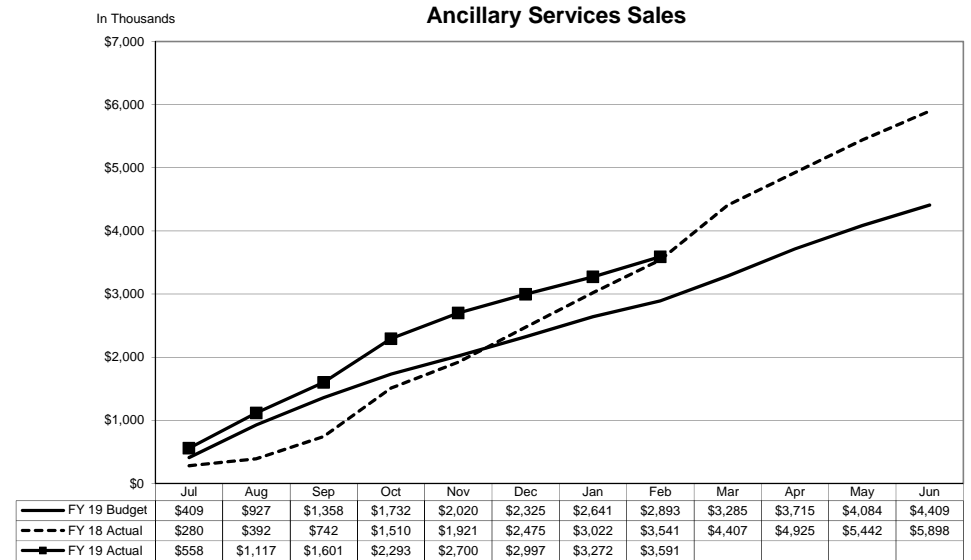
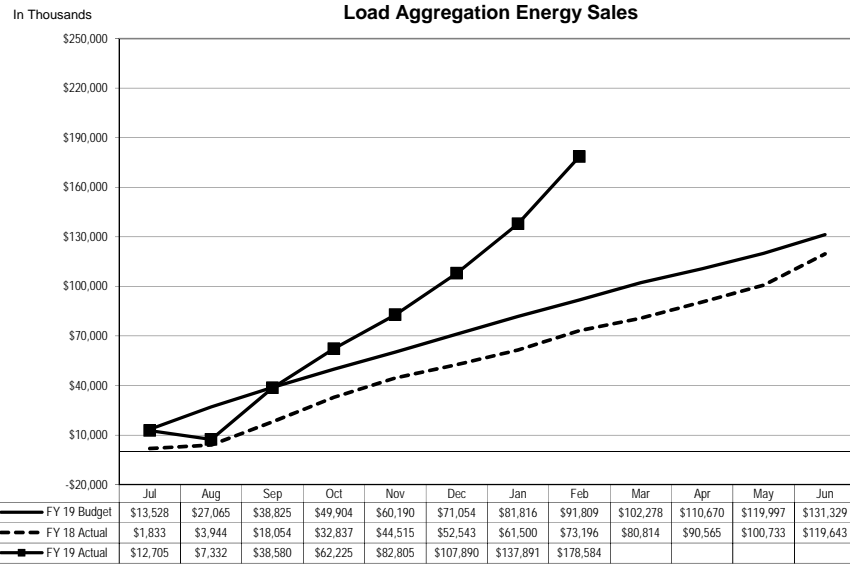
Integrated Systems Support



**Annual Budget Cost
Third Party Revenue Analysis By Source
As of February 28, 2019**



**Annual Budget Cost
Third Party Revenue Analysis By Source
As of February 28, 2019**



**Annual Budget
NCPA Generation Detail Analysis By Plant
As of February 28, 2019**

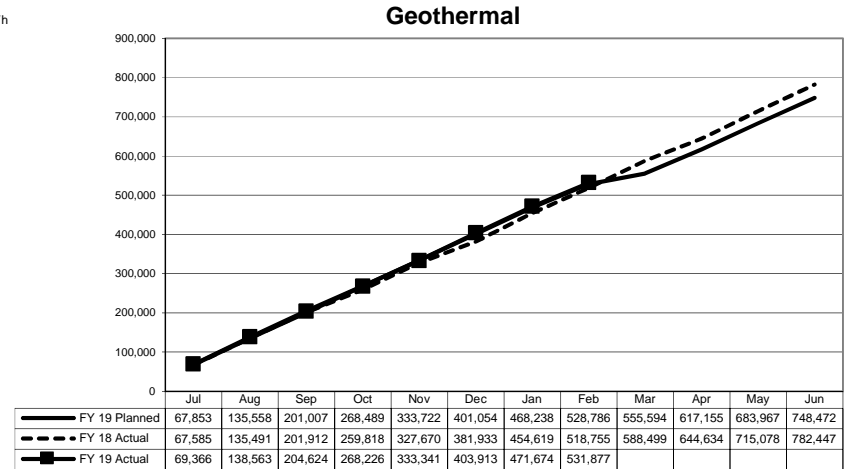
Generation Cost Analysis

\$ in thousands

	Geothermal				
	Budget	Actual	\$/MWh Actual	Under(Over) Budget	YTD % Remaining
Routine O & M	\$ 17,793	\$ 11,759	\$ 22.11	\$ 6,034	34%
Capital Assets/Spare Parts Inventories	3,267	2,254	4.24	1,013	31%
Other Costs	8,137	4,737	8.91	3,400	42%
CA ISO Charges	291	646	1.21	(355)	-122%
Debt Service	4,937	3,291	6.19	1,646	33%
Annual Budget	34,425	22,687	42.65	11,738	34%
Less: Third Party Revenue					
Interest Income	382	259	0.49	123	32%
ISO Energy Sales	26,285	27,854	52.37	(1,569)	-6%
Ancillary Services Sales	-	-	-	-	-
Effluent Revenues	700	1,053	1.98	(353)	-50%
Misc	110	66	0.12	44	40%
	27,477	29,232	54.96	(1,755)	-6%
Net Annual Budget Cost to Participants	\$ 6,948	\$ (6,545)	\$ (12.30)	\$ 13,493	194%
Net Generation--MWh @ Meter	748,472	531,877			
\$/MWh (A)	\$ 2.69	\$ (18.49)			

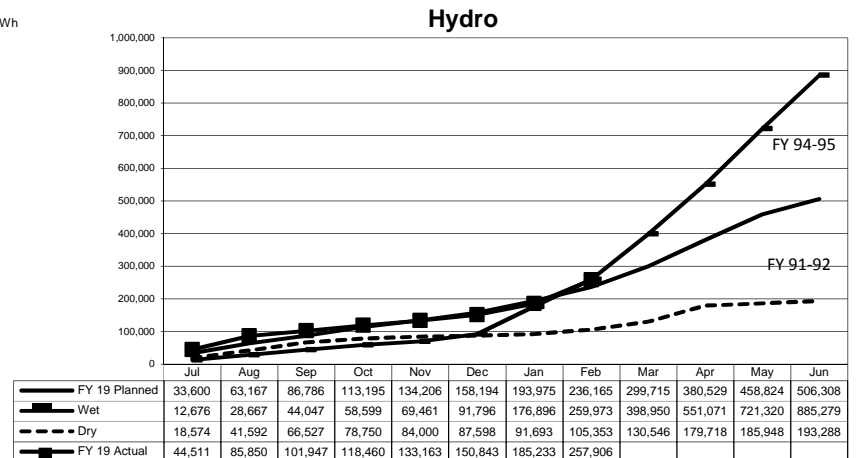
MWhs Generated

In MWh



	Hydroelectric				
	Budget	Actual	\$/MWh Actual	Under(Over) Budget	YTD % Remaining
Routine O & M	\$ 8,685	\$ 5,146	\$ 19.95	\$ 3,539	41%
Capital Assets/Spare Parts Inventories	1,975	1,053	4.08	922	47%
Other Costs	3,238	1,745	6.77	1,494	46%
CA ISO Charges	2,801	2,639	10.23	162	6%
Debt Service	35,157	23,438	90.88	11,719	33%
Annual Budget	51,857	34,021	131.91	17,836	34%
Less: Third Party Revenue					
Interest Income	670	364	1.41	306	46%
ISO Energy Sales	20,783	22,282	86.39	(1,498)	-7%
Ancillary Services Sales	3,048	1,798	6.97	1,250	41%
Misc	-	1	0.00	(1)	0%
	24,501	24,443	94.78	57	0%
Net Annual Budget Cost to Participants	\$ 27,356	\$ 9,577	\$ 37.14	\$ 17,778	
Net Generation--MWh @ Meter	506,308	257,906			
\$/MWh (A)	\$ (15.41)	\$ (53.74)			

In MWh



Footnotes:

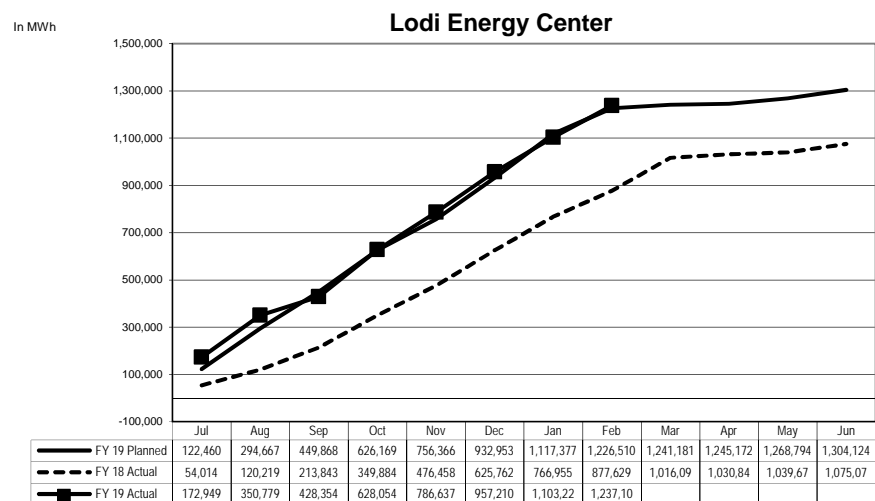
(A) Aggregate fiscal year generation in \$/MWh (excluding debt service)

**Annual Budget
NCPA Generation Detail Analysis By Plant
As of February 28, 2019**

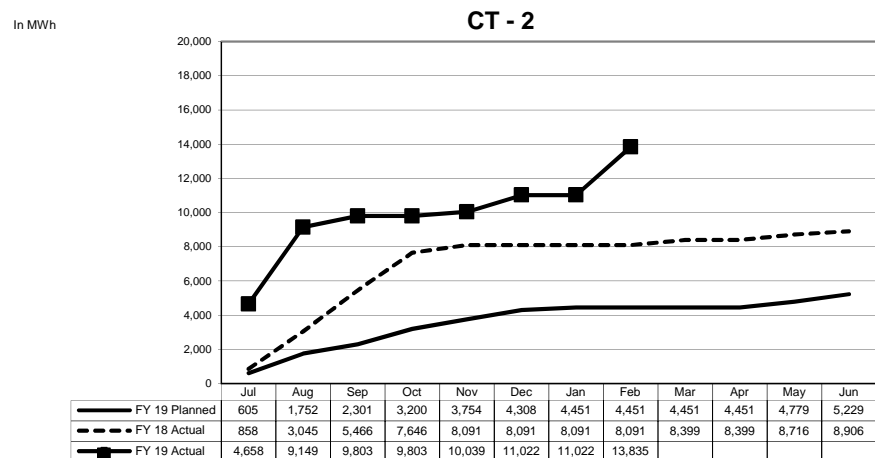
Generation Cost Analysis

	Lodi Energy Center				
	Budget	Actual	\$/MWh Actual	Under(Over) Budget	YTD % Remaining
Routine O & M	\$ 13,965	\$ 8,733	\$ 7.06	\$ 5,232	37%
Fuel	33,092	40,967	33.12	(7,875)	-24%
AB 32 GHG Offset	-	-	-	-	0%
CA ISO Charges and Energy Purchases	5,665	4,709	3.81	956	17%
Capital Assets/Spare Parts Inventories	1,613	1,015	0.82	598	37%
Other Costs	3,302	2,122	1.72	1,180	36%
Debt Service	26,080	17,387	14.05	8,693	33%
Annual Budget	83,717	74,933	60.57	8,784	10%
Less: Third Party Revenue					
Interest Income	386	443	0.36	(57)	-15%
ISO Energy Sales	52,415	69,594	56.26	(17,180)	-33%
Ancillary Services Sales	1,029	1,255	1.01	(227)	-22%
Transfer Gas Credit	-	-	-	-	0%
Misc	-	0	0.00	(0)	0%
	53,829	71,292	57.63	(17,463)	-32%
Net Annual Budget Cost to Participants	\$ 29,887	\$ 3,640	\$ 2.94	\$ 26,247	88%
Net Generation--MWh @ Meter	1,304,124	1,237,109			
\$/MWh (A)	\$ 2.92	\$ (11.11)			

MWhs Generated



	Combustion Turbine No. 2 (STIG)				
	Budget	Actual	\$/MWh Actual	Under(Over) Budget	YTD % Remaining
Routine O & M	\$ 1,481	\$ 933	\$ 67.41	\$ 548	37%
Fuel and Pipeline Transport Charges	977	1,001	72.36	(24)	-2%
Capital Assets/Spare Parts Inventories	60	8	0.59	52	86%
Other Costs	506	269	19.46	237	47%
CA ISO Charges	2	138	9.98	(136)	-6724%
Debt Service	5,717	3,811	275.48	1,906	33%
Annual Budget	8,743	6,160	445.28	2,583	30%
Less: Third Party Revenue					
Interest Income	109	67	4.86	41	38%
ISO Energy Sales	401	2,028	146.58	(1,627)	-405%
Ancillary Service Sales	-	-	-	-	0%
Fuel and Pipeline Transport Credits	990	1,699	122.78	(709)	-72%
Misc	-	-	-	-	0%
	1,500	3,794	274.22	(2,294)	-153%
Net Annual Budget Cost to Participants	\$ 7,243	\$ 2,367	\$ 171.06	\$ 4,876	67%
Net Generation--MWh @ Meter	5,229	13,835			
\$/MWh (A)	\$ 291.87	\$ (104.42)			



Footnotes:

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

**Annual Budget
NCPA Generation Detail Analysis By Plant
As of February 28, 2019**

Generation Cost Analysis

	Combustion Turbine No. 1				
	Budget	Actual	\$/MWh Actual	Under(Over) Budget	YTD % Remaining
Routine O & M	\$ 1,560	\$ 1,533	\$ 169.65	\$ 27	2%
Fuel and Pipeline Transport Charges	497	762	84.37	(265)	-53%
Capital Assets/Spare Parts Inventories	5,465	2,031	224.79	3,434	63%
Other Costs	580	321	35.57	259	45%
CA ISO Charges	3	385	42.61	(382)	-13109%
Debt Service	-	-	-	-	-
Annual Budget	8,106	5,033	556.99	3,073	38%
Less: Third Party Revenue					
Interest Income	-	1	-	(1)	
ISO Energy Sales	572	1,677	185.65	(1,105)	-193%
Ancillary Services Sales	-	-	-	-	0%
Misc	-	16	1.73	(16)	0%
	572	1,694	187.38	(1,121)	-196%
Net Annual Budget Cost to Participants	\$ 7,533	\$ 3,339	\$ 369.55	\$ 4,194	56%
Net Generation--MWh @ Meter	7,533	9,035			
\$/MWh (A)	\$ 1,000.05	\$ 369.55			

Footnotes:

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

MWhs Generated

In MWh

CT - 1

