



Northern California Power Agency  
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# BUSINESS PROGRESS REPORT

2018

October



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# Table of Contents

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Generation Costs & Reliability .....	1
Environmental, Health & Safety Projects .....	4
Power Management/NCPA Market Results.....	5
Debt & Financial Management .....	11
Schedule Coordination Goals.....	11
NCPA Bills & Settlements.....	12
Political Arena State/Federal/Western Programs .....	14
Human Resources.....	15
Annual Budget FY to Date.....	16
Budget vs. Actual by Major Area .....	17
Generation Resources Analysis by Source .....	18
Management Services Analysis by Source .....	19
Third Party Revenue Analysis by Source .....	21
Generation Detail Analysis by Plant .....	23

# Generation Costs & Reliability

## Combustion Turbine Project

### Unit Operation for September 2018

Unit	Availability		Production		Reason for Run
CT1 Alameda	Unit 1	Unit 2	Unit 1	0.0 MWh	Out of Service
	0.0%	91.7%	Unit 2	63.6	
Curtailments, Outages, and Comments:					
Alameda CT U1 Compressor Failure ETR 10/31 OMS 6125777 / 9/28/18 12:00 - 10/01/18 0900 Alameda CT U2 o/s due to intermittent comm trouble OMS 6491853					
Unit	Availability		Production		Reason for Run
CT1 Lodi	100.0%		0.0 MWh		Test Run
Curtailments, Outages, and Comments:					
No Comment.					
Unit	Availability		Production		Reason for Run
CT2 STIG	100.0%		665.9 MWh		Air Permit Requirement
Curtailments, Outages, and Comments:					
9/25 - Lodi STIG Unit on line for annual RATA testing 0540 - 2030 OMS 6462237					
Unit	Availability		Production		Reason for Run
LEC	88.3%		77,573 MWh		0
Curtailments, Outages, and Comments:					
9/9/18 05:00 - 9/12/18 17:00 Turning Gear Failure, OMS 6422407					

**Maintenance Summary – Specific per asset above.**

## Geothermal Facilities

### Availability/Production for September 2018

Unit	Availability	Net Electricity Generated/Water Delivered	Out-of-Service/Descriptors
<b>Unit 1</b>	99.03 %	18,948 MWh	U1 was OOS from 0430 until 1130 9/27/18 due to excitation transfer failure
<b>Unit 2</b>	100 %	*17,144 MWh	U2 had no outages for the month
<b>Unit 3</b>	N/A %	N/A	Unit 3 remains out of service.
<b>Unit 4</b>	100 %	37,771 MWh	U4 had no outages for the month
<b>Southeast Geysers Effluent Pipeline</b>	97%	226.4 mgallons	Average flow rate: 5,302 gpm
<b>Southeast Solar Plant</b>	N/A	107,108 KWh	Year-to-date KWh: 1,530,742
<b>Bear Canyon Pump Station Zero Solar</b>	N/A	102,041 KWh	Year-to-date KWh: 2,927,820

\* Accounts for an additional 2,207 MWh of house load for the 21KV power supply to the effluent pipeline supplied from Unit #2.

## Hydroelectric Project

### Availability/Production for September 2018

Units	Availability	Net Electricity Generated	Out-of-Service
<b>Collierville Unit 1</b>	100.00 %	12917 MWh	CV #1 unit no reportable outages.
<b>Collierville Unit 2</b>	10.97 %	1319 MWh	CV #2 unit was out of service on, 09/04/18 at 0700 through 09/30/18 at 2359 due to generator rewind.
<b>Spicer Unit 1</b>	100.00 %	1 MWh	NSM #1 unit no reportable outages.
<b>Spicer Unit 2</b>	100.00 %	1604 MWh	NSM #2 unit no reportable outages.
<b>Spicer Unit 3</b>	100.00 %	255 MWh	NSM #3 unit no reportable outages.

#### Operations & Maintenance Activities:

- CMMS work orders
- CV2 Generator rewind
- Utica Reservoir Low Level outlet Divers and ROV inspection of gate mechanism
- FERC and DSOD annual inspection
- USGS bi-annual QC inspection

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

- No lost time accidents, recordable incidents, or vehicle accidents occurred in September.
- 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 as updated through the payroll period ended September 29, 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.

### September 2018 Generation Services Safety Report

	Hydro	GEO	CT Group *	NCPA HQ **
Cal OSHA Recordable (this month)	1	1	0	0
Cal OSHA Recordable (calendar year)	1	2	0	0
Days since Recordable	63	67	1,272	6,340
Work Hours Since Last Recordable	6,283	14,006	187,307	2,292,582
LTA's (this month)	0	0	0	0
LTA's (calendar year)	0	0	0	0
Days without LTA	3,998	1,135	9,176	5,269
Work Hours without LTA	366,733	230,981	628,671	1,914,600
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 September 29, 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**

	<b>September 2018</b>		<b>Calendar Year 2018</b>	
	Peak MW	MWh	Peak MW	MWh
NCPA Pool	365.71 9/10 @ 1700	191,121	419.2 7/25 @ 1700	1,735,202
SVP	512.58 9/20 @ 1600	307,382	529.29 8/9 @ 1700	2,771,198
MSSA	864.66 9/4 @ 1700	498,503	945.44 8/9 @ 1700	4,506,400

#### **Last Year 2017 Data\***

	<b>September 2017</b>		<b>Calendar Year 2017</b>	
	Peak MW	MWh	Peak MW	MWh
NCPA Pool	485.85 9/1 @ 1700	206,942	485.85 9/1 @ 1700	1,809,600
SVP	586.59 9/1 @ 1600	325,378	586.59 9/1 @ 1600	2,794,842
MSSA	1070.79 9/1 @ 1700	532,320	1070.79 9/1 @ 1700	4,604,442

\* Last year's data added for comparison purposes only

#### **System Peak Data**

	<b>All Time Peak Demand</b>	<b>2018 Peak Demand</b>
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.

<b>NCPA Deviation Band Performance</b>		
	<b>September 2018</b>	<b>Calendar Year 2018</b>
<b>MSSA % Within the Band</b>	99.03%	97.68%

- Spicer Meadows:
  - No curtailments
- Geothermal Units:
  - September 27 @ 0425 – 1127, Unit 1 trip off line due to exciter trouble
- Lodi Energy Center:
  - September 9 - 12, plant o/s due to turning gear trouble
- Alameda CTs:
  - September 1 – 30, Unit 1 remains o/s due to compressor blade failure
  - September 10 @ 0700 – 1447, Unit 2 unavailable due to transmission outage
  - September 28 – 30, Unit 2 unavailable unless manned due to comm circuit trouble, no remote control
- Lodi CT:
  - September 10 @ 1830 – September 11 @ 0937, unit o/s due to failed start caused by AVR issue
- Collierville Units:
  - September 4 @ 0700 Unit 2 o/s for stator rewind/annual maintenance. ETR 12/21
- STIG:
  - No curtailments



## **Pooling, Portfolio Planning & Forecasting**

- NCPA Pool load in September 2018 was 191,121 MWh, which was 92.5% of the pre-month forecast of 206,507 MWh. From October 1, 2018 through October 14, 2018, the NCPA Pool load was 86,495 MWh. Unless temperatures continue to drop, it is unlikely that the NCPA Pool load will reach the initial forecast of 201,425 MWh.
- The Lodi Energy Center (LEC) generated 13,950 MWh for the Pool in September 2018, or 71.2% of the 19,593-MWh forecast. The forecast was based on higher power prices and lower natural gas prices for the period, unlike the current month, where power prices have moved higher. The Pool's share of generation through October 14, 2018 was 16,173 MWh.
- For the month of September 2018, 0.01" of rain was recorded at the Big Trees gage. September Big Trees average precipitation is 0.84".
- The Value of Storage (VOS) of New Spicer Meadow Reservoir (NSMR) has been increased from \$60/MWh to \$70/MWh.
- NSMR storage as of September 30, 2018 was at 98,693 acre feet. The historical average NSMR storage at the end of September is 103,816 acre feet. As of October 16, 2018 NSMR storage is 92,649 acre feet. The current NCPA Pool share of NSMR storage is 47,182 acre feet.
- Combined Calaveras Project generation for the Pool in September 2018 totaled 8.0 GWh, down from 21.0 GWh in August 2018. The Pool's 8.0 GWh in September 2018 was below the pre-month forecast of 17.8 GWh. Through October 16, 2018 Calaveras generation for the Pool is 4.7 GWh.
- Western Base Resource (BR) deliveries for the Pool in September 2018 were 28,828 MWh, or 91.3% of Western's 31.6-GWh forecast. Through October 14, 2018, BR allocations for the Pool were 13.2 GWh (including 0.9 GWh of Displacement), totaling nearly all of the Western forecast for October.
- The PG&E Citygate gas index averaged \$3.53/MMBtu for October 15, 2018 delivery and has traded above \$3 since July 21, 2018. This is compared to an average of \$3.13/MMBtu (with a high of \$3.30/MMBtu) in September 2018. The October 2018 PG&E Bidweek price is \$3.29, up \$0.10 from the September Bidweek price, but below the SoCal Citygate October 2018 Bidweek price of \$3.84/MMBtu.
- Day-ahead NP15 electricity prices averaged \$35.40/MWh (HLH) and \$31.15 (LLH) during September 2018, with the hourly TH\_NP15 maximum at \$83.30/MWh and minimum \$15.39. In October 2018, on-peak prices have averaged \$44.33, with highs reaching \$82.35/MWh this week.

NCPA Pool Loads & Resources Value Summary								
Peak and Energy Summary Sep-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)		
	Sep-10-18 Hour 17							
Demand	365.7	191,121	206,507	265.4	N/A	N/A		
			69,152				<b>at Market Clearing Price</b>	
WAPA	6.0	28,828	31,576	40.0	\$ 2,179,490	\$ 75.60	\$ 6,786,437	\$ 35.51
Geothermal	-	27,347	27,087	38.0	519,587	19.00		
Hydro	-	8,206	18,559	11.4	49,238	6.00		
Stig & CTs	-	419	399	0.6	24,517	58.48		
LEC	-	13,950	19,593	19.4	469,964	33.69		
Contracts	80.5	90,353	86,556	125.5	5,462,267	60.45	\$ 9,838,510	\$ 51.48
Market - Net (Net Sales = Negative)	279.2	22,018	22,737	30.6	763,860	34.69		
<b>Net Total</b>	<b>365.7</b>	<b>191,121</b>	<b>206,507</b>	<b>265.4</b>	<b>\$ 9,468,923</b>	<b>\$ 51.48</b>		

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 9/4/2018 (\$/MWh)	10/15/2018 (\$/MWh)	
Jan-18	195,093	\$ 34.68	\$ 43.74	Oct-18	\$ 34.93	\$ 47.00
Feb-18	173,464	\$ 32.12	\$ 43.94	Nov-18	32.81	48.92
Mar-18	190,023	\$ 31.58	\$ 39.43	Dec-18	39.85	62.06
Apr-18	175,890	\$ 26.51	\$ 39.05	Q1 2019	\$ 36.11	\$ 46.30
May-18	185,890	\$ 22.58	\$ 40.72	Q2 2019	27.85	31.74
Jun-18	193,859	\$ 30.75	\$ 38.31	Q3 2019	47.59	55.21
Jul-18	217,009	\$ 63.64	\$ 52.34	CY2019	\$ 37.08	\$ 43.25
Aug-18	191,121	\$ 35.51	\$ 44.06	CY2020	37.02	39.12
Sep-18	191,121	\$ 35.51	\$ 51.48	CY2021	39.62	40.42
Oct-18				CY2022	40.56	41.51
Nov-18				CY2023	41.63	42.57
Dec-18				CY2024	42.72	43.70

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.

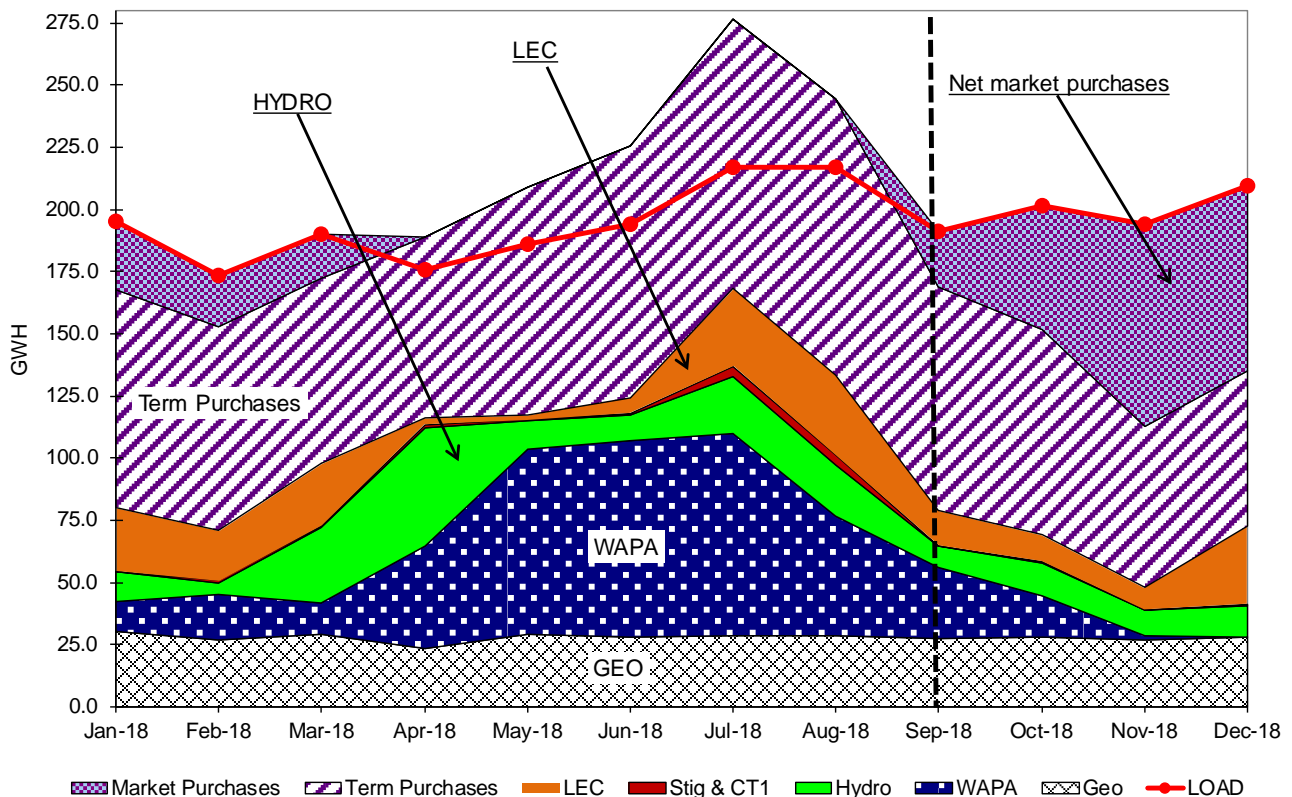
Estimated Production Costs:

- \* 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 2018 CALENDAR YEAR: January - September 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 December 2018:
  - Monthly System Resource Adequacy Demonstration (filed October 17, 2018)
  - Monthly Supply Plan (filed October 17, 2018)

### **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:

#### **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).

#### **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 intertie 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

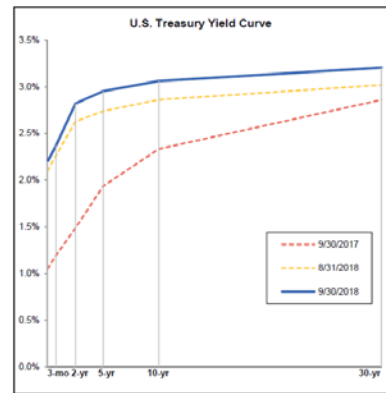
### Western Base Resource Tracking (NCPA Pool)

Western Base Resource Tracking - NCPA Pool							
	Actual			Costs & Rates			
	BR Forecast <sup>1</sup> (MWh)	BR Delivered (MWh)	Difference (MWh)	Restoration Fund (\$)	Monthly Cost of BR <sup>2</sup> (\$/MWh)	CAISO LMP Differential <sup>3</sup> (\$/MWh)	12-Mo Rolling Avg. Cost of BR <sup>4</sup> (\$/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	-	0	\$1,170,723	\$ 20.43	\$ -	\$ 31.72
Nov-18	29,042	-	0	\$1,170,723	\$ 40.31	\$ -	\$ 32.02
Dec-18	16,349	-	0	\$1,170,723	\$ 71.61	\$ -	\$ 32.94
Jan-19	20,572	-	0	\$1,170,723	\$ 56.91	\$ -	\$ 33.11
Feb-19	37,432	-	0	\$1,170,723	\$ 31.28	\$ -	\$ 32.65
Mar-19	56,569	-	0	\$1,170,723	\$ 20.70	\$ -	\$ 30.84
Apr-19	61,300	-	0	\$2,278,398	\$ 37.17	\$ -	\$ 30.44
May-19	86,402	-	0	\$2,278,398	\$ 26.37	\$ -	\$ 31.22
Jun-19	83,927	-	0	\$2,278,398	\$ 27.15	\$ -	\$ 32.09
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 for the Pool members show September 2018 activity of 3,900 MWh for an estimated saving of \$23,000, or about \$5.90/MWh.
- Pool members' total savings under MEEA pricing (Market Efficiency Enhancement Agreement) was about \$830 for the Pool in September 2018.

## **Debt and Financial Management**

- The Federal Open Market Committee (FOMC) increased the overnight lending rate by 0.25% to a new target range of 2% to 2.25% at its September meeting, marking the third hike this year. Perhaps more significantly, the Fed ended the use of the word “accommodative” which suggests additional hikes in coming months.
- The U.S. Treasury yield curve is showing signs of steepening, while short-term rates rose in lockstep with the Fed’s recent movement.
- On October 5<sup>th</sup>, NCPA received eleven proposals related to the refunding of the 2010 Hydroelectric bonds, Series A. Staff is in the process of reviewing these proposals with PFM and will recommend an Underwriter or bank to the Finance Committee at the November meeting.



## **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. Parallel testing and end-user training will be performed throughout October. Cutover to the new bidding and scheduling apps will be implemented effective November 1, 2018.
- The NCPA Automated Dispatch System is undergoing necessary code review and updates to ensure its reliability in responding to CAISO ADS instructions. A new, more robust design has been developed to eventually replace the current version. Completion of the new version is anticipated before the end of 2018.
- Work is in progress to automate and integrate members’ monthly Resource Adequacy demonstrations and supply plans into NCPA’s bid-to-bill system.

### **Network**

- The IS Operations and Support group continues to migrate the remaining 10% of data over to the new Nimble storage array as part of a SAN upgrade project. The project will be completed by end of the calendar year.
- The IS department is currently working to perform a migration from SharePoint 2013 to SharePoint 2016, which is part of the larger plan to implement records retention for documents within libraries. The migration will be completed by fall of 2018.

- In adherence to the Agency's records retention policy, new email retention policies have been implemented on 95% of the Agency's mailboxes. The remaining 5% will be completed by this November.
- Progress continues to be 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.
- IS along with Utility Services Incorporated hosted an incident response exercise for members and business partners of NCPA. This provided the opportunity for each participating party to walk through their response procedures and identify any gaps that may be present in their process. Results of the response will be sent out to the participants in September.
- Dispatch Operations along with IS are working toward performing another hard failover to the Disaster Recovery Center (DRC) at the end of October. During this time all real-time and scheduling services will be moved to the DRC starting Friday October 26<sup>th</sup> and failing back to the HQ office on Sunday the 28<sup>th</sup>.
- The IS Operations and Support group is preparing to replace the current backup solution this fiscal year. Requirements are being drafted and a Request for Information will soon be developed and sent to vendors to begin discussions and demonstrations of their products.
- 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 completed by the end of the year.

### **NCPA Bills & Settlements**

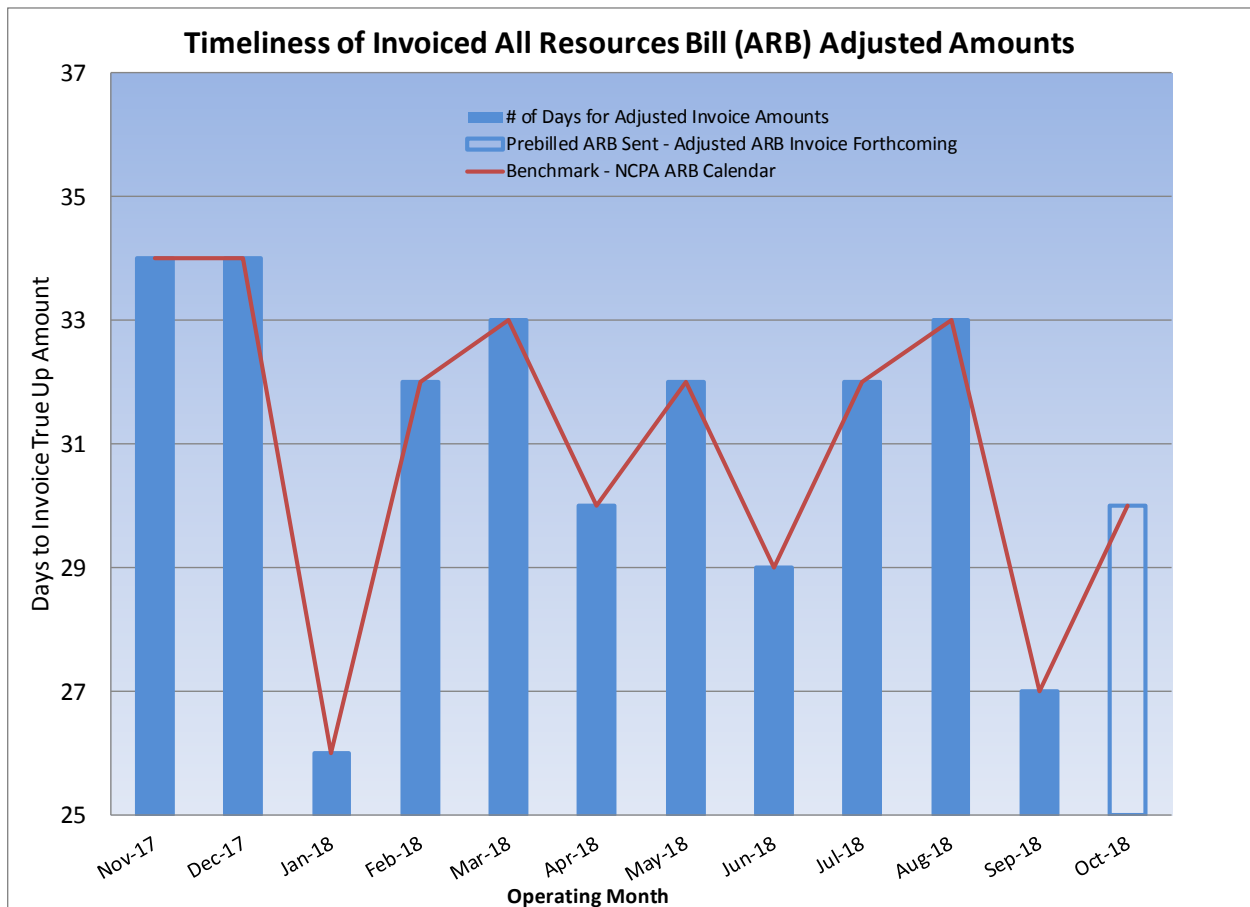
#### **Progress Against the Strategic Plan**

*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 October 2018 NCPA All Resources Bill (ARB) monthly invoice sent to members on September 25, 2018 contains:

- October 2018 monthly pre-billed budget/forecast amounts;
- August 2018 (1st Adjustment) NCPA Project and CAISO Initial settlement true-ups;
- July 2018 (2nd Adjustment) NCPA Project settlement true-up and T+12 business day recalculated CAISO settlement true-up allocations;
- May 2018 (3rd Adjustment) T+55 business day recalculated CAISO settlement true-up allocations and NCPA Projects true-up;

- November 2017 (4th Adjustment) T+9 month recalculated CAISO settlement true-up allocations;
- January 2017 (5th Adjustment) T+18 month recalculated CAISO settlement true-up allocations;
- October 2015 (6th Adjustment) T+33 month recalculated CAISO settlement true-up;
- July 2015 (7th Adjustment) T+35 month CAISO settlement true-up;



## **Legislative & Regulatory**

### **Political Arena State/Federal/Western Programs**

- NCPA participated in a session hosted by David Murillo, Regional Manager, Bureau of Reclamation and Paul Souza, Regional Director, U.S. Fish and Wildlife Service. Attended by a small contingent of Central Valley Project (CVP) power customers and Western Area Power Administration staff, the discussion gauged CVP stakeholder interest in creating and participating in a Central Valley Project Improvement Act (CVPIA) Advisory Committee to offer greater transparency into the CVPIA work and decision-making processes of the federal agencies. The creation of a CVPIA Advisory Committee would provide an excellent opportunity for stakeholders and then, within the next month, develop a plan for submission to the Department of Interior.
- NCPA and members of the Joint Utility Group were called to the California Air Resources Board to gauge concerns the utilities might have with the recently released draft set of regulatory changes to the state's cap-and-trade program. Tracking of greenhouse gas emissions associated with transactions occurring in CAISO's Energy Imbalance Market (EIM) dominated the conversation. CARB has been working with CAISO on a possible solution to emissions leakage that results from secondary dispatch under EIM. The utilities were critical of CARB's proposal to impose an "after-the-fact compliance obligation." The utilities suggested that the EIM emissions tracking issue should be deferred for further deliberations to find a more workable solution. NCPA, with input from the RPS/GHG Task Force, will be developing formal comments in advance of CARB's next Board meeting.
- NCPA's annual conference in Monterey capped a year-long celebration of its 50<sup>th</sup> anniversary. The conference featured a special exhibit, A Journey Through the History of NCPA, complete with pictures, vignettes, and video clips capturing highlights from the past 50 years. The day-long policy program included panelists representing the agency's five decades who imparted their knowledge about the challenges and successes that forged NCPA into a successful joint powers agency. Another panel focused on the dramatic changes that the state's electricity and policy landscape has witnessed over the last 25 years. The panel included Ralph Cavanagh, Senior Attorney, Power Sector, Climate & Clean Energy Program, Natural Resources Defense Council and Jan Smutney-Jones, CEO, Independent Energy Producers Association who participated in NCPA's 25<sup>th</sup> annual conference. The annual conference capped off the day with a festive gala celebration of NCPA's Golden Anniversary. Thank you to everyone that made the conference a huge success.



## **Human Resources**

### **Hires:**

None

### **Intern Hires:**

None

### **Promotions/Position Changes:**

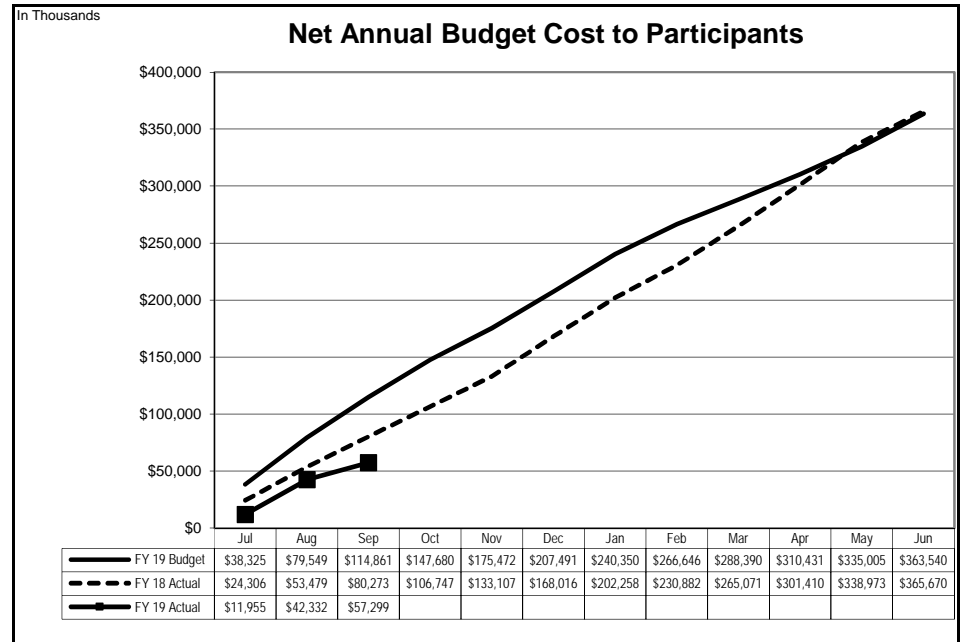
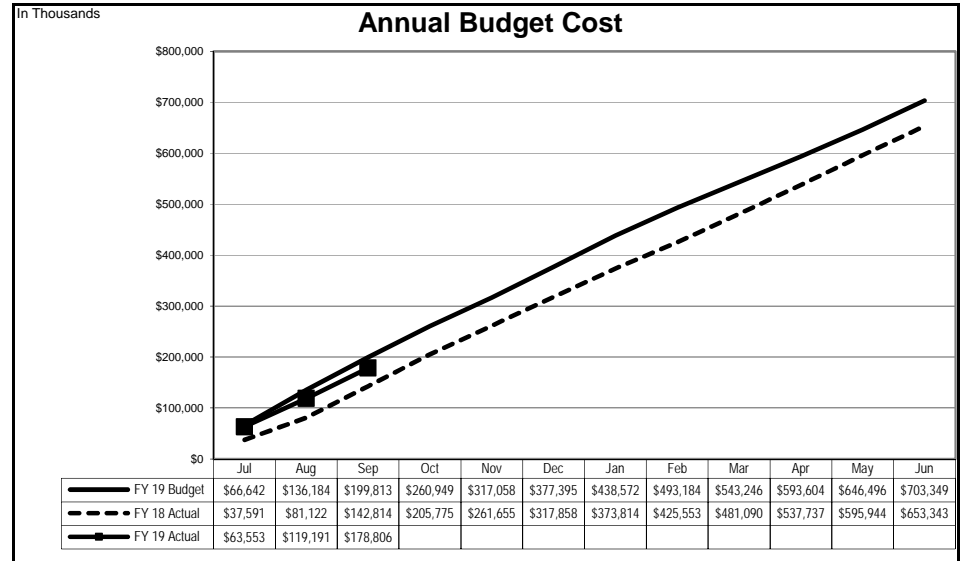
None

### **Separations:**

Jonathan Changus, Government Relations Representative IV, resigned from his position at our Headquarters office to pursue other career opportunities, effective October 4, 2018.

## Annual Budget 2018-2019 Fiscal Year To Date As of September 30, 2018

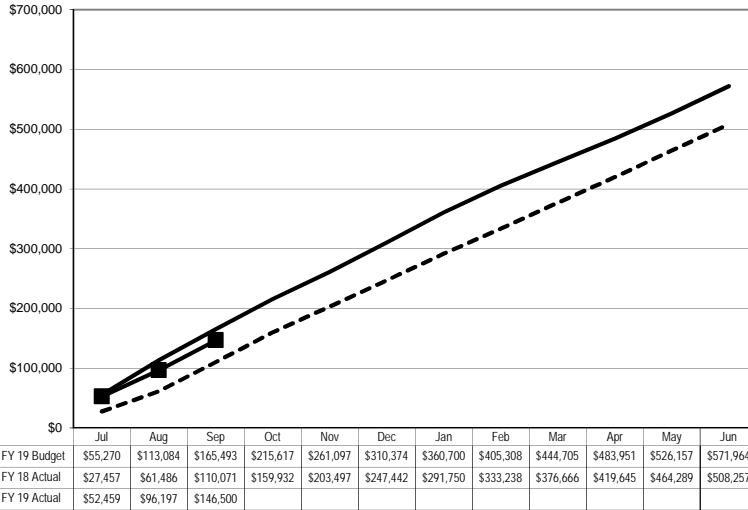
In Thousands	Program			
	Annual Budget	Actual	Under(Ovr) Budget	YTD % Remaining
<b>GENERATION RESOURCES</b>				
<b>NCPA Plants</b>				
Hydroelectric	51,857	13,191	\$ 38,666	75%
Geothermal Plant	34,425	8,794	25,632	74%
Combustion Turbine No. 1	3,806	1,507	2,299	60%
Combustion Turbine No. 2 (STIG)	8,743	2,529	6,214	71%
Lodi Energy Center	83,717	22,336	61,381	73%
	182,547	48,356	134,191	74%
<b>Member Resources - Energy</b>	64,449	17,335	47,113	73%
<b>Member Resources - Natural Gas</b>	3,098	1,223	1,875	61%
<b>Western Resource</b>	31,350	4,702	26,647	85%
<b>Market Power Purchases</b>	15,539	5,965	9,574	62%
<b>Load Aggregation Costs - ISO</b>	273,858	68,302	205,556	75%
<b>Net GHG Obligations</b>	1,123	615	508	45%
	571,964	146,500	425,464	74%
<b>TRANSMISSION</b>				
Independent System Operator	112,822	28,273	84,549	75%
<b>MANAGEMENT SERVICES</b>				
<b>Legislative &amp; Regulatory</b>				
Legislative Representation	2,023	503	1,520	75%
Regulatory Representation	887	144	743	84%
Western Representation	848	127	722	85%
Member Services	438	93	345	79%
	4,196	867	3,329	79%
<b>Judicial Action</b>	625	71	554	89%
<b>Power Management</b>				
System Control & Load Dispatch	6,107	1,412	4,695	77%
Forecasting & Prescheduling	2,775	628	2,147	77%
Industry Restructuring	439	70	369	84%
Contract Admin, Interconnection Svcs & Ext. Affairs	1,135	216	918	81%
Green Power Project	3	0	3	97%
Gas Purchase Program	78	17	61	78%
Market Purchase Project	112	22	90	80%
	10,649	2,366	8,283	78%
<b>Energy Risk Management</b>	260	32	228	88%
<b>Settlements</b>	941	152	790	84%
<b>Integrated System Support</b>	273	42	231	85%
<b>Participant Pass Through Costs</b>	1,619	136	1,483	92%
<b>Support Services</b>	-	368	(368)	
	18,563	4,033	14,530	78%
<b>TOTAL ANNUAL BUDGET COST</b>	703,349	178,806	524,543	75%
<b>LESS: THIRD PARTY REVENUE</b>				
Plant ISO Energy Sales	100,456	45,395	55,062	55%
Member Resource ISO Energy Sales	28,187	12,667	15,519	55%
NCPA Contracts ISO Energy Sales	14,720	7,617	7,104	48%
Western Resource ISO Energy Sales	23,183	10,400	12,783	55%
Load Aggregation Energy Sales	131,329	38,580	92,749	71%
Ancillary Services Sales	4,409	1,601	2,808	64%
Transmission Sales	110	28	83	75%
Western Credits, Interest & Other Income	37,414	5,221	32,193	86%
	339,808	121,507	218,301	64%
<b>NET ANNUAL BUDGET COST TO PARTICIPANTS</b>	363,540	57,299	\$ 306,242	84%



## Annual Budget Budget vs. Actual By Major Area As of September 30, 2018

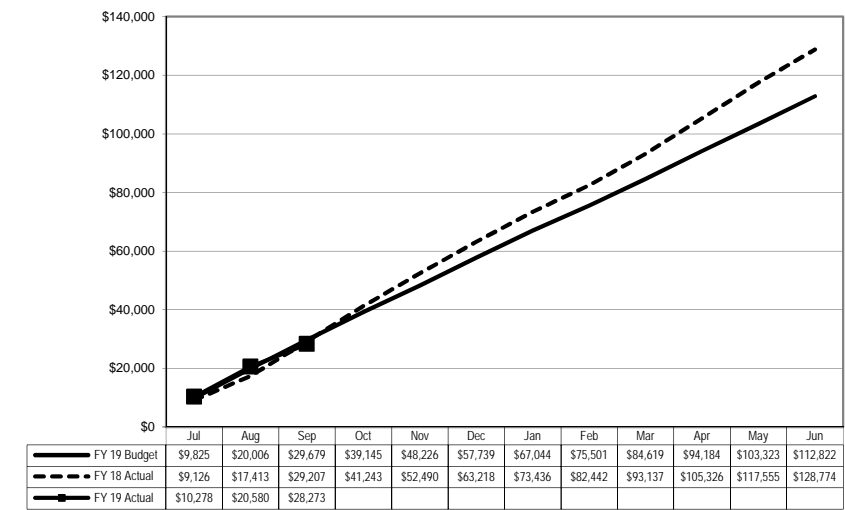
In Thousands

### Generation Resources



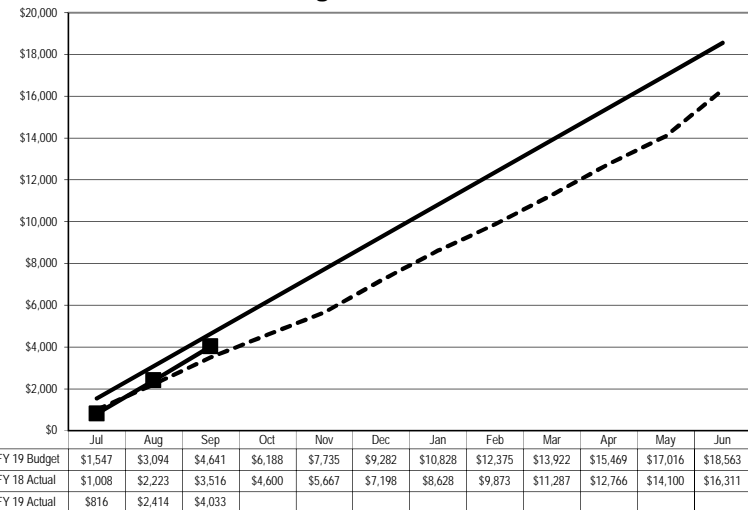
In Thousands

### Transmission-ISO



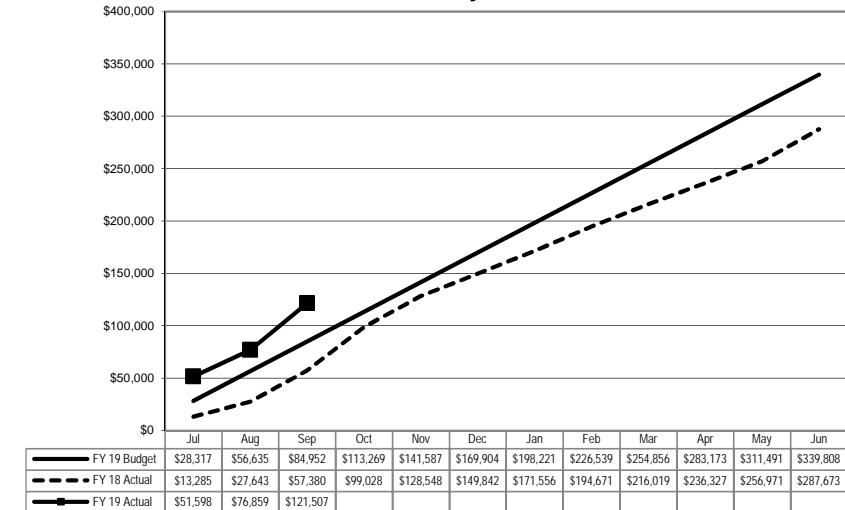
In Thousands

### Management Services



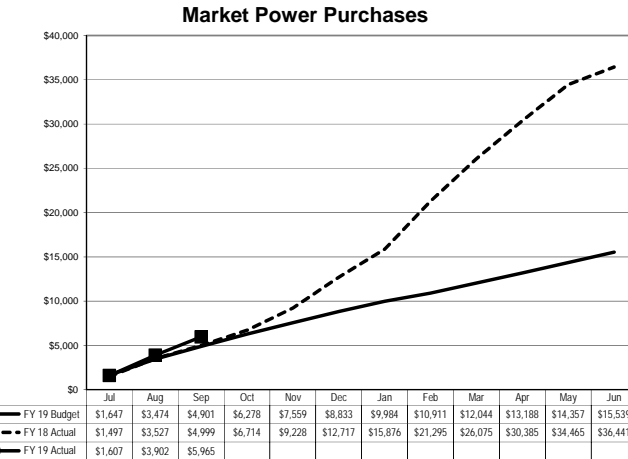
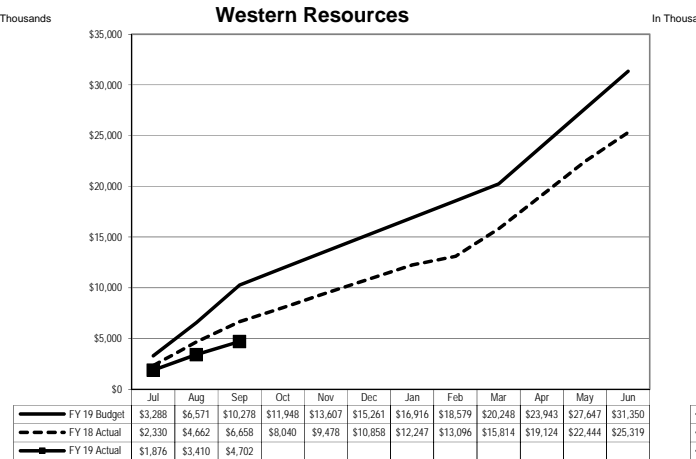
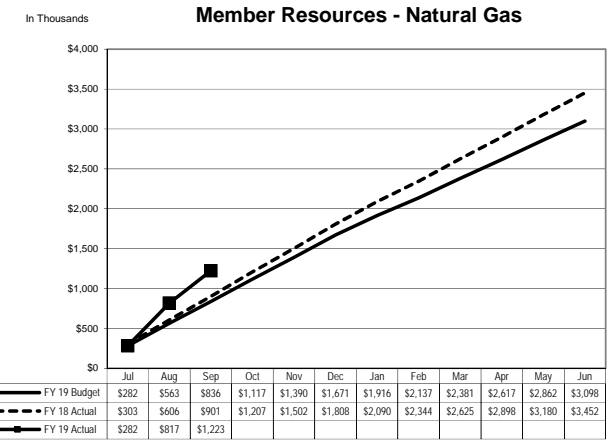
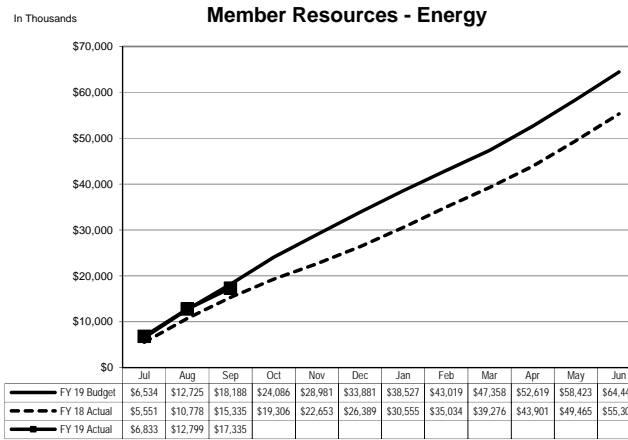
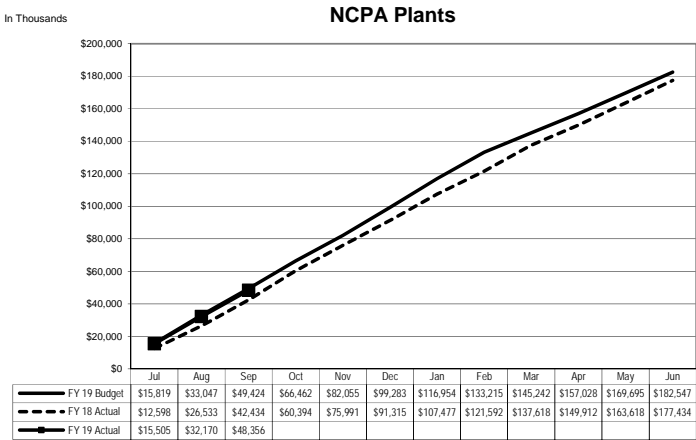
In Thousands

### Third Party Revenue



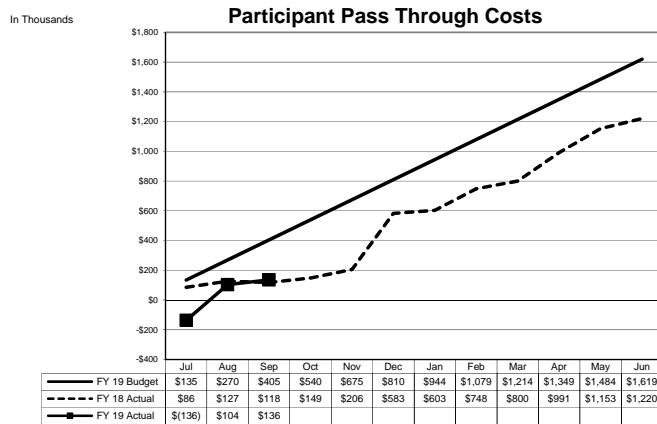
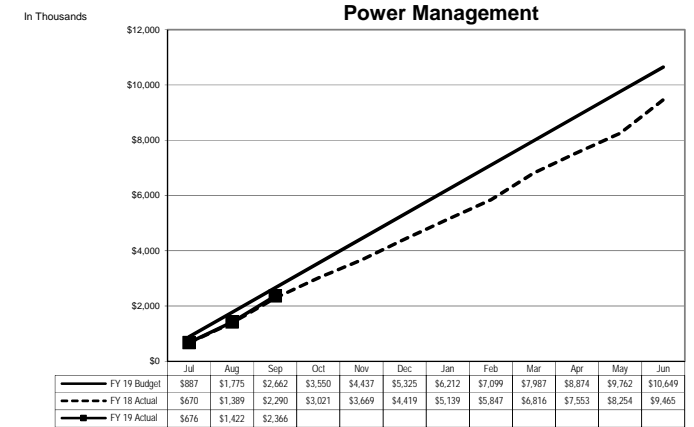
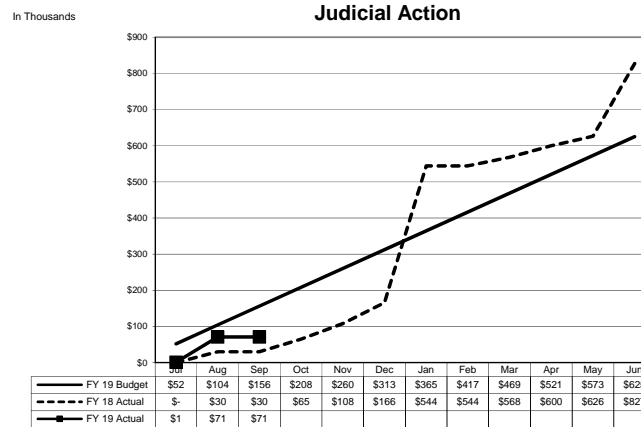
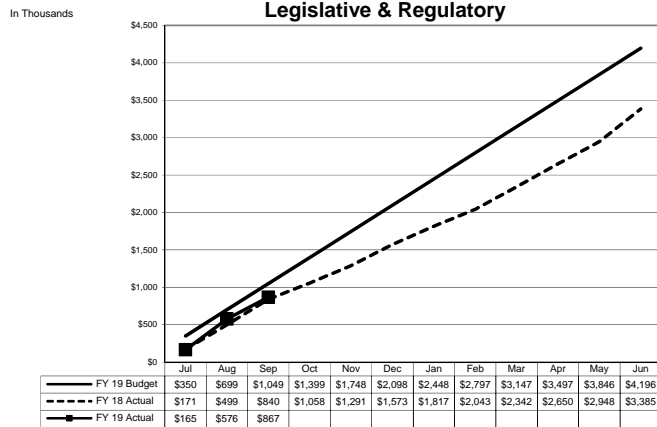
Footnote: Transmission is solely reflective of Independent System Operator (ISO) costs

**Annual Budget Cost  
Generation Resources Analysis By Source  
As of September 30, 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 September 30, 2018

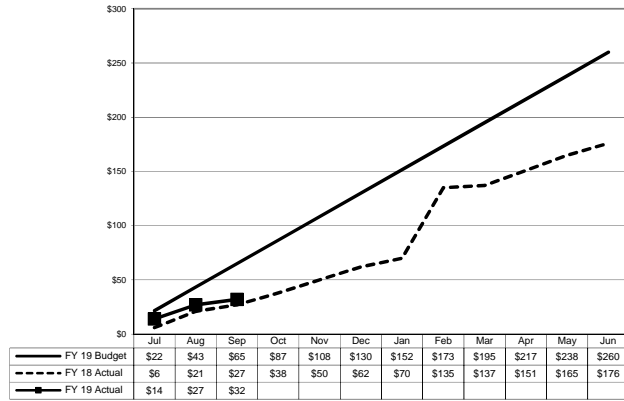


**Annual Budget Cost  
Management Services Analysis By Source  
As of September 30, 2018**

In Thousands

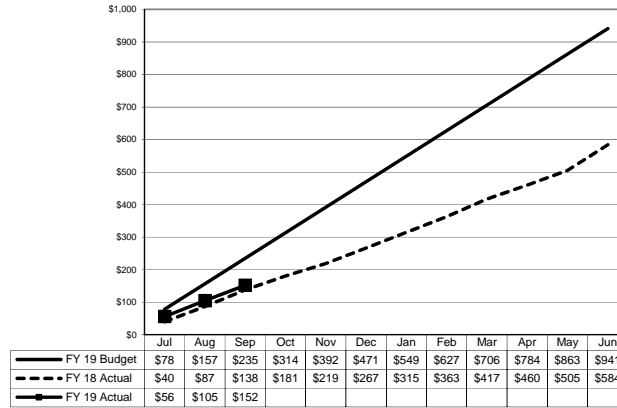
**Energy Risk Management**

In Thousands

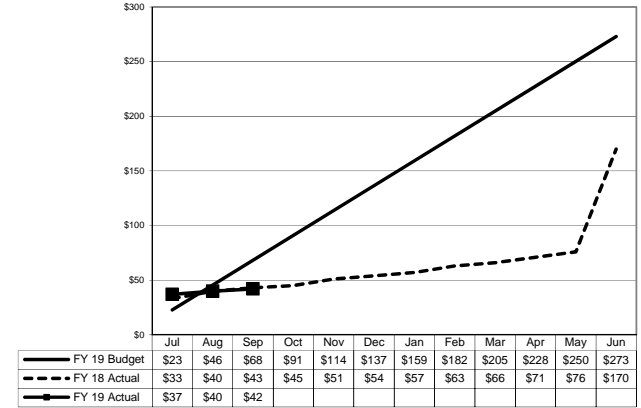


**Settlements**

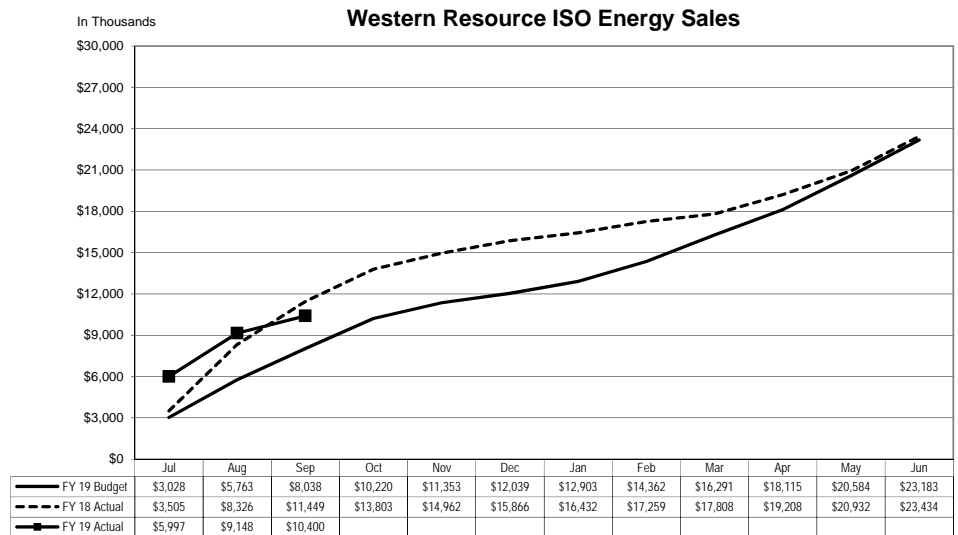
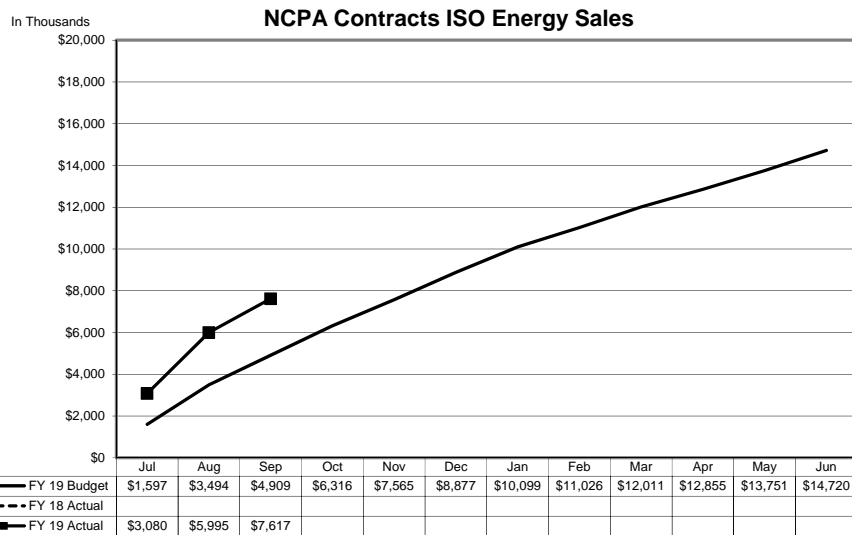
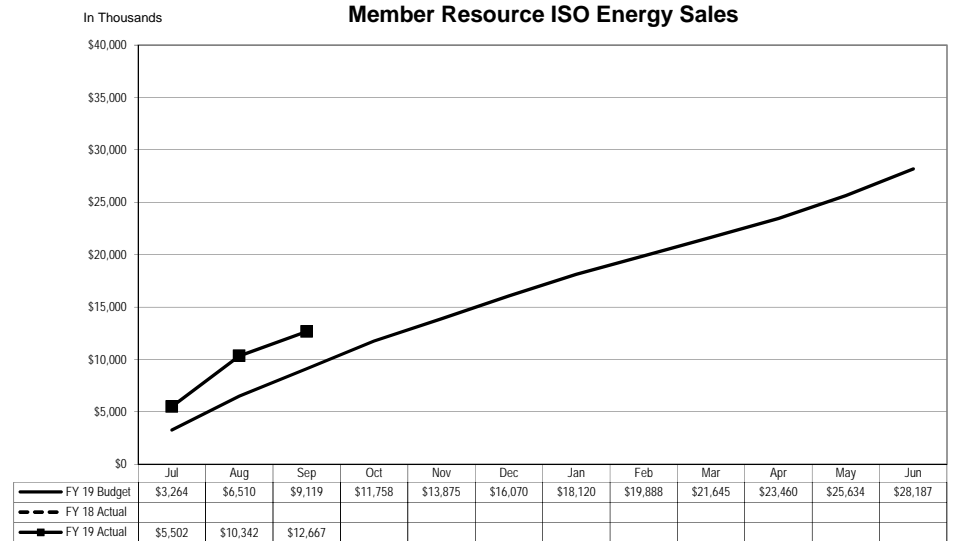
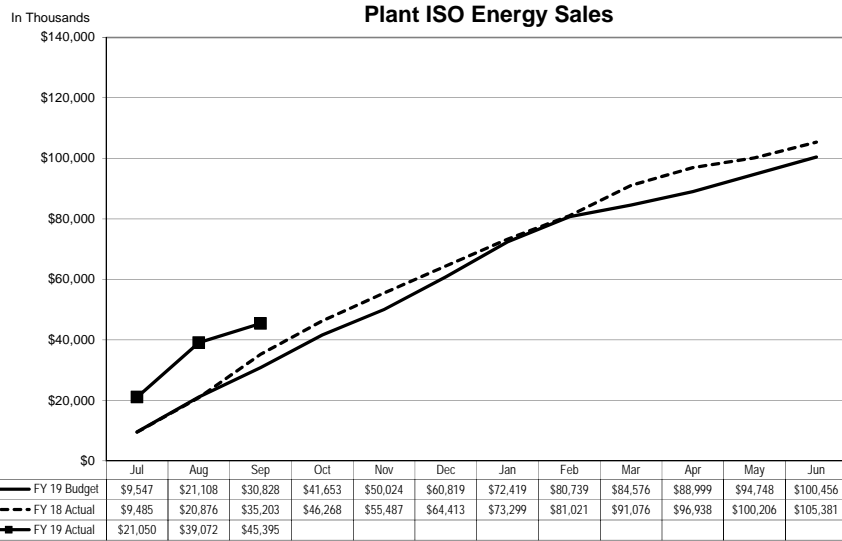
In Thousands



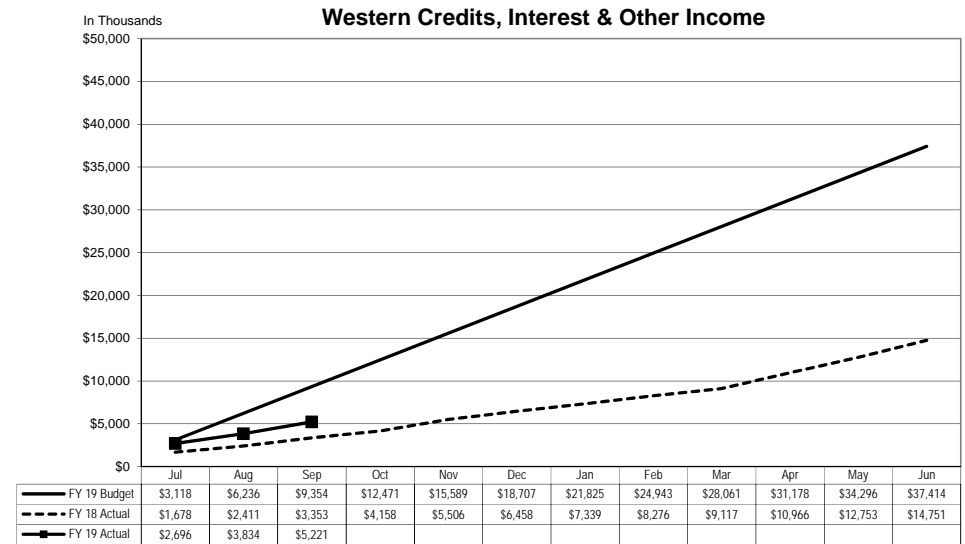
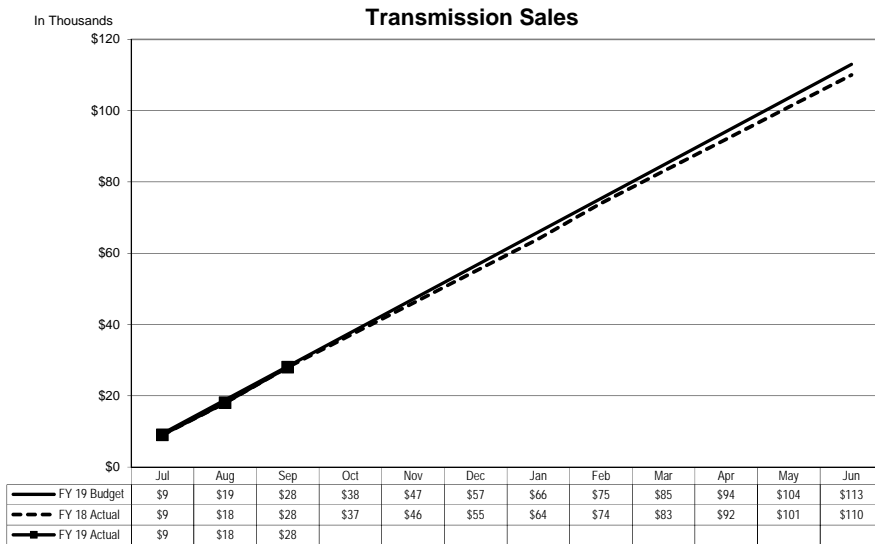
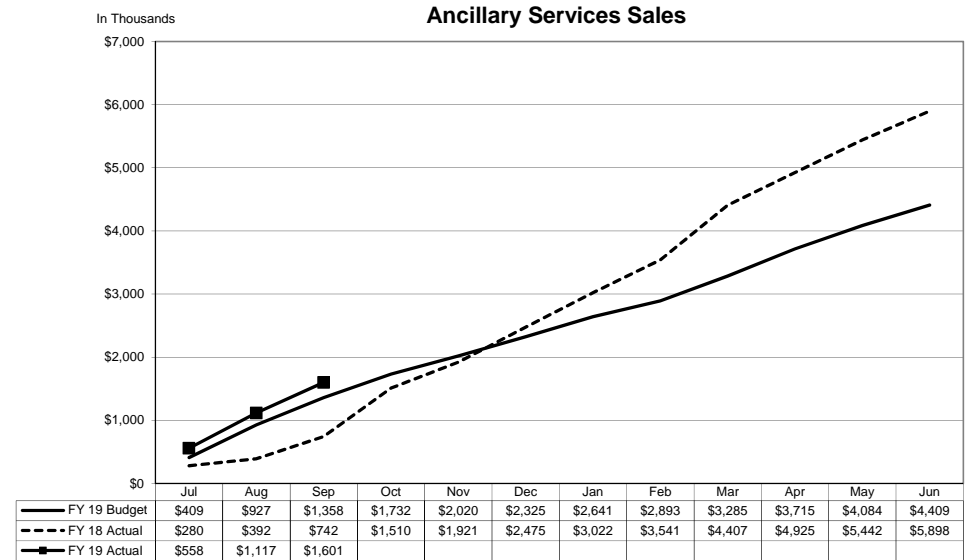
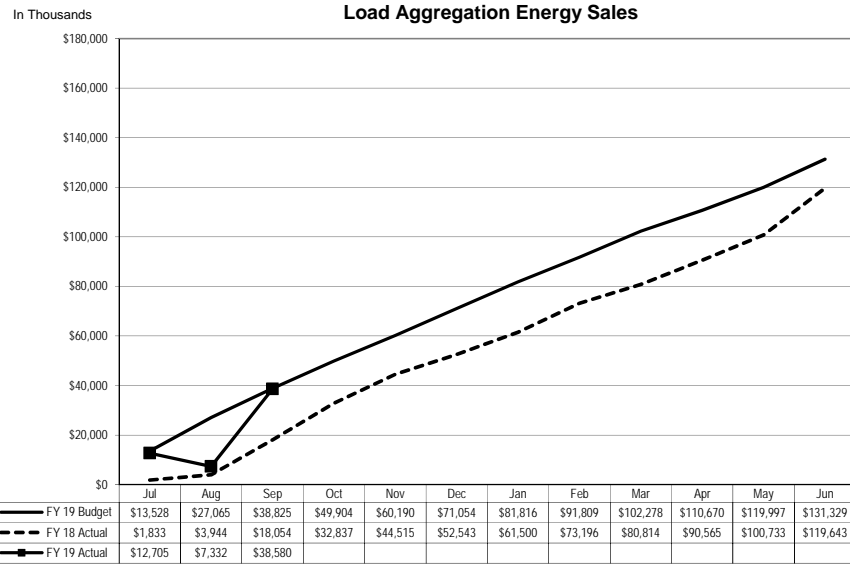
**Integrated Systems Support**



**Annual Budget Cost  
Third Party Revenue Analysis By Source  
As of September 30, 2018**



**Annual Budget Cost  
Third Party Revenue Analysis By Source  
As of September 30, 2018**





**Annual Budget  
NCPA Generation Detail Analysis By Plant  
As of September 30, 2018**

**Generation Cost Analysis**

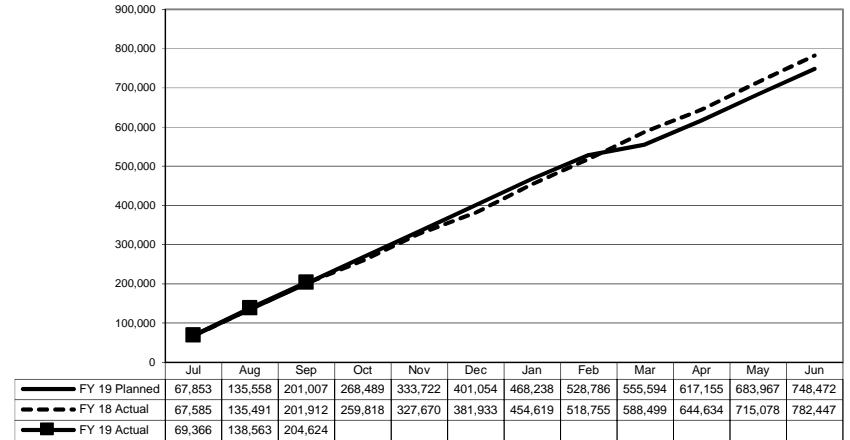
\$ in thousands

	Geothermal				
	Budget	Actual	\$/MWh Actual	Under(Over) Budget	YTD % Remaining
	Routine O & M	\$ 17,793	\$ 4,139	\$ 20.23	\$ 13,654
Capital Assets/Spare Parts Inventories	3,267	912	4.46	2,355	72%
Other Costs	8,137	1,869	9.13	6,268	77%
CA ISO Charges	291	639	3.12	(348)	-119%
Debt Service	4,937	1,234	6.03	3,703	75%
Annual Budget	34,425	8,794	42.97	25,632	74%
Less: Third Party Revenue					
Interest Income	382	87	0.42	296	77%
ISO Energy Sales	26,285	9,926	48.51	16,358	62%
Ancillary Services Sales	-	-	-	-	-
Effluent Revenues	700	223	1.09	477	68%
Misc	110	28	0.14	82	74%
	27,477	10,264	50.16	17,213	63%
Net Annual Budget Cost to Participants	\$ 6,948	\$ (1,470)	\$ (7.19)	\$ 8,419	121%
Net Generation--MWh @ Meter	748,472	204,624			
\$/MWh (A)	\$ 2.69	\$ (13.22)			

**MWhs Generated**

In MWh

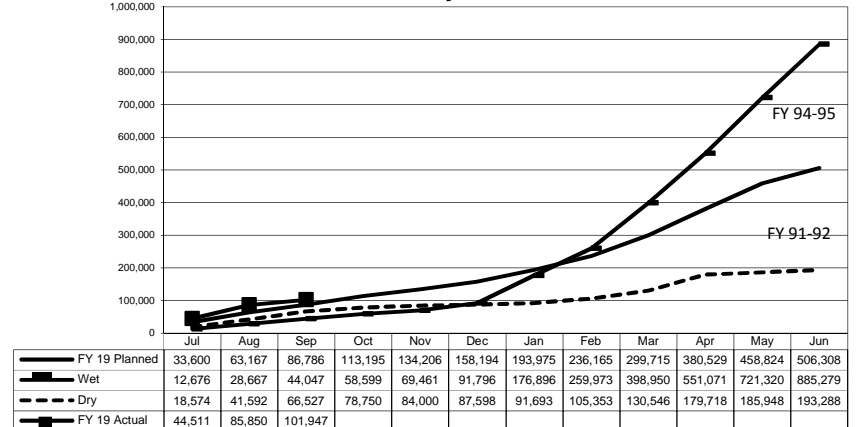
**Geothermal**



	Hydroelectric				
	Budget	Actual	\$/MWh Actual	Under(Over) Budget	YTD % Remaining
	Routine O & M	\$ 8,685	\$ 2,073	\$ 20.33	\$ 6,612
Capital Assets/Spare Parts Inventories	1,975	314	3.08	1,661	84%
Other Costs	3,238	706	6.93	2,532	78%
CA ISO Charges	2,801	1,309	12.84	1,493	53%
Debt Service	35,157	8,789	86.21	26,368	75%
Annual Budget	51,857	13,191	129.39	38,666	75%
Less: Third Party Revenue					
Interest Income	670	106	1.04	564	84%
ISO Energy Sales	20,783	9,427	92.47	11,356	55%
Ancillary Services Sales	3,048	1,034	10.14	2,013	66%
Misc	-	0	0.00	(0)	-
	24,501	10,568	103.66	13,933	57%
Net Annual Budget Cost to Participants	\$ 27,356	\$ 2,623	\$ 25.73	\$ 24,733	
Net Generation--MWh @ Meter	506,308	101,947			
\$/MWh (A)	\$ (15.41)	\$ (60.49)			

In MWh

**Hydro**



Footnotes:

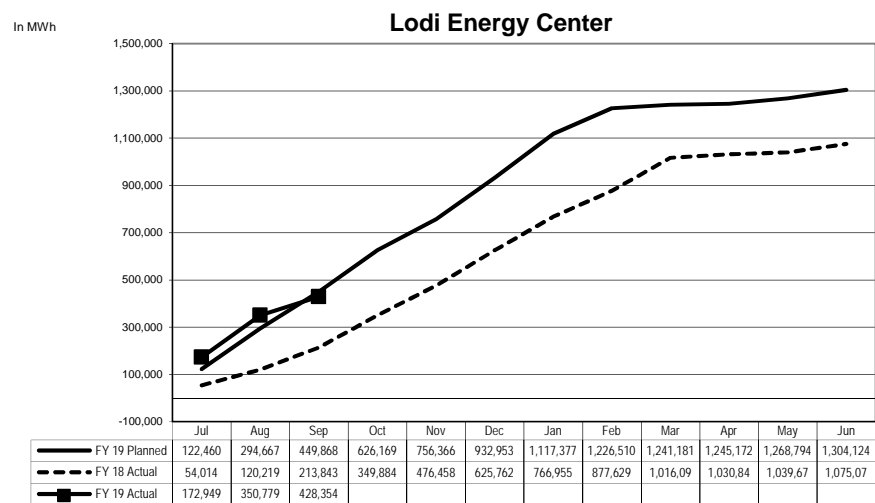
(A) Aggregate fiscal year generation in \$/MWh (excluding debt service)

**Annual Budget  
NCPA Generation Detail Analysis By Plant  
As of September 30, 2018**

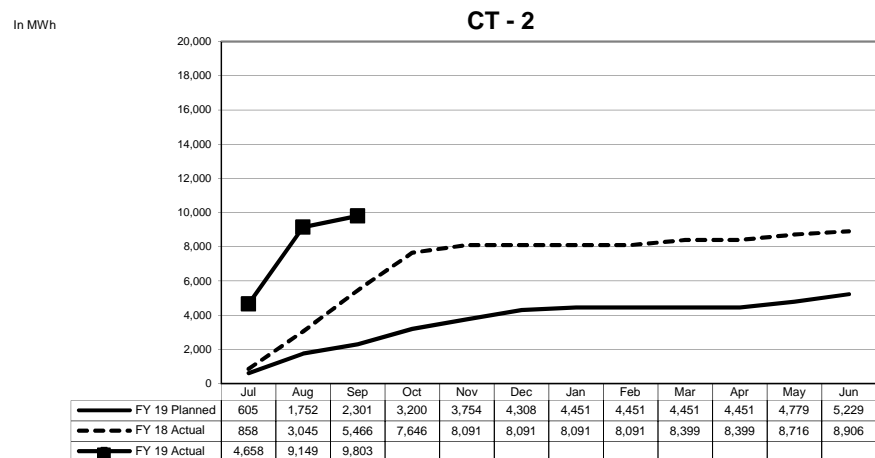
**Generation Cost Analysis**

	Lodi Energy Center				
	Budget	Actual	\$/MWh	Under(Over)	YTD %
			Actual	Budget	Remaining
Routine O & M	\$ 13,965	\$ 2,691	\$ 6.28	\$ 11,274	81%
Fuel	33,092	10,665	24.90	22,427	68%
AB 32 GHG Offset	-	-	-	-	0%
CA ISO Charges and Energy Purchases	5,665	1,454	3.39	4,211	74%
Capital Assets/Spare Parts Inventories	1,613	370	0.86	1,243	77%
Other Costs	3,302	636	1.49	2,665	81%
Debt Service	26,080	6,520	15.22	19,560	75%
Annual Budget	83,717	22,336	52.14	61,381	73%
Less: Third Party Revenue					
Interest Income	386	142	0.33	244	63%
ISO Energy Sales	52,415	23,579	55.05	28,836	55%
Ancillary Services Sales	1,029	476	1.11	553	54%
Transfer Gas Credit	-	-	-	-	0%
Misc	-	-	-	-	0%
	53,829	24,197	56.49	29,632	55%
Net Annual Budget Cost to Participants	\$ 29,887	\$ (1,861)	\$ (4.34)	\$ 31,748	106%
Net Generation--MWh @ Meter	1,304,124	428,354			
\$/MWh (A)	\$ 2.92	\$ (19.57)			

**MWhs Generated**



	Combustion Turbine No. 2 (STIG)				
	Budget	Actual	\$/MWh	Under(Over)	YTD %
			Actual	Budget	Remaining
Routine O & M	\$ 1,481	\$ 375	\$ 38.26	\$ 1,106	75%
Fuel and Pipeline Transport Charges	977	570	58.15	407	42%
Capital Assets/Spare Parts Inventories	60	1	0.12	59	98%
Other Costs	506	108	11.05	398	79%
CA ISO Charges	2	45	4.63	(43)	-2143%
Debt Service	5,717	1,429	145.79	4,288	75%
Annual Budget	8,743	2,529	257.99	6,214	71%
Less: Third Party Revenue					
Interest Income	109	24	2.45	85	78%
ISO Energy Sales	401	880	89.78	(479)	-119%
Ancillary Service Sales	-	-	-	-	0%
Fuel and Pipeline Transport Credits	990	500	50.98	490	50%
Misc	-	-	-	-	0%
	1,500	1,404	143.22	96	6%
Net Annual Budget Cost to Participants	\$ 7,243	\$ 1,125	\$ 114.76	\$ 6,118	84%
Net Generation--MWh @ Meter	5,229	9,803			
\$/MWh (A)	\$ 291.87	\$ (31.02)			



**Footnotes:**

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

**Annual Budget  
NCPA Generation Detail Analysis By Plant  
As of September 30, 2018**

**Generation Cost Analysis**

	Combustion Turbine No. 1				
	Budget	Actual	\$/MWh Actual	Under(Over) Budget	YTD % Remaining
Routine O & M	\$ 1,560	\$ 521	\$ 113.91	\$ 1,039	67%
Fuel and Pipeline Transport Charges	497	433	94.78	64	13%
Capital Assets/Spare Parts Inventories	1,165	154	33.64	1,011	87%
Other Costs	580	128	28.06	452	78%
CA ISO Charges	3	271	59.30	(268)	-9199%
Debt Service	-	-	-	-	-
Annual Budget	3,806	1,507	329.69	2,299	60%
Less: Third Party Revenue					
Interest Income	-	1		(1)	
ISO Energy Sales	572	1,582	346.03	(1,009)	-176%
Ancillary Services Sales	-	-	-	-	0%
Misc	-	16	3.42	(16)	0%
	572	1,598	349.46	(1,026)	-179%
Net Annual Budget Cost to Participants	\$ 3,233	\$ (91)	\$ (19.89)	\$ 3,324	103%
Net Generation--MWh @ Meter	7,533	4,571			
\$/MWh (A)	\$ 429.23	\$ (19.89)			

**Footnotes:**

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

**MWhs Generated**

In MWh

**CT - 1**

