



BUSINESS PROGRESS REPORT

DECEMBER 2017

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Generation Costs & Reliability

Combustion Turbine Project

Unit Operation for November

| Unit | Availability | | Production | | Reason for Run |
|--|--------------|--------|----------------|------------|----------------|
| CT1 Alameda | Unit 1 | Unit 2 | Unit 1 | 321.3 MWHr | CAISO / CAISO |
| | 100.0% | 100.0% | Unit 2 | 509.1 | |
| Curtailments, Outages, and Comments: 11/7/2017 - Alameda unit 1 failed to start – control system error OMS 5432303 11/10/2017 - Alameda CT Unit 1 o/s for exhaust inspection ETR 11/15 OMS 5441014 | | | | | |
| Unit | Availability | | Production | | Reason for Run |
| CT1 Lodi | 100.0% | | 0.0 MWHr | | No Run |
| Curtailments, Outages, and Comments: Lodi GT available for ISO system or transmission emergencies only OMS 5361816 | | | | | |
| Unit | Availability | | Production | | Reason for Run |
| CT2 STIG | 83.4% | | 432.0 MWHr | | CAISO |
| Curtailments, Outages, and Comments: 11/13/2017 - 11/17/2017 Out of service for Fire Sytem Upgrade OMS 5437347 | | | | | |
| Unit | Availability | | Production | | Reason for Run |
| LEC | 99.7% | | 126,577.2 MWHr | | CAISO |
| Curtailments, Outages, and Comments: 11/16/19 - 1324-1515 Siemens watchdog AS2 AI input card failure. OMS 5462700 | | | | | |

Maintenance Summary – Specific per asset above.

Geothermal Facilities

Availability/Production for November

| Unit | Availability | Net Electricity Generated/Water Delivered | Out-of-Service/Descriptors |
|--|--------------|---|--|
| Unit 1 | 94.58 % | 19,460 MWh | Unit 1 OOS from 0330 11/13/17 until 1830 11/14/17 for PG&E line outage |
| Unit 2 | 92.64 % | *17,453 MWh | Unit 2 OOS from 0330 11/13/17 until 1830 11/14/17 for PG&E line outage Unit 2 OOS from 1000 11/30/17 due to 2.4 aux transformer failure |
| Unit 3 | N/A % | N/A | Unit 3 remains out of service for the month. |
| Unit 4 | 100 % | 30,939 MWh | U4 had no outages for the month |
| Southeast Geysers Effluent Pipeline | 97.04 % | 179.3 mgallons | Average flow rate: 4,192 gpm |
| Southeast Solar Plant | N/A | 34,315 KWh | Year-to-date KWh: 874,719 |
| Bear Canyon Pump Station Zero Solar | N/A | 75,220 KWh | Year-to-date KWh: 1,989,610 |

* Accounts for an additional 1,584 MWh of house load for the 21KV power supply to the effluent pipeline supplied from Unit #2.

Hydroelectric Project

Availability/Production for November

| Units | Availability | Net Electricity Generated | Out-of-Service |
|----------------------------|--------------|---------------------------|--|
| Collierville Unit 1 | 100.00 % | 16,104 MWh | CV #1 unit no reportable outages. |
| Collierville Unit 2 | 65.68 % | 6,336 MWh | CV #2 unit derate to 110mw's due to stator ground fault repair. CV #2 unit was out of service on, 11/06/17 at 0657 through 11/16/17 at 1405 due to annual maintenance. |
| Spicer Unit 1 | 91.61 % | 819 MWh | NSM #1 unit was out of service on, 11/01/17 at 0000 through 11/03/17 at 1225 due to PG&E Salt Springs-Tiger Creek 115KV line work. |
| Spicer Unit 2 | 92.06 % | 0 MWh | NSM #2 unit was out of service on, 11/01/17 at 0000 through 11/03/17 at 0913 due to PG&E Salt Springs-Tiger Creek 115KV line work. |
| Spicer Unit 3 | 91.67 % | 161 MWh | NSM #3 unit was out of service on, 11/01/17 at 0000 through 11/03/17 at 1200 due to PG&E Salt Springs-Tiger Creek 115KV line work. |

Operations & Maintenance Activities:

- Monthly CMMS work orders
- Adit 4 Slide repair
- Murphys Micro-wave project
- CV2 annual maintenance
- Hydro Project Physical Security Upgrade equipment installation
- CV #2 Rewind - Contractor Pre-Qualification Statements
- Beaver Creek Reservoir Clean-out complete and in service

Environmental, Health & Safety (EH&S) Projects

Incident Reports

- No vehicle accidents or lost time accidents occurred in November. There was one Recordable Incident in November: on 11/17, an employee at the Geo facility sustained an injury involving a twisted left ankle, for which a doctor prescribed medication.
- 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 November 25, 2017.
- 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.

November Generation Services Safety Report

| | Hydro | GEO | CT Group * | NCPA HQ ** |
|------------------------------------|---------|---------|------------|------------|
| CalOSHA Recordable (this month) | 0 | 1 | 0 | 0 |
| CalOSHA Recordable (calendar year) | 0 | 2 | 0 | 0 |
| Days since Recordable | 1074 | 8 | 964 | 6,032 |
| Work Hours Since Last Recordable | 93,681 | 1,323 | 141,198 | 2,174,112 |
| LTA's (this month) | 0 | 0 | 0 | 0 |
| LTA's (calendar year) | 0 | 0 | 0 | 0 |
| Days without LTA | 3,690 | 827 | 8,868 | 4,961 |
| Work Hours without LTA | 339,246 | 167,991 | 582,562 | 1,796,132 |
| Vehicle Incident (month) | 0 | 0 | 0 | 0 |
| Vehicle Incident (calendar year) | 0 | 2 | 1 | 1 |

* 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 November 25, 2017.

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 2017 Data

| | November 2017 | | Calendar Year 2017 | |
|-----------|----------------------|---------|---------------------------|-----------|
| | Peak MW | MWh | Peak MW | MWh |
| NCPA Pool | 320.58 11/8 @1800 | 184,496 | 485.85 9/1 @1700 | 2,184,834 |
| SVP | 470.9 11/21 @1500 | 304,421 | 586.59 9/1 @1600 | 3,419,171 |
| MSSA | 789.32 11/8 @ 1800 | 488,917 | 1070.79 9/1 @ 1700 | 5,604,005 |

Last Year 2016 Data*

| | November 2016 | | Calendar Year 2016 | |
|-----------|----------------------|---------|---------------------------|-----------|
| | Peak MW | MWh | Peak MW | MWh |
| NCPA Pool | 334.48 11/9 @1800 | 187,996 | 449.75 7/27 @1700 | 2,164,733 |
| SVP | 472.09 11/8 @1500 | 292,678 | 534.21 9/26 @ 1700 | 3,259,663 |
| MSSA | 792.38 11/10 @ 1800 | 480,674 | 968.73 7/27 @ 1600 | 5,424,396 |

*Last year's data added for comparison purposes only

System Peak Data

| | All Time Peak Demand | 2017 Peak Demand |
|-----------|-----------------------------|-------------------------|
| NCPA Pool | 517.83 MW on 7/24/06 @ 1500 | 485.85 9/1 @ 1700 |
| SVP | 586.59 MW on 9/1/17 @ 1600 | 586.59 9/1 @ 1600 |
| MSSA | 1070.79 MW on 9/1/17 @ 1700 | 1070.79 9/1 @ 1700 |

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

| NCPA Deviation Band Performance | | |
|--|----------------------|---------------------------|
| | November 2017 | Calendar Year 2017 |
| MSSA % Within the Band | 98.91% | 97.78% |

- Spicer Meadows:
 - November 1 – 3, Units 1 & 2 off line for PG&E work on the Salt Springs – Tiger Creek 115kV line. Unit 3 remained on, islanded with station service power supply
- Geothermal Units:
 - November 13 – 14, Unit 1 & 2 off line for scheduled PG&E Geysers 9 – Lakeville 230kV line outage. Outage was scheduled through November 17 but work cancelled and outage ended early due to weather. To be rescheduled in December.
 - November 30 @ 1006, Unit 2 tripped off line due to 13.8kV bus fault. ETR at least 3 weeks.
- Lodi Energy Center:
 - November 16 @ 1323 – 1527, plant tripped due to STG control system logic issue
- Alameda CTs:
 - November 6 – 7, Unit 1 o/s due to failed start, control system trouble
 - November 10 – 30, Unit 1 o/s for repairs to exhaust tunnel seal. ETR mid-December
- Lodi CT:
 - November 1 – 30, unit o/s due to emissions limitation on total annual run hours
 - Unit remains available in the event of CAISO declared Stage or Transmission emergency
- Collierville Units:
 - November 1 – 30, Unit 2 remains derated due stator ground fault repair
 - November 6 – 16, Unit 2 o/s for annual maintenance
- STIG:
 - November 13 - 17, unit o/s for fire protection system upgrade

Pooling & Portfolio Planning & Forecasting

- Actual NCPA Pool load of 184.5 GWh during November was 98% of the pre-month forecast of 189.2 GWh. Pool load, running 38.5 GWh through December 6, may not reach the forecast of 200.3 GWh, with mixed at- and below-normal temperatures forecasted through the balance of the month.
- The Lodi Energy Center (LEC) generated 22,760 MWh for the pool in November, close to the 23,412 MWh forecast, aided by the significant drop in local transport rates. Supply disruptions in SoCal kept implied heat rates well above the norm, adding to run hours. For December, pool share of LEC generation is forecasted at 31,754 MWh and had reached 4,400 MWh by December 6.
- For the month of November, 7.32” of rain was recorded at Big Trees gage. November Big Trees average precipitation is 6.43”.

- The Value of Storage (VOS) of New Spicer Meadow Reservoir (NSMR) is being maintained at \$55/MWh.
- NSMR storage as of November 30 was at 88,437 acre feet. The historical average NSMR storage at the end of November is 85,100 acre feet. As of November 14, NSMR storage is 85,565 acre feet. The current NCPA Pool share of NSMR storage is 43,390 acre feet.
- Combined Calaveras Project generation for the Pool in November totaled 11.9 GWh, up from 9.9 GWh in October. The Pool's 11.9 MWh in November exceeded the pre-month forecast of 9.5 GWh. Through December 11, Calaveras generation for the Pool is 4.9 GWh, with the full month forecasted at 12.0 GWh.
- Western Base Resource (BR) Pool delivery in November was 22.4 GWh, or 80% of the forecast of 28.2 GWh. Through December 6, BR pool allocations of 5.9 GWh (1.2 GWh Displacement, which will continue through the winter) should meet the 13-GWh December forecast.
- The PG&E City-Gate gas index traded at just \$2.86/MMBtu for December 8 delivery - compared to an average of \$3.12/MMBtu (and a low of \$2.97/MMBtu) during November. Supply constraints increased prices during early November, but prices now seem to be moderating as temperatures become more seasonal. The PG&E December Bidweek price is \$3.12, 7 cents lower than November's, and December prices have been averaging lower as constraints ease.
- Day-ahead NP15 electricity prices averaged \$39.44 (HLH) and \$32.33 (LLH) during November with the TH_NP15 maximum at \$150.26/MWh.

| NCPA Pool Loads & Resources Value Summary | | | | | | | | |
|---|--------------|----------------|----------------|--------------|----------------------------|------------------------|------------------------|--------------|
| Peak and Energy Summary Nov-17 | | | | | Estimated Production Costs | | Cost of Serving Demand | |
| | Coincident | | Forecast | | NCPA Pool | | Totals | Avg (\$/MWh) |
| | Peak (MW) | Total MWh | Values | Avg. MW | Cost/Revenue (Estimate) | Variable Cost (\$/MWh) | | |
| Demand | 320.6 | 184,467 | 189,240 | 255.8 | N/A | N/A | | |
| WAPA | - | 22,441 | 28,194 | 31.1 | \$ 833,923 | \$ 37.16 | | |
| Geothermal | - | 28,088 | 27,540 | 39.0 | 533,671 | 19.00 | | |
| Hydro | - | 11,900 | 9,474 | 16.5 | 71,400 | 6.00 | | |
| Stig & CTs | - | 749 | 410 | 1.0 | 47,772 | 63.75 | | |
| LEC | - | 22,760 | 23,412 | 31.6 | 762,009 | 33.48 | | |
| Contracts | 247.8 | 84,973 | 75,451 | 117.9 | 4,406,022 | 51.85 | \$ 7,051,517 | \$ 38.23 |
| Market - Net (Net Sales = Negative) | 72.8 | 13,556 | 24,759 | 18.8 | 506,568 | 37.37 | | |
| Net Total | 320.6 | 184,467 | 189,240 | 255.8 | \$ 7,161,366 | \$ 38.94 | | |

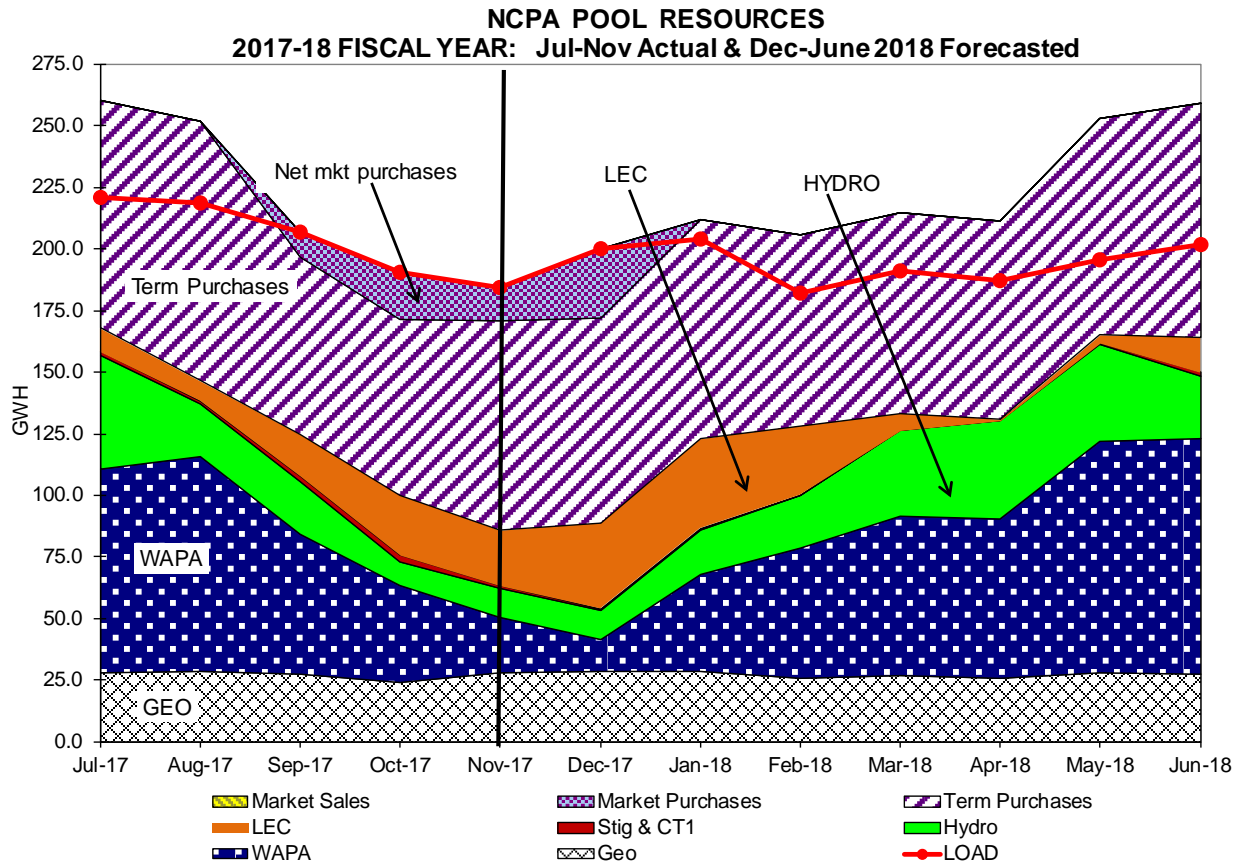
| Monthly Market Summary | | | | | | | |
|------------------------|-------------------|------------------|--------------|---|--|--------------------|----------|
| | Pool Energy (MWh) | HLH Avg (\$/MWh) | MCP (\$/MWh) | Avg Variable Cost of Pool Generation (\$/MWh) | Forward Prices (EOX NP15 HLH Ask Prices) | | |
| | | | | | NP15 11/1/2017 (\$/MWh) | 12/6/2017 (\$/MWh) | |
| Jan-17 | 205,675 | \$ 36.58 | \$ 23.70 | 23.70 | Dec-17 | \$ 42.80 | \$ 37.93 |
| Feb-17 | 178,642 | \$ 30.61 | \$ 24.41 | 24.41 | Jan-18 | 41.31 | 36.44 |
| Mar-17 | 192,408 | \$ 23.37 | \$ 25.43 | 25.43 | Feb-18 | 40.94 | 34.62 |
| Apr-17 | 179,239 | \$ 23.39 | \$ 31.47 | 31.47 | Q1 2018 | \$ 38.71 | \$ 33.76 |
| May-17 | 195,573 | \$ 31.70 | \$ 26.86 | 26.86 | Q2 2018 | 32.50 | 29.43 |
| Jun-17 | 206,429 | \$ 38.62 | \$ 34.25 | 34.25 | Q3 2018 | 41.44 | 39.94 |
| Jul-17 | 221,169 | \$ 39.42 | \$ 36.21 | 36.21 | CY2018 | \$ 38.53 | \$ 36.03 |
| Aug-17 | 223,320 | \$ 51.70 | \$ 37.30 | 37.30 | CY2019 | 39.16 | 38.12 |
| Sep-17 | 206,930 | \$ 45.07 | \$ 40.69 | 40.69 | CY2020 | 40.36 | 39.77 |
| Oct-17 | 190,730 | \$ 44.93 | \$ 39.05 | 39.05 | CY2021 | 42.30 | 41.31 |
| Nov-17 | 184,467 | \$ 38.23 | \$ 38.94 | 38.94 | CY2022 | 43.54 | 42.43 |
| Dec-17 | | | | | CY2023 | 44.90 | 43.49 |

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 February 2017:
 - Monthly System Resource Adequacy Demonstration (filed December 18, 2017)
 - Monthly Supply Plan (filed December 18, 2017)

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:

Commitment Costs and Bidding Enhancements

- Through this initiative the CAISO will evaluate the following two topics: (1) if commitment proxy costs, generated bids, and default energy bids allow scheduling coordinators to accurately reflect and recover their generators' unit-specific costs; and (2) if changes to the economic bidding of commitment costs and associated market power mitigation methodology could increase market benefits when bidding under competitive market dynamics.

Review of TAC Structure

- As described in the CAISO 2017 Stakeholder Initiative Catalog, during calendar year 2017 the CAISO will conduct a stakeholder initiative process to consider possible changes to the structure of the Transmission Access Charge (TAC). The CAISO currently charges the TAC to each MWh of metered internal end-use load (i.e., Gross Load) and exports, to recover participating transmission owners' costs of owning, operating and maintaining transmission facilities under CAISO operational control. Included in the initiative scope will be questions such as: (1) whether the current purely volumetric TAC rate structure should be retained, or should be changed to include other factors such as peak demand; and (2) whether the billing determinant for internal load should be modified to account for the load that is offset by the energy output of Distributed Energy Resources (DER).

Western

Western Base Resource Tracking (NCPA Pool)

| Western Base Resource Tracking - NCPA Pool | | | | | | | |
|---|-----------------------------------|-----------------------|---------------------|---|--|--|---|
| | Actual | | | Costs & Rates | | | |
| | BR Forecast ¹ (MWh) | BR Delivered (MWh) | Difference (MWh) | Base Resource & Restoration Fund (\$) | Monthly Cost of BR ² (\$/MWh) | CAISO LMP Differential ³ (\$/MWh) | 12-Mo Rolling Avg. Cost of BR ⁴ (\$/MWh) |
| Jul-17 | 71,656 | 82,819 | 11,163 | \$2,334,679 | \$ 28.19 | \$ 1.60 | \$ 27.59 |
| Aug-17 | 55,736 | 79,371 | 23,635 | \$2,334,679 | \$ 29.41 | \$ 0.08 | \$ 27.14 |
| Sep-17 | 56,044 | 57,011 | 967 | \$1,979,032 | \$ 34.71 | \$ 0.12 | \$ 26.27 |
| Oct-17 | 33,604 | 39,352 | 5,748 | \$833,923 | \$ 21.19 | \$ 0.79 | \$ 25.27 |
| Nov-17 | 19,601 | 22,441 | 2,840 | \$833,923 | \$ 37.16 | \$ 0.27 | \$ 24.46 |
| Dec-17 | 15,404 | - | (15,404) | \$833,923 | \$ 54.14 | \$ 0.10 | \$ 24.27 |
| Jan-18 | 7,358 | - | (7,358) | \$833,923 | \$ 113.34 | \$ 0.10 | \$ 25.98 |
| Feb-18 | 13,359 | - | (13,359) | \$833,923 | \$ 62.42 | \$ 0.10 | \$ 28.18 |
| Mar-18 | 30,216 | - | (30,216) | \$833,923 | \$ 27.60 | \$ 0.10 | \$ 29.72 |
| Apr-18 | 50,443 | - | (50,443) | \$2,035,038 | \$ 40.34 | \$ 0.10 | \$ 30.65 |
| May-18 | 66,832 | - | (66,832) | \$2,035,038 | \$ 30.45 | \$ 0.10 | \$ 32.94 |
| Jun-18 | 74,030 | - | (74,030) | \$2,035,038 | \$ 27.49 | \$ 0.10 | \$ 33.36 |
| 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 savings continue to grow, even during the low-hydro months, with Pool Members' November activity of 5,931 MWhs for an estimated savings of \$34,300, or about \$5.80/MWh.

Debt and Financial Management

- On December 13, 2017, the Federal Reserve, in a widely expected decision, raised its benchmark rate by a quarter of a percentage point, to a range between 1.25 percent and 1.5 percent.
- The Fed also predicted stronger economic growth over the next three years. It forecast 2.5% growth in 2018, well above its previous forecast of 2.1% growth in 2018, which was published in September. The Fed did not give a reason for the change, but it may reflect the Fed's assessment of the likely economic impact of the \$1.5 trillion tax cut legislation that is currently before Congress.
- Two-year Treasury rates rose the most, up 18 basis points (bps) in November. Short-term Treasury yields appear to have already fully priced in three or four Fed rate hikes in 2018, despite Fed funds futures indicating otherwise.
- Both the LEC PPC and the Finance Committee have recommended Commission approval of advance refunding the 2010 Lodi Energy Center, Issue One, Series A bonds. The deal is anticipated to close on December 20th pending Commission approval. Indenture Group A participants are estimated to save over \$2 million in debt service costs with average annual savings of over \$300,000 per year until final maturity in 2025.

Schedule Coordination Goals

Software Development

- The configuration of Scheduling software continues for the PCWA project under the MFP1 SCID. PCWA staff have been provided training on the use of the Scheduling software and testing is ongoing to simulate various scenarios on bidding strategies. Go Live is on 12/31/2017 for the 01/01/2018 operating date.
- NCPA IS staff is assisting Santa Clara to transition its MSS portfolio from scheduling via Web Service into the use of the NCPA Scheduling Suite. Rollout is anticipated for mid-January 2018.
- Various other software development is underway. The Resource Adequacy Compliance App is a tool to manage RA supply planning and compliance tracking. The Risk Management App is a tool for the Risk Manager to maintain counterparty credits and ratings and provides Mark-to-Market report to the business users. 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.
- Additional 56k circuit upgrades to T1 at Portola, Ukiah and the Disaster Recovery Center have been successfully completed. Information Services is currently working on upgrading the Ukiah Orchard substation.
- Work continues on streamlining the meetings workflow process using SharePoint to assist in preparing documents and presentations for a variety of NCPA committees. Information Services is anticipating to begin testing sometime in November with a first-of-the-year rollout into production.
- Information Services continues to work alongside Generation Services to help expand their physical security presence at the plant locations. This includes diagramming, installing and configuring network switches in preparation for security devices.
- PCWA network and point testing continues to move forward as we prepare for a January 1st cutover date.
- NCPA performed a red team assessment at the Roseville office using a company called Rapid 7. This is a type of penetration test that evaluates the physical and network security defenses. Waiting on report from Rapid 7 to review the results.
- Information Services also backfilled their vacant System Administrator position by hiring Dustin Palmer, who has 20+ year's experience in the Information Technology industry.
- Information Services is preparing to implement a new e-mail records management solution for employees starting the first half of 2018. This will help to align our systems with the records retention policy that was approved by the Commission last year.

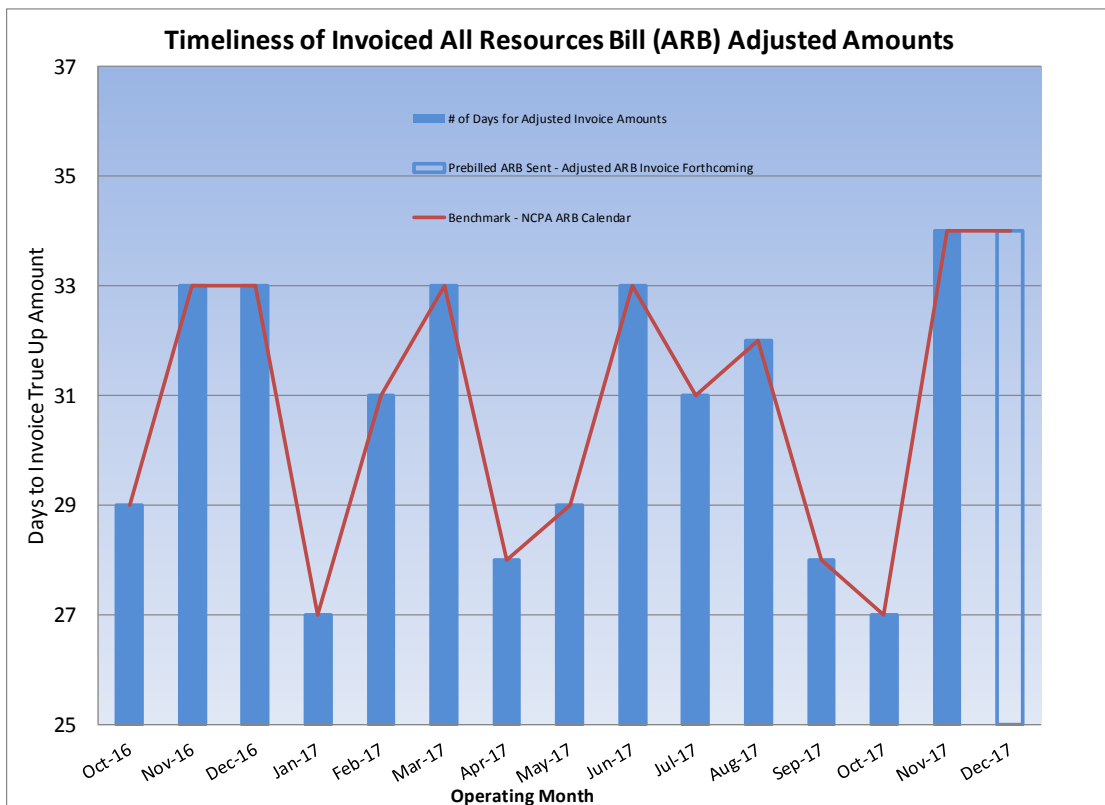
NCPA Bills & Settlements

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 December 2017 NCPA All Resources Bill (ARB) monthly invoice sent to members on November 21, 2017 contains:

- December 2017 monthly pre-billed budget/forecast amounts;
- October 2017 (1st Adjustment) NCPA Project and CAISO Initial settlement true-ups;
- September 2017 (2nd Adjustment) NCPA Project settlement true-up and T+12 business day recalculated CAISO settlement true-up allocations;
- July 2017 (3rd Adjustment) T+55 business day recalculated CAISO settlement true-up allocations and NCPA Projects true-up;
- January 2017 (4th Adjustment) T+9 month recalculated CAISO settlement true-up allocations;
- March 2016 (5th Adjustment) T+18 month recalculated CAISO settlement true-up allocations;
- September 2014 (6th Adjustment) T+35 month CAISO settlement true-up



Legislative & Regulatory

Political Arena State/Federal/Western Programs

- NCPA submitted comments to the Bureau of Reclamation on its draft Notice of Intent (NOI) for the Re-initiation of Consultation on the Long-Term Operations of the Central Valley Project (CVP) and the State Water Project (SWP). Among the recommendations made by NCPA, they included adding the Western Area Power Administration (WAPA) as a cooperating agency whose expertise can assist Reclamation in the studies and analyses for this project, including insights into how power markets in California are changing due to the state's Renewable Portfolio Standards requirements. Also, the comments urged Reclamation to carefully consider the impacts to power delivery, generation and costs under any new agreement. Finally, NCPA suggested that the NOI include consideration of how the proposed environmental and study work will address the ongoing California Waterfix proceedings, and proposed unimpaired flow criteria being developed by the State Water Resources Control Board for the Sacramento and San Joaquin Rivers.

Human Resources

Hires:

Dustin Palmer joined NCPA on November 20, 2017, as a Computer Technology Analyst III at Headquarters in Roseville. Dustin has over 17 years of computer information systems experience having previously worked for Palma GPS Inc. as Director of IT & Operations/Sr. Systems Engineer. In addition, Dustin has a bachelor's degree in Mechanical Engineering from University of Utah, Salt Lake City.

Intern Hires:

None.

Promotions/Position Changes:

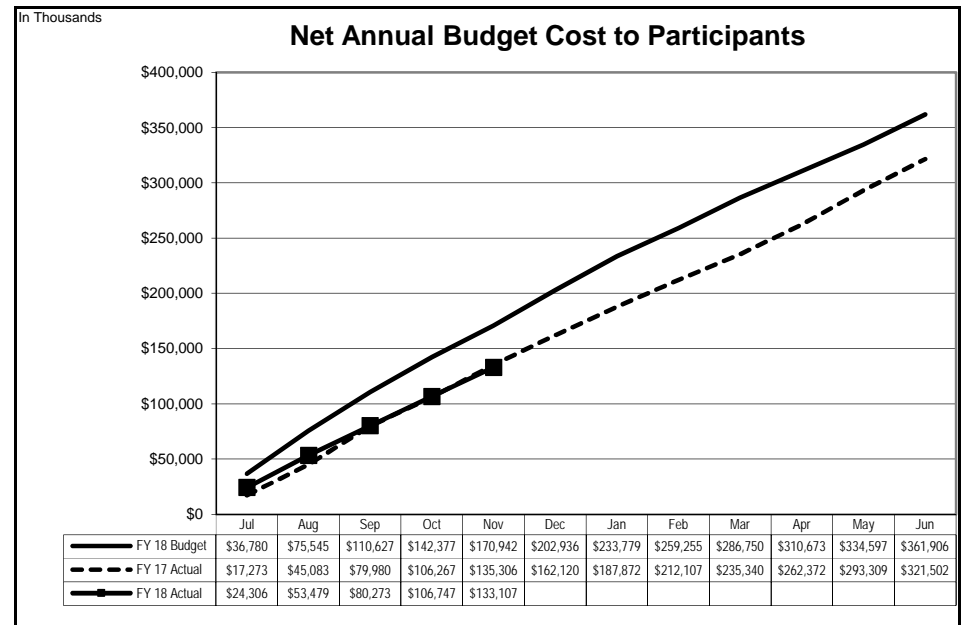
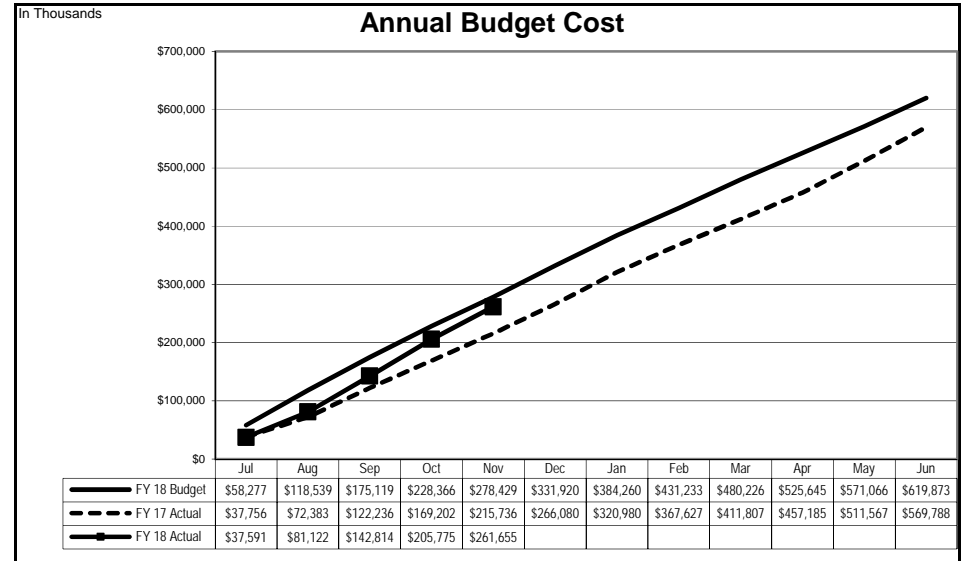
None.

Separations:

Mario De Bernardo, Government Relations Representative, resigned his position at Roseville Headquarters. Mario left for another employment opportunity.

Annual Budget 2017-2018 Fiscal Year To Date As of November 30, 2017

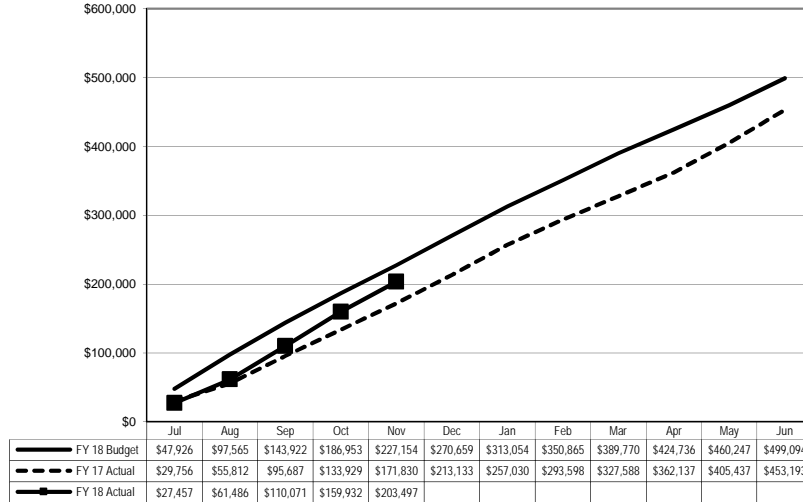
| In Thousands | Program | | | |
|---|---------------|---------|-------------------|-----------------|
| | Annual Budget | Actual | Under(Ovr) Budget | YTD % Remaining |
| GENERATION RESOURCES | | | | |
| NCPA Plants | | | | |
| Hydroelectric | 53,862 | 24,290 | \$ 29,572 | 55% |
| Geothermal Plant | 32,120 | 11,810 | 20,310 | 63% |
| Combustion Turbine No. 1 | 2,849 | 2,242 | 606 | 21% |
| Combustion Turbine No. 2 (STIG) | 8,623 | 4,190 | 4,433 | 51% |
| Lodi Energy Center | 61,088 | 33,459 | 27,629 | 45% |
| | 158,542 | 75,991 | 82,551 | 52% |
| Member Resources - Energy | 53,389 | 22,653 | 30,736 | 58% |
| Member Resources - Natural Gas | 3,457 | 1,502 | 1,955 | 57% |
| Western Resource | 30,120 | 9,478 | 20,642 | 69% |
| Market Power Purchases | 19,318 | 9,228 | 10,090 | 52% |
| Load Aggregation Costs - ISO | 233,822 | 84,125 | 149,697 | 64% |
| Net GHG Obligations | 446 | 519 | (73) | -16% |
| | 499,094 | 203,497 | 295,597 | 59% |
| TRANSMISSION | | | | |
| Independent System Operator | 102,925 | 52,490 | 50,434 | 49% |
| MANAGEMENT SERVICES | | | | |
| Legislative & Regulatory | | | | |
| Legislative Representation | 1,976 | 696 | 1,280 | 65% |
| Regulatory Representation | 838 | 254 | 584 | 70% |
| Western Representation | 830 | 203 | 627 | 76% |
| Member Services | 436 | 139 | 297 | 68% |
| | 4,079 | 1,291 | 2,788 | 68% |
| Judicial Action | 625 | 108 | 517 | 83% |
| Power Management | | | | |
| System Control & Load Dispatch | 5,864 | 2,204 | 3,661 | 62% |
| Forecasting & Prescheduling | 2,647 | 932 | 1,715 | 65% |
| Industry Restructuring | 424 | 125 | 299 | 70% |
| Contract Admin, Interconnection Svcs & Ext. Affairs | 1,152 | 348 | 804 | 70% |
| Green Power Project | 18 | 1 | 17 | 95% |
| Gas Purchase Program | 88 | 23 | 65 | 73% |
| Market Purchase Project | 130 | 36 | 94 | 73% |
| | 10,323 | 3,669 | 6,654 | 64% |
| Energy Risk Management | 207 | 50 | 157 | 76% |
| Settlements | 774 | 219 | 555 | 72% |
| Integrated System Support | 319 | 51 | 268 | 84% |
| Participant Pass Through Costs | 1,526 | 206 | 1,320 | 86% |
| Support Services | - | 73 | (73) | N/A |
| | 17,854 | 5,667 | 12,186 | 68% |
| TOTAL ANNUAL BUDGET COST | 619,872 | 261,655 | 358,217 | 58% |
| LESS: THIRD PARTY REVENUE | | | | |
| Plant ISO Energy Sales | 70,367 | 55,487 | 14,880 | 21% |
| Load Aggregation Energy Sales | 151,019 | 44,515 | 106,504 | 71% |
| Ancillary Services Sales | 2,731 | 1,921 | 811 | 30% |
| Western Resource Energy Sales | 18,026 | 14,962 | 3,064 | 17% |
| Other ISO Revenue | - | 6,111 | (6,111) | N/A |
| Transmission Sales | 110 | 46 | 64 | 58% |
| Western Credits, Interest & Other Income | 15,713 | 5,506 | 10,207 | 65% |
| | 257,967 | 128,548 | 129,419 | 50% |
| NET ANNUAL BUDGET COST TO PARTICIPANTS | 361,906 | 133,107 | \$ 228,799 | 63% |



**Annual Budget
Budget vs. Actual By Major Area
2017-2018 Fiscal Year To Date
As of November 30, 2017**

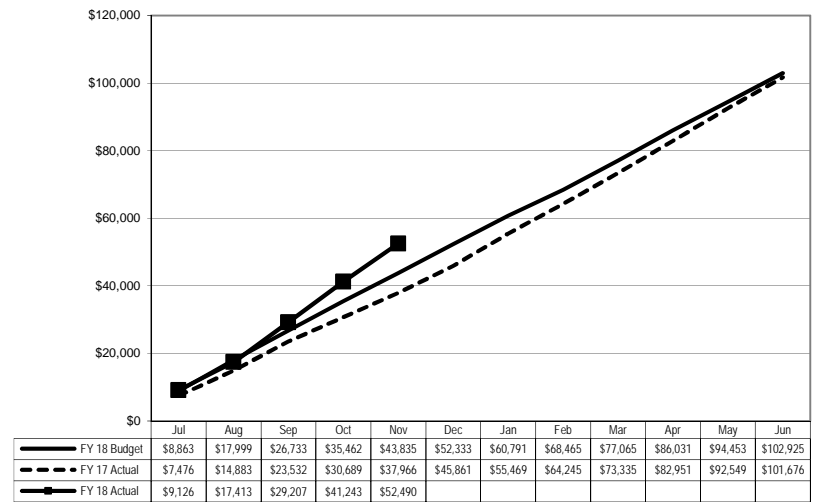
In Thousands

Generation Resources



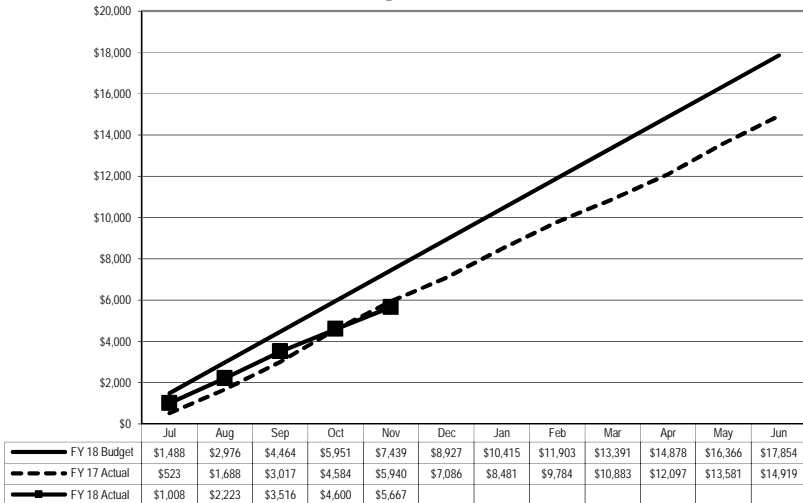
In Thousands

Transmission-ISO



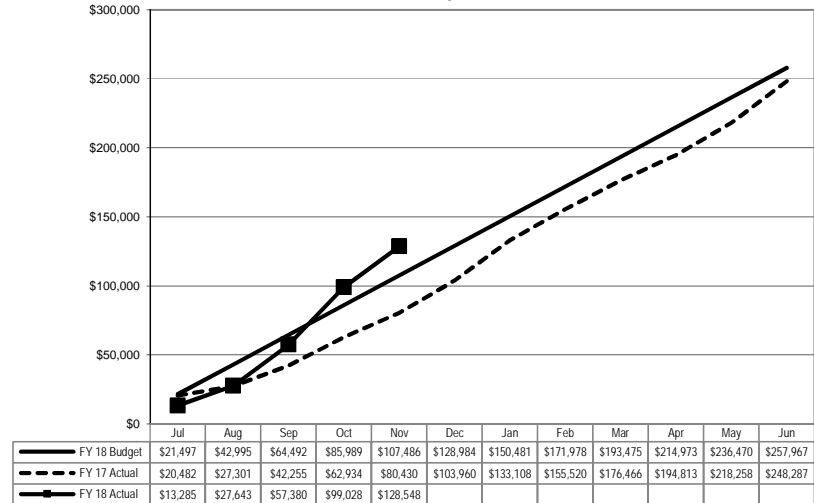
In Thousands

Management Services



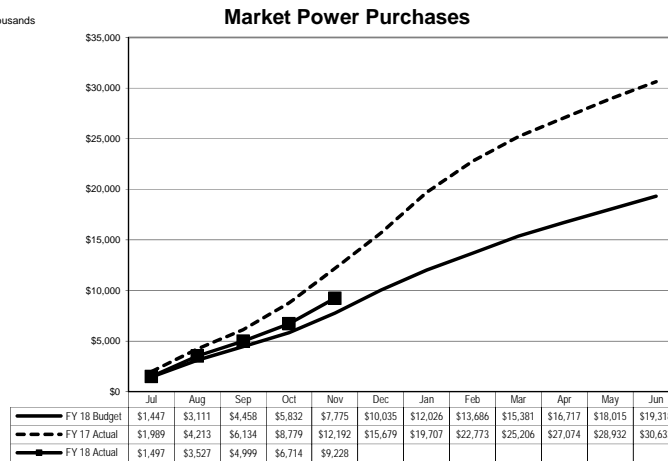
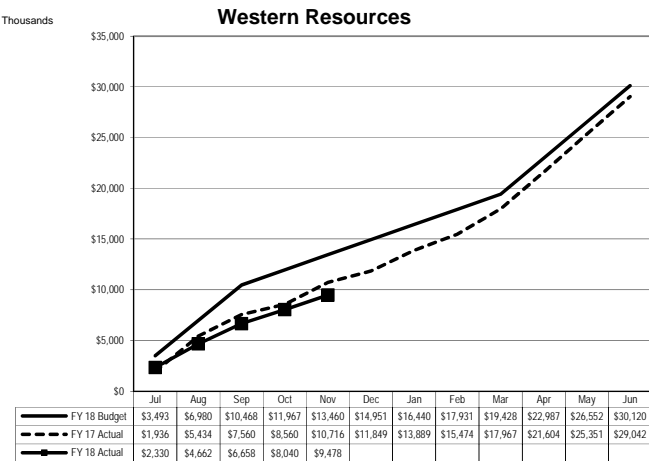
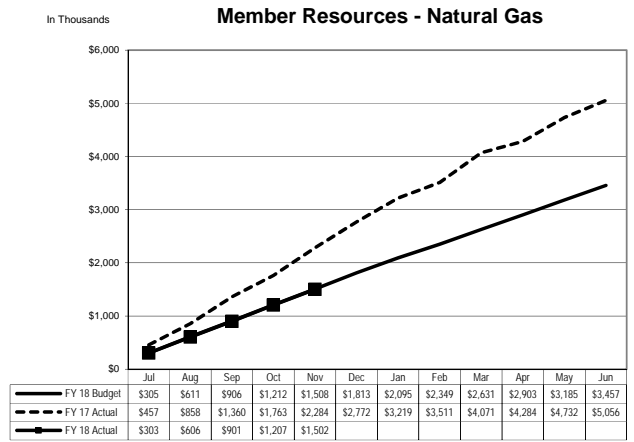
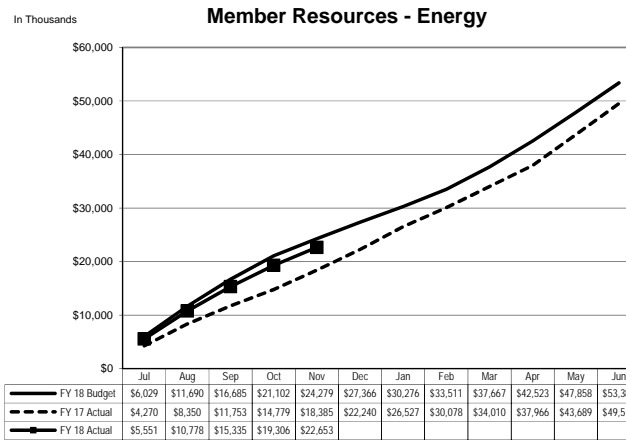
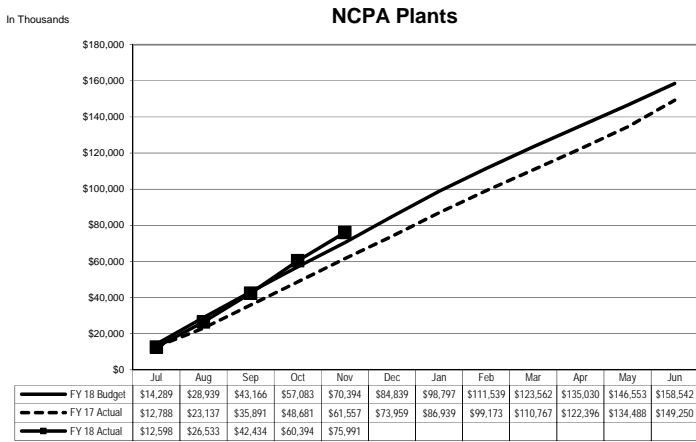
In Thousands

Third Party Revenue



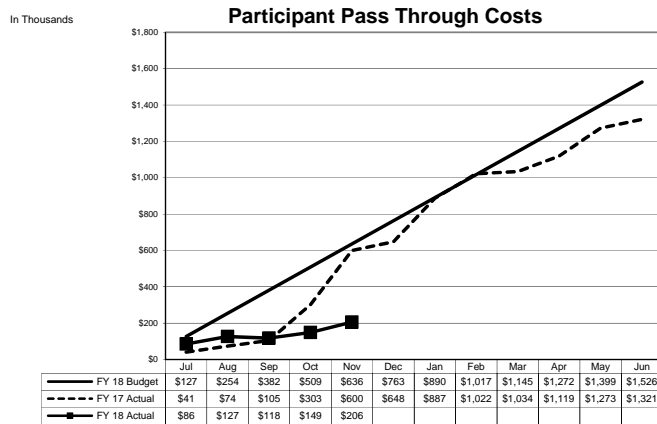
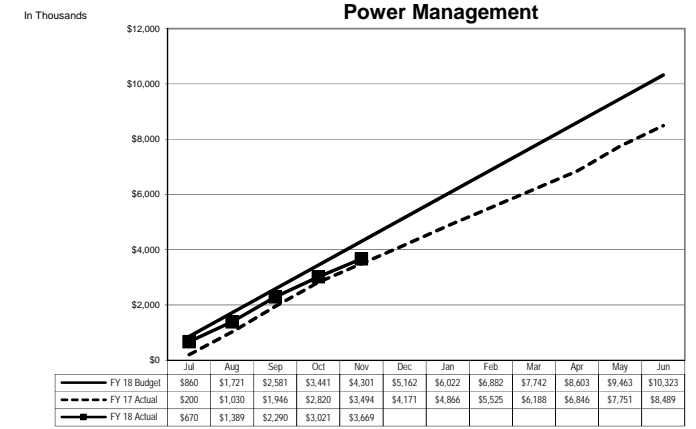
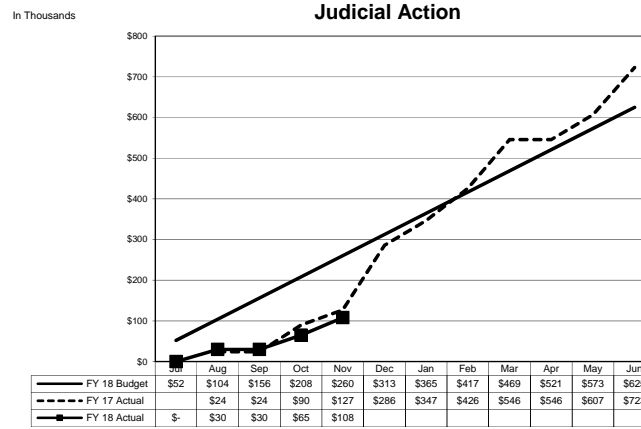
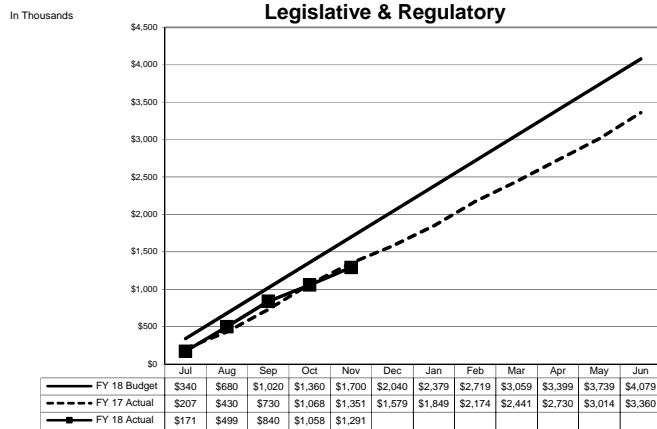
Footnote: Transmission is solely reflective of Independent System Operator (ISO) costs

**Annual Budget Cost
Generation Resources Analysis By Source
2017-2018 Fiscal Year To Date
As of November 30, 2017**



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

**Annual Budget Cost
Management Services Analysis By Source
2017-2018 Fiscal Year To Date
As of November 30, 2017**



**Annual Budget Cost
Management Services Analysis By Source
2017-2018 Fiscal Year To Date
As of November 30, 2017**

In Thousands

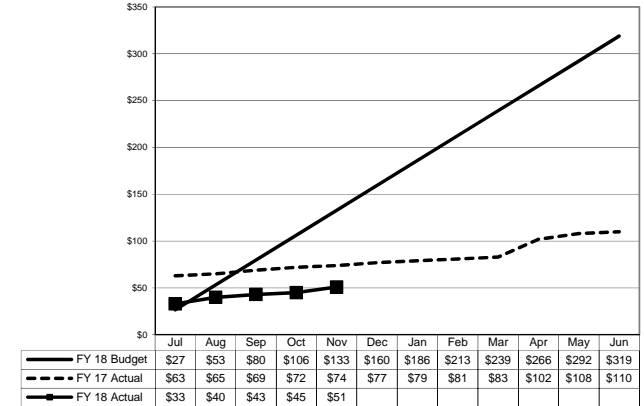
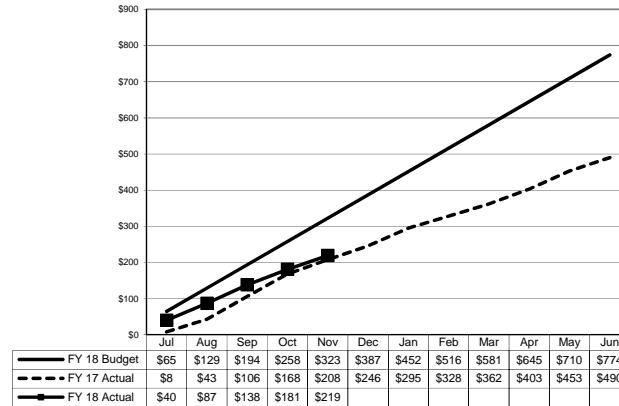
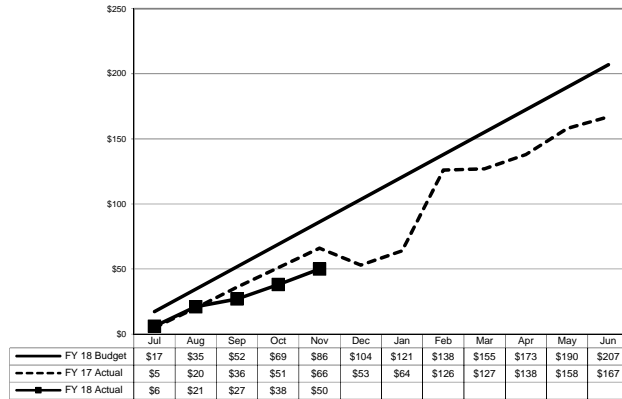
Energy Risk Management

In Thousands

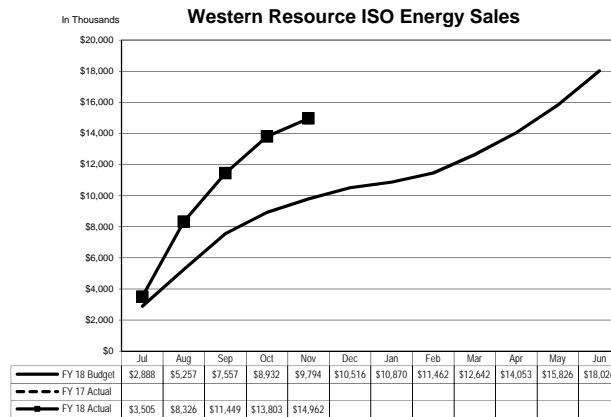
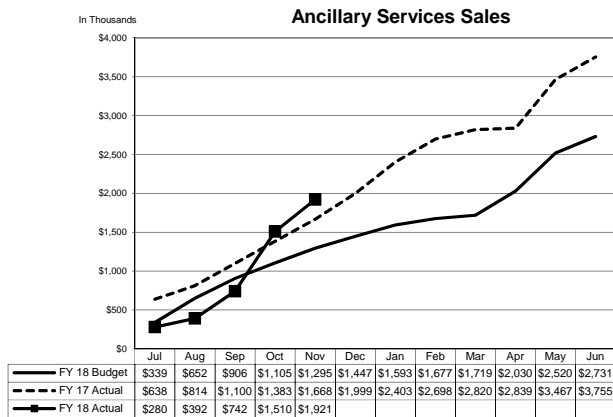
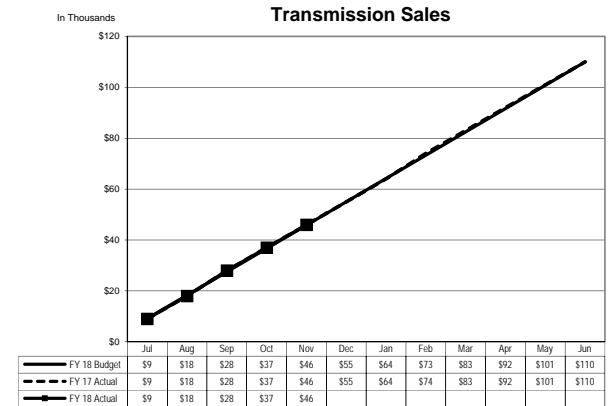
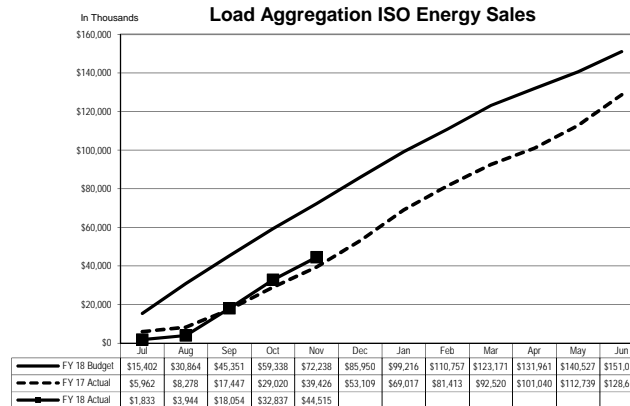
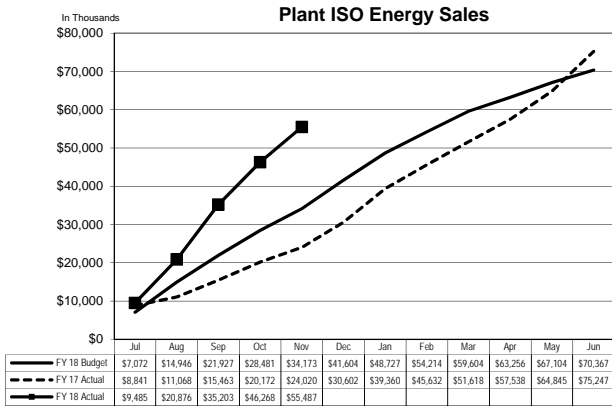
Settlements

In Thousands

Integrated Systems Support



**Annual Budget Cost
Third Party Revenue Analysis By Source
2017-2018 Fiscal Year To Date
As of November 30, 2017**



**Annual Budget
NCPA Generation Detail Analysis By Plant
2017-2018 Fiscal Year To Date
As of November 30, 2017**

Generation Cost Analysis

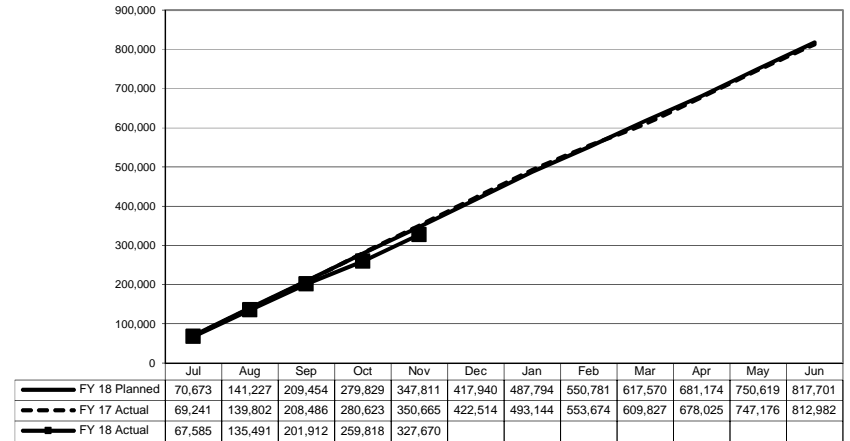
\$ in thousands

| | Geothermal | | | | |
|--|------------|------------|-----------|------------|-----------|
| | | | \$/MWh | Under(Ovr) | YTD % |
| | Budget | Actual | Actual | Budget | Remaining |
| Routine O & M | \$ 17,564 | \$ 6,140 | \$ 18.74 | \$ 11,424 | 65% |
| Capital Assets/Spare Parts Inventories | 1,440 | 338 | 1.03 | 1,102 | 77% |
| Other Costs | 7,863 | 3,034 | 9.26 | 4,828 | 61% |
| CA ISO Charges | 317 | 241 | 0.73 | 76 | 24% |
| Debt Service | 4,936 | 2,057 | 6.28 | 2,879 | 58% |
| Annual Budget | 32,120 | 11,810 | 36.04 | 20,310 | 63% |
| Less: Third Party Revenue | | | | | |
| Interest Income | 148 | 105 | 0.32 | 43 | 29% |
| ISO Energy Sales | 28,349 | 13,080 | 39.92 | 15,269 | 54% |
| Ancillary Services Sales | - | (4) | (0.01) | 4 | |
| Effluent Revenues | 700 | 620 | 1.89 | 80 | 11% |
| Misc | 110 | 49 | 0.15 | 62 | |
| | 29,307 | 13,848 | 42.26 | 15,459 | 53% |
| Net Annual Budget Cost to Participants | \$ 2,813 | \$ (2,039) | \$ (6.22) | \$ 4,852 | 172% |
| Net Generation--MWh @ Meter | 817,701 | 327,670 | | | |
| \$/MWh (A) | \$ (2.60) | \$ (12.50) | | | |

MWhs Generated

In MWh

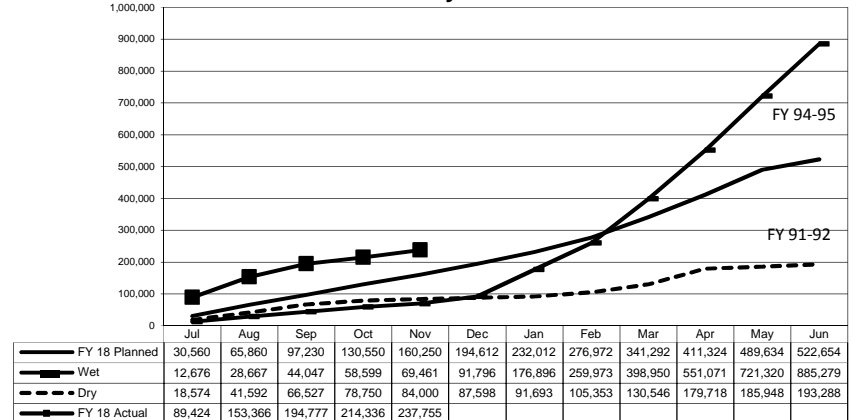
Geothermal



| | Hydroelectric | | | | |
|--|---------------|------------|----------|------------|-----------|
| | | | \$/MWh | Under(Ovr) | YTD % |
| | Budget | Actual | Actual | Budget | Remaining |
| Routine O & M | \$ 8,465 | \$ 2,848 | \$ 11.98 | \$ 5,617 | 66% |
| Capital Assets/Spare Parts Inventories | 2,365 | 3,550 | 14.93 | (1,185) | -50% |
| Other Costs | 3,093 | 1,015 | 4.27 | 2,079 | 67% |
| CA ISO Charges | 1,680 | 936 | 3.94 | 744 | 44% |
| Debt Service | 38,258 | 15,941 | 67.05 | 22,317 | 58% |
| Annual Budget | 53,862 | 24,290 | 102.16 | 29,572 | 55% |
| Less: Third Party Revenue | | | | | |
| Interest Income | 244 | 162 | 0.68 | 82 | 34% |
| ISO Energy Sales | 22,050 | 13,959 | 58.71 | 8,091 | 37% |
| Ancillary Services Sales | 2,222 | 1,123 | 4.72 | 1,100 | 49% |
| Misc | - | 63 | 0.26 | (63) | |
| | 24,516 | 15,306 | 64.38 | 9,210 | 38% |
| Net Annual Budget Cost to Participants | \$ 29,346 | \$ 8,983 | \$ 37.78 | \$ 20,362 | 69% |
| Net Generation--MWh @ Meter | 522,654 | 237,755 | | | |
| \$/MWh (A) | \$ (17.05) | \$ (29.26) | | | |

In MWh

Hydro



Footnotes:

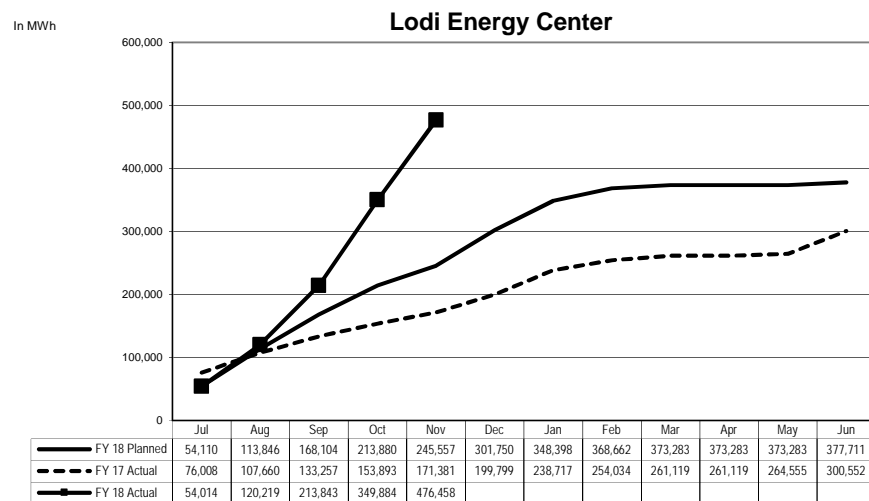
(A) Aggregate fiscal year generation in \$/MWh (excluding debt service)

**Annual Budget
NCPA Generation Detail Analysis By Plant
2017-2018 Fiscal Year To Date
As of November 30, 2017**

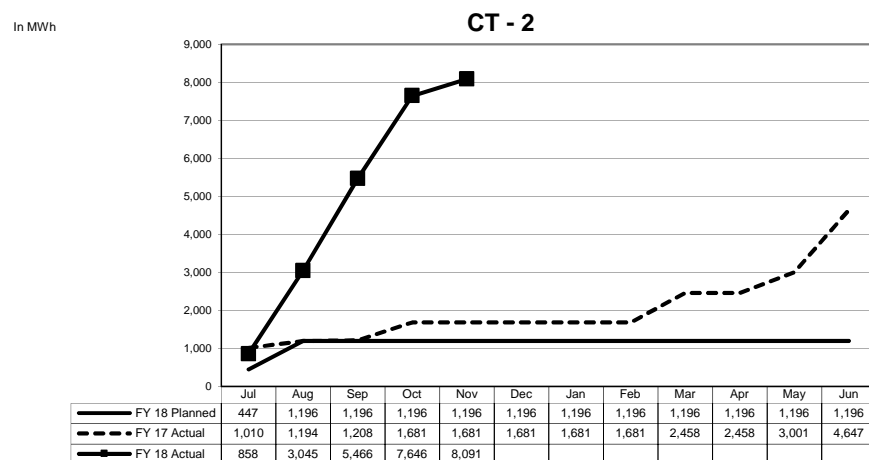
Generation Cost Analysis

| | Lodi Energy Center | | | | |
|--|--------------------|-----------|---------------|-------------------|-----------------|
| | Budget | Actual | \$/MWh Actual | Under(Ovr) Budget | YTD % Remaining |
| | Routine O & M | \$ 10,174 | \$ 5,084 | \$ 10.67 | \$ 5,091 |
| Fuel | 14,877 | 12,708 | 26.67 | 2,169 | 15% |
| AB 32 GHG Offset | - | - | - | - | 0% |
| CA ISO Charges and Energy Purchases | 3,921 | 2,940 | 6.17 | 981 | 25% |
| Capital Assets/Spare Parts Inventories | 2,636 | 889 | 1.87 | 1,747 | 66% |
| Other Costs | 3,063 | 831 | 1.75 | 2,231 | 73% |
| Debt Service | 26,417 | 11,007 | 23.10 | 15,410 | 58% |
| Annual Budget | 61,088 | 33,459 | 70.22 | 27,629 | 45% |
| Less: Third Party Revenue | | | | | |
| Interest Income | 172 | 156 | 0.33 | 16 | 9% |
| ISO Energy Sales | 19,760 | 25,768 | 54.08 | (6,008) | -30% |
| Ancillary Services Sales | 397 | 643 | 1.35 | (246) | -62% |
| Transfer Gas Credit | - | - | - | - | 0% |
| Misc | - | 0 | 0.00 | (0) | 0% |
| | 20,329 | 26,567 | 55.76 | (6,238) | -31% |
| Net Annual Budget Cost to Participants | \$ 40,759 | \$ 6,892 | \$ 14.46 | \$ 33,868 | 83% |
| Net Generation--MWh @ Meter | 377,711 | 476,458 | | | |
| \$/MWh (A) | \$ 37.97 | \$ (8.64) | | | |

MWhs Generated



| | Combustion Turbine No. 2 (STIG) | | | | |
|--|---------------------------------|----------|---------------|-------------------|-----------------|
| | Budget | Actual | \$/MWh Actual | Under(Ovr) Budget | YTD % Remaining |
| | Routine O & M | \$ 1,471 | \$ 628 | \$ 77.66 | \$ 843 |
| Fuel and Pipeline Transport Charges | 835 | 616 | 76.10 | 219 | 26% |
| Capital Assets/Spare Parts Inventories | 121 | 9 | 1.11 | 112 | 93% |
| Other Costs | 502 | 172 | 21.28 | 330 | 66% |
| CA ISO Charges | 0 | 393 | 48.55 | (392) | -84748% |
| Debt Service | 5,693 | 2,372 | 293.18 | 3,321 | 58% |
| Annual Budget | 8,623 | 4,190 | 517.88 | 4,433 | 51% |
| Less: Third Party Revenue | | | | | |
| Interest Income | 43 | 30 | 3.69 | 13 | 30% |
| ISO Energy Sales | 89 | 1,164 | 143.88 | (1,075) | -1210% |
| Ancillary Service Sales | - | 0 | 0.00 | (0) | 0% |
| Fuel and Pipeline Transport Credits | 864 | 624 | 77.09 | 241 | 28% |
| Misc | - | - | - | - | 0% |
| | 996 | 1,818 | 224.66 | (822) | -82% |
| Net Annual Budget Cost to Participants | \$ 7,627 | \$ 2,372 | \$ 293.22 | \$ 5,254 | 69% |
| Net Generation--MWh @ Meter | 1,196 | 8,091 | | | |
| \$/MWh (A) | \$ 1,616.78 | \$ 0.04 | | | |



Footnotes:

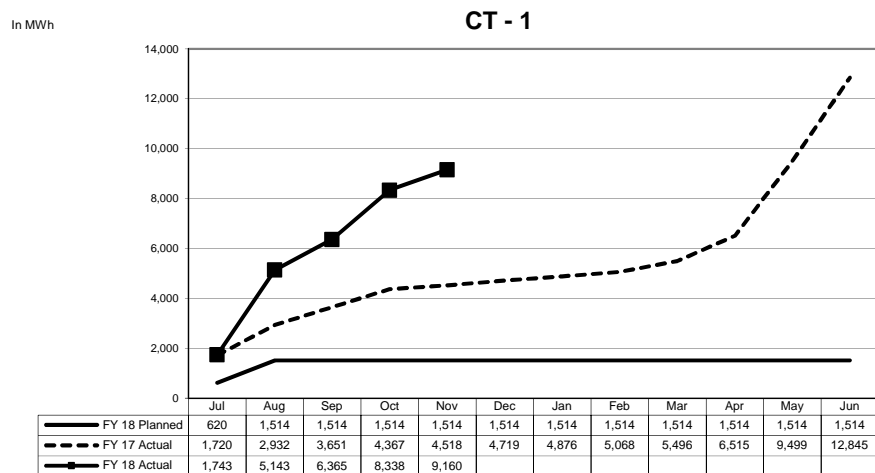
(A) Aggregate fiscal year generation in \$/MWh (excluding debt service)

**Annual Budget
NCPA Generation Detail Analysis By Plant
2017-2018 Fiscal Year To Date
As of November 30, 2017**

Generation Cost Analysis

| | Combustion Turbine No. 1 | | | | |
|---|---------------------------------|-----------------|------------------|----------------------|--------------------|
| | Budget | Actual | \$/MWh Actual | Under(Ovr) Budget | YTD % Remaining |
| Routine O & M | \$ 1,520 | \$ 991 | \$ 108.20 | \$ 529 | 35% |
| Fuel and Pipeline Transport Charges | 172 | - | - | 172 | 100% |
| Capital Assets/Spare Parts Inventories | 642 | 167 | 18.19 | 475 | 74% |
| Other Costs | 292 | 794 | 86.73 | (502) | -172% |
| CA ISO Charges | 1 | 290 | 31.67 | (290) | -49319% |
| Debt Service | - | - | - | - | - |
| Annual Budget | 2,627 | 2,242 | 244.79 | 385 | 15% |
| Less: Third Party Revenue | | | | | |
| Interest Income | - | - | - | - | - |
| ISO Energy Sales | 119 | 1,516 | 165.51 | (1,397) | -1174% |
| Ancillary Services Sales | - | 0 | 0.00 | (0) | 0% |
| Misc | - | 16 | 1.71 | (16) | 0% |
| | 119 | 1,532 | 167.21 | (1,413) | -1187% |
| Net Annual Budget Cost to Participants | \$ 2,508 | \$ 711 | \$ 77.57 | \$ 1,797 | 72% |
| Net Generation--MWh @ Meter | 1,514 | 9,160 | | | |
| \$/MWh (A) | \$ 1,656.50 | \$ 77.57 | | | |

MWhs Generated



Footnotes:

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