



# BUSINESS PROGRESS REPORT

**MAY 2018**



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# Generation Costs & Reliability

## Combustion Turbine Project

### Unit Operation for April 2018

| Unit   | Availability |        | Production |       | Reason for Run |
|--|--------------|--------|------------|-------|----------------|
| CT1 Alameda  | Unit 1       | Unit 2 | Unit 1     | 585.6 | CAISO / CAISO  |
|  | 71.7%        | 94.9%  | Unit 2     | 805.3 |                |
| Curtailments, Outages, and Comments:<br><br>03-Apr 18:27, 04-Apr 7:28 Low gas pressure<br>06-Apr 8:27, 14-Apr 23:59 Oil leak / 02-Apr 19:30, 07-Apr 06:23 Gas compressor trouble<br>23-Apr 19:00 to 19:27 Failed start |              |        |            |       |                |
| Unit   | Availability |        | Production |       | Reason for Run |
| CT1 Lodi   | 97.4%        |        | 805.3 MWh  |       | CAISO          |
| Curtailments, Outages, and Comments:<br><br>11-Apr 18:23, 12-Apr 7:55 Gas compressor trouble<br>24-Apr 19:00 to 23:59 Failed Start   |              |        |            |       |                |
| Unit   | Availability |        | Production |       | Reason for Run |
| CT2 STIG   | 17.6%        |        | 0.0 MWh    |       | Annual Outage  |
| Curtailments, Outages, and Comments:<br><br>06-Apr 07:00, 14Apr 23:59 PG&E Gold Hill-Lodi STIG & STIG-8 Mile Road 230kV line outages<br>15Apr-30Apr 0:00 to 23:59 Annual Maintenance                                   |              |        |            |       |                |
| Unit   | Availability |        | Production |       | Reason for Run |
| LEC  | 25.0%        |        | 14,751 MWh |       | CAISO          |
| Curtailments, Outages, and Comments:<br><br>02Apr 0:00, 24-Apr 12:00 Annual maintenance  |              |        |            |       |                |

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

## Geothermal Facilities

### Availability/Production for April 2018

| Unit                                       | Availability | Net Electricity Generated/Water Delivered | Out-of-Service/Descriptors  |
|--|--------------|---|---|
| <b>Unit 1</b>                              | 61.32 %      | 13,451 MWh                                | U1 was OOS from 4/2 0330 until 4/13 1800 for PG&E line work                         |
| <b>Unit 2</b>                              | 61.11 %      | *12,579 MWh                               | U2 was OOS from 4/2 0330 until 4/13 1935 for PG&E line work                         |
| <b>Unit 3</b>                              | N/A %        | N/A                                       | Unit 3 remains out of service.  |
| <b>Unit 4</b>                              | 88.68 %      | 30,096 MWh                                | U4 was OOS from 4/16 0340 until 4/19 1300 for stretford/gas removal system cleaning |
| <b>Southeast Geysers Effluent Pipeline</b> | 98.8 %       | 251.4 mgallons                            | Average flow rate: 5,893 gpm  |
| <b>Southeast Solar Plant</b>               | N/A          | 142,329 KWh                               | Year-to-date KWh: 1,175,247   |
| <b>Bear Canyon Pump Station Zero Solar</b> | N/A          | 103,158 KWh                               | Year-to-date KWh: 2,291,791   |

\* Accounts for an additional 1,024 MWh of house load for the 21KV power supply to the effluent pipeline supplied from Unit #2.

## Hydroelectric Project

### Availability/Production for April 2018

| Units                      | Availability | Net Electricity Generated | Out-of-Service  |
|----------------------------|--------------|---------------------------|---|
| <b>Collierville Unit 1</b> | 98.38 %      | 47482 MWh                 | CV #1 unit was out of service on, 04/04/18 at 0700 through 0903 due to generator air flow testing. CV #1 unit was out of service on, 04/04/18 at 1143 through 1424 due to generator air flow testing. CV #1 unit was derate on, 04/07/18 at 0815 through 0910 due to high tailwater. CV #1 unit was out of service on, 04/07/18 at 0910 through 1602 due to high tailwater. CV #1 unit was derate on, 04/07/18 at 1602 through 04/08/18 at 0300 due to high tailwater. CV #1 unit was derate on, 04/11/18 at 1200 through 1300 due to trash rack flush. |
| <b>Collierville Unit 2</b> | 98.86 %      | 47800 MWh                 | CV #2 unit was out of service on, 04/04/18 at 0907 through 1135 due to generator air flow testing. CV #2 unit was derate on, 04/07/18 at 0815 through 0910 due to high tailwater. CV #2 unit was out of service on, 04/07/18 at 1031 through 1615 due to high tailwater. CV #2 unit was derate on, 04/07/18 at 1615 through 04/08/18 at 0300 due to high tailwater. CV #2 unit was derate on, 04/11/18 at 1200 through 1300 due to trash rack flush.  |
| <b>Spicer Unit 1</b>       | 91.50 %      | 0 MWh                     | NSM #1 unit was out of service on, 04/01/18 at 0000 through 04/03/18 at 1313 due to PG&E 21kv line trouble.   |
| <b>Spicer Unit 2</b>       | 91.50 %      | 0 MWh                     | NSM #2 unit was out of service on, 04/01/18 at 0000 through 04/03/18 at 1313 due to PG&E 21kv line trouble.   |
| <b>Spicer Unit 3</b>       | 91.42 %      | 159 MWh                   | NSM #3 unit was out of service on, 04/01/18 at 0000 through 04/03/18 at 1345 due to PG&E 21kv line trouble.   |

#### Operations & Maintenance Activities:

- CMMS work orders
- Planning and Preparation for CV2 Generator rewind
- NCPA/ SRM NSM campground annual concessionaire
- CV/Bellota 230kv line patrol

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

- No lost time accidents, vehicle accidents, or recordable incidents occurred in April 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 April 28, 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.

### April 2018 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              | 1228    | 162     | 1118       | 6186       |
| Work Hours Since Last Recordable   | 106,949 | 32,974  | 164,736    | 2,231,349  |
| LTA's (this month)                 | 0       | 0       | 0          | 0          |
| LTA's (calendar year)              | 0       | 0       | 0          | 0          |
| Days without LTA                   | 3,844   | 981     | 9,022      | 5,115      |
| Work Hours without LTA             | 352,514 | 199,642 | 606,100    | 1,853,367  |
| 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 April 28, 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

|           | April 2018         |         | Calendar Year 2018 |           |
|-----------|--------------------|---------|--------------------|-----------|
|           | Peak MW            | MWh     | Peak MW            | MWh       |
| NCPA Pool | 312.09 4/23 @1700  | 175,888 | 329.79 1/8 @1800   | 734,501   |
| SVP       | 484.58 4/23 @1600  | 298,118 | 484.58 4/23 @1600  | 1,197,114 |
| MSSA      | 794.07 4/23 @ 1600 | 474,006 | 794.07 4/23 @ 1600 | 1,931,615 |

#### Last Year 2017 Data\*

|           | April 2017        |         | Calendar Year 2017 |           |
|-----------|-------------------|---------|--------------------|-----------|
|           | Peak MW           | MWh     | Peak MW            | MWh       |
| NCPA Pool | 299.31 4/11 @1200 | 179,284 | 485.85 9/1 @1700   | 756,025   |
| SVP       | 469.35 4/5 @1400  | 295,550 | 586.59 9/1 @1600   | 1,176,142 |
| MSSA      | 764.79 4/5 @ 1400 | 474,834 | 1070.79 9/1 @ 1700 | 1,932,167 |

\*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  | 484.58 4/23 @ 1600 |
| MSSA      | 1070.79 MW on 9/1/17 @ 1700 | 794.07 4/23 @ 1600 |

- 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 |            |                    |
|---------------------------------|------------|--------------------|
|                                 | April 2018 | Calendar Year 2018 |
| MSSA % Within the Band          | 96.60%     | 97.75%             |

- Spicer Meadows:
  - April 3, 21kV CB22 closed after PG&E restored 21kV line to service, o/s since March 13. Station service placed normal and Unit 3 paralleled to grid
- Geothermal Units:
  - April 2 – 13, Unit 1 and 2 o/s for annual maintenance coinciding with PG&E Geysers 9 – Lakeville 230kV line outage
  - April 16 – 19, Unit 4 o/s for annual maintenance
- Lodi Energy Center:
  - April 2 – 24, plant o/s for annual maintenance
- Alameda CTs:
  - April 2 @ 1930 – April 3 @ 1018, Unit 2 o/s due to gas compressor trouble
  - April 3 @ 1827 – April 4 @ 0728, Unit 1 o/s due to low gas pressure
  - April 6 – 14, Unit 1 intermittently o/s due to oil leak
  - April 6 @ 0827 – 1206 Unit 2 unavailable due to fire protection system issue
  - April 6 @ 1230 – April 7 @ 0623, Unit 2 o/s due to gas compressor trouble
  - April 23 @ 1900 – 1927, Unit 2 fail start
- Lodi CT:
  - April 11 @ 1823 – April 12 @ 0755, unit o/s due to gas compressor trouble
  - April 24 @ 1900 – 2359, unit o/s due failed start/emissions limitation
- Collierville Units:
  - April 4 @ 0700 – 1424, Unit 1 and 2 o/s one at a time for generator air cooler air flow testing per Andritz Engineering
  - April 7 @ 0815 – April 8 @ 0300, Unit 1 and 2 derated due to high tailwater
  - April 7 @ 0910 - 1602, Unit 1 off line due to high tailwater
  - April 7 @ 1031 - 1615, Unit 2 off line due to high tailwater
  - April 11 @ 1200 – 1300, units derated for intake trash rack flush
- STIG:
  - April 6 – 14, Unit unavailable due to simultaneous PG&E outages on Gold Hill-Lodi STIG and Lodi STIG- Eight Mile Road 230kV lines
  - April 15 – 30, Unit o/s for annual maintenance



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

- Actual NCPA Pool load of 175,890 MWh during April 2018 was 94.7% of the pre-month forecast of 185,705 MWh. Pool load, running 89,933 MWh through May 15, may not quite reach the forecast of 198,158 MWh, unless temperatures (running below normal through mid-month) increase substantially.
- The Lodi Energy Center (LEC) generated 2,652 MWh for the pool in April, over the 613-MWh forecast that took the long outage under consideration. Ongoing supply disruptions in SoCal kept implied heat rates there above normal, which continues to add to LEC run hours. For May, pool share of LEC generation was forecasted at 3,461 MWh.
- For the month of April, 5.33" of rain was recorded at Big Trees gage. April Big Trees average precipitation is 4.64".
- The Value of Storage (VOS) of New Spicer Meadow Reservoir (NSMR) is being reduced from \$65/MWh to \$55/MWh.
- NSMR storage as of April 30 was at 143,648 acre feet. The historical average NSMR storage at the end of April is 98,465 acre feet. As of May 15, NSMR storage is 156,175 acre feet. The current NCPA Pool share of NSMR storage is 79,477 acre feet.
- Combined Calaveras Project generation for the Pool in April totaled 47.5 GWh, up from 29.0 GWh in March. The Pool's 47.5 MWh in April was above the pre-month forecast of 25.0 GWh – due to the above average month we experienced in April. Through May 15, Calaveras generation for the Pool is 6.6 GWh.
- Western Base Resource (BR) Pool delivery in April 2018 was 41,280 MWh, or 60% of Western's 69.2-GWh forecast. Through May 15, BR pool allocations of 38.4 GWh (including 1.0 GWh Displacement) are more than halfway to Western's most recent 69,600-MWh May forecast.
- The PG&E Citygate gas index traded at \$2.92/MMBtu for May 16 delivery – a steady rise compared to an average of \$2.678/MMBtu (with a high of \$2.92/MMBtu mid-month) in April. The May PG&E Bidweek price is \$2.65, up six cents from April's and 7 cents lower than February's \$2.97 bidweek price.
- Day-ahead NP15 electricity prices averaged \$27.76/MWh (HLH) and \$21.35 (LLH) during April, with the hourly TH\_NP15 maximum at \$99.83/MWh and the minimum a negative \$17.05. So far in May, on-peak prices have averaged \$24.35, with a few zero hours on May 12 and negative values mid-day on Sunday May 13.

| NCPA Pool Loads & Resources Value Summary |                      |                |                 |              |                            |                        |                        |              |
|---|----------------------|----------------|-----------------|--------------|----------------------------|------------------------|------------------------|--------------|
| Peak and Energy Summary<br>Apr-18         |                      |                |                 |              | Estimated Production Costs |                        | Cost of Serving Demand |              |
|   | Coincident Peak (MW) | Total MWh      | Forecast Values | Avg. MW      | NCPA Pool                  |                        | Totals                 | Avg (\$/MWh) |
|   | Apr-23-18 Hour 17    |                |                 |              | Cost/Revenue (Estimate)    | Variable Cost (\$/MWh) |                        |              |
| Demand                                    | 312.1                | 175,890        | 185,705         | 244.3        | N/A                        | N/A                    |                        |              |
| WAPA                                      | 9.8                  | 41,280         | 69,152          | 57.3         | \$ 1,955,240               | \$ 47.37               |                        |              |
| Geothermal                                | 6.0                  | 23,238         | 26,020          | 32.3         | 441,515                    | 19.00                  |                        |              |
| Hydro                                     | 39.8                 | 47,878         | 25,826          | 66.5         | 287,268                    | 6.00                   |                        |              |
| Stig & CTs                                | 56.4                 | 915            | -               | 1.3          | 12,904                     | 14.10                  |                        |              |
| LEC                                       | -                    | 2,652          | 613             | 3.7          | 82,970                     | 31.29                  |                        |              |
| Contracts                                 | -                    | 72,664         | 80,334          | 100.9        | 4,585,631                  | 63.11                  | \$ 6,868,192           | \$ 39.05     |
| Market - Net<br>(Net Sales = Negative)    | 200.1                | (12,736)       | (16,240)        | (17.7)       | (329,922)                  | 25.90                  |                        |              |
| <b>Net Total</b>                          | <b>312.1</b>         | <b>175,890</b> | <b>185,705</b>  | <b>244.3</b> | <b>\$ 7,035,606</b>        | <b>\$ 39.05</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 4/2/2018 (\$/MWh)                   | 5/15/2018 (\$/MWh) |          |
| Jul-17                 | 221,169           | \$ 39.42             | \$ 36.21                                      | May-18                                   | \$ 27.43           | \$ 25.09 |
| Aug-17                 | 223,320           | \$ 51.70             | \$ 37.30                                      | Jun-18                                   | 33.56              | 33.82    |
| Sep-17                 | 206,930           | \$ 45.07             | \$ 40.69                                      | Jul-18                                   | 43.74              | 48.35    |
| Oct-17                 | 190,730           | \$ 44.93             | \$ 39.05                                      | Q3 2018                                  | \$ 44.00           | \$ 50.71 |
| Nov-17                 | 184,467           | \$ 38.23             | \$ 39.53                                      | Q4 2018                                  | 39.93              | 41.99    |
| Dec-17                 | 198,630           | \$ 35.89             | \$ 40.56                                      | Q1 2019                                  | 37.59              | 37.90    |
| Jan-18                 | 195,093           | \$ 34.68             | \$ 43.74                                      | CY2019                                   | \$ 37.19           | \$ 36.96 |
| Feb-18                 | 173,464           | \$ 32.12             | \$ 43.94                                      | CY2020                                   | 39.18              | 39.26    |
| Mar-18                 | 190,023           | \$ 31.58             | \$ 39.43                                      | CY2021                                   | 42.29              | 43.04    |
| Apr-18                 | 175,890           | \$ 26.51             | \$ 39.05                                      | CY2022                                   | 43.77              | 45.25    |
| May-18                 |                   |                      |   | CY2023                                   | 45.01              | 46.82    |
| Jun-18                 |                   |                      |   | CY2024                                   | 46.11              | 48.14    |

NOTES TO SUMMARY TABLE:

**Peak and Energy Summary:**

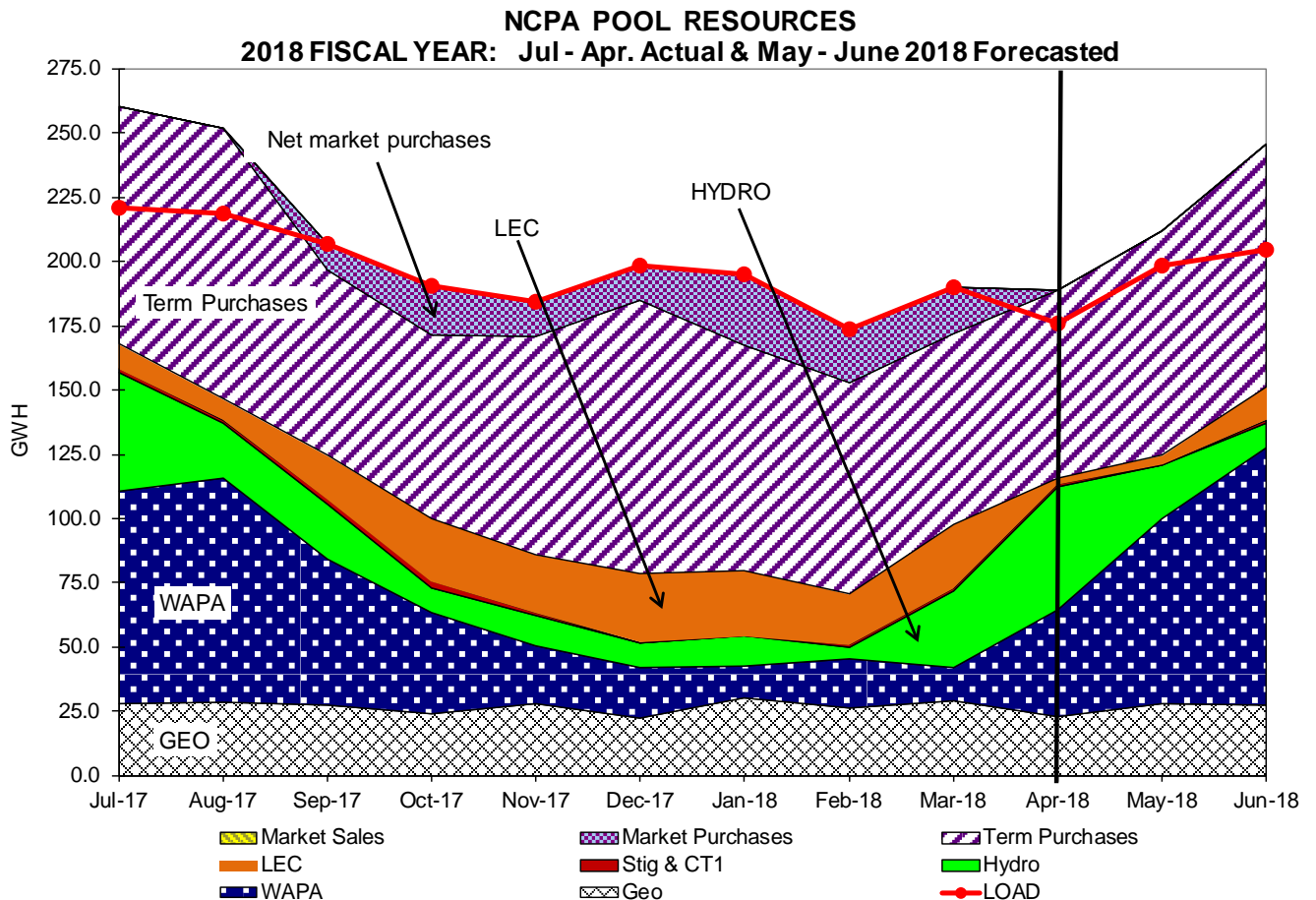
\* Monthly generation summary of Coincidental Peak (hour in which pool demand peaked), total MWh for the month, and pre-month forecasted values for report period.  
 \* Generation totals are for POOL SHARE of the projects.  
 \* Hydro totals include Collierville and Spicer generation.

**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 July 2018:
  - Monthly System Resource Adequacy Demonstration (filed May 17, 2018)
  - Monthly Supply Plan (filed May 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.

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

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

#### **Review Transmission Access Charge Structure**

- This initiative will consider possible changes to the CAISO's current volumetric Transmission Access Charge (TAC) structure for recovering participating transmission owners' costs of owning, operating and maintaining transmission facilities under CAISO operational control. The CAISO will consider stakeholder input on the initiative scope, which will include possible changes to reflect the benefits of distributed resources in reducing future transmission needs.

## Western

### Western Base Resource Tracking (NCPA Pool)

| Western Base Resource Tracking - NCPA Pool  |                                   |                       |                     |                          |   |   |  |
|---|-----------------------------------|-----------------------|---------------------|--------------------------|---|---|--|
|   | Actual                            |                       |                     | Costs & Rates            |   |   |  |
|   | BR Forecast <sup>1</sup><br>(MWh) | BR Delivered<br>(MWh) | Difference<br>(MWh) | Restoration Fund<br>(\$) | Monthly Cost of BR <sup>2</sup><br>(\$/MWh) | CAISO LMP Differential <sup>3</sup><br>(\$/MWh) | 12-Mo Rolling Avg. Cost of BR <sup>4</sup><br>(\$/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                            | 19,821                | 4,417               | \$833,923                | \$ 42.07                                    | \$ 0.25   | \$ 24.15   |
| Jan-18  | 7,358                             | 12,360                | 5,002               | \$833,923                | \$ 67.47                                    | \$ 0.08   | \$ 25.66   |
| Feb-18  | 13,359                            | 18,713                | 5,354               | \$833,923                | \$ 44.56                                    | \$ 0.05   | \$ 27.59   |
| Mar-18  | 30,216                            | 12,955                | (17,261)            | \$833,923                | \$ 64.37                                    | \$ 0.00   | \$ 29.84   |
| Apr-18  | 50,443                            | 41,280                | (9,163)             | \$2,035,038              | \$ 49.30                                    | \$ 0.02   | \$ 31.25   |
| May-18  | 66,832                            | -                     | (66,832)            | \$2,035,038              | \$ 30.45                                    | \$ 0.10   | \$ 33.64   |
| Jun-18  | 74,030                            | -                     | (74,030)            | \$2,035,038              | \$ 27.49                                    | \$ 0.10   | \$ 34.08   |
| 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 April activity of 6,789 MWh for an estimated saving of \$37,340, or about \$5.50/MWh. The program has saved Pool Members over \$1.2 Million in FY18 (July-March).
- Restoration fund mid-year adjustment increased Pool Member's monthly billing by about 18% (April-Sep).
- Pool Members' total savings under MEEA pricing is about \$124,000 for FY18 (July-March).

## **Debt and Financial Management**

- At their early May meeting, the Federal Open Market Committee (FOMC) left overnight rates unchanged at the current target range of 1.50 to 1.75%. In the accompanying statement, the Federal Reserve acknowledged strong job gains, strong business investment and expressed a more confident tone regarding inflation's move towards the 2% target rate.
- Expectations for additional Fed rate hikes this year and next, as well as rising inflation continue to support that interest rates are likely to trend gradually higher over the next few months.
- The U.S. Treasury yields rose during April as inflation expectations took center stage. Most notably, the curve steepened. The six-month Treasury note increased nine basis points to end April at 2%, while the five-year increased 24 basis points to 2.8%. The 10-year Treasury briefly breached the psychologically important 3.0% level for the first time since 2014.
- Municipal new issuance slowed year-over-year in April with municipal bond sales dropping 3.6% to \$29.6 billion from \$30.78 billion the same month last year, according to the Municipal Market Monitor data.

## **Schedule Coordination Goals**

### **Software Development**

- NCPA IS Staff, in collaboration with Accounting Staff, are setting up the Financial Systems (Great Plains, ReQLogic Procurement, and other pertinent software applications) in preparation for the slated June 2018 go-live of the new company, Hometown Connections, Inc.
- 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. 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 has been testing a new Storage Area Network with the expectation to make a purchase before the end of the fiscal year.
- The Operations and Support group has been working alongside Generation Services Hydro staff to reroute business, PI and real-time telemetry networks across the new Microwave pathing from Murphys to Collierville. This has improved speed, performance, and reliability from the old circuitry.
- Collabware has been selected as the SharePoint solution to provide records retention capabilities for NCPA documents. This software will be implemented immediately after upgrading to SharePoint 2016, which is anticipated to be completed by Summer of this year.
- 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. Geothermal is the last site that needs additional networking support and should be completed by the end of May.

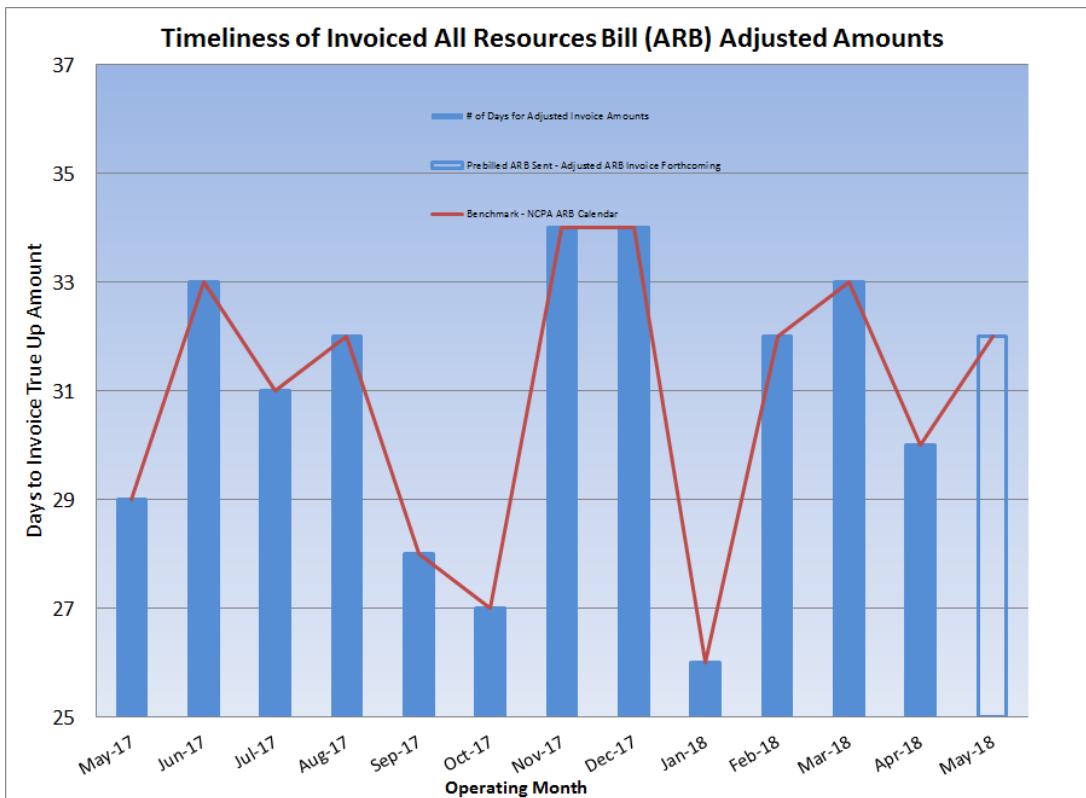
## **NCPA Bills & Settlements**

### **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 May 2018 NCPA All Resources Bill (ARB) monthly invoice sent to members on April 24, 2018 contains:

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



## **Legislative & Regulatory**

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

- NCPA, in collaboration with SCPPA and CMUA, filed joint comments with the California Air Resources Board expressing support for extending the Low Carbon Fuel Standard (LCFS) program through 2030. The LCFS regulation aims to reduce the carbon intensity of California’s transportation fuels. High carbon fuels, such as gasoline and diesel, are able to comply with the LCFS regulation by purchasing credits from POUs, which are generated from the charging of electric vehicles. The sale of LCFS credits has become an important funding source for POU programs, so supporting the LCFS program extension through 2030, which otherwise expires on 2020, helps protect a vital funding source for NCPA Members’ transportation electrification programs. However, during the April 27<sup>th</sup> CARB Board meeting, Chair Mary Nichols and other Board Members directed utilities to work with automakers on a statewide point of sale rebate program. This statewide rebate program would be funded using the revenue from the sale of LCFS credits that currently fund POU customer programs, and undermining NCPA Members and other POUs who were counting on LCFS revenue to fund their programs. NCPA immediately mobilized, and met with senior advisors to Chair Nichols to express our concern regarding the impacts a statewide program would have on NCPA Members’ EV charging programs. The concerns were met with receptively and CARB staff emphasized that the intent is not to negatively impact POU programs. NCPA will continue to execute a multifaceted strategy in defense of NCPA Members’ LCFS credits and revenue over the summer. CARB action on amendments to the LCFS program is anticipated in the Fall of 2018.

- NCPA and approximately 20 NCPA-member representatives traveled to Washington D.C. to take part in the annual NCPA/Northwest Public Power Association Federal Policy Conference. Members heard from top policymakers and opinion leaders before going to Capitol Hill. Over the balance of the week, the NCPA team met with our entire congressional delegation and top officials at FERC, Department of Interior, Federal Emergency Management Agency, Forest Service, Environmental Protection Agency, and key Washington stakeholder organizations. These visits enabled us to thank the delegation for addressing issues impacting the Central Valley Project, and providing a durable solution to assure needed funding to fight and help prevent wildfires on federal lands. Also, NCPA members advocated for continued local control of pole attachments, streamlining of the hydropower licensing process, and a comprehensive solution to various risks and costs on the CVP. NCPA sincerely thanks all those that participated in this important advocacy effort.
- NCPA has been developing positions, negotiating amendments, and testifying on energy-related bills in the State Legislature. Since March, both the Senate and the Assembly have been holding policy committee hearings on bills in the house of origin. The deadline for a bill to pass the house of origin is June 1<sup>st</sup>. Major legislative issues include bills related to wildfire mitigation and response; natural gas power plant operations; pension liability for joint powers authorities; grid regionalization; renewable energy procurement mandates; and building decarbonization.

## **Human Resources**

### Hires:

Tracy Long joined NCPA April 30, 2018, as an Accounting Clerk II at our Headquarters office in Roseville, CA. Tracy has over 13 years of accounting experience having previously worked at AWDirect, LLC as a Staff Accountant.

### Intern Hires:

None.

### Promotions/Position Changes:

Marty Lebrett was promoted to Plant Manager at our Geothermal Facilities in Middletown, CA, effective April 15, 2018. Marty previously served as Supervisor II, a position he held since July 27, 2005.

### Separations:

Paul House, Operator Technician, retired from his position at our Geothermal facilities effective May 4, 2018, after 37 years of service.

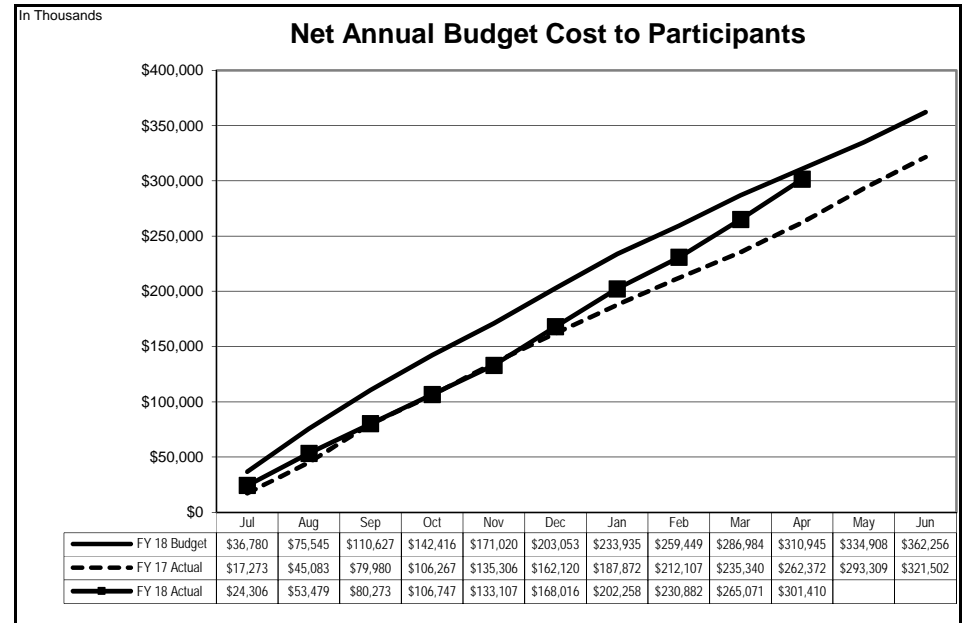
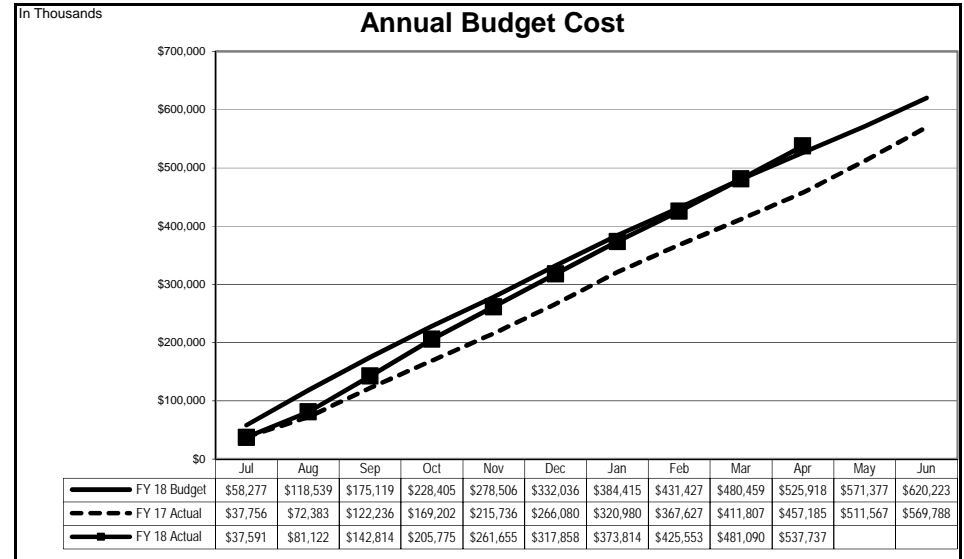
Brad Rusk, CT Specialist, retired from his position at our Lodi Energy Center effective May 4, 2018, after 17 years of service.

Steve Guerrero, Computer Technology Analyst III, resigned his position at the Headquarters offices, effective May 4, 2018.



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

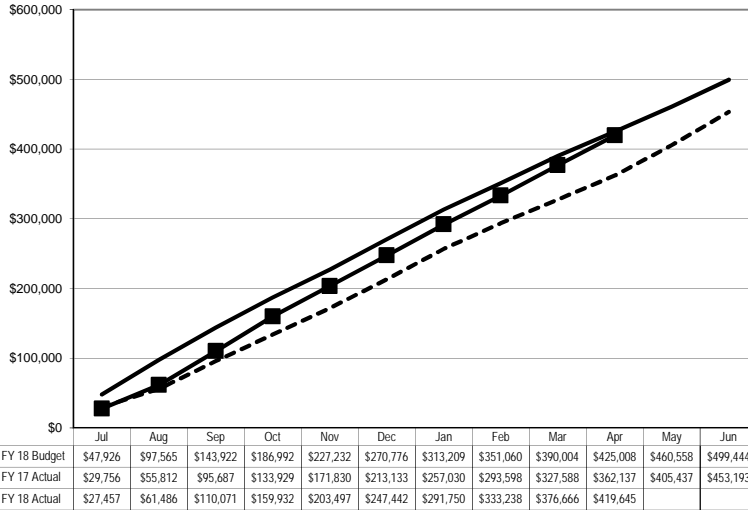
| In Thousands  | Program       |         |                   |                 |
|---|---------------|---------|-------------------|-----------------|
|   | Annual Budget | Actual  | Under(Ovr) Budget | YTD % Remaining |
| <b>GENERATION RESOURCES</b>                         |               |         |                   |                 |
| <b>NCPA Plants</b>                                  |               |         |                   |                 |
| Hydroelectric                                       | 53,862        | 47,370  | \$ 6,492          | 12%             |
| Geothermal Plant                                    | 32,120        | 24,202  | 7,918             | 25%             |
| Combustion Turbine No. 1                            | 3,199         | 3,744   | (546)             | -17%            |
| Combustion Turbine No. 2 (STIG)                     | 8,623         | 7,508   | 1,115             | 13%             |
| Lodi Energy Center                                  | 61,088        | 67,088  | (6,000)           | -10%            |
|   | 158,892       | 149,912 | 8,980             | 6%              |
| <b>Member Resources - Energy</b>                    | 53,389        | 43,901  | 9,488             | 18%             |
| <b>Member Resources - Natural Gas</b>               | 3,457         | 2,898   | 559               | 16%             |
| <b>Western Resource</b>                             | 30,120        | 19,124  | 10,996            | 37%             |
| <b>Market Power Purchases</b>                       | 19,318        | 30,385  | (11,067)          | -57%            |
| <b>Load Aggregation Costs - ISO</b>                 | 233,822       | 172,586 | 61,236            | 26%             |
| <b>Net GHG Obligations</b>                          | 446           | 839     | (393)             | -88%            |
|   | 499,444       | 419,645 | 79,799            | 16%             |
| <b>TRANSMISSION</b>                                 |               |         |                   |                 |
| Independent System Operator                         | 102,925       | 105,326 | (2,401)           | -2%             |
| <b>MANAGEMENT SERVICES</b>                          |               |         |                   |                 |
| <b>Legislative &amp; Regulatory</b>                 |               |         |                   |                 |
| Legislative Representation                          | 1,976         | 1,368   | 608               | 31%             |
| Regulatory Representation                           | 838           | 548     | 290               | 35%             |
| Western Representation                              | 830           | 423     | 407               | 49%             |
| Member Services                                     | 436           | 311     | 125               | 29%             |
|   | 4,079         | 2,650   | 1,430             | 35%             |
| <b>Judicial Action</b>                              | 625           | 600     | 25                | 4%              |
| <b>Power Management</b>                             |               |         |                   |                 |
| System Control & Load Dispatch                      | 5,864         | 4,529   | 1,336             | 23%             |
| Forecasting & Prescheduling                         | 2,647         | 1,960   | 687               | 26%             |
| Industry Restructuring                              | 424           | 246     | 178               | 42%             |
| Contract Admin, Interconnection Svcs & Ext. Affairs | 1,152         | 691     | 461               | 40%             |
| Green Power Project                                 | 18            | 2       | 16                | 90%             |
| Gas Purchase Program                                | 88            | 51      | 38                | 43%             |
| Market Purchase Project                             | 130           | 75      | 55                | 42%             |
|   | 10,323        | 7,553   | 2,771             | 27%             |
| <b>Energy Risk Management</b>                       | 207           | 151     | 56                | 27%             |
| <b>Settlements</b>                                  | 774           | 460     | 314               | 41%             |
| <b>Integrated System Support</b>                    | 319           | 71      | 247               | 78%             |
| <b>Participant Pass Through Costs</b>               | 1,526         | 991     | 535               | 35%             |
| <b>Support Services</b>                             | -             | 290     | (290)             |                 |
|   | 17,854        | 12,766  | 5,088             | 28%             |
| <b>TOTAL ANNUAL BUDGET COST</b>                     | 620,222       | 537,737 | 82,486            | 13%             |
| <b>LESS: THIRD PARTY REVENUE</b>                    |               |         |                   |                 |
| Plant ISO Energy Sales                              | 70,367        | 96,938  | (26,571)          | -38%            |
| Load Aggregation Energy Sales                       | 151,019       | 90,565  | 60,454            | 40%             |
| Ancillary Services Sales                            | 2,731         | 4,925   | (2,194)           | -80%            |
| Western Resource Energy Sales                       | 18,026        | 18,381  | (354)             | -2%             |
| Other ISO Revenue                                   | -             | 14,460  | (14,460)          | N/A             |
| Transmission Sales                                  | 110           | 92      | 18                | 17%             |
| Western Credits, Interest & Other Income            | 15,713        | 10,966  | 4,747             | 30%             |
|   | 257,967       | 236,327 | 21,640            | 8%              |
| <b>NET ANNUAL BUDGET COST TO PARTICIPANTS</b>       | 362,256       | 301,410 | \$ 60,846         | 17%             |



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

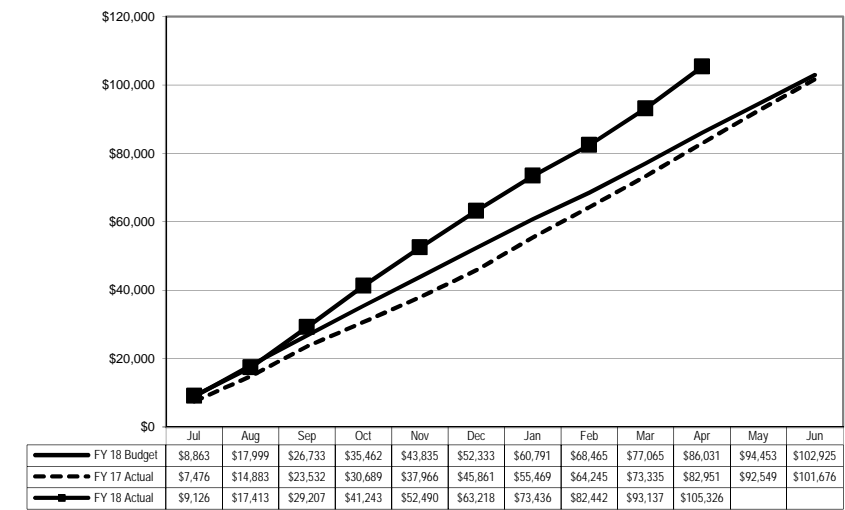
In Thousands

### Generation Resources



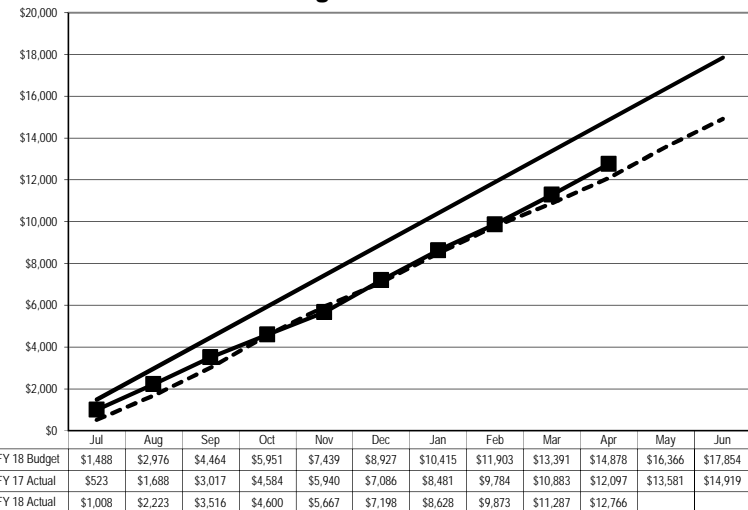
In Thousands

### Transmission-ISO



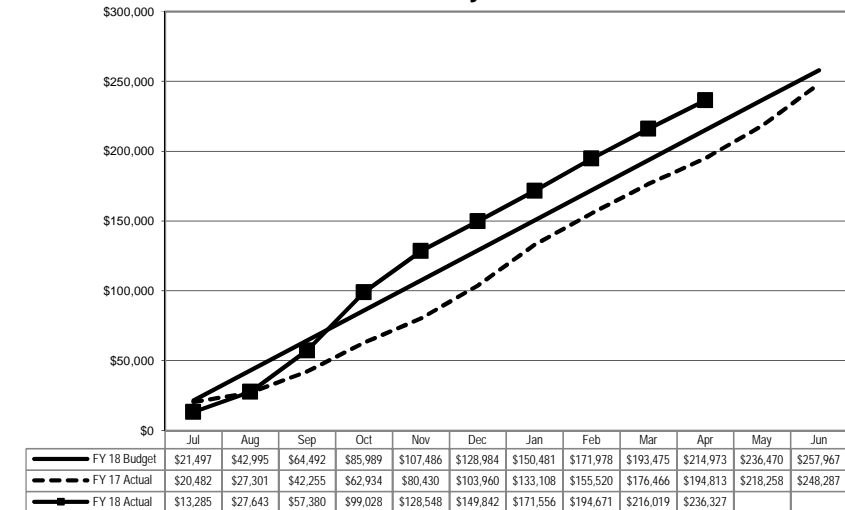
In Thousands

### Management Services



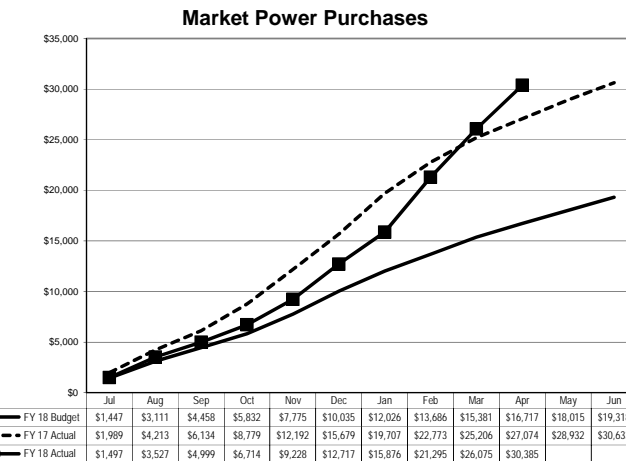
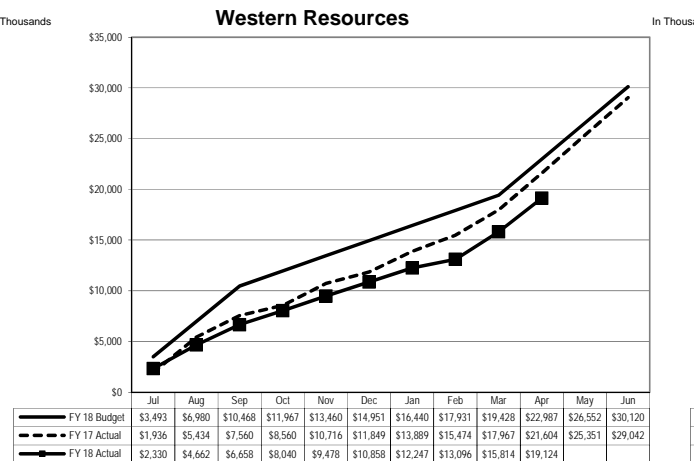
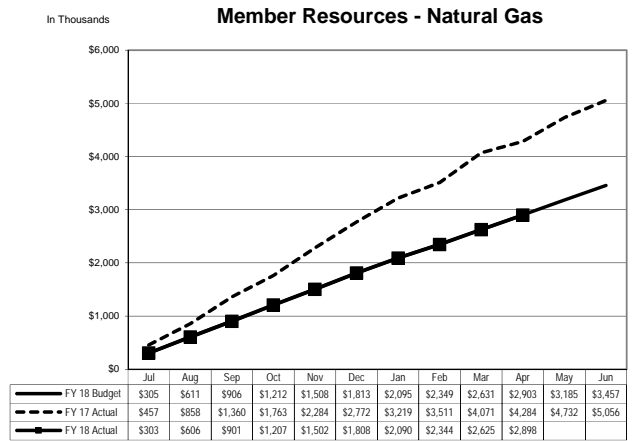
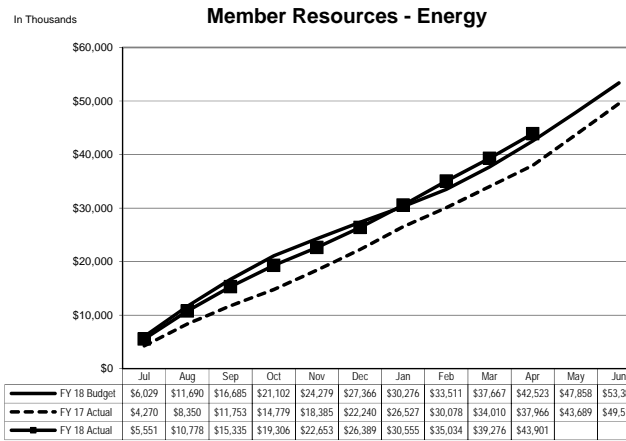
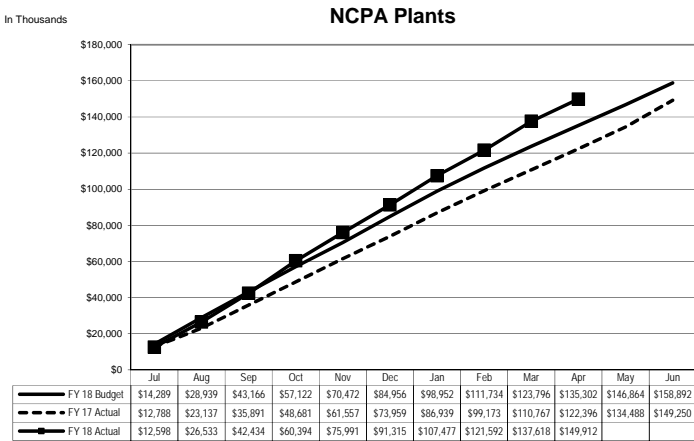
In Thousands

### Third Party Revenue



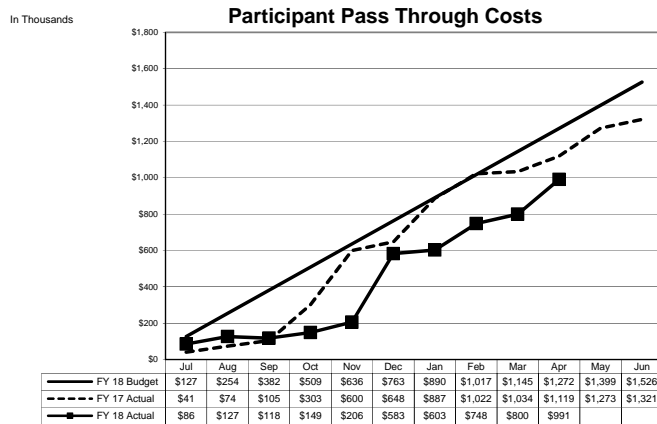
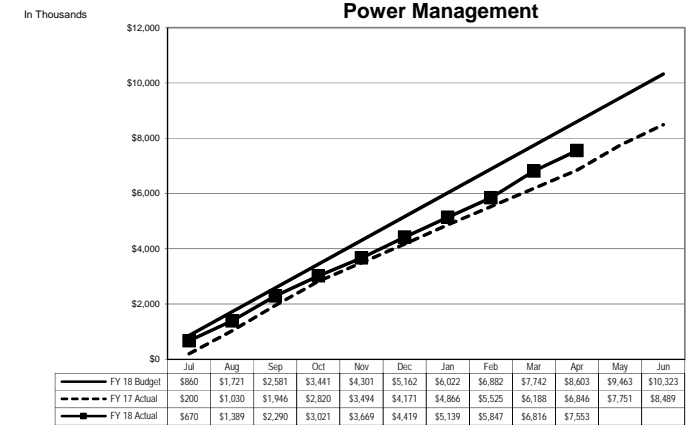
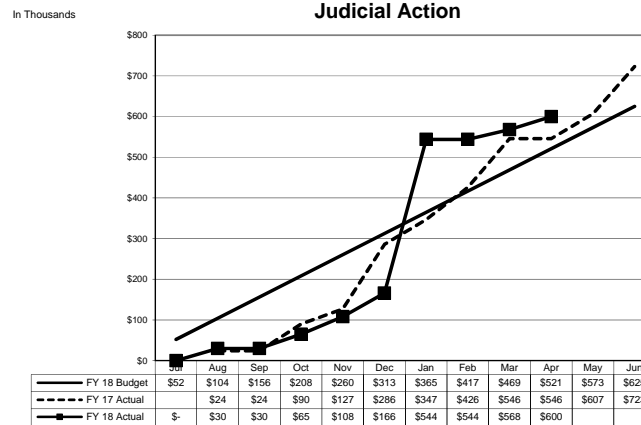
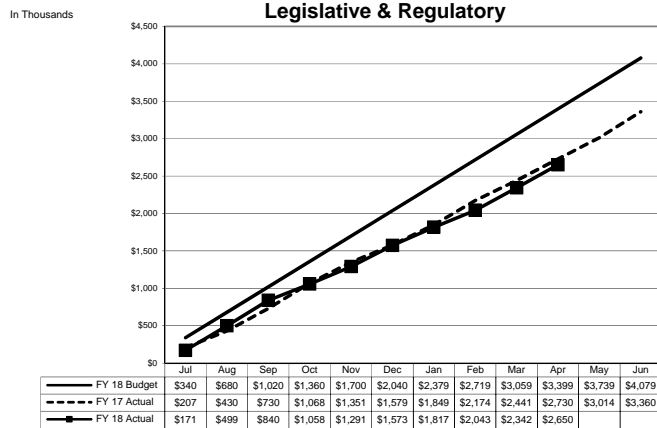
Footnote: Transmission is solely reflective of Independent System Operator (ISO) costs

## Annual Budget Cost Generation Resources Analysis By Source As of April 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 April 30, 2018

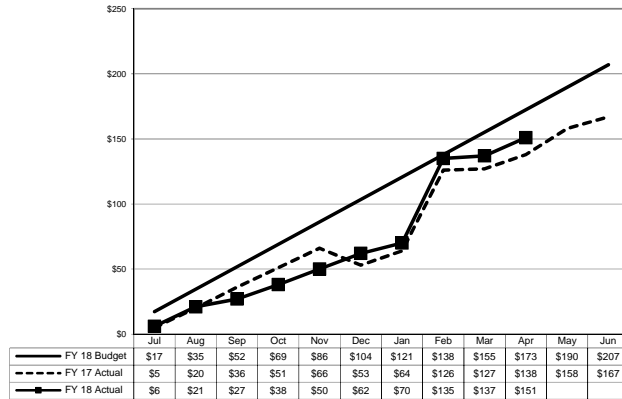


**Annual Budget Cost  
Management Services Analysis By Source  
As of April 30, 2018**

In Thousands

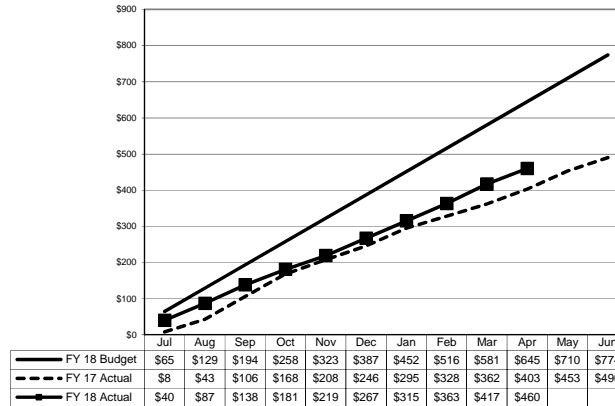
**Energy Risk Management**

In Thousands

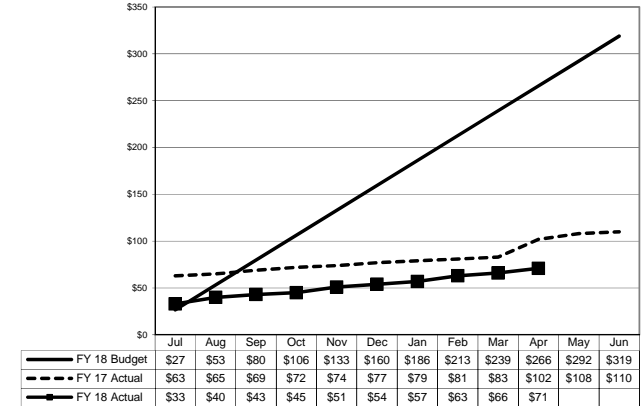


**Settlements**

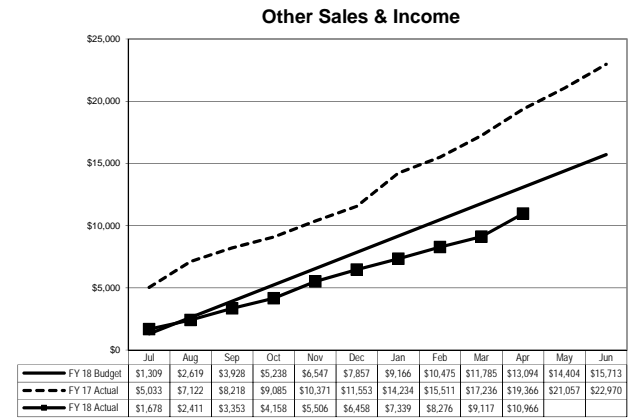
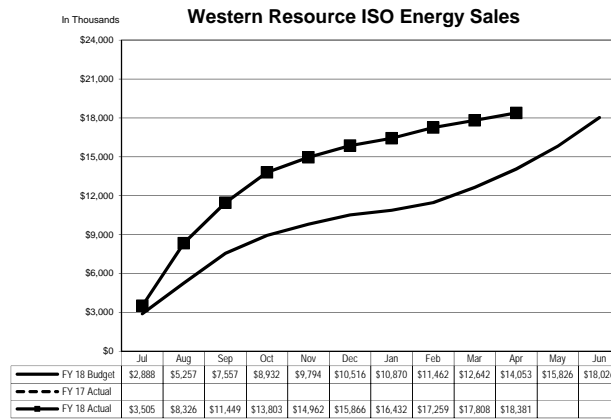
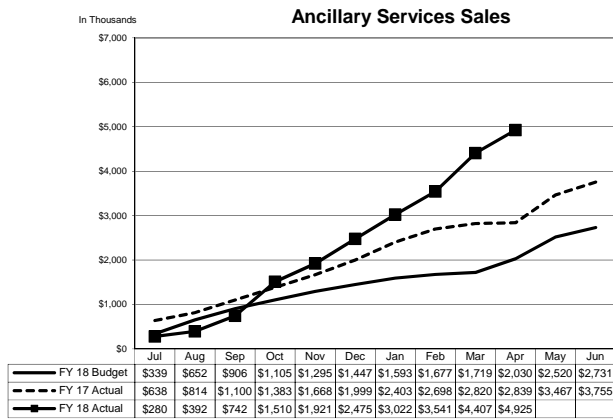
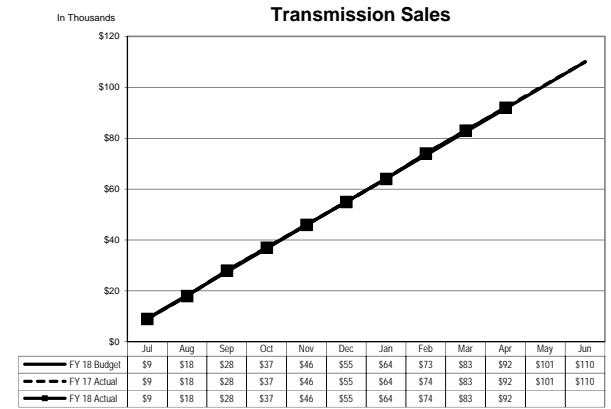
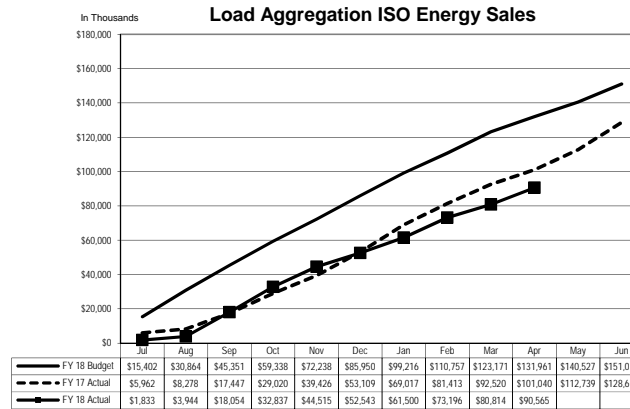
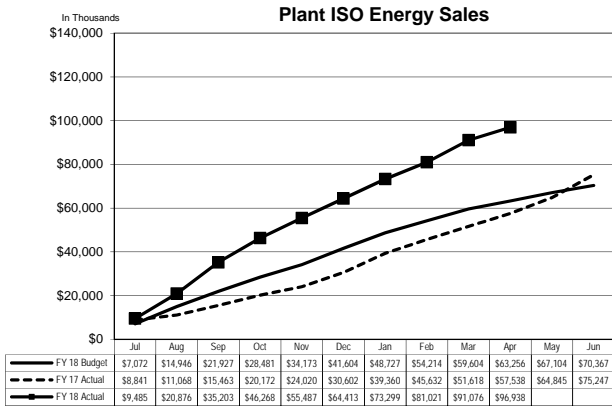
In Thousands



**Integrated Systems Support**



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



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

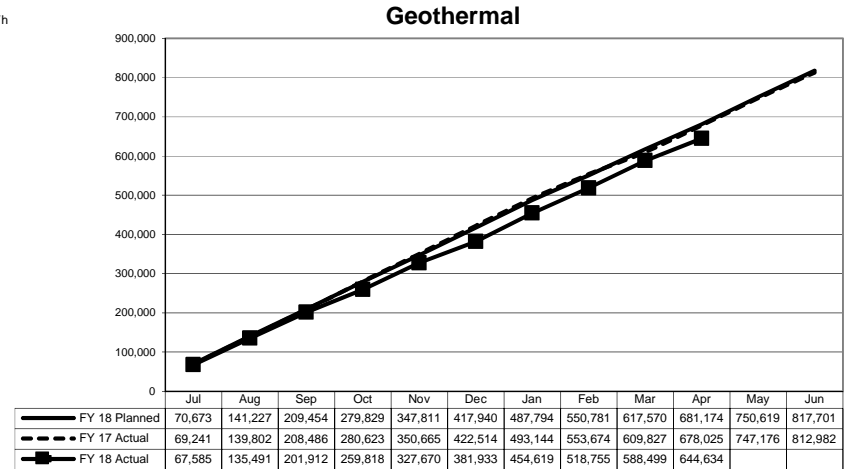
**Generation Cost Analysis**

\$ in thousands

|  | Geothermal |           |           |            |           |
|--|------------|-----------|-----------|------------|-----------|
|  | Budget     | Actual    | \$/MWh    | Under(Ovr) | YTD %     |
|  |            |           | Actual    | Budget     | Remaining |
| Routine O & M                          | \$ 17,564  | \$ 13,282 | \$ 20.60  | \$ 4,283   | 24%       |
| Capital Assets/Spare Parts Inventories | 1,440      | 394       | 0.61      | 1,046      | 73%       |
| Other Costs                            | 7,863      | 6,139     | 9.52      | 1,724      | 22%       |
| CA ISO Charges                         | 317        | 274       | 0.43      | 43         | 13%       |
| Debt Service                           | 4,936      | 4,113     | 6.38      | 823        | 17%       |
| Annual Budget                          | 32,120     | 24,202    | 37.54     | 7,918      | 25%       |
| Less: Third Party Revenue              |            |           |           |            |           |
| Interest Income                        | 148        | 233       | 0.36      | (85)       | -58%      |
| ISO Energy Sales                       | 28,349     | 23,177    | 35.95     | 5,172      | 18%       |
| Ancillary Services Sales               | -          | (4)       | (0.01)    | 4          |           |
| Effluent Revenues                      | 700        | 1,054     | 1.64      | (354)      | -51%      |
| Misc                                   | 110        | 114       | 0.18      | (4)        | -4%       |
|  | 29,307     | 24,573    | 38.12     | 4,734      | 16%       |
| Net Annual Budget Cost to Participants | \$ 2,813   | \$ (371)  | \$ (0.58) | \$ 3,184   | 113%      |
| Net Generation--MWh @ Meter            | 817,701    | 644,634   |           |            |           |
| \$/MWh (A)                             | \$ (2.60)  | \$ (6.96) |           |            |           |

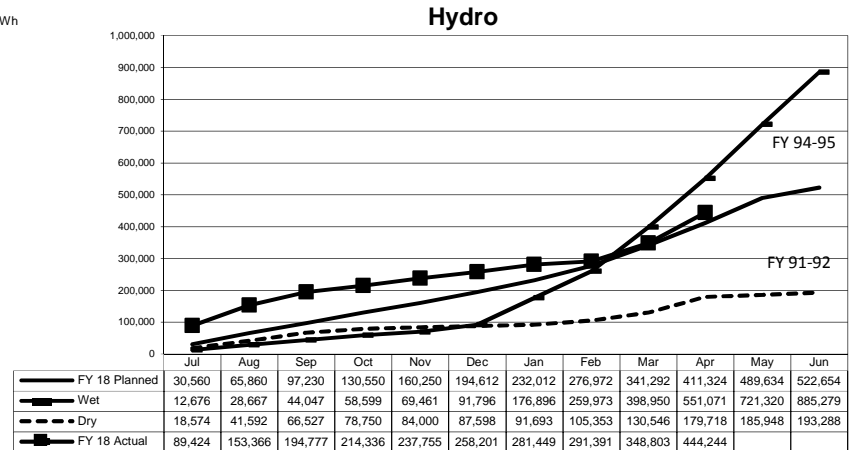
**MWhs Generated**

In MWh



|  | Hydroelectric |            |          |            |           |
|--|---------------|------------|----------|------------|-----------|
|  | Budget        | Actual     | \$/MWh   | Under(Ovr) | YTD %     |
|  |               |            | Actual   | Budget     | Remaining |
| Routine O & M                          | \$ 8,465      | \$ 5,924   | \$ 13.33 | \$ 2,542   | 30%       |
| Capital Assets/Spare Parts Inventories | 2,365         | 4,999      | 11.25    | (2,634)    | -111%     |
| Other Costs                            | 3,093         | 2,239      | 5.04     | 854        | 28%       |
| CA ISO Charges                         | 1,680         | 2,326      | 5.24     | (646)      | -38%      |
| Debt Service                           | 38,258        | 31,882     | 71.77    | 6,376      | 17%       |
| Annual Budget                          | 53,862        | 47,370     | 106.63   | 6,492      | 12%       |
| Less: Third Party Revenue              |               |            |          |            |           |
| Interest Income                        | 244           | 384        | 0.86     | (139)      | -57%      |
| ISO Energy Sales                       | 22,050        | 23,167     | 52.15    | (1,117)    | -5%       |
| Ancillary Services Sales               | 2,222         | 2,264      | 5.10     | (42)       | -2%       |
| Misc                                   | -             | 2,901      | 6.53     | (2,901)    |           |
|  | 24,516        | 28,716     | 64.64    | (4,200)    | -17%      |
| Net Annual Budget Cost to Participants | \$ 29,346     | \$ 18,654  | \$ 41.99 | \$ 10,692  |           |
| Net Generation--MWh @ Meter            | 522,654       | 444,244    |          |            |           |
| \$/MWh (A)                             | \$ (17.05)    | \$ (29.78) |          |            |           |

In MWh



Footnotes:

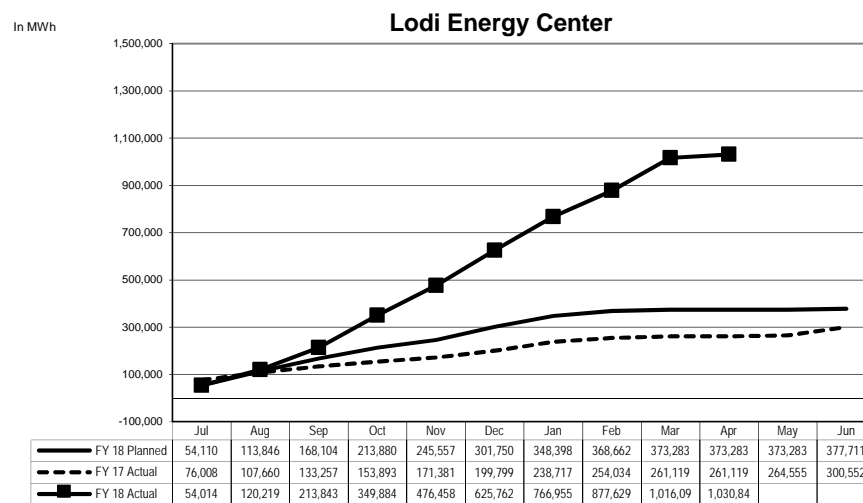
(A) Aggregate fiscal year generation in \$/MWh (excluding debt service)

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

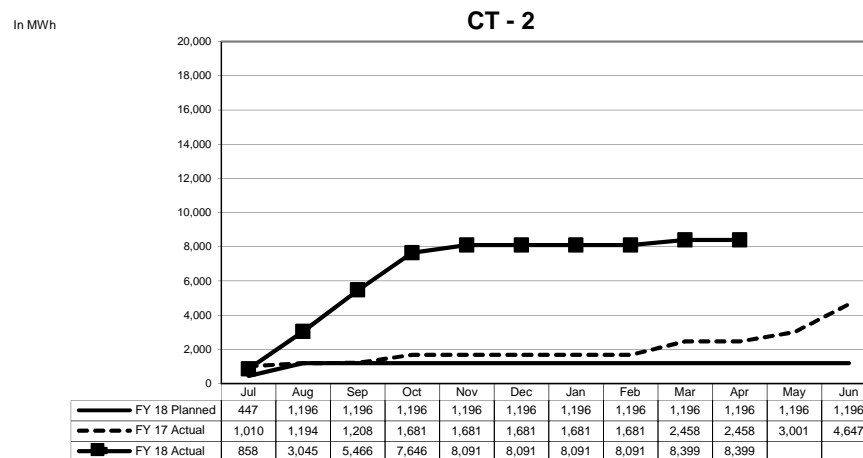
**Generation Cost Analysis**

|  | Lodi Energy Center |           |               |                   |                 |
|--|--------------------|-----------|---------------|-------------------|-----------------|
|  | Budget             | Actual    | \$/MWh Actual | Under(Ovr) Budget | YTD % Remaining |
| Routine O & M                          | \$ 10,174          | \$ 10,438 | \$ 10.13      | \$ (264)          | -3%             |
| Fuel                                   | 14,877             | 25,703    | 24.93         | (10,826)          | -73%            |
| AB 32 GHG Offset                       | -                  | -         | -             | -                 | 0%              |
| CA ISO Charges and Energy Purchases    | 3,921              | 5,013     | 4.86          | (1,092)           | -28%            |
| Capital Assets/Spare Parts Inventories | 2,636              | 1,763     | 1.71          | 873               | 33%             |
| Other Costs                            | 3,063              | 2,238     | 2.17          | 825               | 27%             |
| Debt Service                           | 26,417             | 21,933    | 21.28         | 4,484             | 17%             |
| Annual Budget                          | 61,088             | 67,088    | 65.08         | (6,000)           | -10%            |
| Less: Third Party Revenue              |                    |           |               |                   |                 |
| Interest Income                        | 172                | 353       | 0.34          | (181)             | -105%           |
| ISO Energy Sales                       | 19,760             | 47,272    | 45.86         | (27,512)          | -139%           |
| Ancillary Services Sales               | 397                | 1,779     | 1.73          | (1,382)           | -348%           |
| Transfer Gas Credit                    | -                  | -         | -             | -                 | 0%              |
| Misc                                   | -                  | 75        | 0.07          | (75)              | 0%              |
|  | 20,329             | 49,479    | 48.00         | (29,150)          | -143%           |
| Net Annual Budget Cost to Participants | \$ 40,759          | \$ 17,609 | \$ 17.08      | \$ 23,150         | 57%             |
| Net Generation--MWh @ Meter            | 377,711            | 1,030,840 |               |                   |                 |
| \$/MWh (A)                             | \$ 37.97           | \$ (4.19) |               |                   |                 |

**MWhs Generated**



|  | Combustion Turbine No. 2 (STIG) |          |               |                   |                 |
|--|---------------------------------|----------|---------------|-------------------|-----------------|
|  | Budget                          | Actual   | \$/MWh Actual | Under(Ovr) Budget | YTD % Remaining |
| Routine O & M                          | \$ 1,471                        | \$ 1,120 | \$ 133.31     | \$ 351            | 24%             |
| Fuel and Pipeline Transport Charges    | 835                             | 949      | 113.02        | (115)             | -14%            |
| Capital Assets/Spare Parts Inventories | 121                             | 10       | 1.19          | 111               | 92%             |
| Other Costs                            | 502                             | 354      | 42.13         | 149               | 30%             |
| CA ISO Charges                         | 0                               | 331      | 39.36         | (330)             | -71306%         |
| Debt Service                           | 5,693                           | 4,744    | 564.83        | 949               | 17%             |
| Annual Budget                          | 8,623                           | 7,508    | 893.85        | 1,115             | 13%             |
| Less: Third Party Revenue              |                                 |          |               |                   |                 |
| Interest Income                        | 43                              | 69       | 8.26          | (27)              | -62%            |
| ISO Energy Sales                       | 89                              | 1,168    | 139.00        | (1,079)           | -1214%          |
| Ancillary Service Sales                | -                               | 0        | 0.00          | (0)               | 0%              |
| Fuel and Pipeline Transport Credits    | 864                             | 1,153    | 137.24        | (288)             | -33%            |
| Misc                                   | -                               | -        | -             | -                 | 0%              |
|  | 996                             | 2,390    | 284.51        | (1,394)           | -140%           |
| Net Annual Budget Cost to Participants | \$ 7,627                        | \$ 5,118 | \$ 609.34     | \$ 2,509          | 33%             |
| Net Generation--MWh @ Meter            | 1,196                           | 8,399    |               |                   |                 |
| \$/MWh (A)                             | \$ 1,616.78                     | \$ 44.51 |               |                   |                 |



**Footnotes:**

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



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

**Generation Cost Analysis**

|  | Combustion Turbine No. 1 |          |               |                   |                 |
|--|--------------------------|----------|---------------|-------------------|-----------------|
|  | Budget                   | Actual   | \$/MWh Actual | Under(Ovr) Budget | YTD % Remaining |
| Routine O & M                          | \$ 1,520                 | \$ 1,810 | \$ 136.30     | \$ (290)          | -19%            |
| Fuel and Pipeline Transport Charges    | 172                      | -        | -             | 172               | 100%            |
| Capital Assets/Spare Parts Inventories | 992                      | 356      | 26.78         | 636               | 64%             |
| Other Costs                            | 514                      | 400      | 30.13         | 114               | 22%             |
| CA ISO Charges                         | 1                        | 338      | 25.46         | (338)             | -57517%         |
| Debt Service                           | -                        | -        | -             | -                 |                 |
| Annual Budget                          | 3,199                    | 2,904    | 218.67        | 294               | 9%              |
| Less: Third Party Revenue              |                          |          |               |                   |                 |
| Interest Income                        | -                        | -        | -             | -                 |                 |
| ISO Energy Sales                       | 119                      | 2,155    | 162.25        | (2,036)           | -1711%          |
| Ancillary Services Sales               | -                        | 0        | 0.00          | (0)               | 0%              |
| Misc                                   | -                        | 16       | 1.18          | (16)              | 0%              |
|  | 119                      | 2,171    | 163.42        | (2,052)           | -1724%          |
| Net Annual Budget Cost to Participants | \$ 3,080                 | \$ 734   | \$ 55.25      | \$ 2,346          | 76%             |
| Net Generation--MWh @ Meter            | 1,514                    | 13,282   |               |                   |                 |
| \$/MWh (A)                             | \$ 2,034.06              | \$ 55.25 |               |                   |                 |

**Footnotes:**

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

**MWhs Generated**

In MWh

