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# BUSINESS PROGRESS REPORT

**April 2018**

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# Generation Costs & Reliability

## Combustion Turbine Project

### Unit Operation for March 2018

Unit	Availability		Production		Reason for Run
CT1 Alameda	Unit 1	Unit 2	Unit 1	411.6	CAISO / CAISO
	96.7%	96.5%	Unit 2	292.4	
Curtailments, Outages, and Comments:  3/29/18 to 3/30/18 24hrs - DC Lube Oil Filter dp / 3/29/18 1205PM - DC Lube Oil Filter dp					
Unit	Availability		Production		Reason for Run
CT1 Lodi	76.7%		81.4 MWhr		0
Curtailments, Outages, and Comments:  3/13/18 - 3/21/18 - Compressor bleed valve failure.					
Unit	Availability		Production		Reason for Run
CT2 STIG	100.0%		302.1 MWhr		Testing
Curtailments, Outages, and Comments:  No Issues.					
Unit	Availability		Production		Reason for Run
LEC	99.2%		136,133 MWhr		CAISO
Curtailments, Outages, and Comments:  3/10/18 - 1.5 hours, Reheat bypass temperature high. 3/17/18 - 2.8 hours. Natural Gas pilot valve mismatch. Delayed start. 3/27/18 - 1.4 hours. Gas Compressor B Failed. Restarted Unit.					

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

## Geothermal Facilities

### Availability/Production for March 2018

Unit	Availability	Net Electricity Generated/Water Delivered	Out-of-Service/Descriptors
<b>Unit 1</b>	100 %	21,179 MWh	U1 had no outages for the month
<b>Unit 2</b>	100 %	*18,054 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 %	31,425 MWh	U4 had no outages for the month
<b>Southeast Geysers Effluent Pipeline</b>	100 %	268.7 mgallons	Average flow rate: 6,100 gpm
<b>Southeast Solar Plant</b>	N/A	126,306 KWh	Year-to-date KWh: 1,032,918
<b>Bear Canyon Pump Station Zero Solar</b>	N/A	79,487 KWh	Year-to-date KWh: 2,188,633

\* Accounts for an additional 2,473 MWh of house load for the 21KV power supply to the effluent pipeline supplied from Unit #2.

## Hydroelectric Project

### Availability/Production for March 2018

Units	Availability	Net Electricity Generated	Out-of-Service
<b>Collierville Unit 1</b>	98.98 %	32177 MWh	CV #1 unit was derate on, 03/22/18 at 0630 through 1254 due to high tailwater. CV #1 unit was out of service on, 3/22/18 at 1254 through 2028 due to high tailwater. CV #1 unit was derate on, 03/22/18 at 2028 through 03/23/18 at 1200 due to high tailwater
<b>Collierville Unit 2</b>	98.88 %	25059 MWh	CV #2 unit derate to 110mw's from 03/01/18 at 0000 through 03/14 at 1400 due to stator ground fault repair. CV #2 unit was derate on, 03/22/18 at 0630 through 1218 due to high tailwater. CV #2 unit was out of service on, 3/22/18 at 1218 through 2037 due to high tailwater. CV #2 unit was derate on, 03/22/18 at 2028 through 03/23/18 at 1200 due to high tailwater
<b>Spicer Unit 1</b>	32.07 %	30 MWh	NSM #1 unit was out of service on, 03/02/18 at 1710 through 03/05/18 at 1108 due to PG&E 21kv line trouble. NSM #1 unit was out of service on, 03/13/18 at 1629 through 03/31/18 at 2359 due to PG&E 21kv line trouble.
<b>Spicer Unit 2</b>	40.78 %	65 MWh	NSM #2 unit was out of service on, 03/02/18 at 1710 through 1816 due to PG&E 21kv line trouble. NSM #2 unit was out of service on, 03/13/18 at 1629 through 03/31/18 at 2359 due to PG&E 21kv line trouble.
<b>Spicer Unit 3</b>	32.03 %	81 MWh	NSM #3 unit was out of service on, 03/02/18 at 1710 through 03/05/18 at 1122 due to PG&E 21kv line trouble. NSM #3 unit was out of service on, 03/13/18 at 1629 through 03/31/18 at 2359 due to PG&E 21kv line trouble.

#### Operations & Maintenance Activities:

- CMMS work orders
- Planning and Preparation for CV2 Generator rewind
- CVPH crane upgrade bid proposal acceptance
- USFS/NCPA annual coordination meeting

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

- No lost time accidents, vehicle accidents, or recordable incidents occurred in March 2018.
- 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 March 31, 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.

### March Generation Services Safety Report

	Hydro	GEO	CT Group *	NCPA HQ **
CalOSHA Recordable (this month)	0	0	0	0
CalOSHA Recordable (calendar year)	0	0	0	0
Days since Recordable	1200	134	1090	6158
Work Hours Since Last Recordable	104,477	26,548	158,491	2,220,277
LTA's (this month)	0	0	0	0
LTA's (calendar year)	0	0	0	0
Days without LTA	3,816	953	8,994	5,087
Work Hours without LTA	350,042	193,216	599,855	1,842,295
Vehicle Incident (month)	0	0	0	0
Vehicle Incident (calendar year)	1	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 March 31, 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

	March 2018		Calendar Year 2018	
	Peak MW	MWh	Peak MW	MWh
NCPA Pool	320.43 3/1 @1900	190,035	329.79 1/8 @1800	558,613
SVP	481.46 3/30 @1600	311,524	481.46 3/30 @1600	898,996
MSSA	783.21 3/29 @ 1800	501,559	783.21 3/29 @ 1800	1,457,609

#### Last Year 2017 Data\*

	March 2017		Calendar Year 2017	
	Peak MW	MWh	Peak MW	MWh
NCPA Pool	322.03 3/6 @ 1900	192,418	485.85 9/1 @1700	576,741
SVP	478.77 3/14 @ 1600	304,575	586.59 9/1 @1600	880,592
MSSA	792.42 3/14 @ 1600	496,993	1070.79 9/1 @ 1700	1,457,333

\*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	329.79 1/8 @ 1800
SVP	586.59 MW on 9/1/17 @ 1600	481.46 3/30 @ 1600
MSSA	1070.79 MW on 9/1/17 @ 1700	783.21 3/29 @ 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		
	March 2018	Calendar Year 2018
MSSA % Within the Band	97.16%	98.13%

- McKay's spilling March 22 @ 0609 – March 24 @ 0006. Peak Avery gauge flow 10,000cfs at 1500 on March 22.
- Spicer Meadows:
  - March 2 @ 1710 – 1808, 21kV line CB22 open due to PG&E line trouble. Unit 1 trip off line, Unit 3 remained on providing station service power. Unit 2 placed on line at 1816. Unit 1 returned to service 3/5 @ 1108; Unit 3 parallel to the grid 3/5 @ 1122
  - March 13 @ 1629, 21kV line CB22 open due to PG&E line trouble. Unit 3 remained on providing station service power for balance of month
- Geothermal Units:
  - No curtailments
- Lodi Energy Center:
  - March 10 @ 2134 - 2326, Unit trip on STG reheat bypass temp
  - March 17 @ 1600 – 1934, Unit late to the grid due to CTG trip during start up
  - March 27 @ 1952 – 2143 Unit trip due to gas compressor trouble
- Alameda CTs:
  - March 17 @ 1639 – 1926, Unit 2 failed start due to lube oil system trouble
  - March 29 @ 1040, Unit 1 failed start due to lube oil system trouble
  - March 29 @ 1210, Unit 2 failed start due to lube oil system trouble
  - March 30 @ 1119, Unit 1 & 2 returned to service
- Lodi CT:
  - March 3 @ 1449 – 1723, unit unavailable due to City of Lodi line outage, Lodi CT line breaker CB52L open
  - March 13 – 20, unit o/s due to compressor bleed valve trouble
- Collierville Units:
  - March 14 @ 1400, Unit 2 released from derate due to stator ground fault repair.
  - March 22 @ 0630 – March 23 @ 1200, Unit 1 and 2 derated due to high tailwater
  - March 22 @ 1254 – 2028, Unit 1 off line due to high tailwater
  - March 22 @ 1218 – 2037, Unit 2 off line due to high tailwater
- STIG:
  - No curtailments



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

- Actual NCPA Pool load of 190,023 MWh during March 2018 was 99.3% of the pre-month forecast of 191,271 MWh. Pool load, running 70,440 MWh through April 12, may not quite reach the forecast of 185,705 MWh, with temperatures running slightly below normal through mid-month before turning warmer.
- The Lodi Energy Center (LEC) generated 24,900 MWh for the pool in March, once again well over the 5,823 MWh forecast, partly due to colder weather at the end of the month increasing run times. Ongoing supply disruptions in SoCal kept implied heat rates there above normal, which is also adding to LEC run hours. For April, pool share of LEC generation was forecasted at 613 MWh, due to the scheduled maintenance outage through most of the month.
- For the month of March, 18.04" of rain was recorded at Big Trees gage. March Big Trees average precipitation is 8.25".
- The Value of Storage (VOS) of New Spicer Meadow Reservoir (NSMR) is being maintained at \$65/MWh.
- NSMR storage as of March 31 was at 98,395 acre feet. The historical average NSMR storage at the end of March is 77,579 acre feet. As of April 16, NSMR storage is 126,990 acre feet. The current NCPA Pool share of NSMR storage is 64,689 acre feet.
- Combined Calaveras Project generation for the Pool in March totaled 29.0 GWh, up from 4.7 GWh in February. The Pool's 29.0 MWh in March was substantially more than the pre-month forecast of 16.3 GWh – due to the wet month we experienced in March. Through April 16, Calaveras generation for the Pool is 31.0 GWh.
- Western Base Resource (BR) Pool delivery in March 2018 was 12,955 MWh, or 21% of Western's 61.4-GWh forecast. Through April 12, BR pool allocations of 15.1 GWh (including 3.1 GWh Displacement) are again likely to fall short of Western's most recent 69,152-MWh April forecast.
- The PG&E Citygate gas index traded at \$2.70/MMBtu for April 13 delivery – as compared to an average of \$2.713/MMBtu (with a high of \$2.96/MMBtu mid-month) in March. The April PG&E Bidweek price is \$2.59, or 17 cents lower than March's, and 38 cents lower than February's \$2.97 bidweek price.
- Day-ahead NP15 electricity prices averaged \$31.44/MWh (HLH) and \$28.14 (LLH) during March, with the hourly TH\_NP15 maximum at \$82.20/MWh and the minimum a negative \$14.25. So far in April, on-peak prices have averaged \$29.08, with weekend prices often falling to zero and below during the mid-day hours.

NCPA Pool Loads & Resources Value Summary								
Peak and Energy Summary Mar-18					Estimated Production Costs		Cost of Serving Demand	
	Coincident Peak (MW)	Total MWh	Forecast Values	Avg. MW	NCPA Pool		Totals	Avg (\$/MWh)
	Mar-01-18 Hour 19				Cost/Revenue (Estimate)	Variable Cost (\$/MWh)		
Demand	320.4	190,023	191,271	255.8	N/A	N/A		
WAPA	151.0	12,955	61,388	17.4	\$ 832,419	\$ 64.25		
Geothermal	-	28,871	27,153	38.9	548,558	19.00		
Hydro	-	30,300	16,859	40.8	181,800	6.00		
Stig & CTs	-	634	-	0.9	39,744	62.72		
LECs	-	24,900	5,823	33.5	779,115	31.29		
Contracts	55.5	74,411	83,890	100.1	4,437,263	59.63		
Market - Net (Net Sales = Negative)	113.9	17,952	(3,842)	24.2	557,722	31.07		
<b>Net Total</b>	<b>320.4</b>	<b>190,023</b>	<b>191,271</b>	<b>255.8</b>	<b>\$ 7,376,621</b>	<b>\$ 39.63</b>		

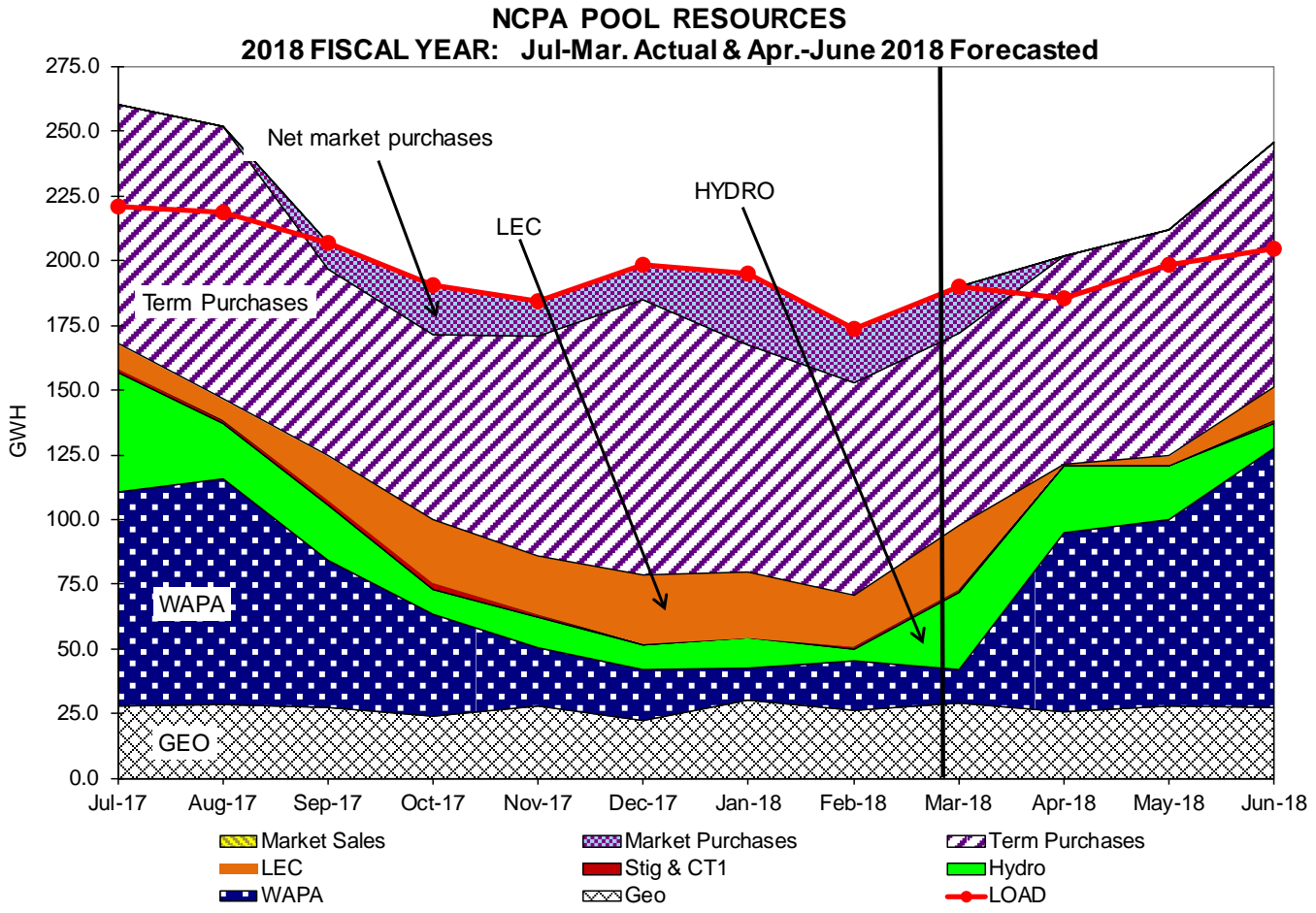
Monthly Market Summary						
	Pool Energy (MWh)	HLH Avg MCP (\$/MWh)	Avg Variable Cost of Pool Generation (\$/MWh)	Forward Prices (EOX NP15 HLH Ask Prices) (\$/MWh)		
				NP15 3/1/2018	4/12/2018	
Jul-17	221,169	\$ 39.42	\$ 36.21	May-18	\$ 30.04	\$ 28.12
Aug-17	223,320	\$ 51.70	\$ 37.30	Jun-18	34.23	32.79
Sep-17	206,930	\$ 45.07	\$ 40.69	Jul-18	41.16	44.04
Oct-17	190,730	\$ 44.93	\$ 39.05	Q3 2018	\$ 41.40	\$ 45.80
Nov-17	184,467	\$ 38.23	\$ 39.53	Q4 2018	38.24	40.43
Dec-17	198,630	\$ 35.89	\$ 40.56	Q1 2019	35.20	37.83
Jan-18	195,093	\$ 34.68	\$ 43.74	CY2019	\$ 34.96	\$ 37.28
Feb-18	173,464	\$ 32.12	\$ 43.94	CY2020	37.65	39.00
Mar-18	190,023	\$ 31.58	\$ 39.63	CY2021	40.39	42.80
Apr-18				CY2022	41.89	44.41
May-18				CY2023	43.15	45.71
Jun-18				CY2024	44.19	46.80

**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 June 2018:
  - Monthly System Resource Adequacy Demonstration (filed April 16, 2018)
  - Monthly Supply Plan (filed April 16, 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.

#### **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-17	71,656	82,819	11,163	\$2,332,055	\$ 28.16	\$ 1.60	\$ 27.78
Aug-17	55,736	79,371	23,635	\$2,332,055	\$ 29.38	\$ 0.08	\$ 27.32
Sep-17	56,044	57,011	967	\$1,976,407	\$ 34.67	\$ 0.12	\$ 26.44
Oct-17	33,604	39,352	5,748	\$832,419	\$ 21.15	\$ 0.79	\$ 25.43
Nov-17	19,601	22,441	2,840	\$832,419	\$ 37.09	\$ 0.27	\$ 24.62
Dec-17	15,404	19,821	4,417	\$832,419	\$ 42.00	\$ 0.25	\$ 24.32
Jan-18	7,358	12,360	5,002	\$832,419	\$ 67.35	\$ 0.08	\$ 25.84
Feb-18	13,359	18,713	5,354	\$832,419	\$ 44.48	\$ 0.05	\$ 27.79
Mar-18	30,216	12,955	(17,261)	\$832,419	\$ 64.25	\$ -	\$ 30.08
Apr-18	50,443	-	(50,443)	\$1,724,658	\$ 34.19	\$ 0.10	\$ 30.43
May-18	66,832	-	(66,832)	\$1,724,658	\$ 25.81	\$ 0.10	\$ 32.05
Jun-18	74,030	-	(74,030)	\$1,724,658	\$ 23.30	\$ 0.10	\$ 31.77
1/ As forecasted in NCPA 17/18 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 continued to perform for Pool Members with March activity of 1,395 MWh for an estimated saving of \$7,900, or about \$5.72/MWh. The program has saved Pool Members over \$1.2 Million in FY18 (July-February).
- Pool Members recovered \$91,000 from the 2016 and 2017 MEEA price adjustment.
- Pool Members' total savings under MEEA pricing is about \$123,000 for FY18 (July-February).

## **Debt and Financial Management**

- The Federal Open Market Committee (FOMC) continued on the path to higher rates, as expected, with a 0.25% percent hike in the federal funds rate to a new range of 1.50 to 1.75% on March 21<sup>st</sup>. It was the sixth rate increase since late 2015.
- The Fed signaled two more rate hikes in 2018 amid speculation that it was considering adding a third increase to its projections. However, it has raised its forecasts for hikes in 2019 and 2020, citing a stronger outlook on the economy.
- The U.S. Treasury Yield curve twisted in March, with yields on maturities two years and under increasing to new multi-year highs, while yields on longer maturities declined in response to the decline in equity prices. The yield of the two-year Treasury note rose two basis points (bps) to end the month at 2.27%, while the 10-year declined 12 bps to 2.74%.
- On March 13<sup>th</sup>, NCPA staff successfully finalized the refunding of the 2008 Hydroelectric Series C bonds saving the participants of this project over \$1.3 million per year in annual debt service savings. The savings will be reflected in the FY2019 budget.

## **Schedule Coordination Goals**

### **Software Development**

- NCPA IS staffing 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. Rollout is anticipated for June 2018.
- Configuration for a new Community Choice Energy (CCE) customer, East Bay CCE, is ongoing and is anticipated to go live in June 2018.
- Various other software development is underway. The Resource Adequacy Compliance App is a tool to manage RA supply planning and compliance tracking. The Green House Gas (GHG) Accounting App is a tool for the business user to track GHG transactions by Member. The Shared Services App has three modules about Training, Support Services, and Vendor Contracts. It calculates the billable amount for the Member's portion of the Shared Services.

### **Network**

- Additional collaboration sites are being created to expand the functionality of the Agency's new extranet, "NCPA Connect." This will provide further capabilities to share and edit documents for specific working groups and committees.
- The IS team continues to evaluate hardware/software solutions to replace the aging Storage Area Network that is coming off support by the end of 2018. A test system has been installed to perform a proof of concept, which will validate expected performance to the Agency.

- The CAISO/AT&T ECN 56K to T1 circuit project continues as NCPA is currently working to upgrade the network to Collierville. IS staff has completed its work with Generation Services to provide enhanced telemetry from the Murphys office across the new Hydro microwave path.
- The IS department has completed a project to implement an Agency-wide meetings workflow process using SharePoint to assist in preparing documents and presentations for a variety of NCPA committees.
- The IS team completed its evaluation of various records retention software solutions to integrate to the Agency's SharePoint platform in order to automate the Agency's records management process. IS staff is working with legal counsel regarding next steps for the selected software vendor.
- Information Services has continued providing support to the Generation Services business unit to assist expansion of its physical security presence at each of the plant locations. This work has included diagramming, installing and configuring network switches in preparation for security devices.
- The IS department and Dispatch Real-time operations successfully performed a scheduled hard failover to the Disaster Recovery control center (DRC) during the March 16-18 weekend. This exercise provided IS staff the opportunity to perform server and software upgrades to the NCPA dispatch center while real-time operations continued unaffected at the DRC.

## **NCPA Bills & Settlements**

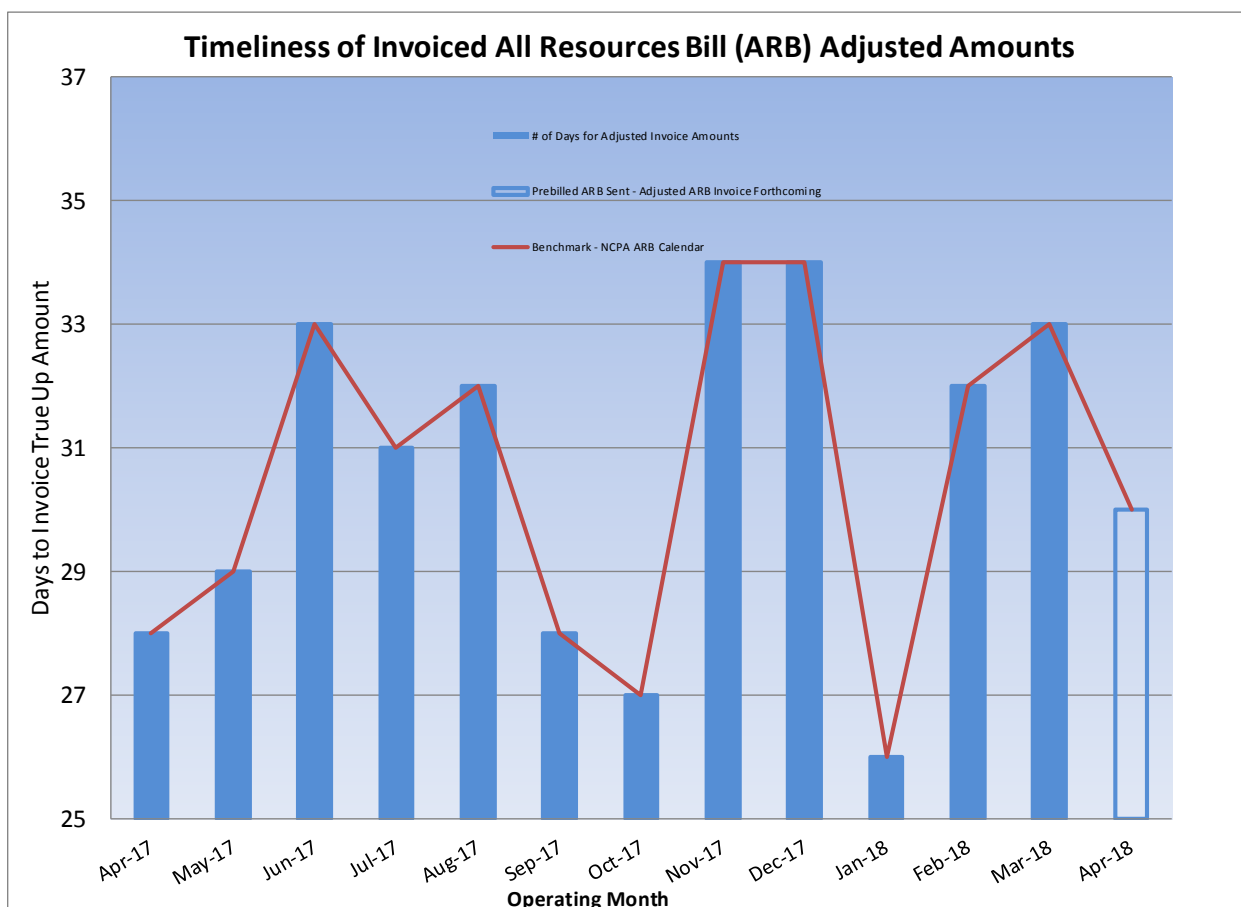
### **Progress Against the Strategic Plan**

*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 April 2018 NCPA All Resources Bill (ARB) monthly invoice sent to members on March 26, 2018 contains:

- April 2018 monthly pre-billed budget/forecast amounts;
- February 2018 (1st Adjustment) NCPA Project and CAISO Initial settlement true-ups;
- January 2018 (2nd Adjustment) NCPA Project settlement true-up and T+12 business day recalculated CAISO settlement true-up allocations;
- November 2017 (3rd Adjustment) T+55 business day recalculated CAISO settlement true-up allocations and NCPA Projects true-up;
- May 2017 (4th Adjustment) T+9 month recalculated CAISO settlement true-up allocations;

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



## Legislative & Regulatory

### Political Arena State/Federal/Western Programs

- NCPA General Manager Randy Howard wrote the Bureau of Reclamation (Reclamation) Commissioner Brenda Burman requesting "...expeditious action to provide Central Valley Project (CVP) power customers with the bill credits that your staff has recommended to correct prior accounting errors in payments collected for the Central Valley Project Improvement Act (CVPIA)." NCPA successfully enlisted the help of the American Public Power Association and key congressional committee staff in this effort. In response to those efforts, Reclamation approved the proposed \$10 million "croffset" in time for the credit to be applied to Western Area Power Administration's mid-year adjustment of FY2019 CVP rates.

## **Human Resources**

### **Hires:**

Christina Martinez joined NCPA March 19, 2018 as an Administrative Assistant II (IS Coordinator/Graphic Design) at our Headquarters office in Roseville, CA. Christina has over 8 years of Graphic Design experience having previously worked at Center for Healthy Communities as a Graphic Designer.

Michael Russell joined NCPA April 2, 2018 as a Power Settlements Analyst I, at our Headquarters office in Roseville, CA. Michael has over 20 years of Settlements experience having previously worked at the CAISO as the Senior Metering Advisor.

Michael Perdue joined NPCA April 4, 2018 as a CT Specialist III, at our Lodi Energy Center in Lodi, CA. Michael has over 6 years of CT operations experience having previously worked at Calpine Agnews OLS as an Operator II.

### **Intern Hires:**

None.

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

Vela\_Wann will be transferring to the Power Management team as an Energy Resource Analyst II. Previously Vela was a Power Settlements Analyst with the Power Settlements team, a position she has held since October 2012.

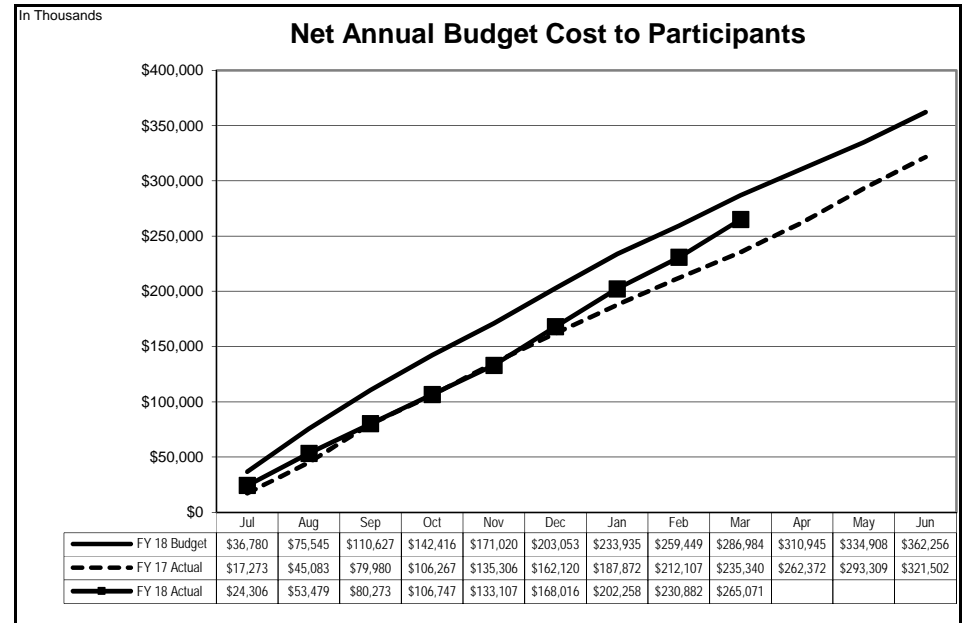
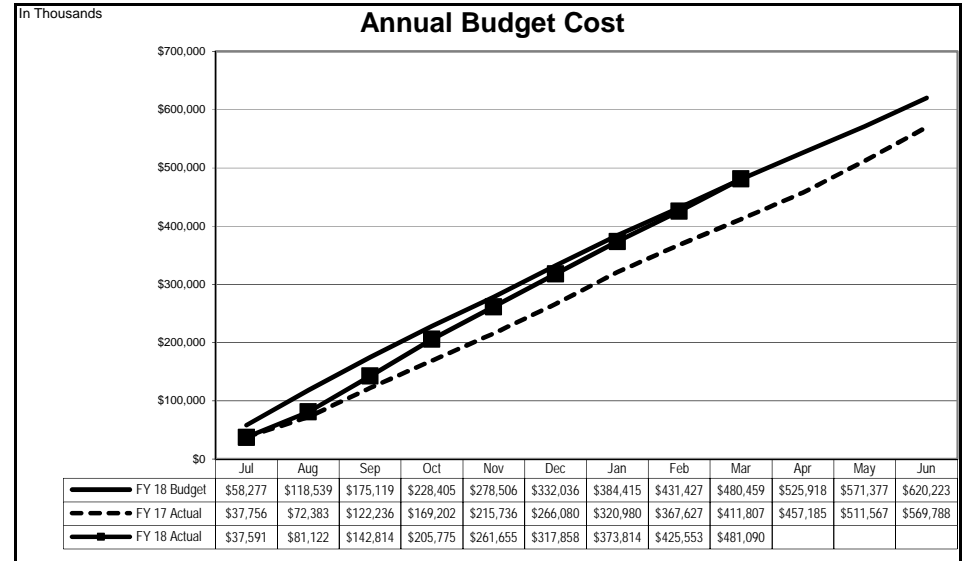
### **Separations:**

Steven Hemphill, Engineer III, resigned his position at our Geothermal Facilities, effective April 12, 2018.



**Annual Budget  
2017-2018 Fiscal Year To Date  
As of March 31, 2018**

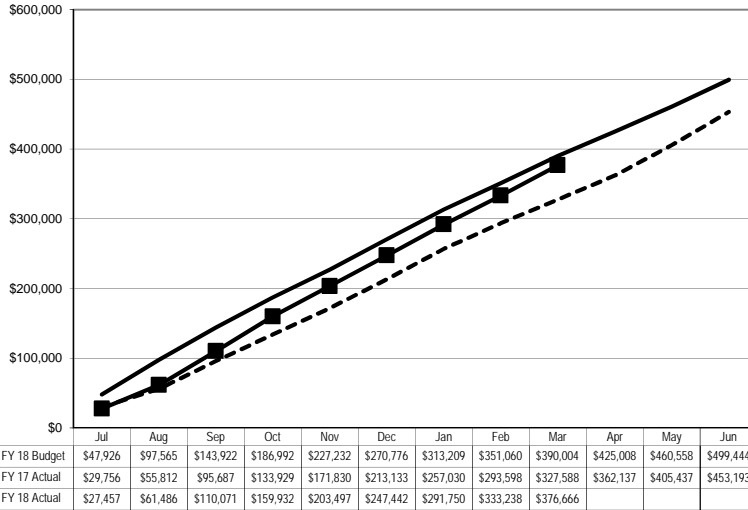
In Thousands	Program			
	Annual Budget	Actual	Under(Ovr) Budget	YTD % Remaining
<b>GENERATION RESOURCES</b>				
<b>NCPA Plants</b>				
Hydroelectric	53,862	42,687	\$ 11,175	21%
Geothermal Plant	32,120	21,757	10,363	32%
Combustion Turbine No. 1	3,199	3,432	(234)	-7%
Combustion Turbine No. 2 (STIG)	8,623	6,832	1,791	21%
Lodi Energy Center	61,088	62,910	(1,822)	-3%
	158,892	137,618	21,274	13%
<b>Member Resources - Energy</b>	53,389	39,276	14,113	26%
<b>Member Resources - Natural Gas</b>	3,457	2,625	832	24%
<b>Western Resource</b>	30,120	15,814	14,306	47%
<b>Market Power Purchases</b>	19,318	26,075	(6,757)	-35%
<b>Load Aggregation Costs - ISO</b>	233,822	154,418	79,404	34%
<b>Net GHG Obligations</b>	446	839	(393)	-88%
	499,444	376,666	122,778	25%
<b>TRANSMISSION</b>				
Independent System Operator	102,925	93,137	9,787	10%
<b>MANAGEMENT SERVICES</b>				
<b>Legislative &amp; Regulatory</b>				
Legislative Representation	1,976	1,216	760	38%
Regulatory Representation	838	461	376	45%
Western Representation	830	382	448	54%
Member Services	436	282	154	35%
	4,079	2,342	1,738	43%
<b>Judicial Action</b>	625	568	57	9%
<b>Power Management</b>				
System Control & Load Dispatch	5,864	4,079	1,785	30%
Forecasting & Prescheduling	2,647	1,774	873	33%
Industry Restructuring	424	221	203	48%
Contract Admin, Interconnection Svcs & Ext. Affairs	1,152	626	526	46%
Green Power Project	18	2	16	91%
Gas Purchase Program	88	46	42	47%
Market Purchase Project	130	68	63	48%
	10,323	6,816	3,508	34%
<b>Energy Risk Management</b>	207	137	70	34%
<b>Settlements</b>	774	417	358	46%
<b>Integrated System Support</b>	319	66	252	79%
<b>Participant Pass Through Costs</b>	1,526	800	726	48%
<b>Support Services</b>	-	142	(142)	N/A
	17,854	11,287	6,567	37%
<b>TOTAL ANNUAL BUDGET COST</b>	620,222	481,090	139,132	22%
<b>LESS: THIRD PARTY REVENUE</b>				
Plant ISO Energy Sales	70,367	91,076	(20,708)	-29%
Load Aggregation Energy Sales	151,019	80,814	70,205	46%
Ancillary Services Sales	2,731	4,407	(1,675)	-61%
Western Resource Energy Sales	18,026	17,808	219	1%
Other ISO Revenue	-	12,715	(12,715)	N/A
Transmission Sales	110	83	28	25%
Western Credits, Interest & Other Income	15,713	9,117	6,595	42%
	257,967	216,019	41,948	16%
<b>NET ANNUAL BUDGET COST TO PARTICIPANTS</b>	362,256	265,071	\$ 97,184	27%



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

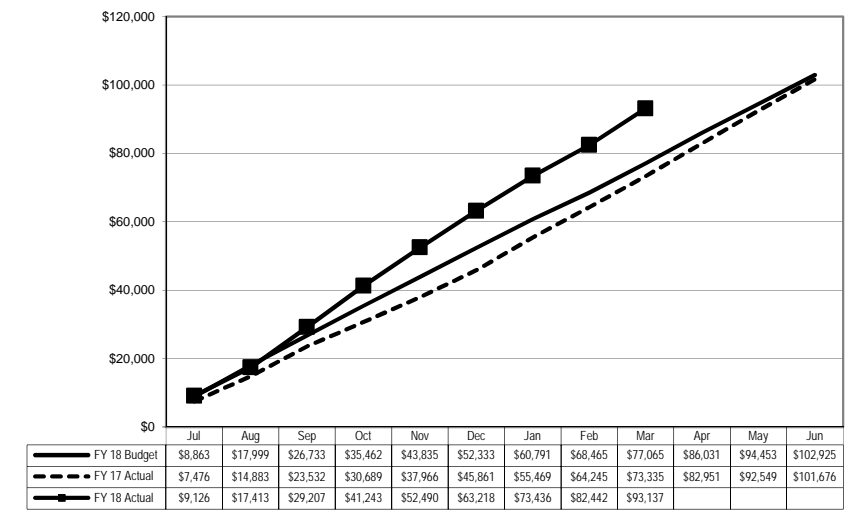
In Thousands

### Generation Resources



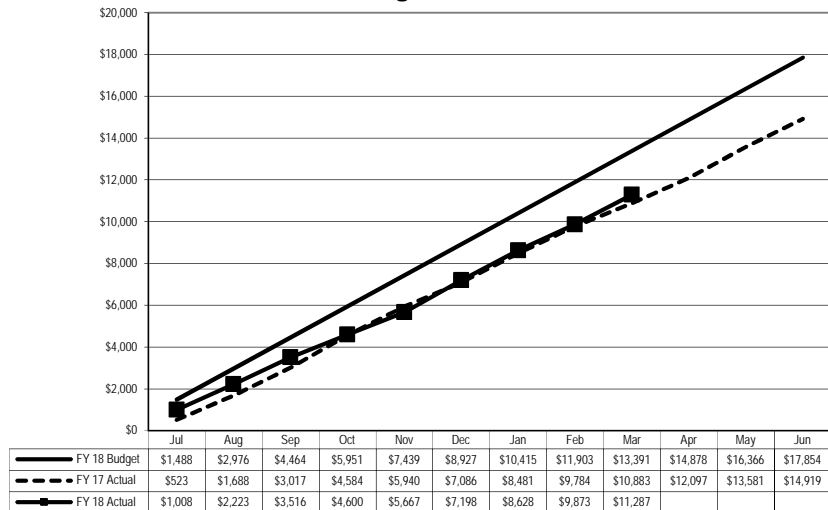
In Thousands

### Transmission-ISO



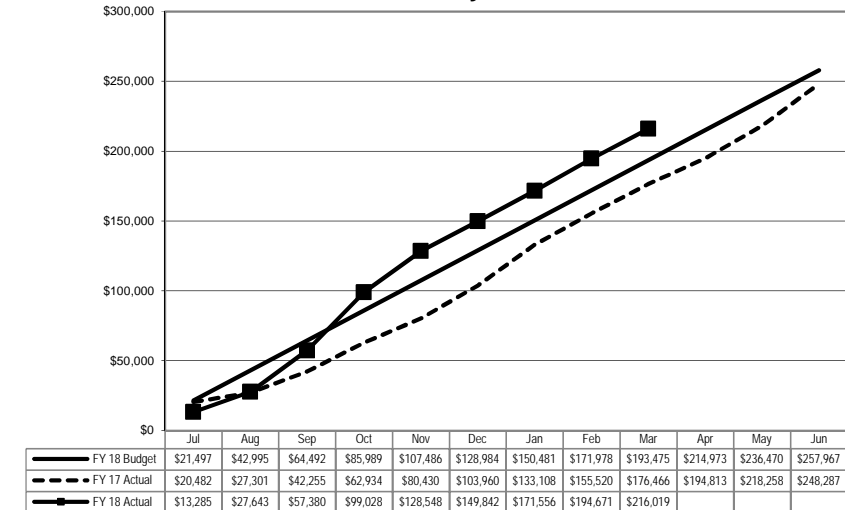
In Thousands

### Management Services



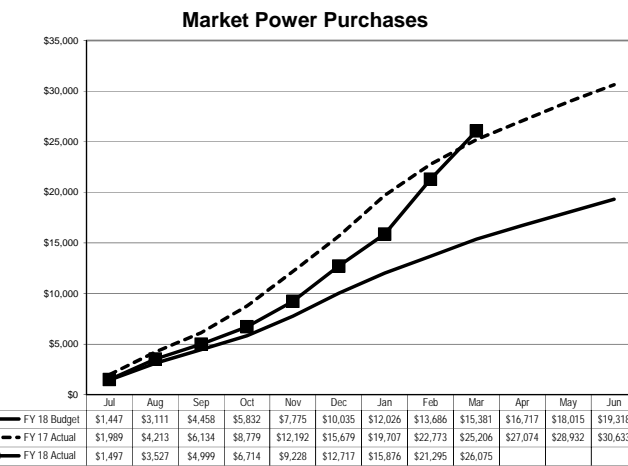
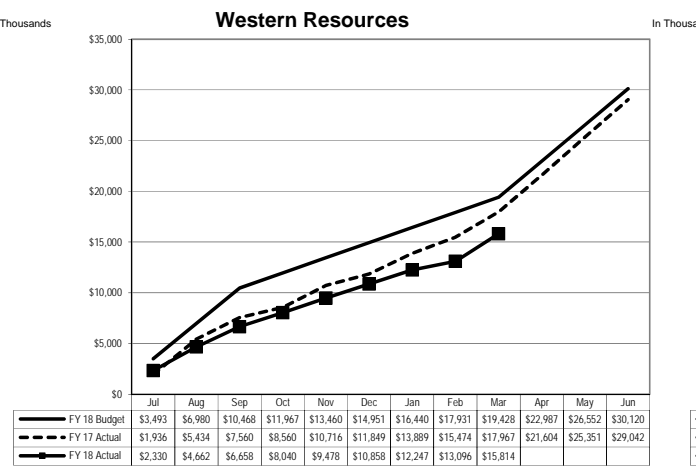
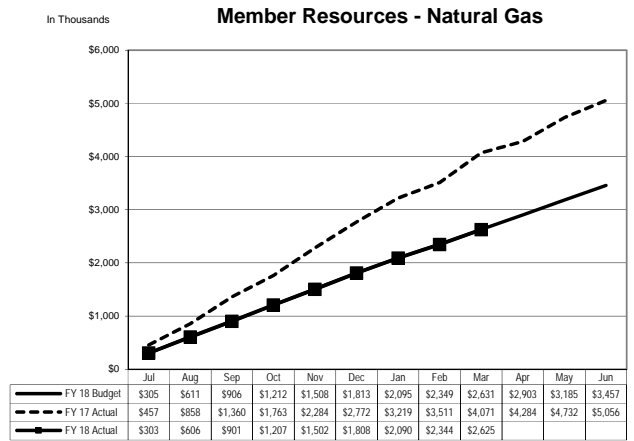
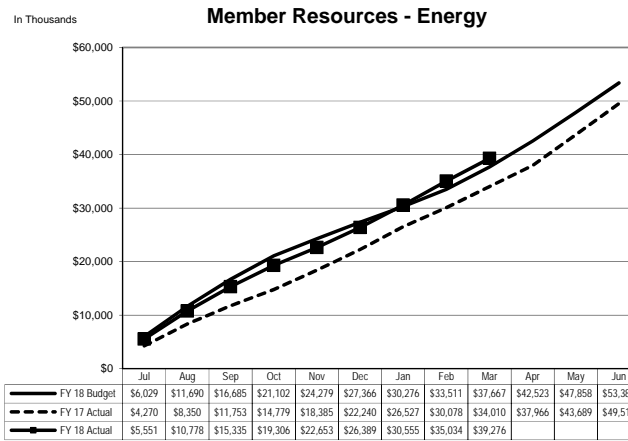
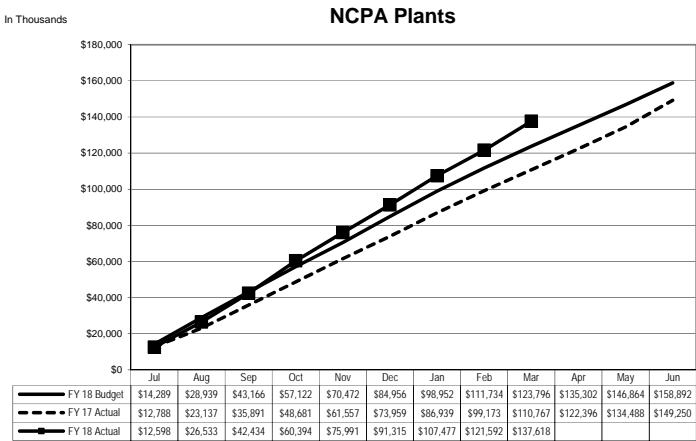
In Thousands

### Third Party Revenue



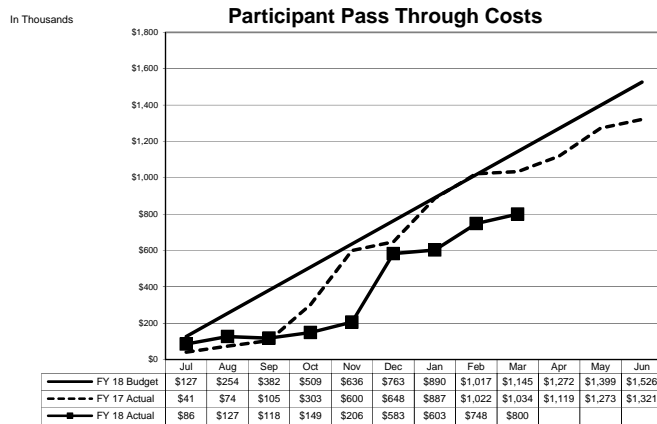
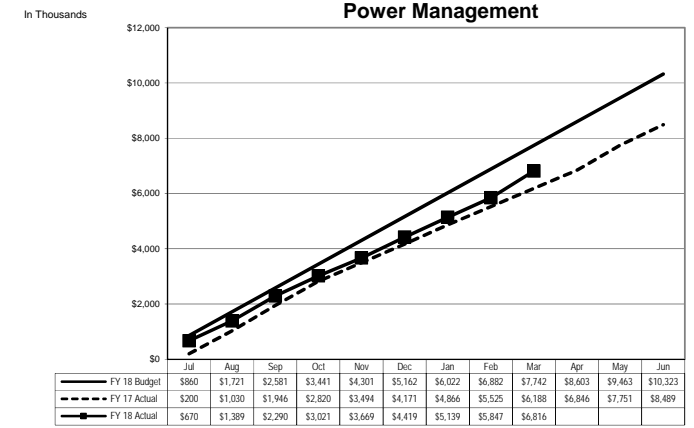
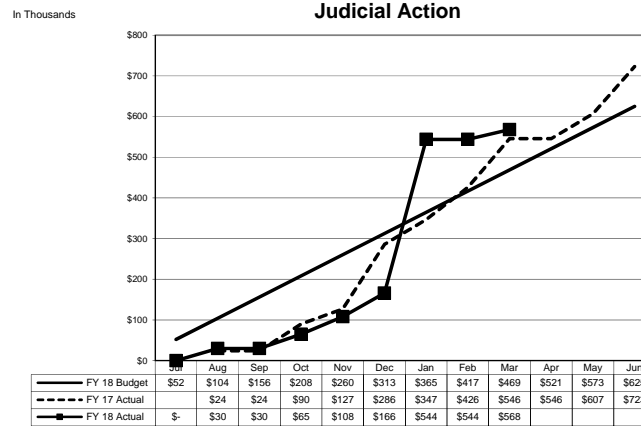
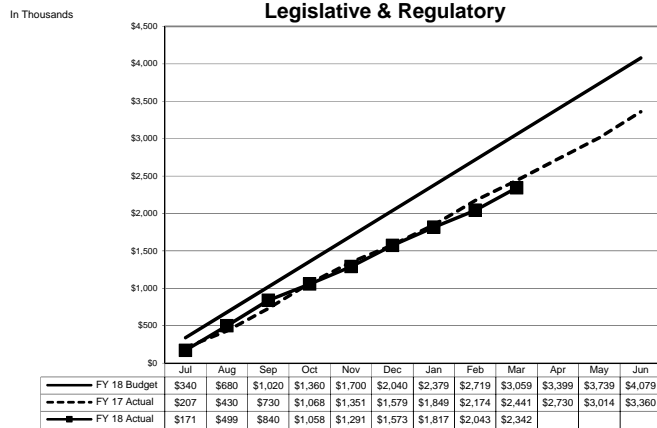
Footnote: Transmission is solely reflective of Independent System Operator (ISO) costs

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

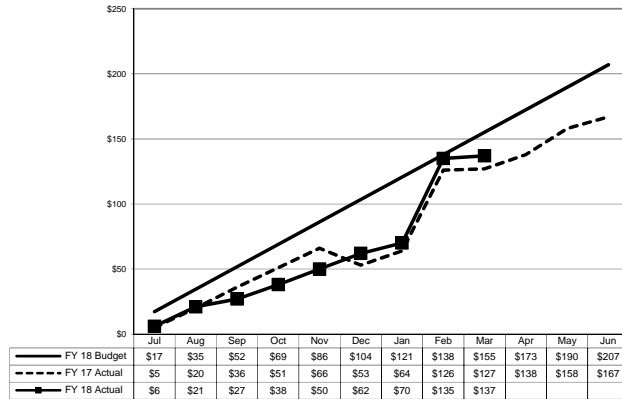


**Annual Budget Cost  
Management Services Analysis By Source  
As of March 31, 2018**

In Thousands

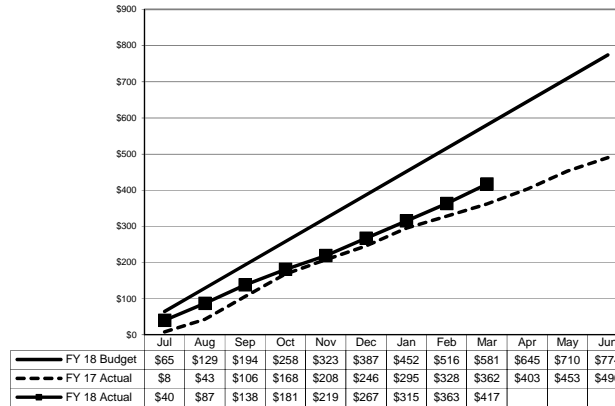
**Energy Risk Management**

In Thousands

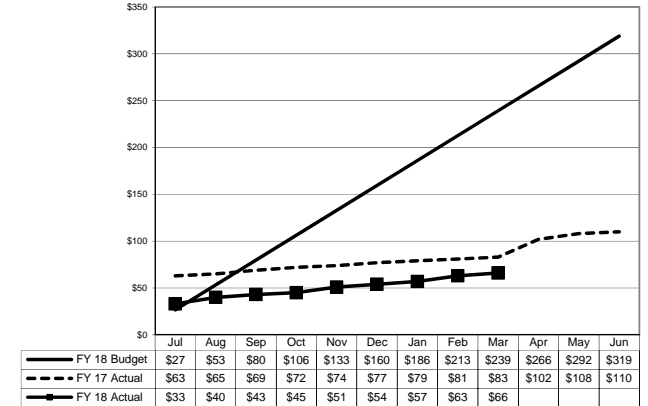


**Settlements**

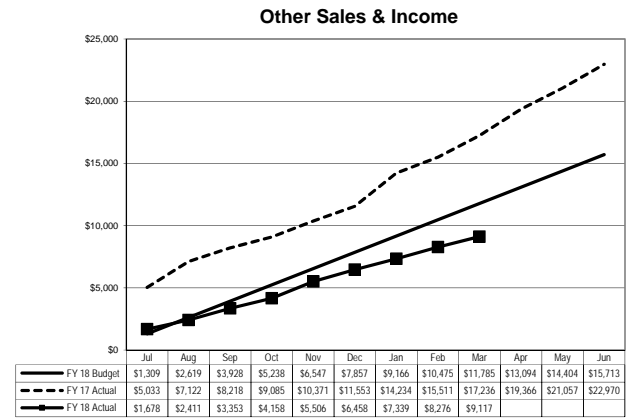
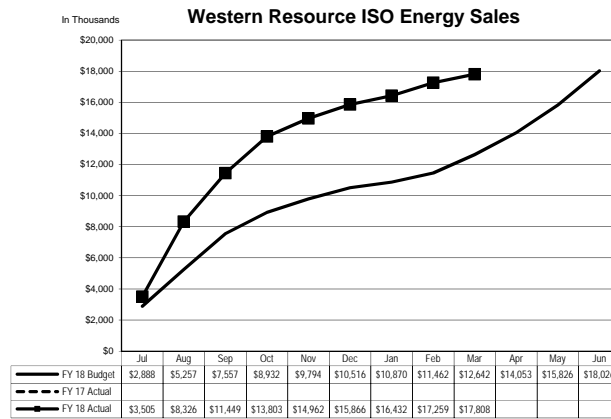
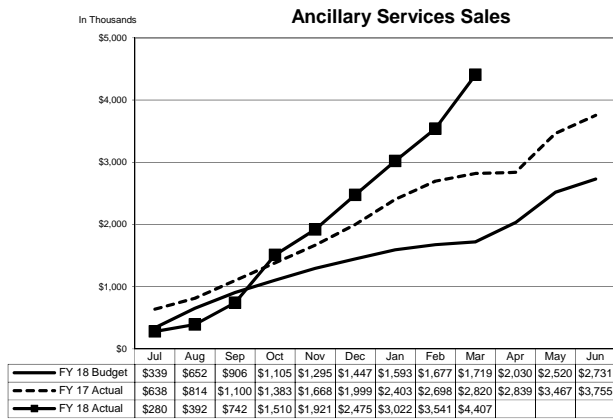
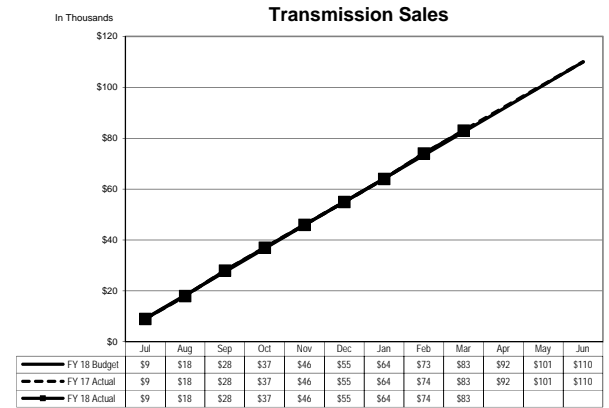
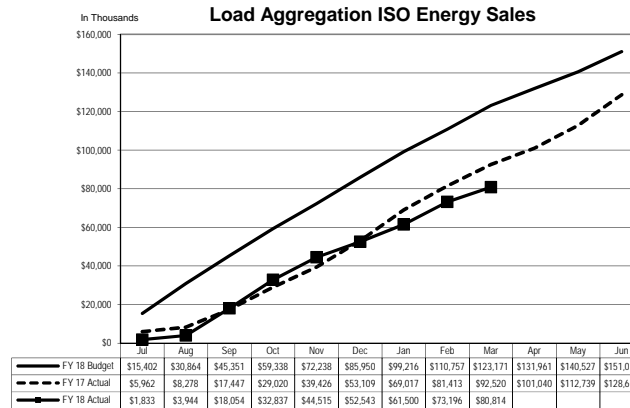
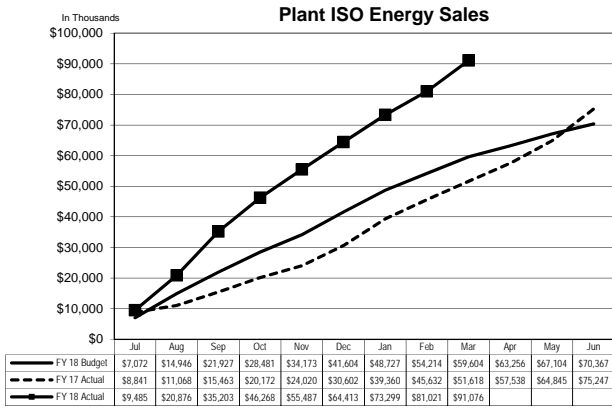
In Thousands



**Integrated Systems Support**



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



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

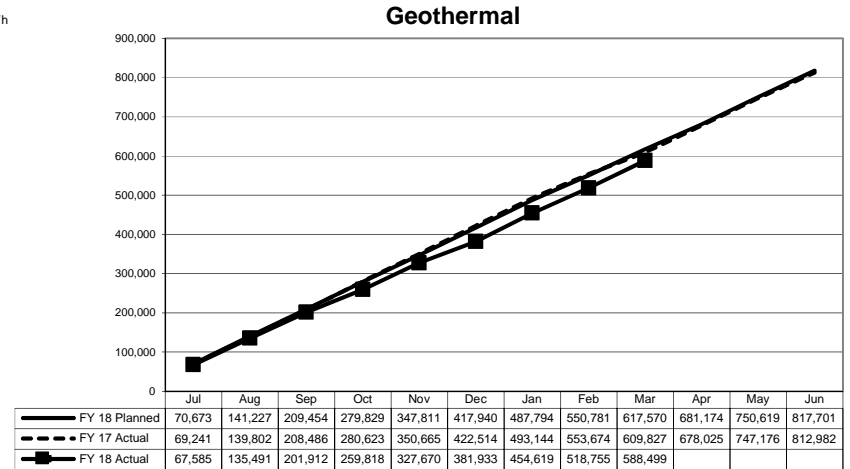
**Generation Cost Analysis**

\$ in thousands

	Geothermal				
	Budget	Actual	\$/MWh Actual	Under(Ovr) Budget	YTD % Remaining
Routine O & M	\$ 17,564	\$ 11,907	\$ 20.23	\$ 5,657	32%
Capital Assets/Spare Parts Inventories	1,440	388	0.66	1,052	73%
Other Costs	7,863	5,511	9.36	2,352	30%
CA ISO Charges	317	249	0.42	68	21%
Debt Service	4,936	3,702	6.29	1,234	25%
Annual Budget	32,120	21,757	36.97	10,363	32%
Less: Third Party Revenue					
Interest Income	148	203	0.34	(55)	-37%
ISO Energy Sales	28,349	21,663	36.81	6,686	24%
Ancillary Services Sales	-	(4)	(0.01)	4	
Effluent Revenues	700	1,054	1.79	(354)	-51%
Misc	110	86	0.15	24	
	29,307	23,002	39.09	6,305	22%
Net Annual Budget Cost to Participants	\$ 2,813	\$ (1,245)	\$ (2.11)	\$ 4,057	144%
Net Generation--MWh @ Meter	817,701	588,499			
\$/MWh (A)	\$ (2.60)	\$ (8.41)			

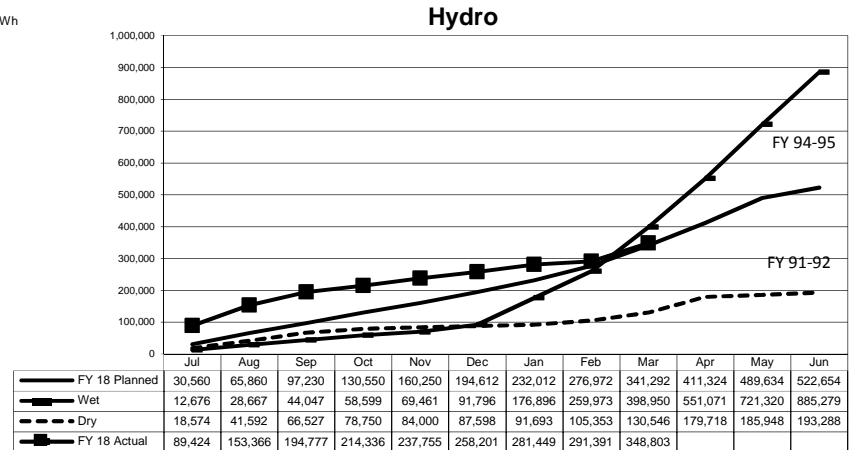
**MWhs Generated**

In MWh



	Hydroelectric				
	Budget	Actual	\$/MWh Actual	Under(Ovr) Budget	YTD % Remaining
Routine O & M	\$ 8,465	\$ 5,277	\$ 15.13	\$ 3,188	38%
Capital Assets/Spare Parts Inventories	2,365	4,874	13.97	(2,509)	-106%
Other Costs	3,093	2,024	5.80	1,069	35%
CA ISO Charges	1,680	1,818	5.21	(138)	-8%
Debt Service	38,258	28,694	82.26	9,565	25%
Annual Budget	53,862	42,687	122.38	11,175	21%
Less: Third Party Revenue					
Interest Income	244	329	0.94	(85)	-35%
ISO Energy Sales	22,050	19,594	56.17	2,456	11%
Ancillary Services Sales	2,222	1,985	5.69	237	11%
Misc	-	85	0.24	(85)	
	24,516	21,993	63.05	2,523	10%
Net Annual Budget Cost to Participants	\$ 29,346	\$ 20,694	\$ 59.33	\$ 8,652	29%
Net Generation--MWh @ Meter	522,654	348,803			
\$/MWh (A)	\$ (17.05)	\$ (22.94)			

In MWh



Footnotes:

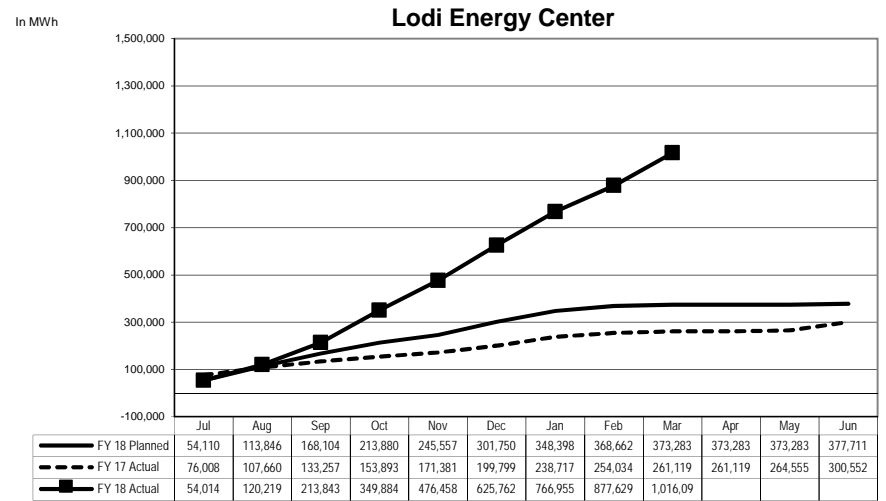
(A) Aggregate fiscal year generation in \$/MWh (excluding debt service)

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

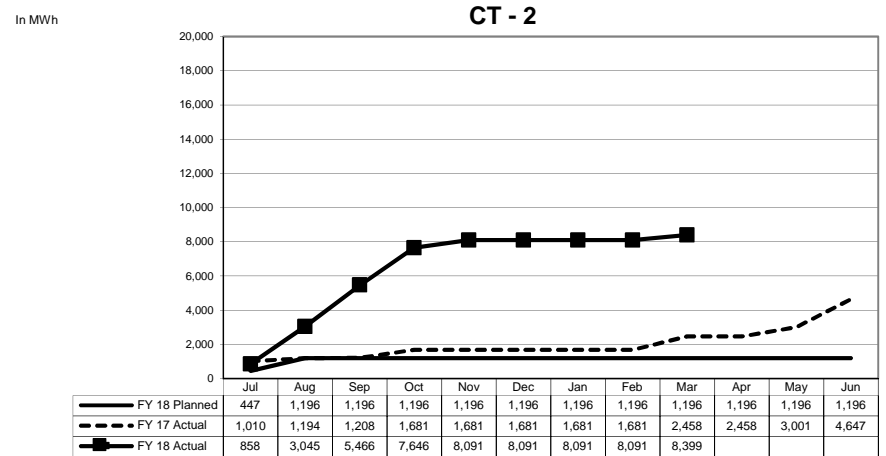
**Generation Cost Analysis**

	Lodi Energy Center				
	Budget	Actual	\$/MWh Actual	Under(Ovr) Budget	YTD % Remaining
Routine O & M	\$ 10,174	\$ 9,259	\$ 9.11	\$ 915	9%
Fuel	14,877	25,371	24.97	(10,494)	-71%
AB 32 GHG Offset	-	-	-	-	0%
CA ISO Charges and Energy Purchases	3,921	4,871	4.79	(950)	-24%
Capital Assets/Spare Parts Inventories	2,636	1,580	1.55	1,057	40%
Other Costs	3,063	2,077	2.04	986	32%
Debt Service	26,417	19,752	19.44	6,665	25%
Annual Budget	61,088	62,910	61.91	(1,822)	-3%
Less: Third Party Revenue					
Interest Income	172	311	0.31	(139)	-81%
ISO Energy Sales	19,760	46,723	45.98	(26,963)	-136%
Ancillary Services Sales	397	1,677	1.65	(1,280)	-323%
Transfer Gas Credit	-	-	-	-	0%
Misc	-	0	0.00	(0)	0%
	20,329	48,712	47.94	(28,383)	-140%
Net Annual Budget Cost to Participants	\$ 40,759	\$ 14,198	\$ 13.97	\$ 26,561	65%
Net Generation--MWh @ Meter	377,711	1,016,093			
\$/MWh (A)	\$ 37.97	\$ (5.47)			

**MWhs Generated**



	Combustion Turbine No. 2 (STIG)				
	Budget	Actual	\$/MWh Actual	Under(Ovr) Budget	YTD % Remaining
Routine O & M	\$ 1,471	\$ 1,027	\$ 122.28	\$ 444	30%
Fuel and Pipeline Transport Charges	835	878	104.49	(43)	-5%
Capital Assets/Spare Parts Inventories	121	10	1.19	111	92%
Other Costs	502	318	37.81	185	37%
CA ISO Charges	0	330	39.24	(329)	-71081%
Debt Service	5,693	4,270	508.34	1,423	25%
Annual Budget	8,623	6,832	813.36	1,791	21%
Less: Third Party Revenue					
Interest Income	43	59	7.08	(17)	-39%
ISO Energy Sales	89	1,161	138.28	(1,073)	-1207%
Ancillary Service Sales	-	0	0.00	(0)	0%
Fuel and Pipeline Transport Credits	864	1,034	123.16	(170)	-20%
Misc	-	-	-	-	0%
	996	2,255	268.52	(1,259)	-126%
Net Annual Budget Cost to Participants	\$ 7,627	\$ 4,576	\$ 544.83	\$ 3,050	40%
Net Generation--MWh @ Meter	1,196	8,399			
\$/MWh (A)	\$ 1,616.78	\$ 36.49			



**Footnotes:**

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



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

**Generation Cost Analysis**

	<b>Combustion Turbine No. 1</b>				
	<b>Budget</b>	<b>Actual</b>	<b>\$/MWh Actual</b>	<b>Under(Ovr) Budget</b>	<b>YTD % Remaining</b>
Routine O & M	\$ 1,520	\$ 1,651	\$ 140.96	\$ (131)	-9%
Fuel and Pipeline Transport Charges	172	-	-	172	100%
Capital Assets/Spare Parts Inventories	992	322	27.52	669	67%
Other Costs	514	1,143	97.61	(629)	-122%
CA ISO Charges	1	315	26.91	(315)	-53608%
Debt Service	-	-	-	-	-
<b>Annual Budget</b>	<b>3,199</b>	<b>3,432</b>	<b>293.00</b>	<b>(234)</b>	<b>-7%</b>
Less: Third Party Revenue					
Interest Income	-	-	-	-	-
ISO Energy Sales	119	1,933	165.06	(1,814)	-1525%
Ancillary Services Sales	-	0	0.00	(0)	0%
Misc	-	16	1.34	(16)	0%
	119	1,949	166.40	(1,830)	-1538%
<b>Net Annual Budget Cost to Participants</b>	<b>\$ 3,080</b>	<b>\$ 1,483</b>	<b>\$ 126.61</b>	<b>\$ 1,596</b>	<b>52%</b>
<b>Net Generation--MWh @ Meter</b>	<b>1,514</b>	<b>11,714</b>			
<b>\$/MWh (A)</b>	<b>\$ 2,034.06</b>	<b>\$ 126.61</b>			

**Footnotes:**

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

**MWhs Generated**

In MWh

**CT - 1**

