



Northern California Power Agency  
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# BUSINESS PROGRESS REPORT

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**2019**  
NOVEMBER

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# Generation Costs & Reliability

## Combustion Turbine Project

### Unit Operation for October 2019

Unit	Availability		Production			Reason for Run
CT1 Alameda	Unit 1	Unit 2	Unit 1	253.9	MWh	CAISO / CAISO
	100.0%	99.8%	Unit 2	218.5	MWh	
Curtailements, Outages, and Comments:						
Unit 1: Normal operation.						
Unit 2: 9/22/19 - Alameda Unit 2 failed to start due to bleed valve issues 1830-1930 OMS 7748900. 9/15/19 - Alameda Unit 2 failed to start due to bleed valve issues 1745-1807 OMS 7721366.						
Unit	Availability		Production			Reason for Run
CT1 Lodi	100.0%		22.2 MWh			CAISO
Curtailements, Outages, and Comments:						
Normal operation.						
Unit	Availability		Production			Reason for Run
CT2 STIG	100.0%		1,403.6 MWh			CAISO
Curtailements, Outages, and Comments:						
Normal operation.						
Unit	Availability		Production			Reason for Run
LEC	99.9%		76,527 MWh			0
Curtailements, Outages, and Comments:						
9/22/19 - LEC re-heater outlet high temp on CT 1229-1320 OMS 7747944						

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

## Geothermal Facilities

### Availability/Production for October 2019

Unit	Availability	Net Electricity Generated/Water Delivered	Out-of-Service/Descriptors
<b>Unit 1</b>	73.79 %	16,107 MWh	U1 was off line 10/23/19 from 2115 due to Kincade Fire in Geysers
<b>Unit 2</b>	73.79 %	*17,433 MWh	U2 was off line 10/23/19 from 2115 due to Kincade Fire in Geysers
<b>Unit 3</b>	N/A %	N/A	Unit 3 remains out of service.
<b>Unit 4</b>	31.45 %	9,216 MWh	U4 was off line 10/6/19 @ 0300 for PG&E line clearance. U4 was off line 10/6/19 @ 1745 until 10/9/19 @ 2100 for stretford cleaning U4 was off line 10/14/19 @ 1230 for Main Steam strainer failure U4 was off line 10/23/19 @ 2130 due to Kincade Fire (Geysers)
<b>Southeast Geysers Effluent Pipeline</b>	58.4 %	60.2 mgallons	Average flow rate: 3,543 gpm
<b>Southeast Solar Plant</b>	N/A	0 KWh	Year-to-date KWh: 2,598,995
<b>Bear Canyon Pump Station Zero Solar</b>	N/A	56,558 KWh	Year-to-date KWh: 3,702,004

\* Accounts for an additional 1,458 MWh of house load for the 21KV power supply to the effluent pipeline supplied from Unit #2.

## Hydroelectric Project

### Availability/Production for October 2019

Units	Availability	Net Electricity Generated	Out-of-Service
<b>Collierville Unit 1</b>	0 %	0 MWh	CV #1 unit was out of service on 8/5/19 at 0700 through present time due to a scheduled unit rewind and maintenance
<b>Collierville Unit 2</b>	100 %	29704 MWh	No outages to report.
<b>Spicer Unit 1</b>	73.35 %	1,032 MWh	NSM #1 unit was out of service on 10/9/19 at 0014 through 10/11/19 at 2010 for PSPS. NSM #1 unit was out of service on 10/23/19 at 1458 through 10/24/19 at 1917 for PSPS. NSM #1 unit was out of service on 10/26/19 at 1419 through 10/30/19 at 2017 for PSPS.
<b>Spicer Unit 2</b>	74.23 %	1,023 MWh	NSM #2 unit was out of service on 10/9/19 at 0017 through 10/11/19 at 2010 for PSPS. NSM #2 unit was out of service on 10/23/19 at 1502 through 10/24/19 at 1917 for PSPS. NSM #2 unit was out of service on 10/26/19 at 1423 through 10/30/19 at 2017 for PSPS.
<b>Spicer Unit 3</b>	63.63 %	152 MWh	NSM #3 unit was out of service on 10/9/19 at 0019 through 10/12/19 at 1105 for PSPS. NSM #3 unit was out of service on 10/23/19 at 1523 through 10/24/19 at 2359 for PSPS. NSM #3 unit was out of service on 10/26/19 at 1423 through 10/31/19 at 1111 for PSPS.

### Operations & Maintenance Activities:

- CMMS work orders
- Andritz and NCPA crews continued CV Unit 1 Rewind activities and mechanical reassembly
- Beaver Creek Diversion Dam and North Fork Diversion Dam annual maintenance, including inspection and trash rack cleanout
- PG&E PSPS reaction & response, including operation and fueling of backup generators and inspection of NCPA facilities.
- North Fork Road repairs completed
- NSM parapet wall survey and report completed
- All dam valves cycled to meet triennial DSOD requirement
- Beaver Creek Reservoir Bathymetry survey completed
- Held quarterly Agency-wide safety meeting at Murphys
- 2018-2019 Water Year Records prepared. Notified USGS of review-readiness

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

- There were no Cal OSHA recordable, lost time, or vehicle accidents in the month of August.
- Find below a Safety Report that highlights the following areas: recordable incidents and lost time accidents (LTAs) reported this period and this calendar year; the number of days since last recordable or LTA; the number of work hours since last recordable or LTA; and vehicle accidents reported this month and this calendar year. In September of 2012, Generation Services completed an internal audit of its records with the results reflected in this report and was updated through the payroll period ended October 26, 2019.
- The “CT Group” column reflects the combined safety numbers of all CT employees. Beginning with the November 2009 report, the CT Group Column also includes Lodi Energy Center staff.

### October 2019 Generation Services Safety Report

	Hydro	GEO	CT Group *	NCPA HQ **
Cal OSHA Recordable (this month)	0	0	0	0
Cal OSHA Recordable (calendar year)	2	0	0	0
Days since Recordable	129	459	1,664	6,732
Work Hours Since Last Recordable	12,085	97,899	246,723	2,456,629
LTA's (this month)	0	0	0	0
LTA's (calendar year)	0	0	0	0
Days without LTA	4,398	1,527	9,568	5,661
Work Hours without LTA	400,982	314,874	687,267	2,078,647
Vehicle Incident (month)	0	0	0	0
Vehicle Incident (calendar year)	0	3	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 October 26, 2019.

## Power Management/NCPA Market Results

### Dispatch and Schedule Coordination

- NCPA Dispatch and Schedule Coordination Center safely, reliably, and economically schedules, monitors, and manages NCPA and NCPA member power resources and loads 24 hours per day, 7 days per week on a continuous basis. This process includes balancing MSSA loads and resources on a 5-minute basis, optimizing NCPA resources and minimizing ISO costs.
- NCPA MSSA Load Data:

#### Current Year 2019 Data

	October 2019		Calendar Year 2019	
	Peak MW	MWh	Peak MW	MWh
NCPA Pool	339.83 10/24 @ 1700	187,135	478.77 8/15 @ 1700	1,950,814
SVP	515.82 10/24 @ 1600	319,577	587.78 6/11 @ 1600	3,110,262
MSSA	854.06 10/24 @ 1700	506,712	1057.99 8/15 @ 1700	5,061,076

#### Last Year 2018 Data\*

	October 2018		Calendar Year 2018	
	Peak MW	MWh	Peak MW	MWh
NCPA Pool	334.11 10/2 @ 1600	190,804	419.2 7/25 @ 1700	1,926,227
SVP	495.82 10/8 @ 1600	315,891	529.29 8/9 @ 1700	3,087,090
MSSA	821.49 10/2 @ 1600	506,695	945.44 8/9 @ 1700	5,013,317

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

#### System Peak Data

	All Time Peak Demand	2019 Peak Demand
NCPA Pool	517.83 MW on 7/24/06 @ 1500	478.77 8/15 @ 1700
SVP	587.78 MW on 6/11/19 @ 1600	587.78 6/11 @ 1600
MSSA	1070.79 MW on 9/1/17 @ 1700	1057.99 8/15 @ 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		
	October 2019	Calendar Year 2019
MSSA % Within the Band	96.82%	96.35%

- October 26 @ 1906, City of Ukiah blacked out due to PG&E Public Safety Power Shutoff (PSPS). Load restored October 30 at about 1320.
- October 26 @ 1950, City of Healdsburg blacked out due to PSPS. Load restored October 29 at about 1920.
- October 27 @ 2246, Plumas Sierra blacked out due to PG&E line outage. Marble tie closed at 2311 allowing load restoration on NV Energy system. Plumas load returned to PG&E feed on October 28 @ 0844.
- Spicer Meadows:
  - October 9 – 11, 23 – 24 and 26 - 30, units off line due to PSPS. Unit 3 remained on providing station service power.
- Geothermal Units:
  - October 6 @ 0300 - 1900, Unit 4 shutdown for scheduled PG&E Geysers 12-Fulton 230kV line outage.
  - October 6 @ 1900 - October 9 @ 2100, Unit 4 remained off line for annual maintenance outage.
  - October 14 @ 1225 – October 23, Unit 4 off line due to failed steam line strainer causing stop valve trouble. Unit remains off line due to PG&E Geysers 12-Fulton 230kV line forced outage.
  - October 23 @ 2119, Unit 1 and 2 off line due to Geysers 9 – Lakeville 230kV line forced outage. Units remain off line.
- Lodi Energy Center:
  - No curtailments
- Alameda CTs:
  - October 14 @ 0700 – October 16 @ 0930, Unit 2 o/s for bleed valve replacement
  - October 21 @ 1425 – 1545, Unit 2 o/s due to gas compressor transformer oil leak
  - October 28 @ 1746 – October 29 @ 1056, Unit 2 o/s due to lube oil pressure test fail
- Lodi CT:
  - No curtailments
- Collierville Units:
  - October 1-31, Unit 1 o/s for rewind and annual maintenance. ETR November 21
- STIG:
  - No curtailments



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

- NCPA Pool load during October 2019 totaled 186,955 MWh, or 95.1% of forecast due to mild shoulder season weather, despite cooler temperatures toward the beginning of the month. Pool load through November 15<sup>th</sup> has been 91,954 MWh, about 1.5% lower than during the same period in November 2018.
- Lodi Energy Center (LEC) operated every day during October 2019, with 18,588 MWh generated for the Pool, or 166% of the pre-month forecast. Production was high and steady due to declining solar and hydro generation, the Diablo Canyon unit refueling outage, and various transmission and pipeline constraints. Through November 15<sup>th</sup>, LEC had generated 16,394 MWh for the Pool, just over half of the pre-month forecast for November.
- During October 2019, 0.00" of rain was recorded at the Big Trees gage. Average October Big Trees precipitation is 3.38".
- The Value of Storage (VOS) of New Spicer Meadow Reservoir (NSMR) has been increased from \$55/MWh to \$60/MWh.
- NSMR storage as of October 31, 2019 was at 105,697 acre feet. The historical average NSMR storage at the end of October is 92,416 acre feet. As of November 18, 2019 NSMR storage is 98,693 acre feet. The current NCPA Pool share of NSMR storage is 50,697 acre feet.
- Combined Calaveras Project generation for the Pool in October 2019 totaled 16.0 GWh, down from 22.3 GWh in September 2019. The Pool's 16.0 GWh in October 2019 was in line with the pre-month forecast of 15.7 GWh.
- Western Base Resource (BR) deliveries for the Pool for October 2019 were 54,290 MWh, including Displacement energy totaling 6,441 MWh. The total was 150% of Western's own pre-month forecast – after the three previous months' deliveries had averaged well under forecast. Through November 10<sup>th</sup> the Pool had received 18,960 MWh, already exceeding Western's pre-month November forecast for the Pool of 17,682 MWh.
- The PG&E Citygate gas index averaged \$3.09/MMBtu for delivery on November 15, 2019, below the average PG&E gas price during October of \$3.15/MMBtu and as demand remains low. Strong storage refill continued in October before tapering off quickly in November. November 2019 PG&E Bidweek price is \$3.18/MMBtu, eleven cents higher than October's and 46 cents higher than September's.
- Day-ahead NP15 electricity prices averaged \$39.33/MWh (HLH) and \$32.40 (LLH) during October 2019, with the hourly TH\_NP15 maximum at \$183.49 on the 22nd during a final heat wave. Despite generally low demand, the daily maximum reached the \$130 range on three occasions by mid-November, due to very low wind generation and ongoing maintenance.

NCPA Pool Loads & Resources Value Summary								
Peak and Energy Summary Oct-19					Estimated Production Costs		Cost of Serving Demand	
	Coincident Peak (MW)	Total MWh	Forecast Values	Avg. MW	NCPA Pool		Totals	Avg (\$/MWh)
	Oct-24-19 Hour 17				Cost/Revenue (Estimate)	Variable Cost (\$/MWh)		
Demand	339.8	186,955	196,672	251.3	N/A	N/A		
WAPA	-	54,290	36,041	73.0	\$ 989,840	\$ 18.23	\$ 7,184,963	\$ 38.43
Geothermal	-	17,697	27,402	23.8	336,235	19.00		
Hydro	-	16,257	14,157	21.9	97,542	6.00		
Stig & CTs	-	2,118	1,852	2.8	115,448	54.50		
LEC	-	30,840	18,588	41.5	1,028,194	33.34		
Contracts	-	88,693	89,047	119.2	4,441,181	50.07	\$ 6,242,478	\$ 33.39
Market - Net (Net Sales = Negative)	339.8	(22,940)	9,585	(30.8)	(860,508)	37.51		
<b>Net Total</b>	<b>339.8</b>	<b>186,955</b>	<b>196,672</b>	<b>251.3</b>	<b>\$ 6,147,933</b>	<b>\$ 33.39</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 10/1/2019 (\$/MWh)	11/12/2019 (\$/MWh)	
Jan-19	197,652	\$ 42.93	\$ 45.13	Nov-19	\$ 36.67	\$ 44.69
Feb-19	180,866	\$ 79.12	\$ 41.57	Dec-19	45.34	44.43
Mar-19	187,890	\$ 39.02	\$ 24.83	Jan-20	44.47	44.61
Apr-19	178,692	\$ 24.88	\$ 28.55	Q1 2020	\$ 39.42	\$ 40.05
May-19	183,123	\$ 20.05	\$ 32.01	Q2 2020	28.11	29.01
Jun-19	198,698	\$ 25.83	\$ 38.09	Q3 2020	49.26	51.24
Jul-19	212,102	\$ 33.30	\$ 56.98	CY2020	\$ 38.98	\$ 40.60
Aug-19	224,328	\$ 34.79	\$ 37.80	CY2021	40.70	40.27
Sep-19	200,894	\$ 37.46	\$ 40.97	CY2022	41.25	38.88
Oct-19	186,955	\$ 38.43	\$ 33.39	CY2023	40.80	37.86
Nov-19				CY2024	40.03	36.75
Dec-19				CY2025	39.33	36.35

NOTES TO SUMMARY TABLE:

**Peak and Energy Summary:**

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

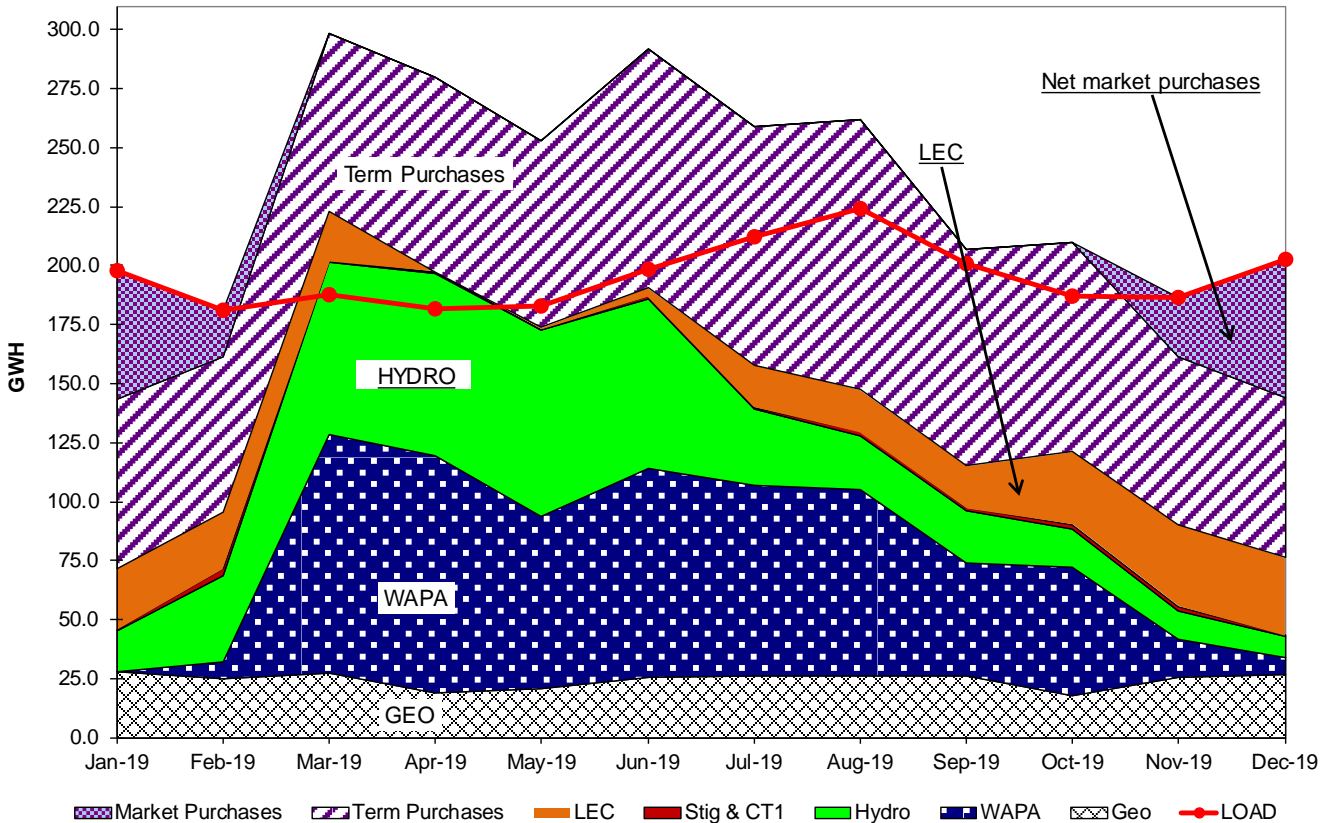
**Estimated Production Costs:**

\* Fixed project costs not included except for WAPA, where total month's project costs are used to calculate the average unit cost.  
 \* STIG and CT costs include forward natural gas and basis hedge transactions.  
 \* STIG & CT costs reflect \$2.60 and \$1.62/MWh variable O&M costs per 6-12-06 GSCA.

**Cost of Serving Demand:**

Compares price of meeting total monthly demand with (1) Hourly pool market clearing price; (2) Variable cost of pool gen. Pool Gen is sum of estimated costs divided by sum of generation.

### NCPA POOL RESOURCES Calendar 2019: Jan.- October Actual / Balance Forecast



## **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 January 2020:
  - Monthly System Resource Adequacy Demonstration (filed November 17, 2019)
  - Monthly Supply Plan (filed November 17, 2019)

### **Industry Restructuring**

NCPA is actively participating in a number of CAISO stakeholder initiatives on behalf of the members. The following is a brief description of key active initiatives:

#### **Extended Day Ahead Market**

- This initiative will develop an approach to extend participation in the day-ahead market to the Western Energy Imbalance Market (EIM) entities in a framework similar to the existing EIM approach for the real-time market, rather than requiring full integration into the California ISO balancing area. The extended day-ahead market (EDAM) will improve market efficiency by integrating renewable resources using day-ahead unit commitment and scheduling across a larger area.
- CAISO published an issue paper on 10/10/2019 and held a stakeholder meeting on 10/17/2019. Comments are due 11/22/2019. NCPA will submit comments emphasizing the need to fairly assess transmission access, GHG, and administrative costs.

#### **Resource Adequacy Enhancements**

- Due to the rapid transformation of the resource mix in California, the CAISO is currently re-examining the CAISO Resource Adequacy requirements and rules. This initiative will explore changes to the CAISO's Resource Adequacy requirements and rules to ensure the resources providing reserve services are effectively supporting reliable operations of the grid.
- CAISO is proposing massive overhauls to its RA program in conjunction with CPUC changes. Specific areas the CAISO is looking at are termination of the Resource Adequacy Availability Mechanism for System capacity and replacing it with "less complicated" counting rules similar to eastern RTOs, import eligibility, exemptions, maximum import capability calculations and allocations, redefining Planned and Forced outages, new "fast" and "long" ramping products.
- CAISO published the Second Revised Straw Proposal and held stakeholder meeting on 10/9/2019.
- Modifications from previous proposal
  - Apply forced outage counting rules to flex and local capacity as well as system.
  - Inclusion of portfolio assessment process to ensure that reliability needs can be met by the shown RA portfolio during all hours.
  - 24X7 must offer obligation in Day Ahead Market. No Real Time Market MOO if not picked up in DA.
  - Removed proposed requirement for providing comparable capacity for planned outages.

- Attempts to remove obligations for outage replacement to the greatest extent possible
- LSEs will be required to submit supporting documentation that any non-specified RA import resource shown on RA and Supply plans represent physical capacity and firm transmission as well as source balancing authority. Removed consideration of Maximum Import Capability provisions and plan to initiate as standalone initiative.
- Allows imports to qualify as flexible capacity.
- Additional procurement authority to use the capacity procurement mechanism as an option to fulfill LSEs' unforced capacity deficiencies and system deficiencies.
- For reference, NCPA submitted the following comments to the First Revised Straw Proposal
  - Concern that UCAP will not properly account for unconventional resources
  - Support in using CAISO's own systems to track outages rather than rely on NERC systems
  - Supports procurement of additional capacity when system is deficient as opposed to individual LSEs
  - Requested clarification that LF-MSS self-provision RA will remain exempt from Must Offer Obligation in CAISO markets
  - When MOO is applicable, it should be set at UCAP as instead of NQC
  - Concern that substitution comparability test may be too restrictive
  - Offered suggestions to improve allocation of RA import capability
  - Seeks clarification for flexible RA allocation exempt language from "changes in load" to "change in load between the day-ahead market and meter".
  - Expressed strong opposition to UCAP deficiency tool due to potential for market power.

### Day-Ahead Market Enhancements

- This initiative will explore new day-ahead products that will address ramping needs between intervals and uncertainty that can occur between the day-ahead and real-time markets.
- The latest working group occurred on 8/13/2019. CASIO reviewed the need for new products along with data supporting uncertainty concerns:
  - Uncertainty between day-ahead and real-time market has increased from 2017 to 2019 and CAISO operators are addressing this development with out of market actions which disrupts market efficiency
  - Historically, generators had higher certainty to know if they would be scheduled in real-time
  - Due to uncertainty and changing resource fleet, commitment decisions are no longer necessarily known
  - Gas, hydro, storage, and imports need to cover costs to be available for dispatch in real-time – this will be accomplished with imbalance reserves
- New Imbalance Reserve Product (IRP) will be designed to address granularity and uncertainty between day-ahead and real-time markets:
  - Hourly product; 15-minute dispatchable; Biddable; Covers granularity difference and uncertainty between DAM and FMM; All awards are co-optimized and settled simultaneously; DAM has no energy price formation

- issue because the market solves all hours in a single optimization; Stepped relaxation parameters (proposed)
- CAISO reviewed two options for applying IRP:
    - Option 1 – Financial
      - Co-optimizes bid-in demand, ancillary services and imbalance reserves
      - Imbalance reserves cover historical uncertainty between IFM cleared net load and FMM net load
      - Exceptional dispatch if IFM clears inconsistent with operational needs
    - Option 2 – Financial + Forecast
      - Co-optimizes bid-in demand, ISO reliability capacity, ancillary services and imbalance reserves
      - Imbalance reserves cover historical uncertainty between ISO's day-ahead net load forecast and FMM net load
      - Reliability capacity covers differences between ISO net load and cleared net load
      - Exceptional dispatch if IFM/RUC clears inconsistent with operational needs
  - CAISO reviewed policy alignment and relationships among Day Ahead Market Enhancements, Extending Day Ahead Market to EIM, and Resource Adequacy Enhancements.
  - NCPA Comments included tentative support of Option 2 along with requests for special Load Following MSS cost allocation netting.

#### 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.
- CAISO's draft final proposal includes a hybrid billing determinate consisting of volumetric and peak demand functions in order to address costs shifts as well as the full impact of high coincident peak demand, low load factor UCD areas that have relatively lower volumetric use compared to high load factor areas. It received general support from the market and will be presented to the CAISO board this year.
- NCPA performed an impact analysis and determined that NCPA members would mostly benefit or be indifferent to the new billing determinant so long as certain LFMSS benefits remain in place.

#### Hybrid Resources

- CAISO published Straw Proposal and held a working group meeting on October 3, 2019.
- As generation developers become increasingly interested in pairing energy storage with existing or proposed generation, this initiative will explore how such "hybrid" generation resources can be registered and configured to operate within the ISO market. This initiative will develop solutions allowing developers to maximize the benefits of their resource's configuration. Hybrid resource configurations also raise

new operational and forecasting challenges that ISO plans to address during this initiative.

- CAISO refers to hybrid projects or hybrid resources as a combination of multiple technologies or fuel sources combined into a single resource with a single point of interconnection. Projects are not required to include storage to be considered hybrid resources.
- Approximately 41% of the total capacity currently seeking interconnection is hybrid resource configurations.
- Initial Objectives:
  - Promote the reliable and efficient integration of hybrid resources
  - Address additional technical questions surfaced by increasing numbers and interest in hybrid resources:
    - Configurations, metering, operations, market participation, and settlements
  - Address new operational and forecasting challenges raised by hybrid resources
    - New requirements may be needed to provide reliable participation by hybrid resources
- CAISO prefers customers to register a resource ID for each technology/fuel source for increased visibility in order to address uncertainty issues. CAISO reminds participants that separate resource IDs are required to provide forecasts for hybrid resources that include eligible/participating intermittent resources. The forecasts help to minimize uninstructed imbalance energy charges.

## Western

### Western Base Resource Tracking (NCPA Pool)

Western Base Resource Tracking - NCPA Pool							
	Actual			Costs & Rates			
	BR Forecast <sup>1</sup> (MWh)	BR Delivered (MWh)	Difference (MWh)	Base Resource & Restoration Fund (\$)	Monthly Cost of BR <sup>2</sup> (\$/MWh)	CAISO LMP Differential <sup>3</sup> (\$/MWh)	12-Mo Rolling Avg. Cost of BR <sup>4</sup> (\$/MWh)
Jul-19	95,615	81,155	(14,460)	\$2,134,816	\$ 26.31	\$ (0.02)	\$ 30.98
Aug-19	75,245	78,474	3,229	\$2,134,816	\$ 27.20	\$ (0.02)	\$ 30.65
Sep-19	46,290	47,422	1,133	\$2,049,840	\$ 43.23	\$ (0.17)	\$ 31.31
Oct-19	23,193	54,290	31,097	\$962,106	\$ 17.72	\$ 0.06	\$ 30.64
Nov-19	7,602	-	(7,602)	\$962,106	\$ 126.55	\$ -	\$ 31.75
Dec-19	6,564	-	(6,564)	\$962,106	\$ 146.58	\$ -	\$ 32.83
Jan-20	9,331	-	(9,331)	\$962,106	\$ 103.11	\$ -	\$ 33.29
Feb-20	17,163	-	(17,163)	\$962,106	\$ 56.06	\$ -	\$ 33.68
Mar-20	27,643	-	(27,643)	\$962,106	\$ 34.80	\$ -	\$ 33.03
Apr-20	52,877	-	(52,877)	\$2,146,905	\$ 40.60	\$ -	\$ 32.77
May-20	84,464	-	(84,464)	\$2,146,905	\$ 25.42	\$ -	\$ 33.45
Jun-20	90,039	-	(90,039)	\$2,146,905	\$ 23.84	\$ -	\$ 33.79
1/ As forecasted in NCPA 19/20 Budget							
2/ = (Western Cost + Restoration Fund)/BR Delivered, for Pool Participants only.							
3/ = (MEEA LMP - PG&E LAP LMP) using public market information (i.e. not settlement quality).							
4/ Based on BR Delivered (Actual) when available and BR Forecast in all other cases. Includes CAISO LMP impact.							

- NCPA Pool received 54,290 MWh Base Resource (BR) energy in October 2019. This includes 6,441 MWh of Displacement Energy for an estimated savings of \$36,400 or about \$5.65/MWh.
- Pool Members' total savings under Market Efficiency Enhancement Agreement (MEEA) for Pool Members was approximately \$3,000 in October 2019. FY 2020 so far shows a net MEEA savings of negative \$5,000 due to lower congestion prices for import at COTP as opposed to MEEA prices (July 2019 through October 2019). Despite MEEA Benefits are negative June 2019 through September 2019, there are significant benefits for MEEA prices since the program started in December 2015. NCPA will continue to closely monitor MEEA Benefits.

### Western Base Resource Scheduling Flexibility

- WAPA and BOR implemented Base Resource Min-Take Experiment 3 customer pre-disclose energy beginning operating date July 11, 2019. The intent is to potentially lower the Base Resource Min-Take even more for all Base Resource customers during the low value hours. NCPA calculated Pool Members has an increased flexible energy of 10,933 MWh and added BR Market value of \$45,830, which calculated an average of \$4.19/MWh of additional flexibility for operating dates July 11, 2019 through September 26, 2019. NCPA will use the data provided by WAPA recently to perform analysis for applicable operating dates for October and partial November 2019.

- Tom Kabat, consultant for WAPA and Reclamation, presented Experiment 4 during the October 2019 Customer Coordination Committee (CCC) meeting. The objective for this experiment is to reduce the minimum take constraints even lower for the first sixteen (16) hours to allow additional flexible while ensuring lake levels are maintained properly. WAPA and Reclamation are in the process of evaluating this proposal.

#### Draft 2025 Base Resource Contract

- NCPA submitted comments in response to WAPA's proposed 2025 Base Resource Contract Draft #3. WAPA scheduled a third face-to-face meeting with interested customers on Wednesday, November 20<sup>th</sup> to review the latest round of comments. WAPA expects to finalize the contract language to existing customers and new allottees in January 2020, and each entity will have six months to execute. Service will begin on January 1, 2025.

### **Interconnection Affairs**

#### **PG&E Update**

#### Public Safety Power Shut Off (PSPS) Program

- PG&E initiated a PSPS on October 26, 2019:
  - City of Ukiah load was dropped on Oct 26<sup>th</sup> at 19:06. Load was restored on Oct 30<sup>th</sup> at 13:30. PG&E provided 24hr notification of a PSPS.
  - City of Healdsburg load was dropped on Oct 26<sup>th</sup> at 19:50. Load was restored on Oct 29<sup>th</sup> at 18:30. Healdsburg's impact was a result of Cal Fires mandatory evacuation and not PSPS.
  - Notable Items: 1) PG&E did not provide a list of transmission lines in a timely manner which were in scope when a potential PSPS was announced. 2) PG&E was unable to provide timely information whether a PSPS is at the transmission or distribution level.

#### Kincaid Fire and Geo Plants

- NCPA Geo Plants went offline October 23<sup>rd</sup> and all plant personnel were evacuated on October 25<sup>th</sup>. October 30<sup>th</sup> NCPA staff were given authorization from CALFIRE and local authorities to re-enter the facility. Nov 4<sup>th</sup> all staff returned to work and Plant 2 was online at 23:40. NCPA Plant 1 is currently offline and is interconnected to the Geysers #9-Lakeville Line. Tentative online date is January 22, 2020 for NCPA Plant 1.

#### TO-20 Rate Case

- This case is close to settlement except on ROE. Options Joint Interveners have are to except all terms and litigate ROE only or accept ROE with a no precedence clause. Next settlement conference is scheduled for Nov 7, 2019. Staff will monitor and report back.



- FERC 890 case/PG&E's self-approved projects stakeholder process is now part of the TO-20 settlement discussions. CPUC and Joint Interveners have proposed Stakeholder Review Process as an appendix to the TO-20 settlement.

#### Cotenancy Agreement

- PG&E with support from NCPA and SVP filed an amendment that acknowledged CDWR's request for termination. The amendment rejected CDWR's request, pending resolution of the Cost of Removal dispute. All other matters have been delayed until this issue is resolved.
- On September 27, 2019 FERC rejected PG&E's amendment stating PG&E cannot unilaterally extend the term of the Agreement. FERC did not address the cost of removal aspect and the calculation methodology. NCPA has initiated discussions with members as to how much capacity from CDWR's share should NCPA take. Pending the outcome of the capacity discussion, NCPA and SVP will look at next steps. More updates will be provided to members as it becomes available.

#### Load Interconnection Agreement Extension

- The Load IA (effective November 1, 2015) amongst the Members, NCPA, and PG&E is valid until November 1, 2020. The Agreement can be extended for another five years until 2025. The extension language states: Parties have to agree to such five-year extension by no later than the fourth anniversary of the Effective Date/ November 1, 2019.
- NCPA is authorized to act on behalf of its members for such a five year extension. On October 30, 2019 - NCPA and PG&E via letter agreement did extend the LIA until November 1, 2025.

## **Debt and Financial Management**

- The Federal Reserve made a third 0.25% cut in the fed funds rate at its October 30 Federal Open Market Committee meeting. Although the Fed continued to acknowledge solid job gains and strong household spending, it also noted that business investment and exports remained weak. It characterized the latest move as “insurance against ongoing risks” and now views policy as “in a good place.” The new target range is set at 1.50% to 1.75% and likely to remain there for the foreseeable future.
- The U.S. Treasury yield curve un-inverted over the month as short rates fell and longer rates rose. At the end of October, the curve was essentially flat from one month (1.54%) to five years (1.52%). The combination of an additional rate cut in October and Fed purchases of Treasury bills to stabilize money markets helped push short-term yields lower over the month. Changes in intermediate-term maturities (between one and seven years) were muted, while longer Treasury yields (10 and 30 years) moved higher.
- The Finance Committee held a meeting on November 12<sup>th</sup>. One of the items discussed was a potential refunding opportunity regarding the 2012 Hydroelectric bonds. PFM showed two options: 1) taxable refunding with an estimated NPV savings of \$7.3m and 2) forward starting swap with an estimated NPV savings of \$13.5m. While both options were discussed at length, the Committee recommended to continue monitoring both refunding options and return in February with an update.

## **Schedule Coordination Goals**

### **Software Development**

- Staff, in collaboration with Power Management, Generation Services, and a consultant, have begun efforts to develop a solution to enable Multi-Stage Generation capability for the Lodi Energy Center. Since the first week of September, the team participated in the CAISO Market Simulation Fall 2019 Release Phase 1 and was able to exercise the planned scenarios for the LEC Bidding Configurations. The team has participated in the Phase 2 market simulation. Anticipated go-live is early 2020.
- NCPA Information Services staff is performing a technology upgrade to its legacy NCPA ADS (NADS) software application that is responsible for processing and responding to various market generator resource instructions sent by the CAISO for each 5-minute interval. In addition, the business logic will be refined to further improve performance under a variety of operational conditions. NCPA has acquired the services of a consultant to help formulate specifications. Development is underway. Completion is anticipated middle of next year.
- Work continues in automating and integrating members’ monthly Resource Adequacy demonstrations and supply plans into NCPA’s bid-to-bill system. Target completion is middle of next year.

- Work is underway to develop a general Data Exchange app and/or service to provide an API for the member/customer to submit data into the NCPA data store. Initially this was rolled out as a means for MEID to submit energy schedules and water flows. The app/service will be redesigned to handle submission of a variety of interval data. Initial target use case is for Palo Alto's Solar Resources' Expected Energy data. Rollout is expected late November.
- Coordination with Power Management Dispatch and Scheduling and SVP is underway to provide manpower assistance to SVP's real-time operations during the weekend shifts. Additional computer hardware is being procured to support the extended SC and Dispatch operation. December 2019 timeframe is the anticipated start of the transition.
- Scope of work is being developed to review the current Accounting Business Process and the intended upgrade of the main accounting system, Microsoft Dynamics GP. Completion anticipated middle of next year.

## **Network**

- Progress continues to be made upgrading staff to Windows 10 with over 70.8% of the Agency on the new Operating System. The goal is to have all workstations moved over before the end of 2020.
- The Ops and Support group has been working alongside Power Management and Settlements in preparation for the CAISO MSG market simulation later this year. Part of this effort will include enhancements to SCADA control logic for LEC configurations along with updating dispatch control center screens.
- The final Oracle 12 upgrade plans have continued throughout the summer and preparations for additional testing is underway. The remaining two databases are the largest and most complicated to configure, but it is imperative they get updated soon to maintain support from Oracle.
- The annual hard failover to the Disaster Recovery Center and failback to HQ was successfully completed on October 20<sup>th</sup>. This failover provided our staff the ability to install new Next Generation firewalls that protect our HQ Control Center.
- The Ops and Support group successfully installed new firewalls during the October Failover. These firewalls have replaced old off-support equipment and will help to both enhance our security and CIP compliance posture.
- NCPA continues to gather requirements for becoming a NERC CIP Medium impact entity. This includes a timeline, resources and costs that will be associated with the activity and ongoing maintenance that will be required to support such a program. Staff anticipates having a schedule and timeline sometime in November. Further, we are finalizing the procedures for additional Low Impact requirements that are set to go live January 1<sup>st</sup> of 2020.

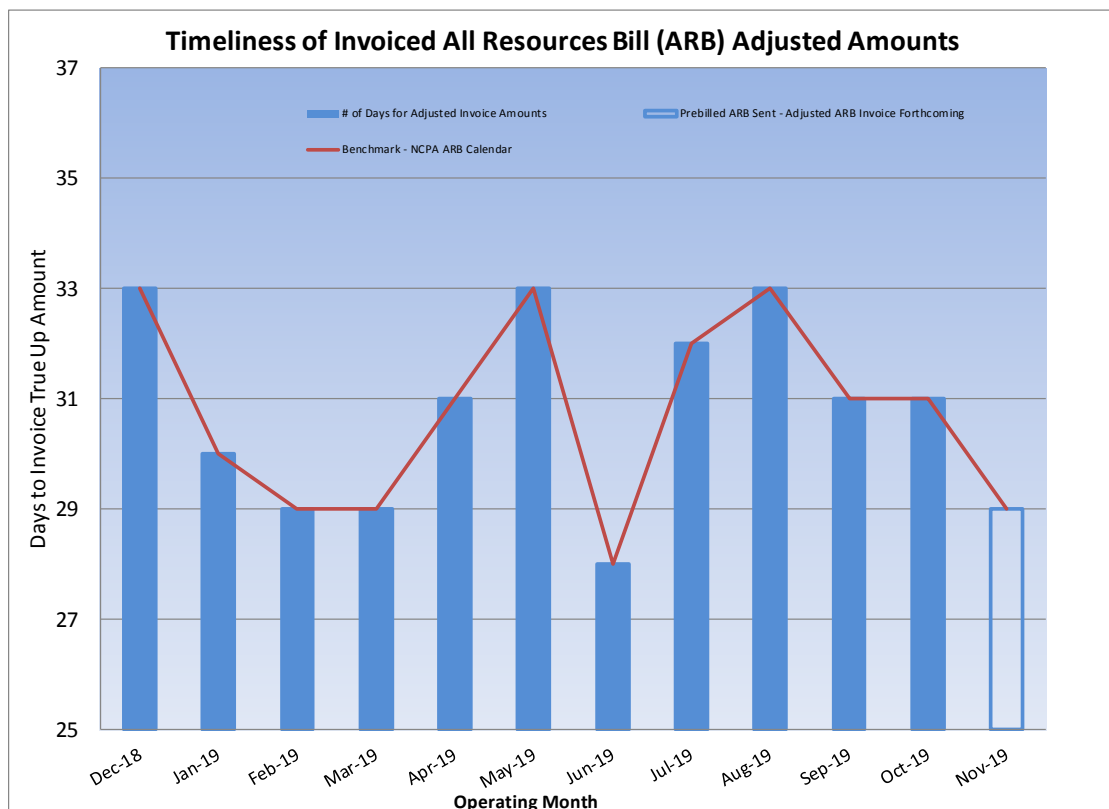
# NCPA Bills & Settlements

## 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 November 2019 NCPA All Resources Bill (ARB) monthly invoice sent to members on October 26, 2019 contains:

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



## **Legislative & Regulatory**

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

- NCPA submitted comments on the California Air Resources Board's proposed amendments to the Low Carbon Fuel Standard (LCFS), which will be heard by the Board on November 21<sup>st</sup>. The comments expressed support for cost containment mechanisms, clarifications to the Clean Fuel Reward program, and the goal of ensuring that transportation electrification is available to all communities. However, the comments also requested changes to the proposed amendments to allow for more flexibility for POUs to design and implement programs that are tailored to the unique circumstances of their communities.
- The Legislative and Regulatory team is working closely with members and internally to identify key lessons learned from implementation of PG&E's Public Safety Power Shut-offs (PSPS). NCPA staff worked with Senate Energy, Utilities, and Communications Committee staff to have Mel Grandi, Electric Utility Director for the City of Ukiah, provide testimony during the Committee's November 18<sup>th</sup> oversight hearing on Public Safety Power Shut-offs. As well, the L&R team is actively responding to PG&E's post-PSPS event reports to the California Public Utilities Commission, primarily emphasizing the need for improved planning and communication with transmission-dependent utilities.
- As part of the External Affairs function, NCPA staff responded to media requests and provided additional communications support (including press releases, statements, member and employee updates, and website and social media updates) related to the Kincadee Fire and the U.S. Court of Appeals decision on Central Valley Project Improvement Act overcharges.
- NCPA wins CVPIA litigation on appeal. On November 6, 2019, the United States Court of Appeals for the Federal Circuit reserved the lower court's decision, which dismissed NCPA's complaint and claim for damages for power overpayments to Central Valley Project Improvement Act (CVPIA) Restoration Fund. The Appellate Court ruled, 3-0, that proportionality is, in fact, a limitation imposed on the Bureau of Reclamation when assessing payments to CVP power under the CVPIA Restoration Fund. The court's decision followed oral arguments held on September 30, 2019, and affirms the position of NCPA, City of Redding, City of Roseville, and City of Santa Clara filed in its September 4, 2014 complaint.

Proposed Central Valley Power bypasses at Folsom powerplant have been averted. Earlier this month, Reclamation announced that they will not bypass power generation at the Folsom hydropower plant in November. This decision is a departure from previous determinations, and it signals Reclamation's commitment to improving the value of CVP hydropower. Reclamation estimated the cost of the bypass operations would have been more than \$100,000 in lost CVP generation.

WAPA 2025 Central Valley Project contract discussions are continuing. Two key contract provisions—clarity on termination and capacity rights—that have been raised by NCPA appear to be moving in the right direction. The contracts are expected to be finalized by the end of the year, and, once final, power customer will have six months to execute.

In late October, the two Federal fishery agencies determined that the revised water operations will not likely jeopardize the continued existence of endangered species within their jurisdiction—in particular, Delta Smelt and Salmon. The fishery agencies' determinations are a critical step for Reclamation to operate its project to improve fish survivability while creating flexibility for water supply and power generation.

- Registration for NCPA's 2020 Strategic Issues Conference on January 14-16 is now open and can be found at [www.eventleaf.com/sic2020](http://www.eventleaf.com/sic2020).

This year's conference will focus on trends in the industry that are likely to take center stage in the policy and regulatory arena in California. As communities across the state struggle to keep the lights on in the face of wildfire-related de-energization efforts known as "Public Safety Power Shutoffs" (PSPS), lawmakers and regulators are searching for ways to address these challenges in a manner that increases grid resilience without jeopardizing the affordability of customer power rates. Hear from key policymakers and industry thought leaders who will share their insights on how the state plans to navigate these difficult challenges—and power the future of tomorrow.

## **Human Resources**

### **Hires:**

Kevin Richey, joined NCPA on November 4, 2019 as a Computer Technology Analyst III (Business Analyst), at our Headquarters offices in Roseville, CA. Kevin's professional background includes nine years of working in the role as business analyst. Prior to joining NCPA, Kevin worked as Senior Business Systems Analyst of Enterprise Solutions at the City of Roseville where he was a key contributor to the successful implementations of both a new asset management system and public safety system for the city. Kevin is a graduate of Kansas Wesleyan University where he earned a Bachelor of Science degree in Business Management.

### **Intern Hires:**

Erik Coleman, Assistant Student II, Information Service, HQ, 10/15/2019

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

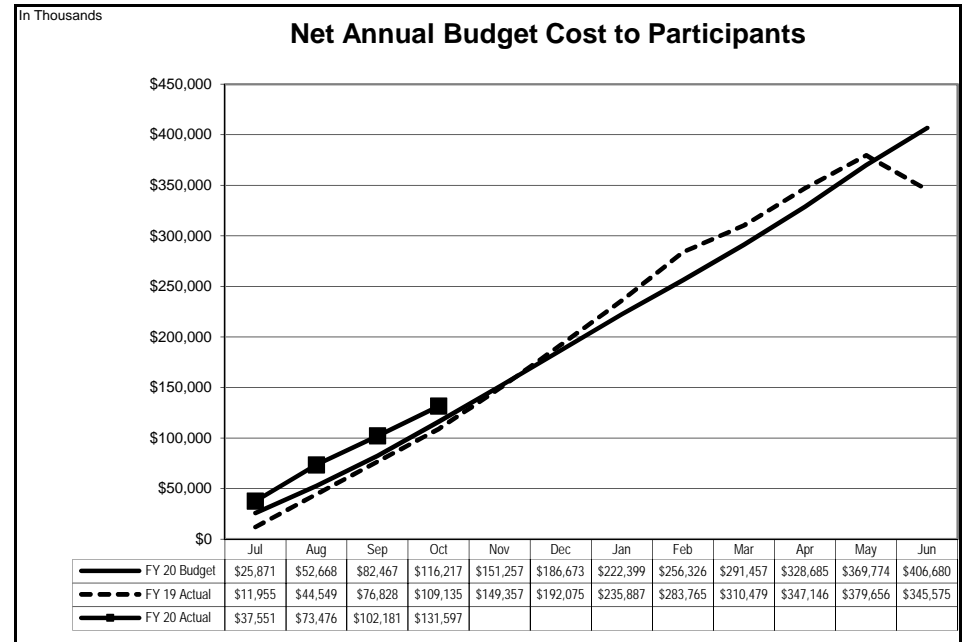
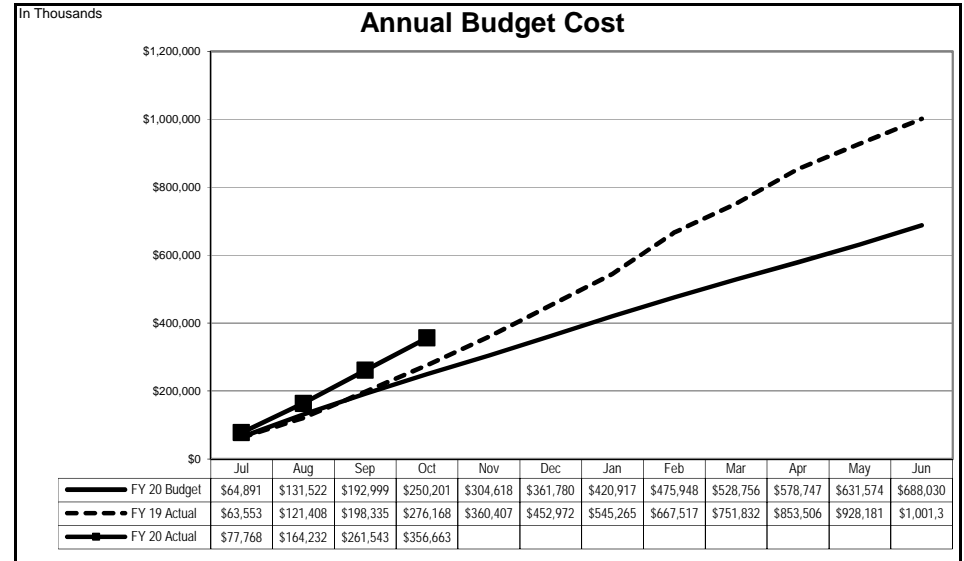
None

### **Separations:**

None

**Annual Budget  
2019-2020 Fiscal Year To Date  
As of October 31, 2019**

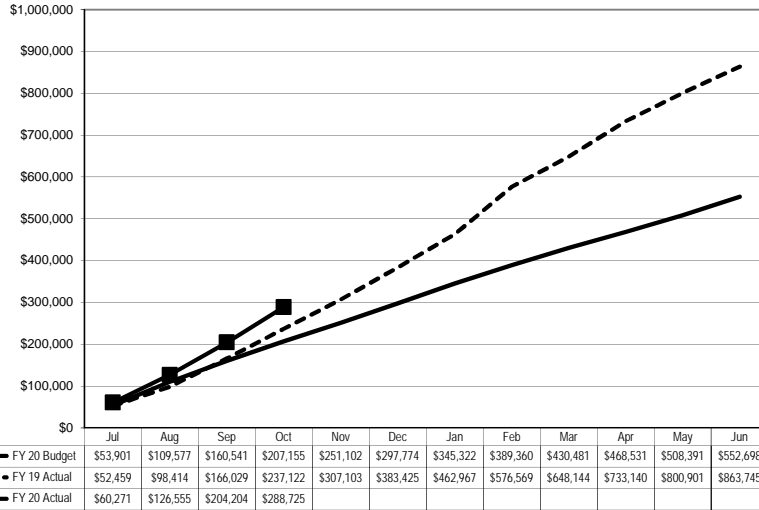
In Thousands	Program			
	Annual Budget	Actual	Under(Ovr) Budget	YTD % Remaining
<b>GENERATION RESOURCES</b>				
<b>NCPA Plants</b>				
Hydroelectric	54,074	17,509	\$ 36,566	68%
Geothermal Plant	35,311	11,880	23,431	66%
Combustion Turbine No. 1	6,170	2,134	4,035	65%
Combustion Turbine No. 2 (STIG)	9,438	3,107	6,332	67%
Lodi Energy Center	92,960	24,681	68,280	73%
	197,953	59,310	138,643	70%
<b>Member Resources - Energy</b>	56,229	23,656	32,573	58%
<b>Member Resources - Natural Gas</b>	3,541	1,620	1,921	54%
<b>Western Resource</b>	23,325	7,991	15,334	66%
<b>Market Power Purchases</b>	15,123	8,208	6,916	46%
<b>Load Aggregation Costs - ISO</b>	256,030	186,917	69,112	27%
<b>Net GHG Obligations</b>	497	1,023	(526)	-106%
	552,698	288,725	263,973	48%
<b>TRANSMISSION</b>				
Independent System Operator	117,089	62,290	54,799	47%
<b>MANAGEMENT SERVICES</b>				
<b>Legislative &amp; Regulatory</b>				
Legislative Representation	2,132	674	1,458	68%
Regulatory Representation	748	207	541	72%
Western Representation	745	190	556	75%
Customer Programs	424	67	357	84%
	4,049	1,138	2,912	72%
<b>Judicial Action</b>	625	79	546	87%
<b>Power Management</b>				
System Control & Load Dispatch	6,082	2,024	4,058	67%
Forecasting & Prescheduling	2,934	838	2,096	71%
Industry Restructuring	414	115	299	72%
Contract Admin, Interconnection Svcs & Ext. Affairs	954	320	634	66%
Gas Purchase Program	77	22	55	71%
Market Purchase Project	111	31	80	72%
	10,573	3,350	7,223	68%
<b>Energy Risk Management</b>	212	54	157	74%
<b>Settlements</b>	980	261	718	73%
<b>Integrated System Support</b>	243	15	228	94%
<b>Participant Pass Through Costs</b>	1,560	228	1,333	85%
<b>Support Services</b>	-	522	(522)	
	18,243	5,647	12,596	69%
<b>TOTAL ANNUAL BUDGET COST</b>	688,030	356,663	331,367	48%
<b>LESS: THIRD PARTY REVENUE</b>				
Plant ISO Energy Sales	127,624	33,715	93,909	74%
Member Resource ISO Energy Sales	29,156	9,868	19,289	66%
Member Owned Generation ISO Energy Sales	67,108	28,586	38,522	57%
NCPA Contracts ISO Energy Sales	15,623	6,331	9,293	59%
Western Resource ISO Energy Sales	18,304	10,340	7,964	44%
Load Aggregation Energy Sales	-	99,807	(99,807)	
Ancillary Services Sales	4,197	3,200	996	24%
Transmission Sales	110	37	74	67%
Western Credits, Interest & Other Income	19,227	33,182	(13,954)	-73%
	281,350	225,066	56,285	20%
<b>NET ANNUAL BUDGET COST TO PARTICIPANTS</b>	406,680	131,597	\$ 275,083	68%



## Annual Budget Budget vs. Actual By Major Area As of October 31, 2019

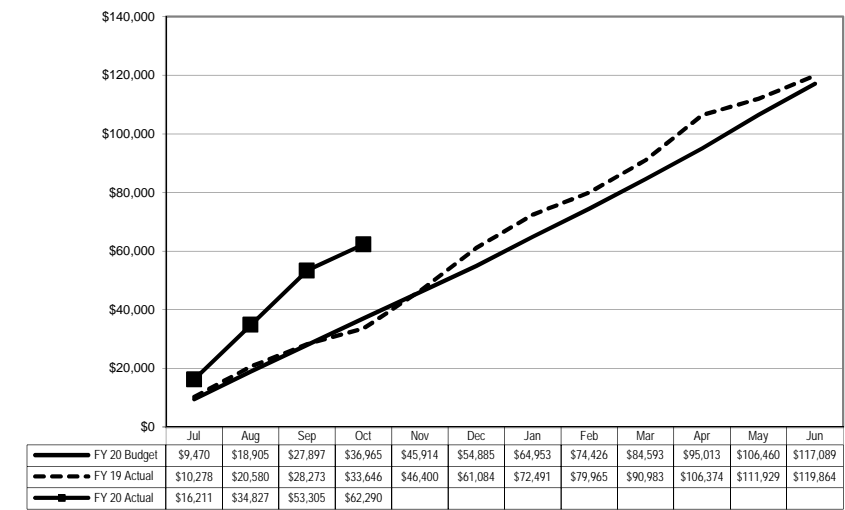
In Thousands

### Generation Resources



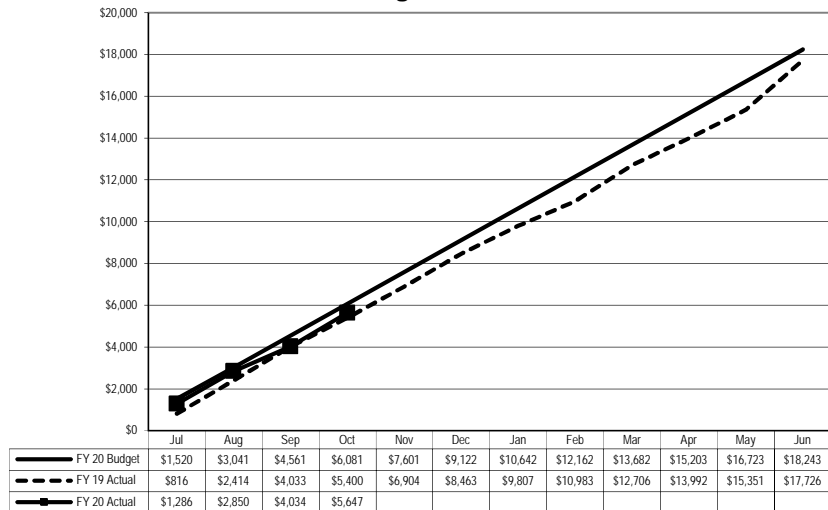
In Thousands

### Transmission-ISO



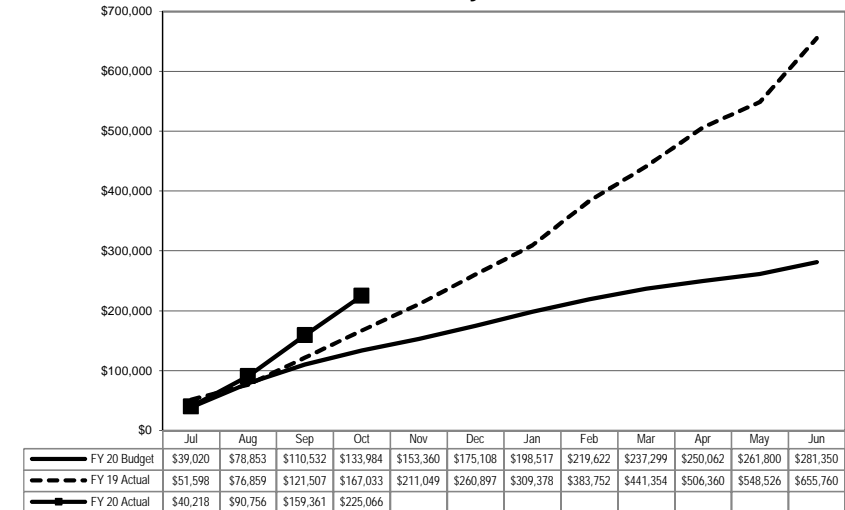
In Thousands

### Management Services



In Thousands

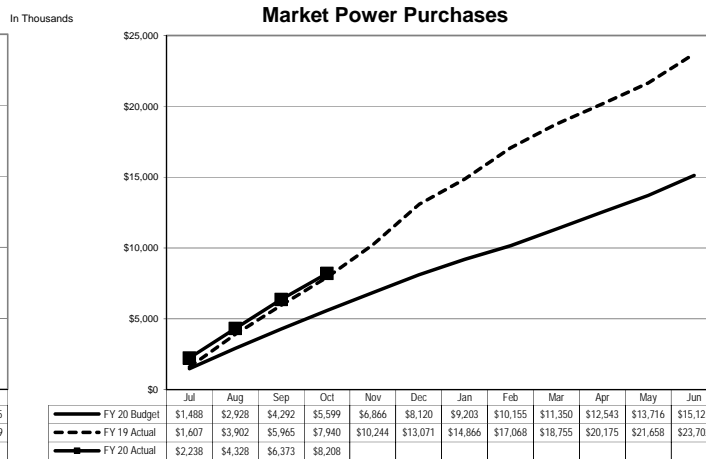
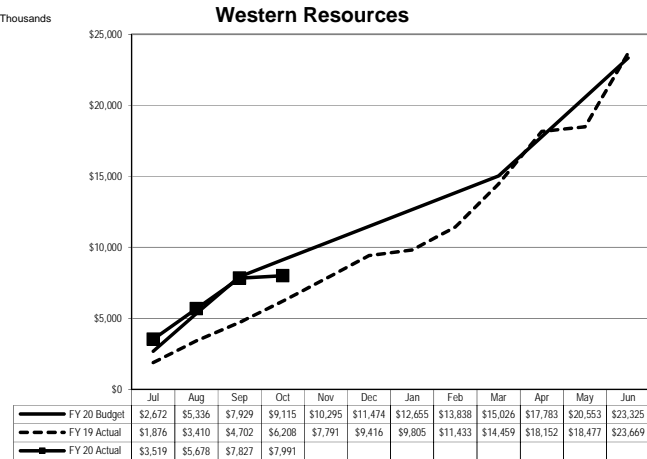
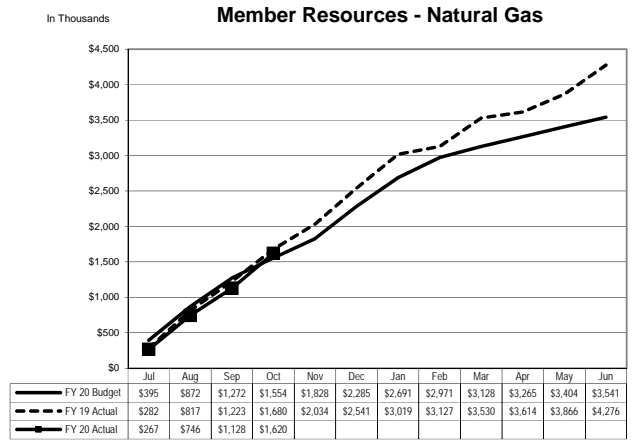
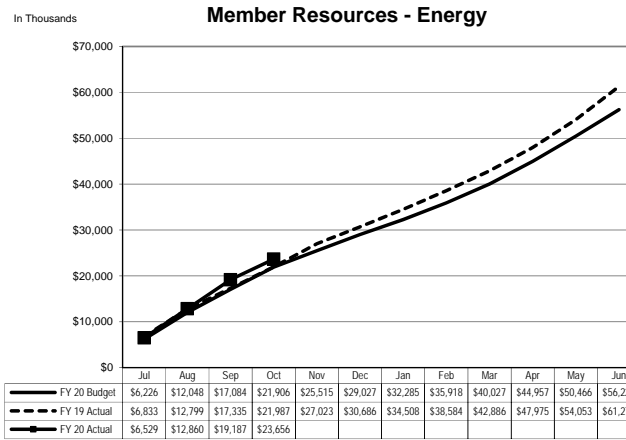
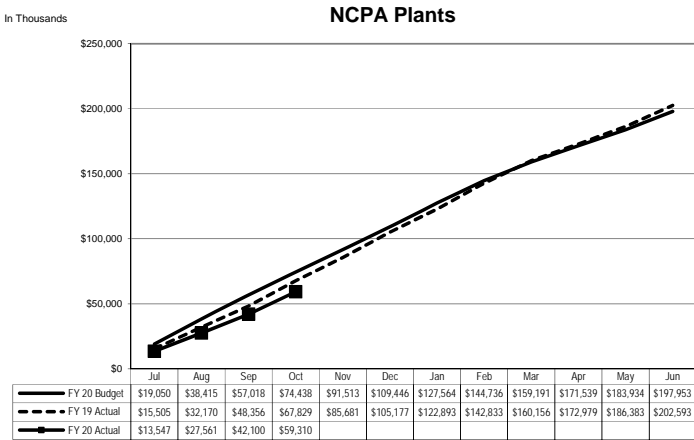
### Third Party Revenue



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

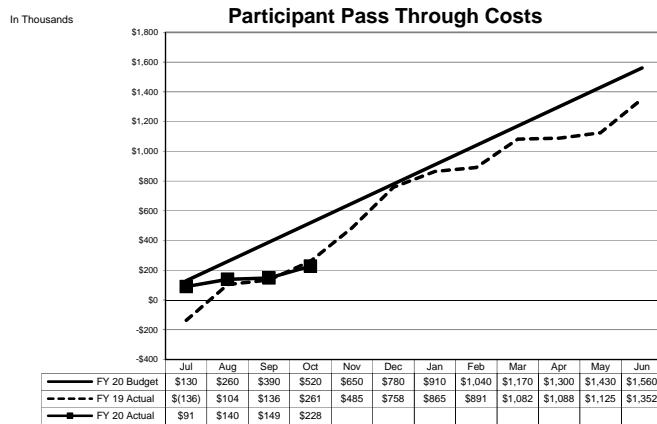
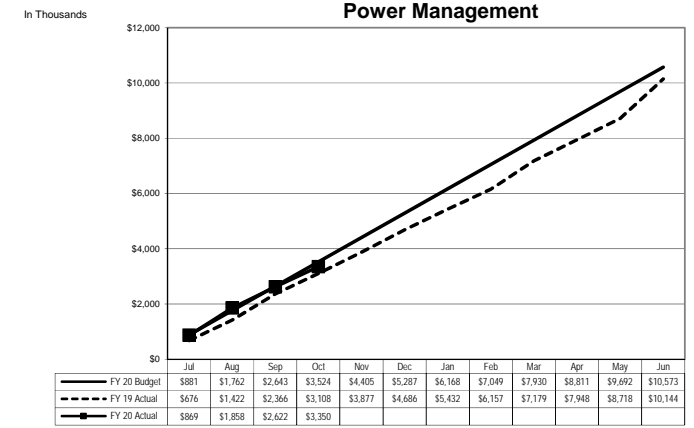
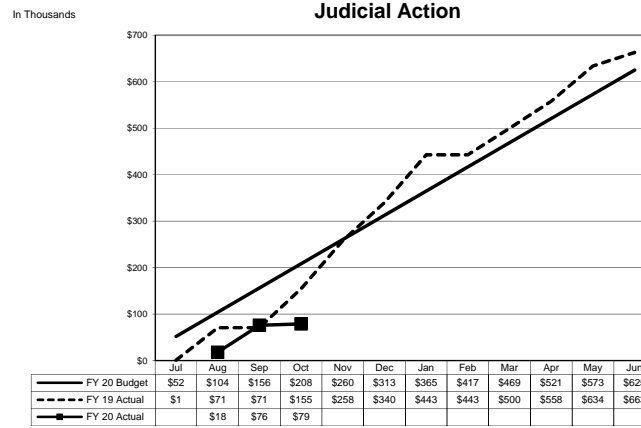
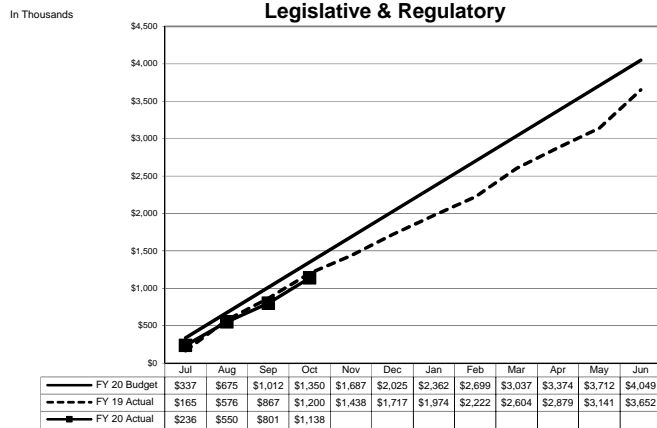


## Annual Budget Cost Generation Resources Analysis By Source As of October 31, 2019



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

**Annual Budget Cost  
Management Services Analysis By Source  
As of October 31, 2019**

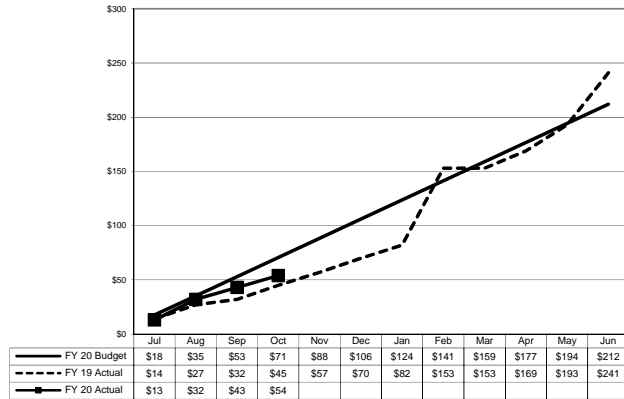


**Annual Budget Cost  
Management Services Analysis By Source  
As of October 31, 2019**

In Thousands

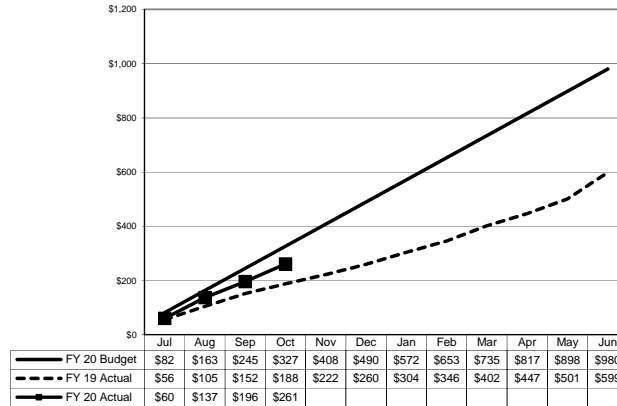
**Energy Risk Management**

In Thousands

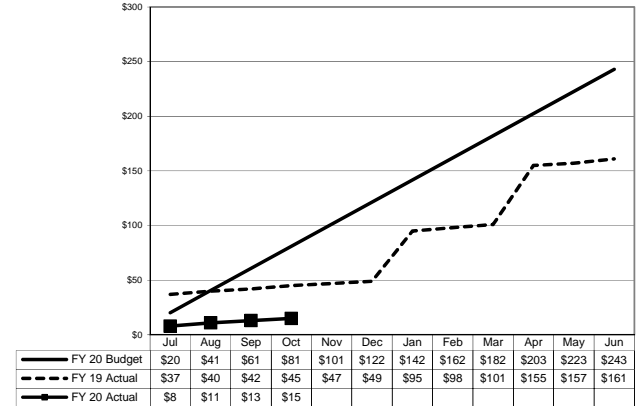


**Settlements**

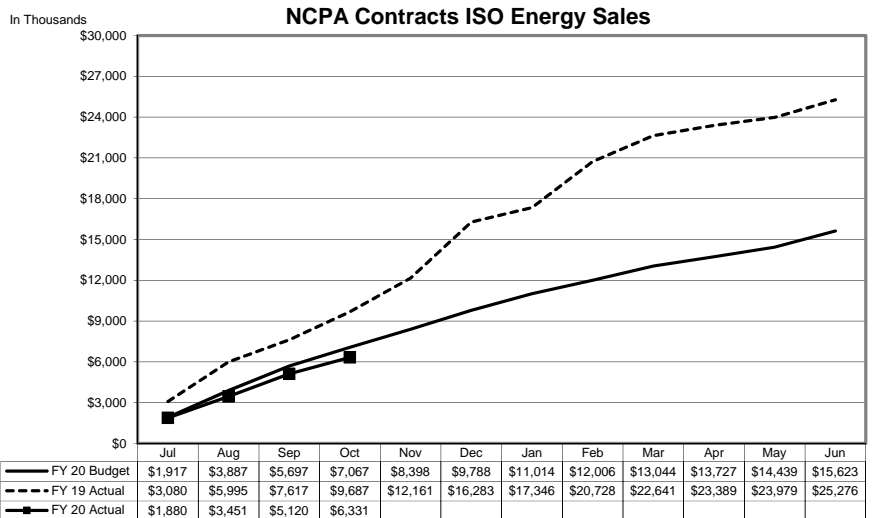
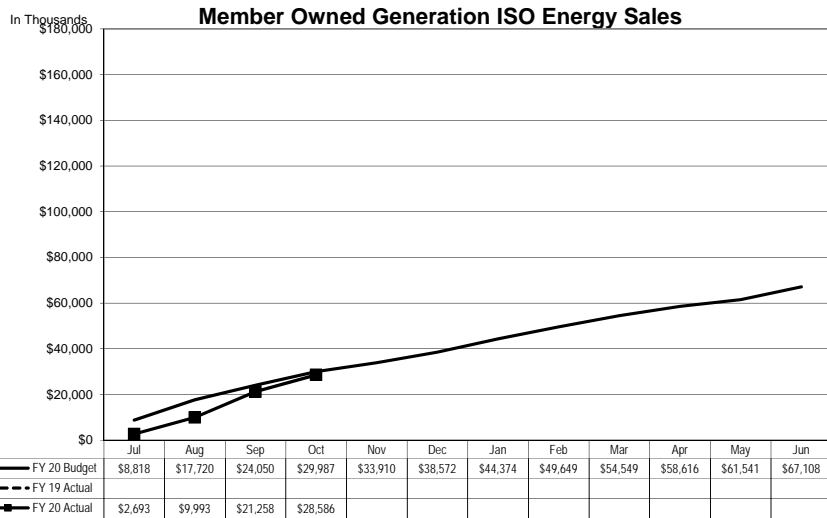
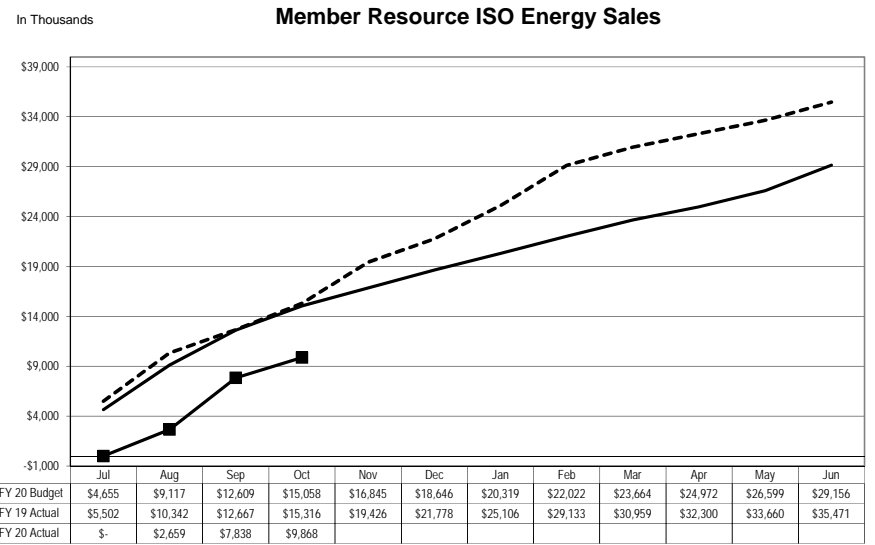
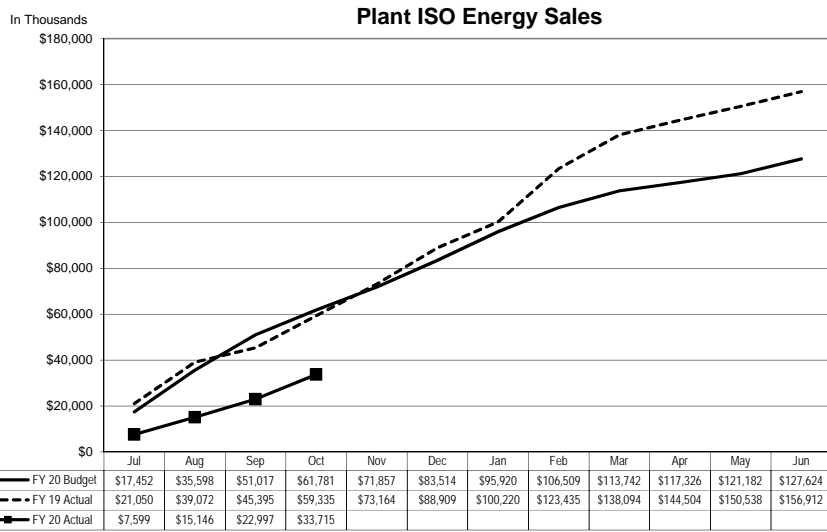
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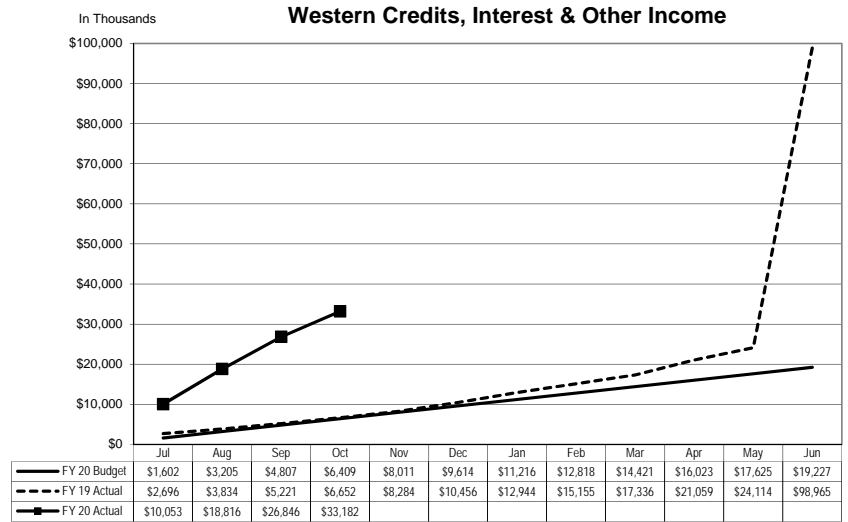
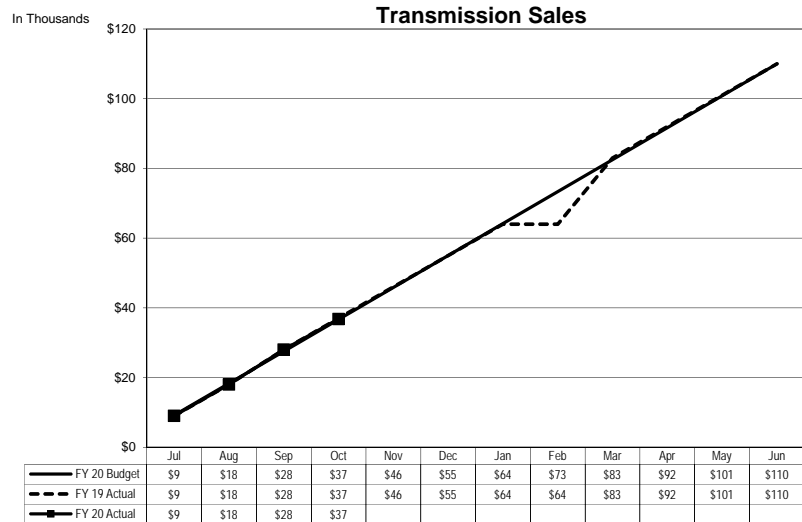
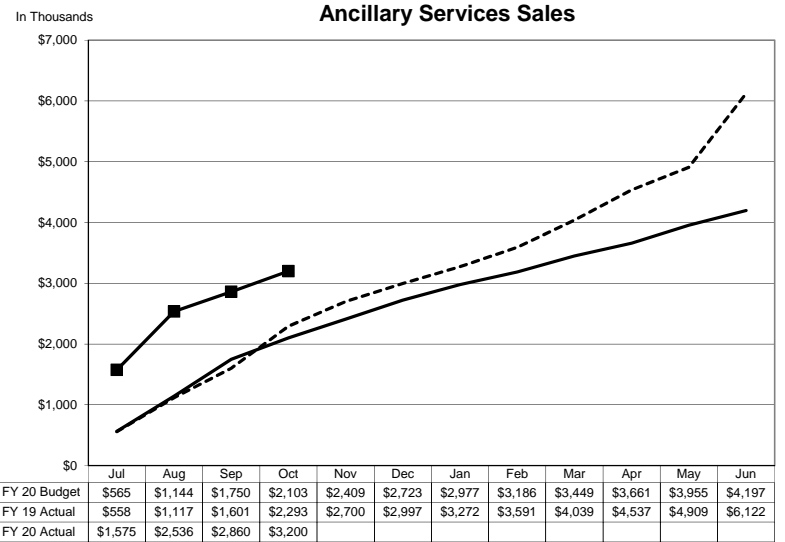
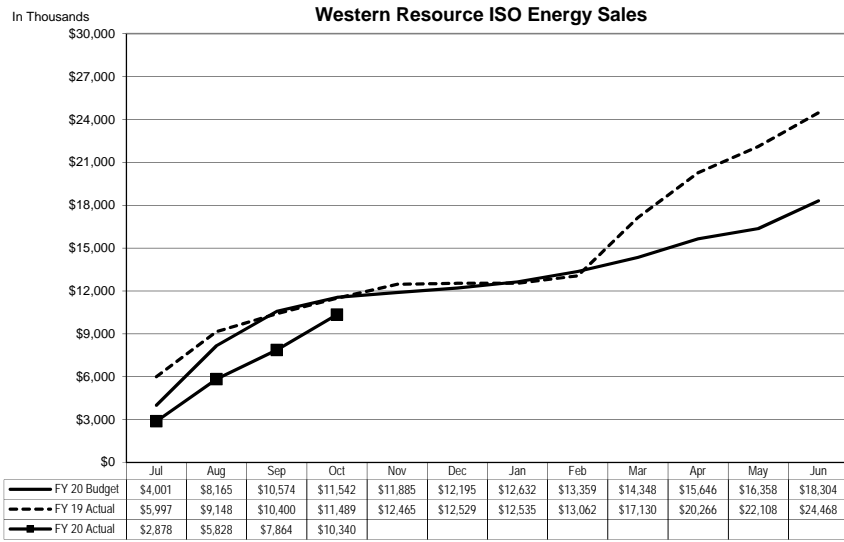
**Integrated Systems Support**



**Annual Budget Cost  
Third Party Revenue Analysis By Source  
As of October 31, 2019**



**Annual Budget Cost  
Third Party Revenue Analysis By Source  
As of October 31, 2019**



**Annual Budget  
NCPA Generation Detail Analysis By Plant  
As of October 31, 2019**

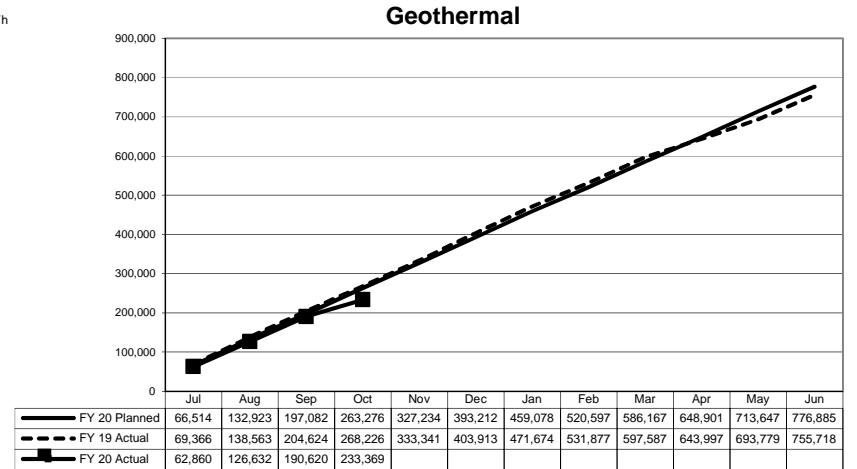
**Generation Cost Analysis**

\$ in thousands

	Geothermal				
	Budget	Actual	\$/MWh	Under(Over)	YTD %
			Actual	Budget	Remaining
Routine O & M	\$ 18,456	\$ 6,002	\$ 25.72	\$ 12,454	67%
Capital Assets/Spare Parts Inventories	3,645	1,317	5.65	2,328	64%
Other Costs	7,640	2,456	10.52	5,184	68%
CA ISO Charges	625	456	1.95	169	27%
Debt Service	4,946	1,649	7.06	3,297	67%
Annual Budget	35,311	11,880	50.91	23,431	66%
Less: Third Party Revenue					
Interest Income	382	99	0.42	283	74%
ISO Energy Sales	29,481	8,102	34.72	21,378	73%
Ancillary Services Sales	-	-	-	-	-
Effluent Revenues	750	270	1.16	480	64%
Misc	110	37	0.16	73	66%
	30,723	8,508	36.46	22,215	72%
Net Annual Budget Cost to Participants	\$ 4,588	\$ 3,372	\$ 14.45	\$ 1,216	27%
Net Generation--MWh @ Meter	776,885	233,369			
\$/MWh (A)	\$ (0.46)	\$ 7.38			

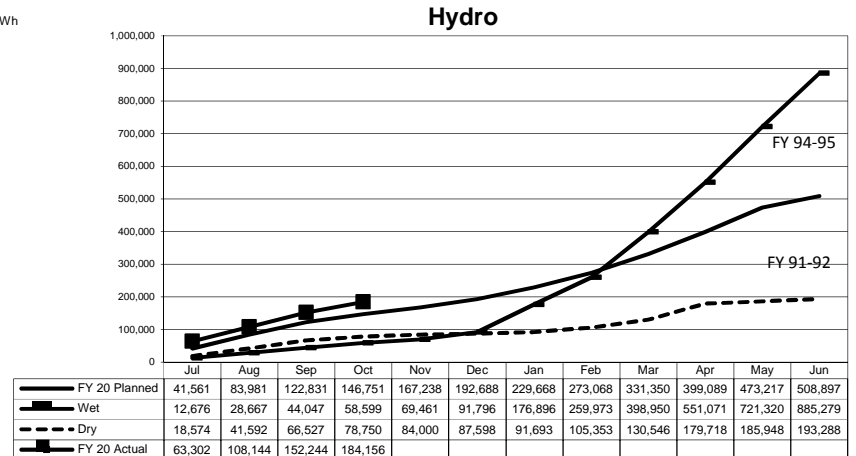
**MWhs Generated**

In MWh



	Hydroelectric				
	Budget	Actual	\$/MWh	Under(Over)	YTD %
			Actual	Budget	Remaining
Routine O & M	\$ 450	\$ 2,608	\$ 14.16	\$ (2,159)	-480%
Capital Assets/Spare Parts Inventories	4,775	1,642	8.92	3,133	66%
Other Costs	12,078	967	5.25	11,110	92%
CA ISO Charges	3,465	1,188	6.45	2,276	66%
Debt Service	33,307	11,102	60.29	22,205	67%
Annual Budget	54,074	17,509	95.07	36,566	68%
Less: Third Party Revenue					
Interest Income	670	155	0.84	515	77%
ISO Energy Sales	23,455	6,604	35.86	16,852	72%
Ancillary Services Sales	2,539	2,549	13.84	(9)	0%
Misc	-	1	0.00	(1)	
	26,664	9,307	50.54	17,357	65%
Net Annual Budget Cost to Participants	\$ 27,410	\$ 8,201	\$ 44.53	\$ 19,208	
Net Generation--MWh @ Meter	508,897	184,156			
\$/MWh (A)	\$ (11.59)	\$ (15.75)			

In MWh



Footnotes:

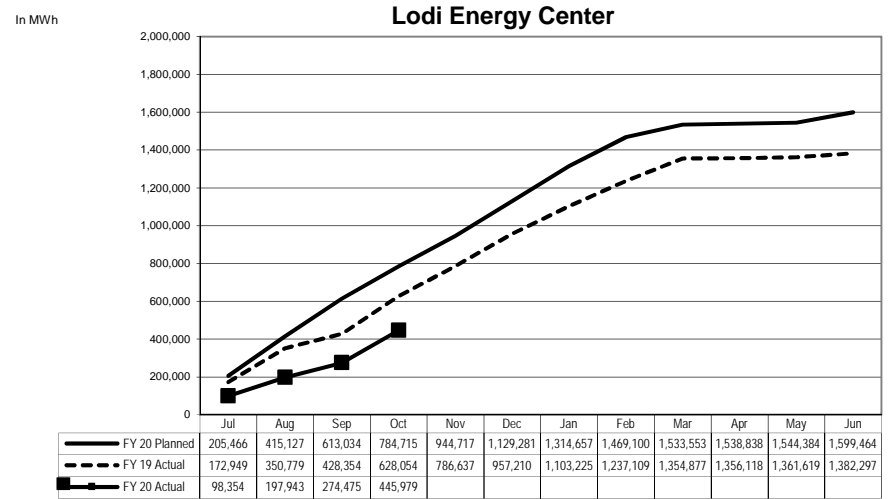
(A) Aggregate fiscal year generation in \$/MWh (excluding debt service)

**Annual Budget  
NCPA Generation Detail Analysis By Plant  
As of October 31, 2019**

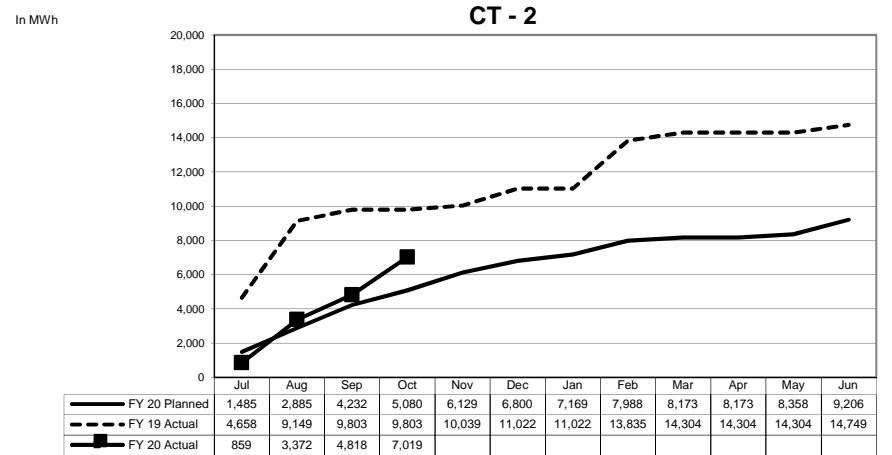
**Generation Cost Analysis**

	Lodi Energy Center				
	Budget	Actual	\$/MWh Actual	Under(Over) Budget	YTD % Remaining
Routine O & M	\$ 14,101	\$ 3,471	\$ 7.78	\$ 10,630	75%
Fuel	39,513	10,377	23.27	29,137	74%
AB 32 GHG Offset	-	-	-	-	0%
CA ISO Charges and Energy Purchases	4,710	609	1.37	4,101	87%
Capital Assets/Spare Parts Inventories	5,333	525	1.18	4,808	90%
Other Costs	3,249	1,014	2.27	2,235	69%
Debt Service	26,054	8,685	19.47	17,370	67%
<b>Annual Budget</b>	<b>92,960</b>	<b>24,681</b>	<b>55.34</b>	<b>68,280</b>	<b>73%</b>
Less: Third Party Revenue					
Interest Income	386	230	0.52	156	40%
ISO Energy Sales	72,603	17,941	40.23	54,662	75%
Ancillary Services Sales	1,433	418	0.94	1,015	71%
Transfer Gas Credit	-	-	-	-	0%
Misc	-	1	0.00	(1)	0%
	<b>74,421</b>	<b>18,589</b>	<b>41.68</b>	<b>55,831</b>	<b>75%</b>
<b>Net Annual Budget Cost to Participants</b>	<b>\$ 18,539</b>	<b>\$ 6,091</b>	<b>\$ 13.66</b>	<b>\$ 12,448</b>	<b>67%</b>
Net Generation--MWh @ Meter	1,599,464	445,979			
<b>\$/MWh (A)</b>	<b>\$ (4.70)</b>	<b>\$ (5.82)</b>			

**MWhs Generated**



	Combustion Turbine No. 2 (STIG)				
	Budget	Actual	\$/MWh Actual	Under(Over) Budget	YTD % Remaining
Routine O & M	\$ 1,595	\$ 501	\$ 71.35	\$ 1,095	69%
Fuel and Pipeline Transport Charges	1,089	371	52.86	718	66%
Capital Assets/Spare Parts Inventories	418	122	17.44	296	71%
Other Costs	486	153	21.79	333	69%
CA ISO Charges	53	27	3.88	26	49%
Debt Service	5,796	1,932	275.27	3,864	67%
<b>Annual Budget</b>	<b>9,438</b>	<b>3,107</b>	<b>442.59</b>	<b>6,332</b>	<b>67%</b>
Less: Third Party Revenue					
Interest Income	109	38	5.44	70	65%
ISO Energy Sales	819	499	71.12	320	39%
Ancillary Service Sales	-	-	-	-	0%
Fuel and Pipeline Transport Credits	1,687	615	87.65	1,072	64%
Misc	-	-	-	-	0%
	<b>2,615</b>	<b>1,153</b>	<b>164.21</b>	<b>1,463</b>	<b>56%</b>
<b>Net Annual Budget Cost to Participants</b>	<b>\$ 6,823</b>	<b>\$ 1,954</b>	<b>\$ 278.38</b>	<b>\$ 4,869</b>	<b>71%</b>
Net Generation--MWh @ Meter	9,206	7,019			
<b>\$/MWh (A)</b>	<b>\$ 111.53</b>	<b>\$ 3.11</b>			



**Footnotes:**

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

**Annual Budget  
NCPA Generation Detail Analysis By Plant  
As of October 31, 2019**

**Generation Cost Analysis**

	<b>Combustion Turbine No. 1</b>				
	<b>Budget</b>	<b>Actual</b>	<b>\$/MWh Actual</b>	<b>Under(Over) Budget</b>	<b>YTD % Remaining</b>
Routine O & M	\$ 2,268	\$ 644	\$ 224.87	\$ 1,625	72%
Fuel and Pipeline Transport Charges	975	159	55.51	816	84%
Capital Assets/Spare Parts Inventories	2,110	952	332.63	1,158	55%
Other Costs	747	235	82.26	511	68%
CA ISO Charges	69	145	50.53	(75)	-109%
Debt Service	-	-	-	-	-
<b>Annual Budget</b>	<b>6,170</b>	<b>2,134</b>	<b>745.81</b>	<b>4,035</b>	<b>65%</b>
Less: Third Party Revenue					
Interest Income	-	3	-	(3)	
ISO Energy Sales	1,266	569	198.79	697	55%
Ancillary Services Sales	-	-	-	-	0%
Misc	-	16	5.47	(16)	0%
	1,266	587	204.26	679	54%
<b>Net Annual Budget Cost to Participants</b>	<b>\$ 4,904</b>	<b>\$ 1,547</b>	<b>\$ 540.57</b>	<b>\$ 3,356</b>	<b>68%</b>
Net Generation--MWh @ Meter	13,042	2,862			
<b>\$/MWh (A)</b>	<b>\$ 375.97</b>	<b>\$ 540.57</b>			

**Footnotes:**

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

**MWhs Generated**

In MWh

**CT - 1**

