



Northern California Power Agency
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BUSINESS PROGRESS REPORT

2019

August

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Generation Costs & Reliability

Combustion Turbine Project

Unit Operation for July 2019

Unit	Availability		Production		Reason for Run
CT1 Alameda	Unit 1	Unit 2	Unit 1	141.4 MWh	CAISO / CAISO
	100.0%	100.0%	Unit 2	145.0	
Curtailements, Outages, and Comments:					
No Comment for U1.					
No Comment for U2.					
Unit	Availability		Production		Reason for Run
CT1 Lodi	100.0%		0.0 MWh		CAISO
Curtailements, Outages, and Comments:					
No Comment.					
Unit	Availability		Production		Reason for Run
CT2 STIG	98.4%		834.2 MWh		CAISO
Curtailements, Outages, and Comments:					
6/18/19 - 8/22/19 - Lodi STIG unit de-rated to 44.0mw. 7-6-19 STIG (12hours) o/s for closed cooling water for valve repairs OMS 7439804 0000-1223					
Unit	Availability		Production		Reason for Run
LEC	100.0%		98,350 MWh		CAISO
Curtailements, Outages, and Comments:					
7-6-19 LEC (12hours) o/s for closed cooling water valve repairs OMS 7439803					

Maintenance Summary – Specific per asset above.

Geothermal Facilities

Availability/Production for July 2019

Unit	Availability	Net Electricity Generated/Water Delivered	Out-of-Service/Descriptors
Unit 1	100 %	19,947 MWh	U1 was off line 5/1/19 until 2324 5/27/19 for T/G overhaul
Unit 2	100 %	*18,045 MWh	U2 was off line 5/1/19 until 1442 5/17/19 for T/G overhaul
Unit 3	N/A %	N/A	Unit 3 remains out of service.
Unit 4	100 %	24,853 MWh	U4 had no outages for the month
Southeast Geysers Effluent Pipeline	97.0%	216.0 mgallons	Average flow rate: 4,895 gpm
Southeast Solar Plant	N/A	55,826 KWh	Year-to-date KWh: 2,592,157
Bear Canyon Pump Station Zero Solar	N/A	123,617 KWh	Year-to-date KWh: 3,457,185

* Accounts for an additional 6,742 MWh of house load for the 21KV power supply to the effluent pipeline supplied from Unit #2.

Hydroelectric Project

Availability/Production for July 2019

Units	Availability	Net Electricity Generated	Out-of-Service
Collierville Unit 1	100%	24,154 MWh	
Collierville Unit 2	100%	35,081 MWh	
Spicer Unit 1	99.69%	1,867 MWh	NSM #1 was out of service on 7/24/19 for 2.3 hours due to AT&T issue leading to loss of Transfer Trip guard signal
Spicer Unit 2	99.70%	1,864 MWh	NSM #2 was out of service on 7/24/19 for 2.2 hours due to AT&T issue leading to loss of Transfer Trip guard signal
Spicer Unit 3	99.69%	337 MWh	NSM #3 was out of service on 7/24/19 for 2.3 hours due to AT&T issue leading to loss of Transfer Trip guard signal

Operations & Maintenance Activities:

- CMMS work orders
- Vegetation management around Alpine, Union and Utica Reservoirs
- Welding maintenance on spare Pelton runner
- Painting completed on CV intake tower, CV Stop Log and Communication buildings.
- Intern Tour of McKays, Commission Tour of Union Res.
- Preparation for CV Unit #1 Rewind.
- Wildfire Risk Mitigation Project (ongoing)
- Installation of upgraded Red Tag System at CVPH
- McKays Sediment Removal Project Basis of Design Kickoff Meeting

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

- There were no Cal OSHA Recordable or Lost Time Accidents in the month of July. One vehicle accident occurred at the Geo plant. The vehicle accident occurred when a vendor was backing up their work truck and was stung by a bee, causing the driver to momentarily lose control of the vehicle. The vehicle struck a 21kv power pole, breaking the pole in half. There were no injuries associated with this accident. The damage is estimated to cost over \$3,000.
- 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 July 20, 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.

July 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	31	361	1,566	6,634
Work Hours Since Last Recordable	2,167	76,422	232,231	2,416,899
LTA's (this month)	0	0	0	0
LTA's (calendar year)	0	0	0	0
Days without LTA	4,300	1,429	9,470	5,563
Work Hours without LTA	391,064	293,397	672,775	2,038,917
Vehicle Incident (month)	0	1	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 July 20, 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

	July 2019		Calendar Year 2019	
	Peak MW	MWh	Peak MW	MWh
NCPA Pool	420.42 7/24 @1800	212,438	470.07 6/11 @1700	1,339,385
SVP	541.31 7/24 @1600	324,957	587.78 6/11 @1600	2,135,478
MSSA	959.85 7/24 @ 1700	537,395	1052.58 6/11 @ 1700	3,474,863

Last Year 2018 Data*

	July 2018		Calendar Year 2018	
	Peak MW	MWh	Peak MW	MWh
NCPA Pool	419.2 7/25 @1700	217,836	419.2 7/25 @1700	1,332,681
SVP	524.94 7/10 @1500	326,638	529.29 8/9 @1700	2,138,338
MSSA	935.28 7/10 @ 1600	544,474	945.44 8/9 @ 1700	3,471,019

*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	470.07 6/11 @ 1700
SVP	587.78 MW on 6/11/19 @ 1600	587.78 6/11 @ 1600
MSSA	1070.79 MW on 9/1/17 @ 1700	1052.58 6/11 @ 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.

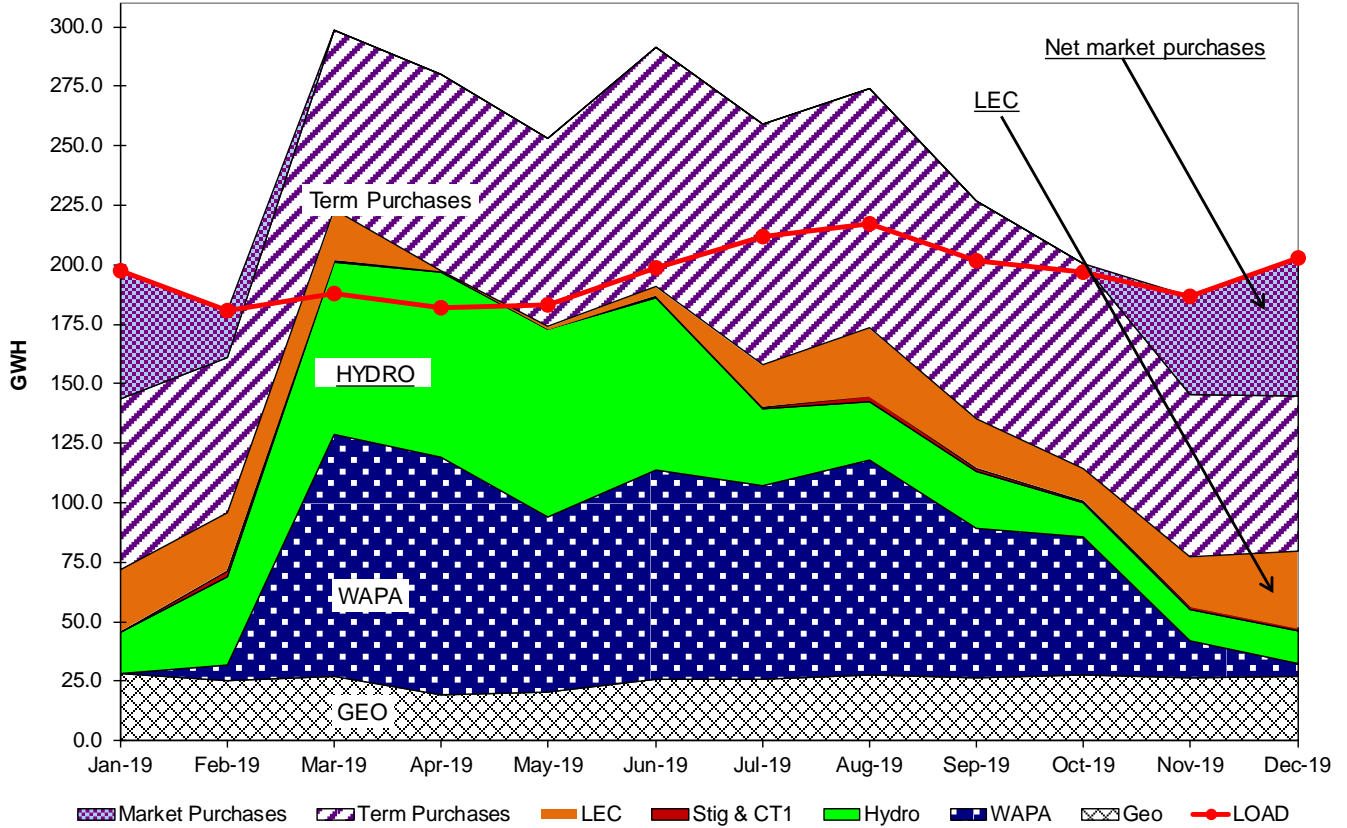
NCPA Deviation Band Performance		
	July 2019	Calendar Year 2019
MSSA % Within the Band	98.10%	95.75%

- Spicer Meadows:
 - July 24 @ 0931 - 1144, units off line due to loss of transfer trip guard signal due to AT&T issue. Unit 3 remained on providing station service
- Geothermal Units:
 - July 1 -31, Unit 4 derated to 34 MW for P site well maintenance
- Lodi Energy Center:
 - July 6 @ 0000 - 1223, plant o/s for repairs to close cooling water system isolation valve
- Alameda CTs:
 - No curtailments
- Lodi CT:
 - No curtailments
- Collierville Units:
 - No curtailments
- STIG:
 - July 6 @ 0000 - 1223, plant o/s for repairs to close cooling water system isolation valve

Pooling, Portfolio Planning & Forecasting

- NCPA Pool load in July 2019 was 212,102 MWh, or 97.3% of forecast. Continued mild summer temperatures kept demand below historical levels for most of the month. Pool load through August 14th was 100,035 MWh, virtually the same as during August 1-14, 2018 and 46% of the forecast 217,195 MWh for the full month.
- Lodi Energy Center (LEC) operated for all but 7 days during July 2019, generating 25,943 MWh for the Pool, or 69% of the pre-month forecast. Production was lower than the previous July due to strong hydro generation, mild weather and low power prices. Through August 14, 2019 LEC had generated 10,250 MWh for the Pool.
- During July 2019, no rain was recorded at the Big Trees gage. Average July Big Trees precipitation is 0.13”.
- The Value of Storage (VOS) of New Spicer Meadow Reservoir (NSMR) is reduced from \$40/MWh to \$35/MWh.
- NSMR storage as of July 31, 2019 was at 167,917 acre feet. The historical average NSMR storage at the end of July is 136,222 acre feet. As of August 20, 2019 NSMR storage is 154,401 acre feet. The current NCPA Pool share of NSMR storage is 79,008 acre feet.
- Combined Calaveras Project generation for the Pool in June 2019 totaled 32.2 GWh, down from 72.2 GWh in June 2019. The Pool's 32.2 GWh in July 2019 was below the pre-month forecast of 37.0 GWh.
- Western Base Resource (BR) deliveries for the Pool during July 2019 were 81,155 MWh, including Displacement energy totaling 24,328 MWh. The amount delivered was 89% of Western's pre-month forecast. Through August 14, 2019 the pool had received 46,562 MWh, including 16,914 MWh from the Displacement program, or 47% of Western's pre-month forecast of 99,140 MWh for August.
- The PG&E Citygate gas index averaged \$2.57/MMBtu for delivery on August 15, 2019, slightly above the average PG&E gas price during July of \$2.538/MMBtu as temperatures warm up in California and across the country. Strong storage refill continued in July and early August. The August 2019 PG&E Bidweek price is \$2.775/MMBtu, 3.5 cents higher than July's \$2.74 but well below June's \$3.255.
- Day-ahead NP15 electricity prices averaged \$33.35/MWh (HLH) and \$26.38 (LLH) during July 2019, with the hourly TH_NP15 maximum at \$135.49 on July 24 during a short heat wave. Through early August 2019, daily maximums began to top the \$100 level on August 14 as temperatures across the state rose toward seasonal highs.

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



NCPA Pool Loads & Resources Value Summary										
	Peak and Energy Summary Jul-19				Estimated Production Costs		Cost of Serving Demand			
	Coincident		Forecast		NCPA Pool					
	Peak (MW)	Total MWh	Values	Avg. MW	Cost/Revenue (Estimate)	Variable Cost (\$/MWh)	Totals	Avg (\$/MWh)		
	Jul-24-19 Hour 18									
Demand	420.4	212,102	217,923	285.1	N/A	N/A				
WAPA	-	81,155	91,642	109.1	\$ 2,278,398	\$ 28.07	\$ 7,063,645	\$ 33.30	at Market Clearing Price	
Geothermal	-	26,022	27,534	35.0	494,411	19.00				
Hydro	-	32,272	34,805	43.4	193,632	6.00				
Stig & CTs	-	668	2,100	0.9	33,960	50.85			at Variable Cost of Pool Generation	
LEC	-	17,686	25,943	23.8	537,305	30.38				
Contracts	-	101,143	106,179	135.9	6,461,948	63.89	\$ 8,190,704	\$ 38.62		
Market - Net <small>(Net Sales = Negative)</small>	420.4	(46,844)	(70,280)	(63.0)	(1,486,240)	31.73				
Net Total	420.4	212,102	217,923	285.1	\$ 8,513,414	\$ 38.62				

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 7/1/2019 (\$/MWh)	8/15/2019 (\$/MWh)	
Jan-19	197,652	\$ 42.93	\$ 45.13	Aug-19	\$ 55.72	\$ 37.90
Feb-19	180,866	\$ 79.12	\$ 41.57	Sep-19	\$ 44.97	\$ 39.67
Mar-19	187,890	\$ 39.02	\$ 24.83	Oct-19	\$ 42.02	\$ 38.04
Apr-19	178,692	\$ 24.88	\$ 28.55	Q4 2019	\$ 44.87	\$ 39.67
May-19	183,123	\$ 20.05	\$ 32.01	Q1 2020	\$ 42.94	\$ 38.96
Jun-19	198,698	\$ 25.83	\$ 38.09	Q2 2020	\$ 27.83	\$ 28.64
Jul-19	212,102	\$ 33.30	\$ 38.62	CY2020	\$ 41.10	\$ 38.34
Aug-19				CY2021	\$ 43.61	\$ 39.42
Sep-19				CY2022	\$ 45.60	\$ 40.21
Oct-19				CY2023	\$ 46.22	\$ 39.89
Nov-19				CY2024	\$ 46.50	\$ 39.05
Dec-19				CY2025	\$ 46.76	\$ 38.83

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 October 2019:
 - Monthly System Resource Adequacy Demonstration (filed August 16, 2019)
 - Monthly Supply Plan (filed August 16, 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:

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.
- NCPA submitted the following points in the latest round of initiative comments:
 - 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
- Comments will include tentative support of Option 2 along with requests for special Load Following MSS cost allocation netting.
- CAISO reviewed policy alignment and relationships among Day Ahead Market Enhancements, Extending Day Ahead Market to EIM, and Resource Adequacy Enhancements.

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 determinant consisting of volumetric and peak demand functions in order to address cost 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

- 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 ¹ (MWh)	BR Delivered (MWh)	Difference (MWh)	Restoration Fund (\$)	Monthly Cost of BR ² (\$/MWh)	CAISO LMP Differential ³ (\$/MWh)	12-Mo Rolling Avg. Cost of BR ⁴ (\$/MWh)
Jul-19	95,615	81,155	(14,460)	\$2,134,816	\$ 26.31	\$ (0.02)	\$ 30.98
Aug-19	75,245	-	(75,245)	\$2,134,816	\$ 28.37	\$ -	\$ 30.98
Sep-19	46,290	-	(46,290)	\$2,199,485	\$ 47.52	\$ -	\$ 32.11
Oct-19	23,193	-	(23,193)	\$1,139,485	\$ 49.13	\$ -	\$ 33.73
Nov-19	7,602	-	(7,602)	\$1,139,485	\$ 149.88	\$ -	\$ 35.37
Dec-19	6,564	-	(6,564)	\$1,139,485	\$ 173.60	\$ -	\$ 37.00
Jan-20	9,331	-	(9,331)	\$1,139,485	\$ 122.12	\$ -	\$ 37.90
Feb-20	17,163	-	(17,163)	\$1,139,485	\$ 66.39	\$ -	\$ 38.71
Mar-20	27,643	-	(27,643)	\$1,139,485	\$ 41.22	\$ -	\$ 38.23
Apr-20	52,877	-	(52,877)	\$2,379,753	\$ 45.01	\$ -	\$ 38.29
May-20	84,464	-	(84,464)	\$2,379,753	\$ 28.17	\$ -	\$ 39.36
Jun-20	90,039	-	(90,039)	\$2,379,753	\$ 26.43	\$ -	\$ 40.04
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 81,155 MWh Base Resource (BR) energy in July 2019. This includes 24,328 MWh of Displacement energy for an estimated savings of \$133,993, or about \$5.50/MWh.
- NCPA Pool received 576,141 MWh Base Resource energy in Fiscal year 2019 (July 2018 through June 2019).
- Pool Members' total savings under Market Efficiency Enhancement Agreement (MEEA) pricing cost Pool Members approximately \$1,000 in July 2019. The net negative saving was due to lower congestion prices for import at COTP and PACI.

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. WAPA shared analysis for the first two operating days: July 11, 2019 and July 16, 2019. Based on NCPA's preliminary analysis, NCPA Pool shows an added value of about \$2,000 total for these two days.

Interconnection Affairs

PG&E Update

Public Safety Power Shut Off (PSPS) Program

- NCPA submitted an updated member contact list to PG&E on July 24. NCPA Dispatch has also added member contacts to the Everbridge system and is set up to inform Members in case we are notified of a potential or actual PSPS event.
- The ISO hosted its second PSPS stakeholder call on July 30th. This was an informational call to explain how ISO will be coordinating with the IOU's. The ISO explained the IOU's are responsible for the PSPS program and ISO will only be assisting facilitate the program. In other words, the ISO will be responsible for grid reliability, balancing the grid by load shedding, curtailment, and reducing any impacts to neighboring balancing authorities. ISO will communicate with affected stakeholders through market notices or other operational alerts in the event an IOU notifies the ISO of a potential or actual PSPS event.
- PG&E originally stated providing NCPA with a draft communication protocol document by mid-August but has recently stated the communication protocols will be part of a CPCU filing. NCPA's L&R team is monitoring the CPUC filing. More information on this topic will be provided to members as soon as it's received.

FERC Order 890 Case

- NCPA continues to work with PG&E to construct a stakeholder process for their self-approved capital projects. Recently PG&E submitted a 5 year plan capital plan. CPUC and NCPA jointly selected seven projects for PG&E to present during our next meeting. Within the seven projects, we should be able to gauge how PG&E does a business case and cost benefit analysis prior to approving capital projects. Next meeting with PG&E is tentatively scheduled for mid-September.

TO-20 Rate Case

- This case is currently in settlement discussions. PG&E is asking for a ROE 12.5%, stating wildfire mitigation cost for this increase. Typically the return of equity is somewhere in the low 9 percent range.
- PG&E has inserted the FERC 890 case/their self-approved projects stakeholder process into the TO-20 settlement discussions. The joint interveners are currently evaluating how to proceed.

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.
- NCPA anticipates this matter will be set for settlement. During such settlement discussions, the issue of decommissioning and other outstanding issues will be further negotiated between the parties

Debt and Financial Management

- At the July 31st meeting, the Federal Reserve cut interest rates for the first time in more than a decade lowering its target rate to a range of 2 to 2.25 percent.
- As mentioned in last month's BPR, the quarter-point decrease was widely expected and the Fed's first rate cut since 2008. But unlike those cuts, which were intended to rescue a failing economy, the Fed's move was seen as a precautionary effort to protect the United States from slowing growth in China and Europe and uncertainty over President Trump's trade war.
- Approximately two weeks after the Fed's rate reduction, the yield on the 10-year Treasury note broke below the 2-year rate, an odd bond market phenomenon that has been a reliable, albeit early, indicator for economic recessions. The yield on U.S. 30-year bond also turned heads as it fell to an all-time low, dropping past its prior record notched in summer 2016. The two historic moves coming in tandem show that investors are increasingly worried, and indeed preparing for, a slowdown in both the U.S. and global economies. According to Credit Suisse, a recession occurs, on average, 22 months following such an inversion. Time will tell.
- At the August Finance committee, staff reviewed and analyzed the 14 proposals received to refund the Capital Facilities Series 2010 A bonds. The Committee provided direction to use JP Morgan as the Underwriter on this public sale transaction. Over the next several months, staff and the project participants will begin the process of updating the official statement and other legal documents with an estimated NPV savings of over 9%. The refunding should hopefully generate over \$2m in total debt service savings.

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. Business Analysis and software development is underway in preparation for a market simulation as early as September 2019 and anticipated to go live in early 2020.
- The Risk Management application was successfully rolled out to the CCA customers.

- The enhanced Deal Manager application which enables members and customers access to a read-only view of the DCS3 Checkout was successfully rolled out.
- Work continues to develop the replacement for the NCPA Automated Dispatch System. Completion is anticipated middle of next year.
- Work is in progress to automate and integrate members' monthly Resource Adequacy demonstrations and supply plans into NCPA's bid-to-bill system.

Network

- Progress continues to be made upgrading staff to Windows 10 with over 65% 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 summer. Part of this effort will include enhancements to SCADA control logic for LEC configurations along with updating dispatch control center screens.
- New Fortinet firewalls was purchased to replace the off support Cisco ASA's that are used to protect Control Center ICS networks. Staff has attended training to configure and manage the new firewalls, which is scheduled to be installed this fall.
- Ops and Support staff visited South Feather Water and Power (SFWP) Agency to perform a site visit to access the scope of integration requirements for each of the hydro asset controls and associated telemetry in consideration of potential scheduling coordinator services.

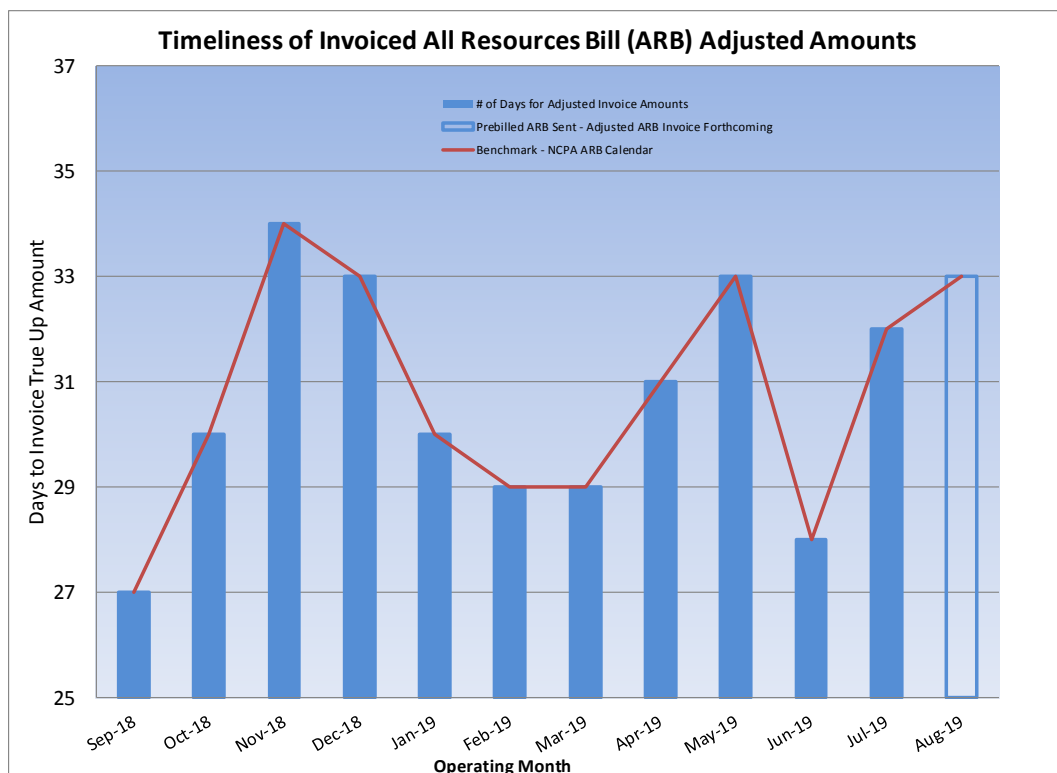
NCPA Bills & Settlements

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 August 2019 NCPA All Resources Bill (ARB) monthly invoice sent to members on July 23, 2019 contains:

- August 2019 monthly pre-billed budget/forecast amounts;
- June 2019 (1st Adjustment) NCPA Project and CAISO Initial settlement true-ups;
- May 2019 (2nd Adjustment) NCPA Project settlement true-up and T+12 business day recalculated CAISO settlement true-up allocations;
- March 2019 (3rd Adjustment) T+55 business day recalculated CAISO settlement true-up allocations and NCPA Projects true-up;
- September 2018 (4th Adjustment) T+9 month recalculated CAISO settlement true-up allocations;
- November 2017 (5th Adjustment) T+18 month recalculated CAISO settlement true-up allocations;
- August 2016 (6th Adjustment) T+33 month recalculated CAISO settlement true-up;
- May 2016 (7th Adjustment) T+35 month CAISO settlement true-up;



Legislative & Regulatory

Political Arena State/Federal/Western Programs

- The State Legislature has returned for its final month of the 2019 legislative year, which will end on September 13th. NCPA has been actively advocating on key legislation related to wildfires, securing amendments to SB 560 by Senator McGuire (D-Healdsburg) to underscore the need for coordination on transmission-level de-energizations. Also, NCPA remains engaged in efforts to oppose potential legislation that would mandate procurement of pumped hydroelectric storage resources. Bills must pass through Appropriations Committees by the end of the month to proceed, leaving the first two weeks in September for floor votes in both houses.
- From July 29 - 31, NCPA hosted over twenty legislative staff for its annual State Legislative Staff Tour with stops in Redding, Shasta Lake, Portola, and Truckee. Legislative staff in attendance represent legislators in leadership roles, NCPA's member delegation, and offices that serve on Senate and Assembly energy, environmental quality, and water policy committees. Participants toured the Shasta Dam, members' transmission and distribution infrastructure, electric vehicle charging infrastructure, and members' communities. Key topics discussed included the value of hydropower for meeting statewide carbon neutrality goals, wildfire issues for electric utilities, and highlights of innovative customer programs that NCPA members are implementing in their communities.

Human Resources

Hires:

Michael Fallon, joined NCPA on July 29, 2019 as Environmental Health & Safety Specialist at our Lodi Energy Center in Lodi, CA. Michael has over 14 years of Environmental Health compliance experience having previously worked for Union Pacific Railroad as a Manager Environmental File Operations.

Dylan Esquivel, joined NCPA on July 29, 2019 as an Engineer IV at our Geothermal Facilities in Middletown, CA. Dylan has over 7 years of power generation experience having previously worked for Carbon GeoCycle/Clear Creek Partners as an Operations Manager, Petroleum Engineer.

Intern Hires:

None

Promotions/Position Changes:

Herb Harsch was promoted to Hydroelectric Technical Supervisor on August 4, 2019. Herb has a very strong background in hydroelectric power, with over 40 years of experience. Prior to joining the NCPA Hydro team in 2012, Herb was the ISTS SCADA Expert and IT SCADA Supervisor with PG&E and also served as PG&E's NERC CIP subject matter expert. Herb is a state certified Communications Technician, state certified Electrical Technician, and state certified Electrician.

Separations:

Pawel Mozdzen, Sharepoint Administrator, resigned from his position at our Headquarters office to pursue other career opportunities, effective August 23, 2019.

Ryan Deleurme, Assistant Student Intern II, NCPA HQ Information Services, last day August 13, 2019

Roberto Gomez, Assistant Student Intern II, City of Healdsburg, last day August 14, 2019

Julian Pelzner, Assistant Student Intern IV, City of Alameda, last day August 15, 2019

Sarah Naameh, Assistant Student Intern II, City of Alameda, last day August 15, 2019

Brian Popish, Assistant Student Intern IV, NCPA LEC, last day August 23, 2019

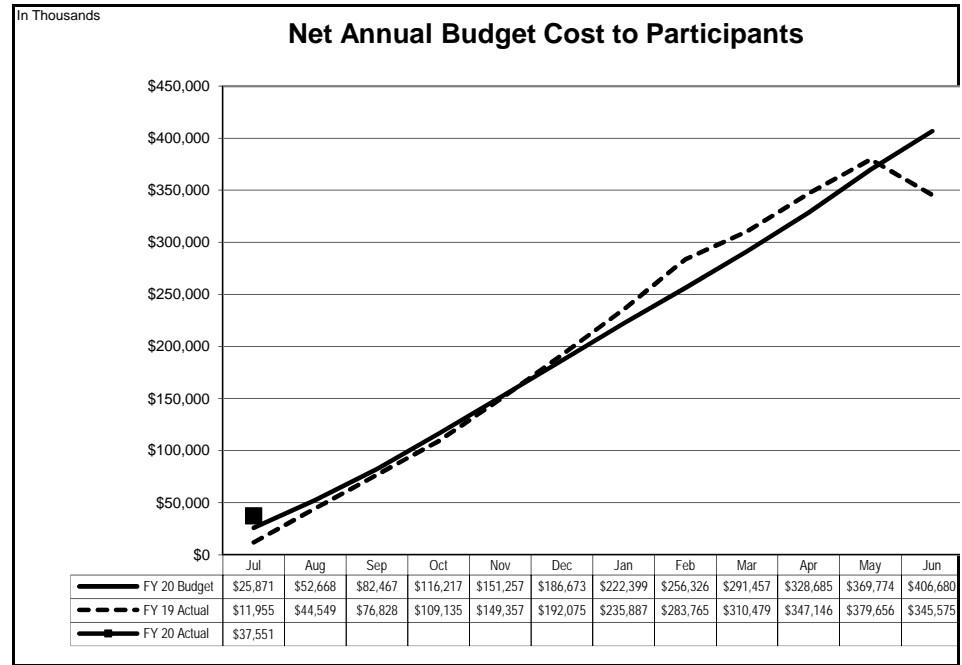
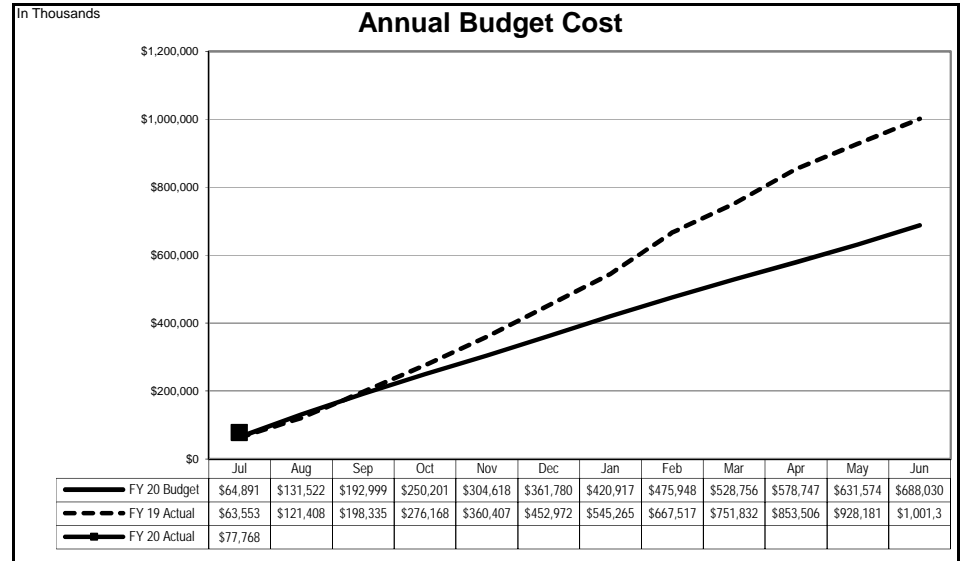
Annalise Capener, Assistant Student Intern IV, City of Redding, last day August 29, 2019

Ryan Heryford, Assistant Student Intern II, NCPA Hydroelectric, last day August 29, 2019

Nicholas Greco, Assistant Student Intern IV, City of Redding, last day August 30, 2019

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

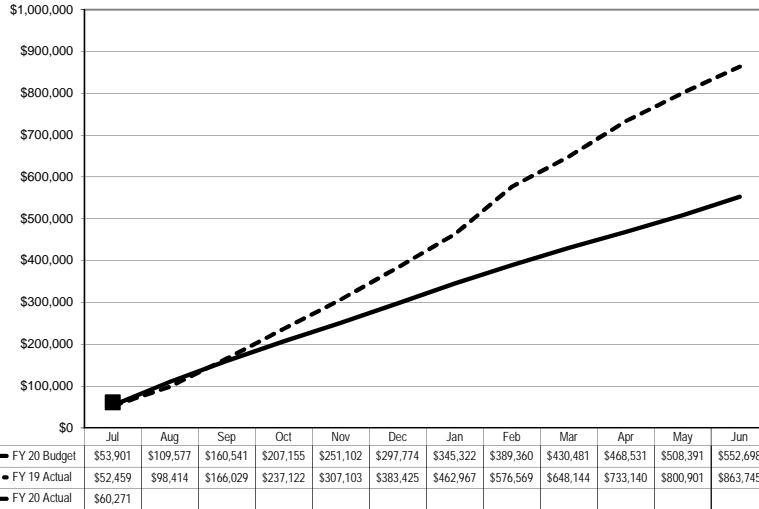
In Thousands	Program			
	Annual Budget	Actual	Under(Ovr) Budget	YTD % Remaining
GENERATION RESOURCES				
NCPA Plants				
Hydroelectric	54,074	4,223	\$ 49,851	92%
Geothermal Plant	35,311	2,601	32,710	93%
Combustion Turbine No. 1	6,170	382	5,788	94%
Combustion Turbine No. 2 (STIG)	9,438	733	8,706	92%
Lodi Energy Center	92,960	5,609	87,351	94%
	197,953	13,547	184,406	93%
Member Resources - Energy	56,229	6,529	49,700	88%
Member Resources - Natural Gas	3,541	267	3,274	92%
Western Resource	23,325	3,519	19,806	85%
Market Power Purchases	15,123	2,238	12,885	85%
Load Aggregation Costs - ISO *	256,030	34,171	221,858	87%
Net GHG Obligations	497	-	497	100%
	552,698	60,271	492,427	89%
TRANSMISSION				
Independent System Operator	117,089	16,211	100,878	86%
MANAGEMENT SERVICES				
Legislative & Regulatory				
Legislative Representation	2,132	131	2,001	94%
Regulatory Representation	748	53	695	93%
Western Representation	745	37	708	95%
Customer Programs	424	15	409	97%
	4,049	236	3,813	94%
Judicial Action	625	-	625	100%
Power Management				
System Control & Load Dispatch	6,082	541	5,541	91%
Forecasting & Prescheduling	2,934	210	2,724	93%
Industry Restructuring	414	29	386	93%
Contract Admin, Interconnection Svcs & Ext. Affairs	954	75	879	92%
Green Power Project	-	-	-	
Gas Purchase Program	77	6	72	93%
Market Purchase Project	111	8	103	93%
	10,573	869	9,704	92%
Energy Risk Management	212	13	199	94%
Settlements	980	60	920	94%
Integrated System Support	243	8	235	97%
Participant Pass Through Costs	1,560	91	1,469	94%
Support Services	-	8	(8)	
	18,243	1,286	16,957	93%
TOTAL ANNUAL BUDGET COST	688,030	77,768	610,262	89%
LESS: THIRD PARTY REVENUE				
Plant ISO Energy Sales	127,624	7,599	120,025	94%
Member Resource ISO Energy Sales	29,156	-	29,156	100%
Member Owned Generation ISO Energy Sales	67,108	2,693	64,414	96%
NCPA Contracts ISO Energy Sales	15,623	1,880	13,743	88%
Western Resource ISO Energy Sales	18,304	2,878	15,426	84%
Load Aggregation Energy Sales	-	13,530	(13,530)	
Ancillary Services Sales	4,197	1,575	2,622	62%
Transmission Sales	110	9	101	92%
Western Credits, Interest & Other Income	19,227	10,053	9,175	48%
	281,350	40,218	241,133	86%
NET ANNUAL BUDGET COST TO PARTICIPANTS	406,680	37,551	\$ 369,129	91%



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

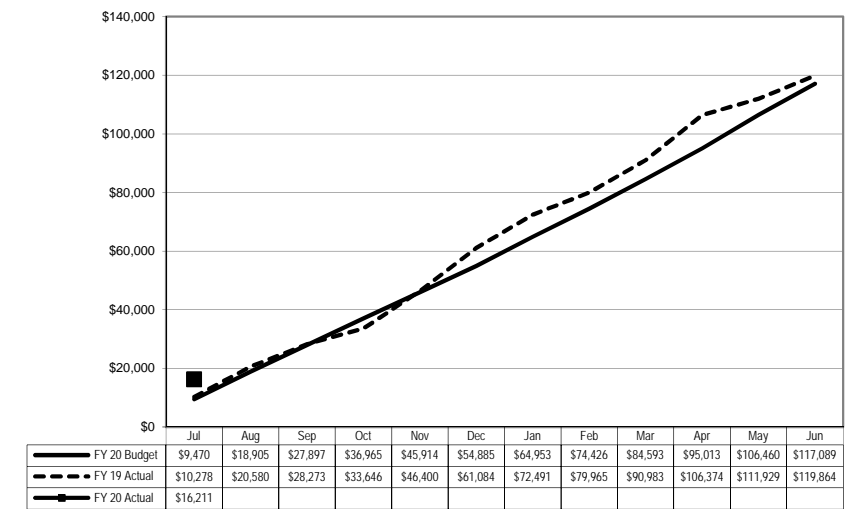
In Thousands

Generation Resources



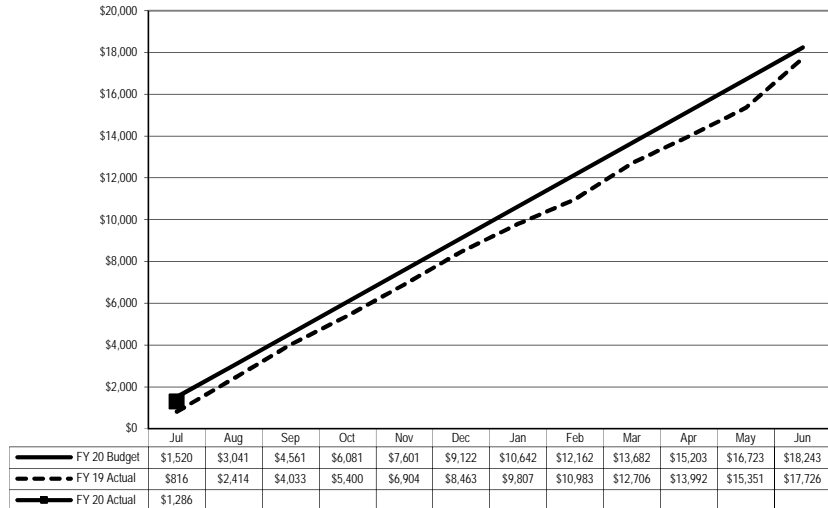
In Thousands

Transmission-ISO



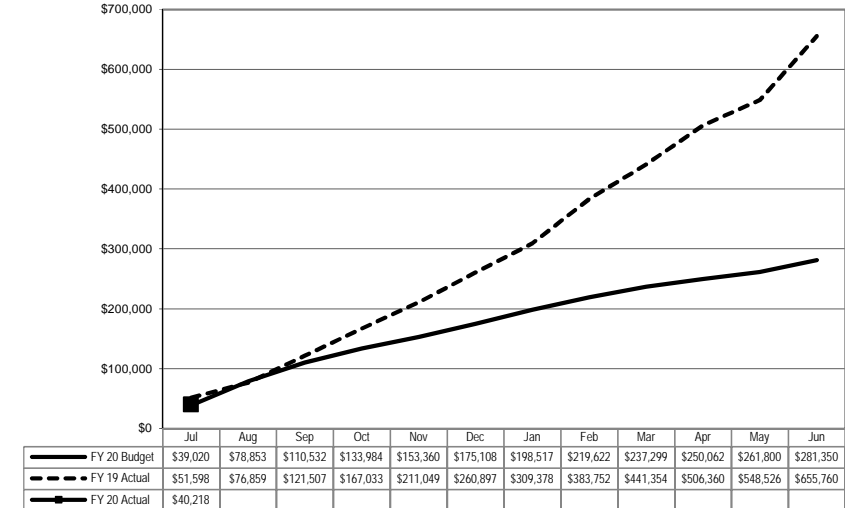
In Thousands

Management Services



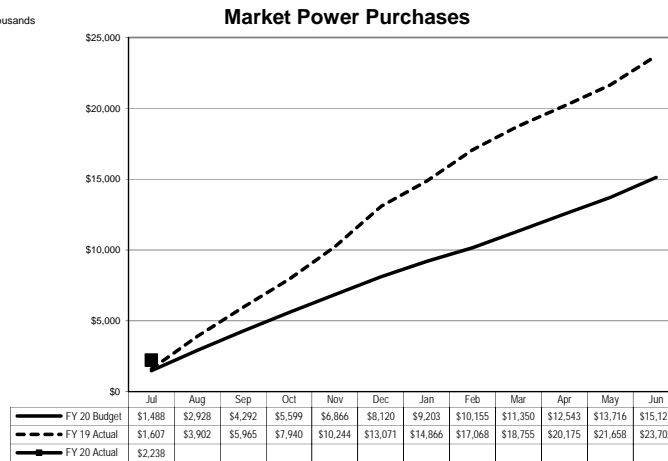
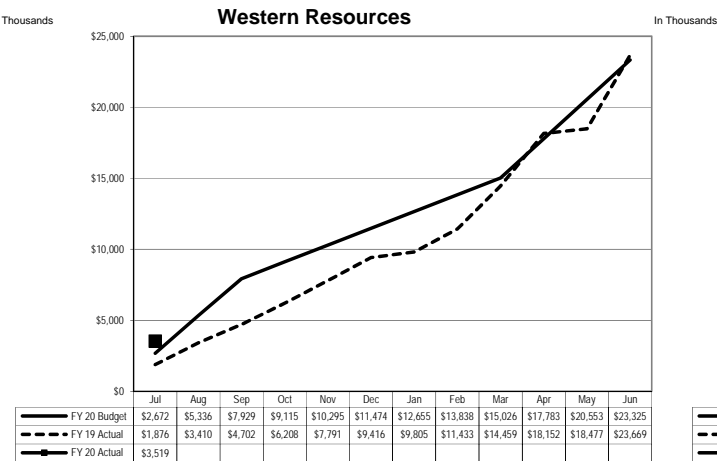
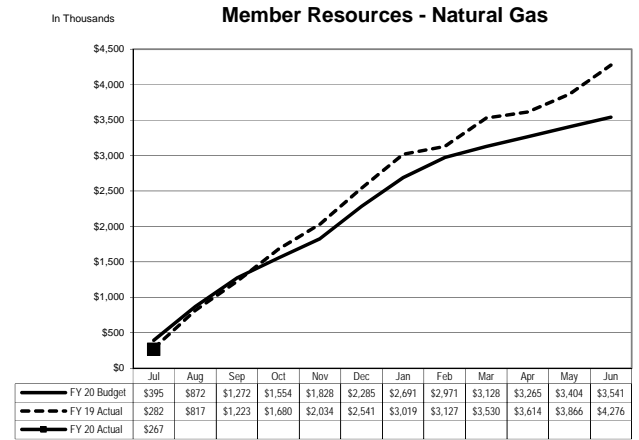
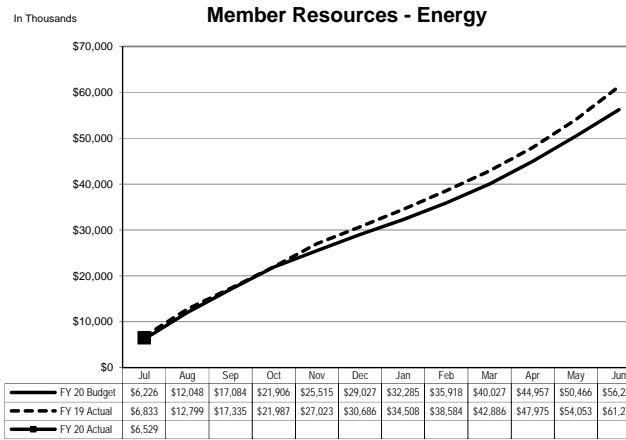
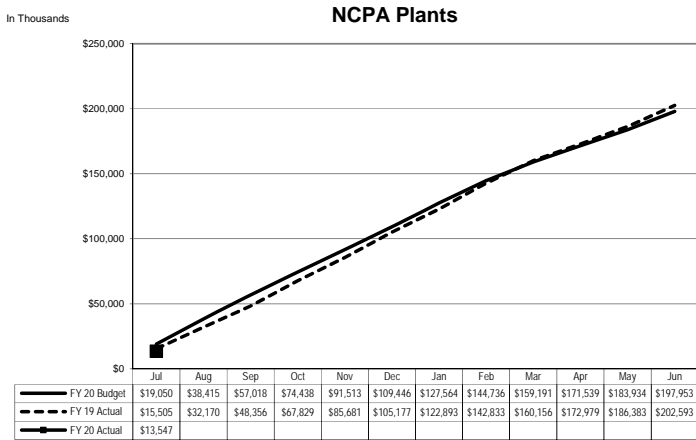
In Thousands

Third Party Revenue



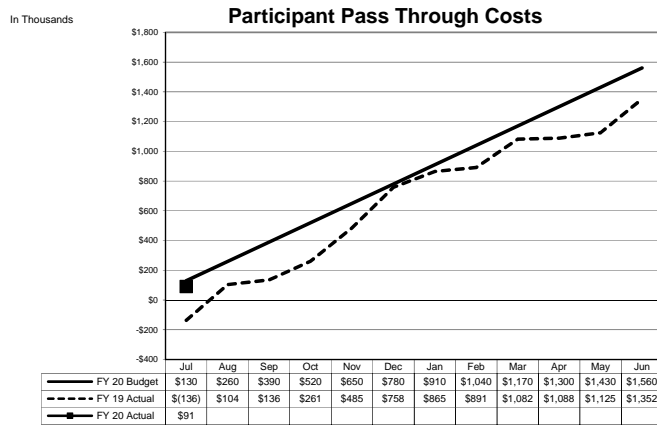
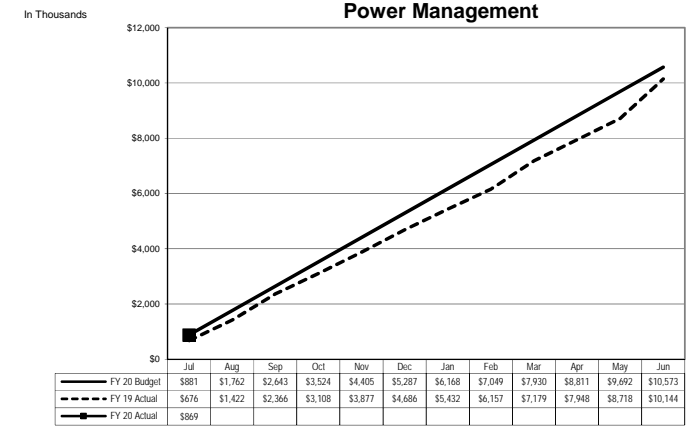
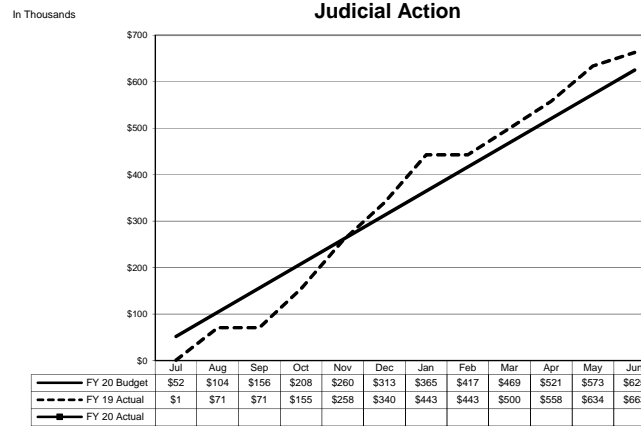
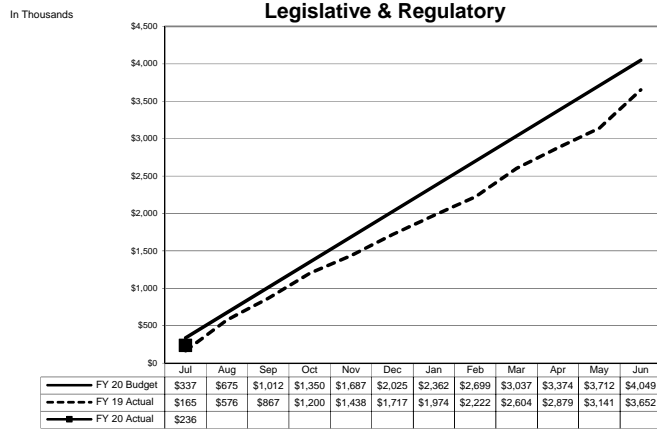
Footnote: Transmission is solely reflective of Independent System Operator (ISO) costs

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

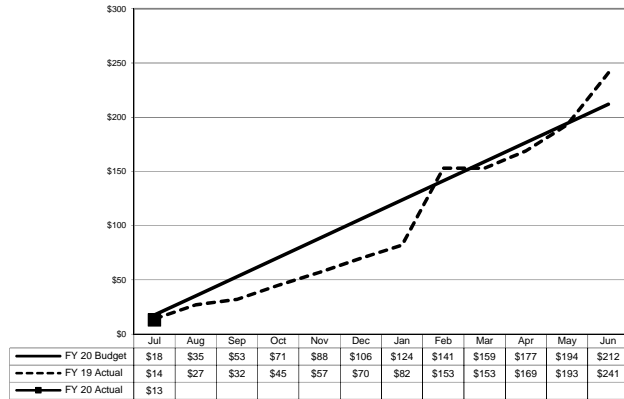


**Annual Budget Cost
Management Services Analysis By Source
As of July 31, 2019**

In Thousands

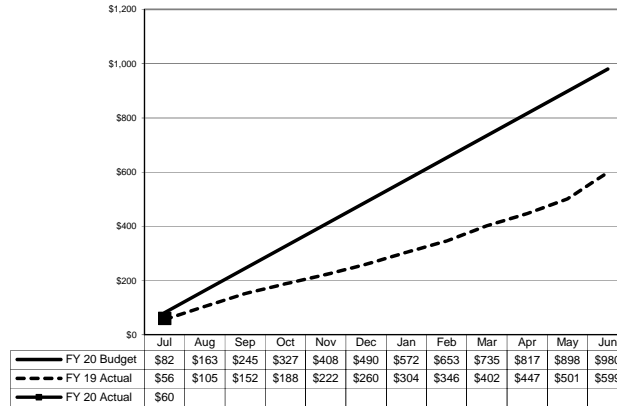
Energy Risk Management

In Thousands

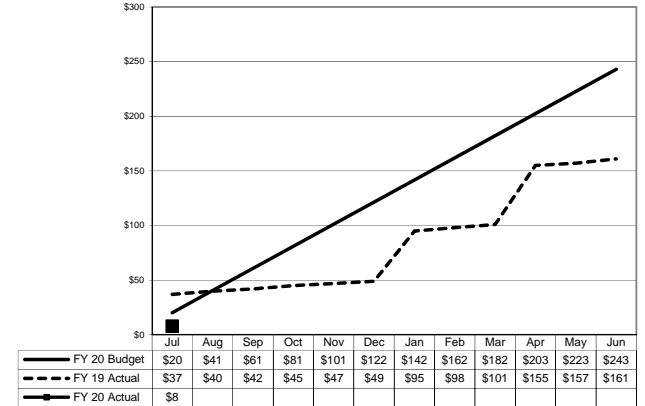


Settlements

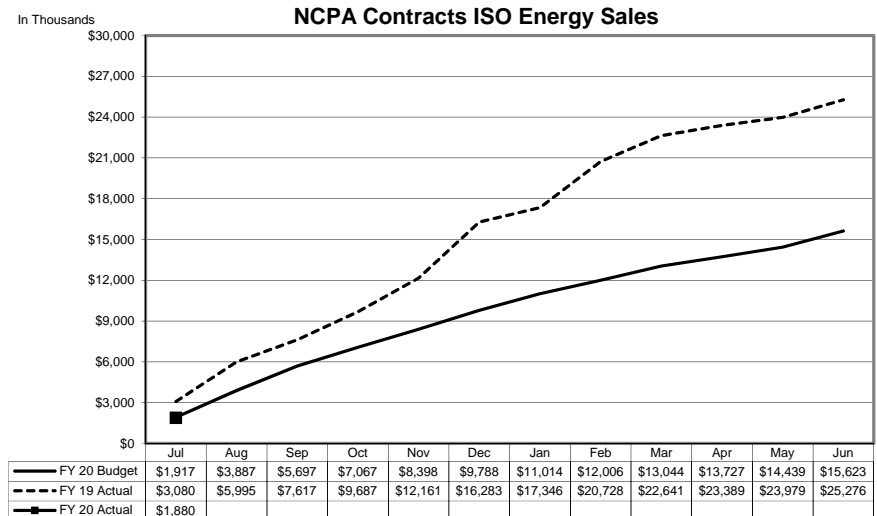
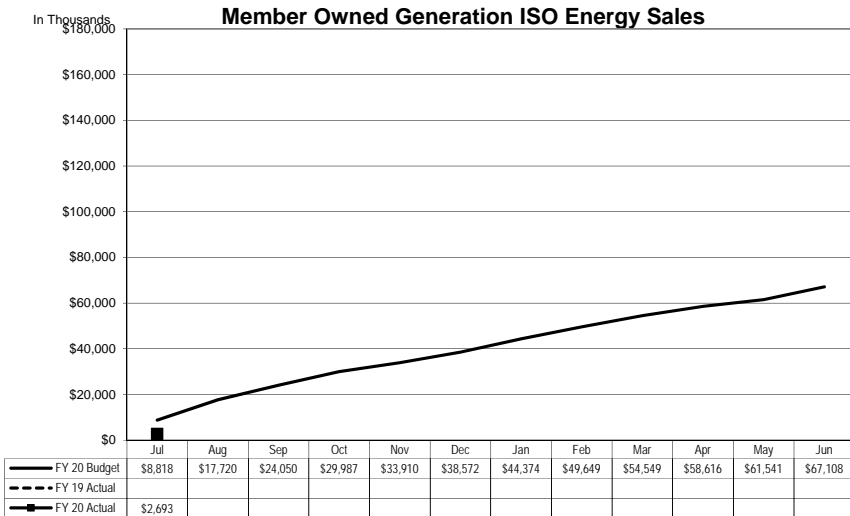
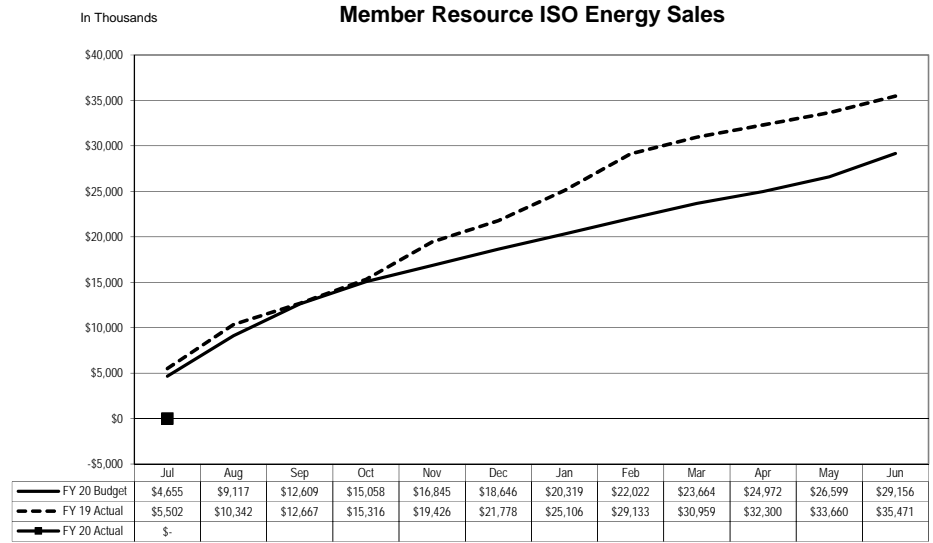
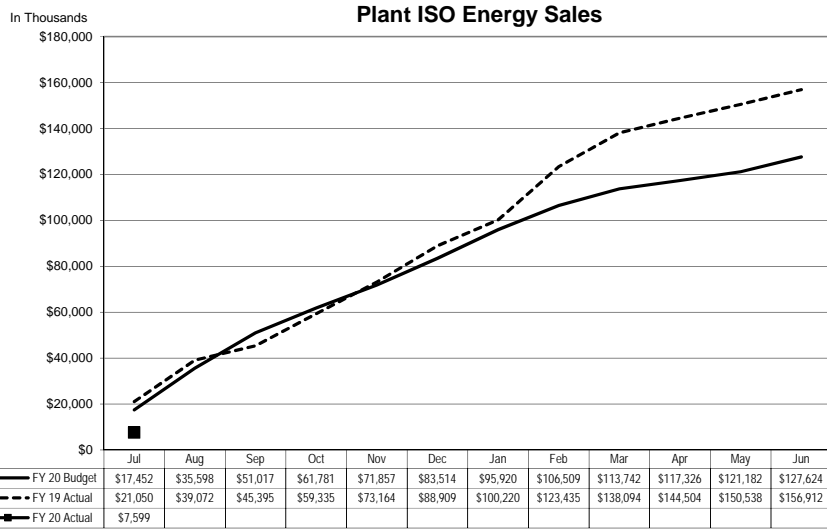
In Thousands



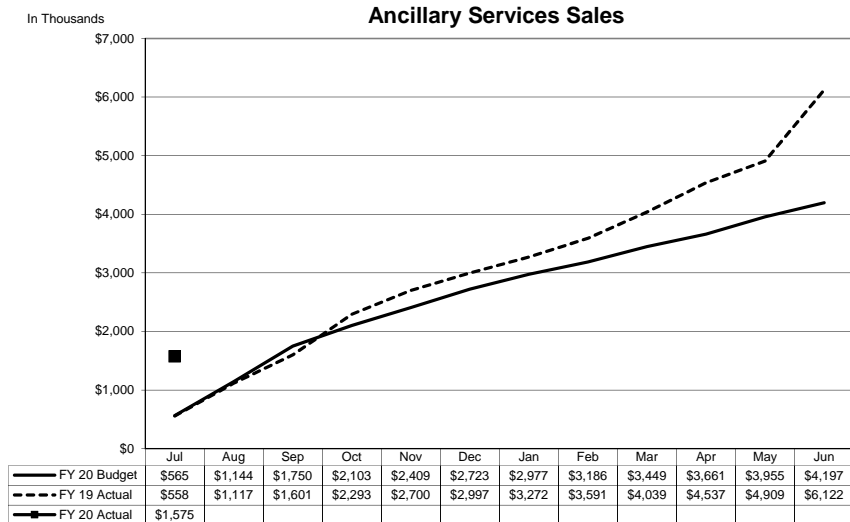
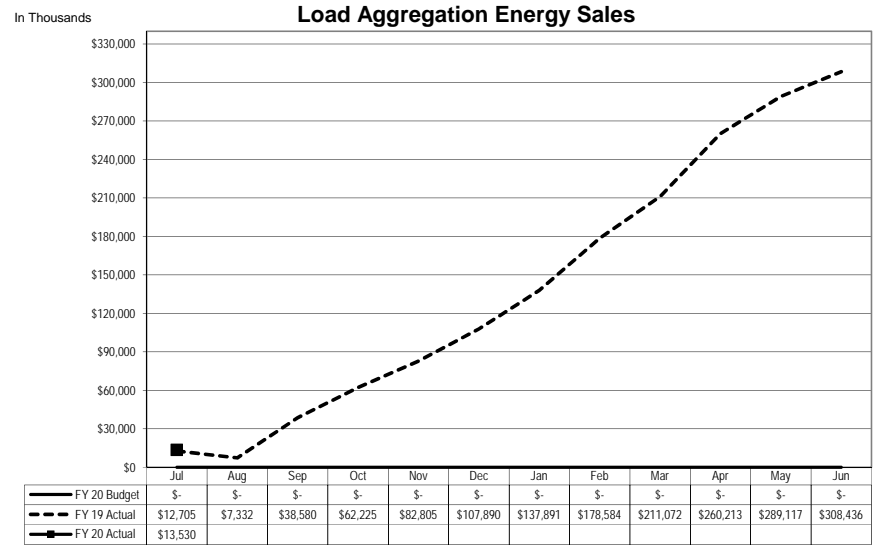
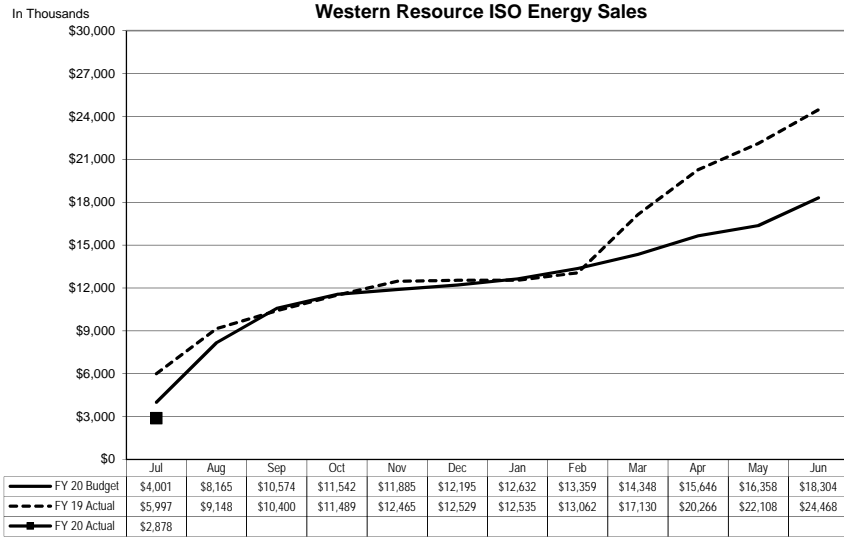
Integrated Systems Support



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



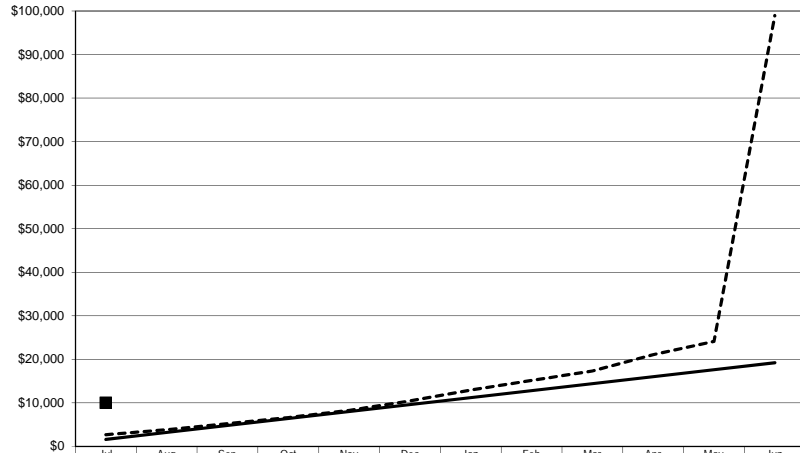
**Annual Budget Cost
Third Party Revenue Analysis By Source
As of July 31, 2019**



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

In Thousands

Western Credits, Interest & Other Income



	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun
— FY 20 Budget	\$1,602	\$3,205	\$4,807	\$6,409	\$8,011	\$9,614	\$11,216	\$12,818	\$14,421	\$16,023	\$17,625	\$19,227
- - - FY 19 Actual	\$2,696	\$3,834	\$5,221	\$6,652	\$8,284	\$10,456	\$12,944	\$15,155	\$17,336	\$21,059	\$24,114	\$98,965
••••• FY 20 Actual	\$10,053											

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

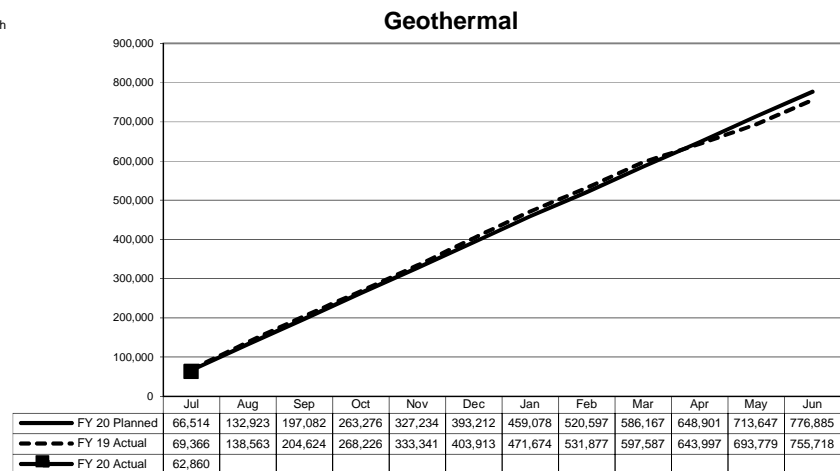
Generation Cost Analysis

\$ in thousands

	Geothermal				
	Budget	Actual	\$/MWh Actual	Under(Over) Budget	YTD % Remaining
Routine O & M	\$ 18,456	\$ 18,859	\$ 300.01	\$ (403)	-2%
Capital Assets/Spare Parts Inventories	3,645	3,781	60.15	(136)	-4%
Other Costs	7,640	7,310	116.29	330	4%
CA ISO Charges	625	962	15.31	(338)	-54%
Debt Service	4,946	4,937	78.54	9	0%
Annual Budget	35,311	35,849	570.29	(537)	-2%
Less: Third Party Revenue					
Interest Income	382	422	6.71	(40)	-10%
ISO Energy Sales	29,481	34,084	542.21	(4,603)	-16%
Ancillary Services Sales	-	-	-	-	-
Effluent Revenues	750	1,695	26.97	(945)	-126%
Misc	110	113	1.80	(3)	-3%
	30,723	36,314	577.70	(5,591)	-18%
Net Annual Budget Cost to Participants	\$ 4,588	\$ (466)	\$ (7.41)	\$ 5,054	110%
Net Generation--MWh @ Meter	776,885	62,860			
\$/MWh (A)	\$ (0.46)	\$ (85.95)			

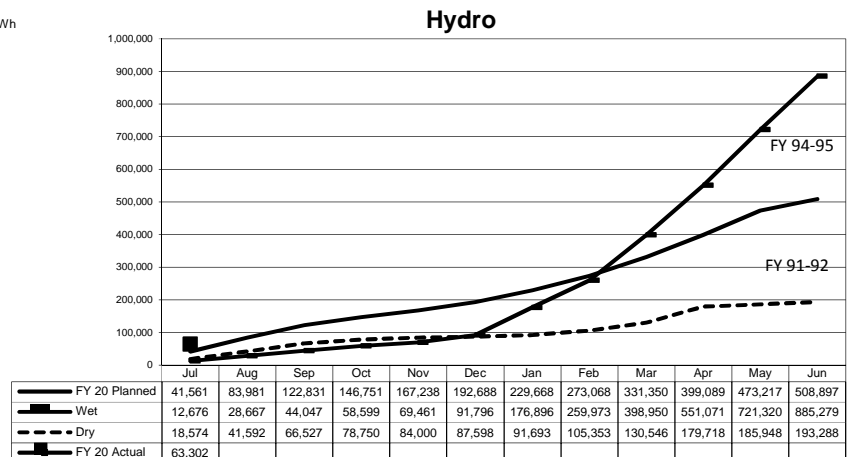
MWhs Generated

In MWh



	Hydroelectric				
	Budget	Actual	\$/MWh Actual	Under(Over) Budget	YTD % Remaining
Routine O & M	\$ 450	\$ 8,635	\$ 136.41	\$ (8,185)	-1820%
Capital Assets/Spare Parts Inventories	4,775	1,727	27.28	3,048	64%
Other Costs	12,078	3,015	47.63	9,063	75%
CA ISO Charges	3,465	4,155	65.64	(690)	-20%
Debt Service	33,307	33,722	532.72	(415)	-1%
Annual Budget	54,074	51,254	809.67	2,820	5%
Less: Third Party Revenue					
Interest Income	670	577	9.11	93	14%
ISO Energy Sales	23,455	41,733	659.26	(18,277)	-78%
Ancillary Services Sales	2,539	3,372	53.27	(833)	-33%
Misc	-	6	0.09	(6)	-71%
	26,664	45,687	721.73	(19,023)	-71%
Net Annual Budget Cost to Participants	\$ 27,410	\$ 5,567	\$ 87.94	\$ 21,843	
Net Generation--MWh @ Meter	508,897	63,302			
\$/MWh (A)	\$ (11.59)	\$ (444.78)			

In MWh



Footnotes:

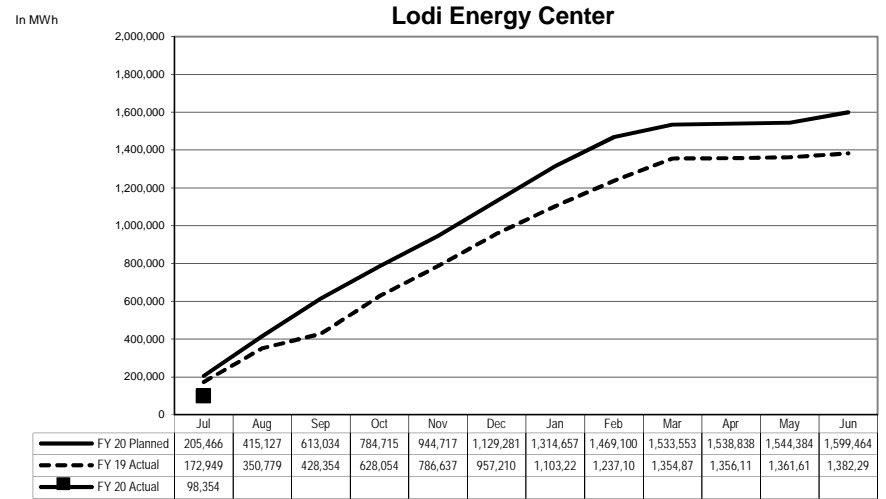
(A) Aggregate fiscal year generation in \$/MWh (excluding debt service)

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

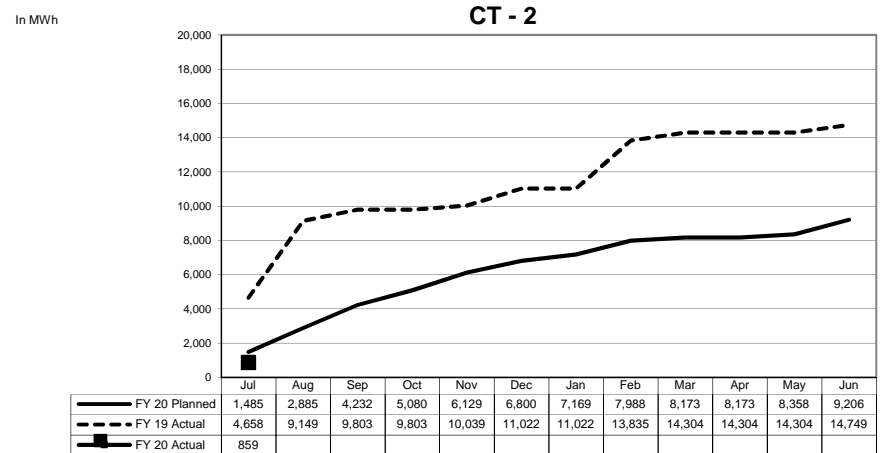
Generation Cost Analysis

	Lodi Energy Center				
	Budget	Actual	\$/MWh Actual	Under(Over) Budget	YTD % Remaining
Routine O & M	\$ 14,101	\$ 14,198	\$ 144.36	\$ (98)	-1%
Fuel	39,513	46,238	470.11	(6,724)	-17%
AB 32 GHG Offset	-	-	-	-	0%
CA ISO Charges and Energy Purchases	4,710	5,377	54.66	(666)	-14%
Capital Assets/Spare Parts Inventories	5,333	1,509	15.34	3,824	72%
Other Costs	3,249	3,127	31.79	122	4%
Debt Service	26,054	26,080	265.16	(25)	0%
Annual Budget	92,960	96,529	981.44	(3,568)	-4%
Less: Third Party Revenue					
Interest Income	386	661	6.72	(275)	-71%
ISO Energy Sales	72,603	76,943	782.30	(4,340)	-6%
Ancillary Services Sales	1,433	1,631	16.59	(199)	-14%
Transfer Gas Credit	-	-	-	-	0%
Misc	-	2	0.02	(2)	0%
	74,421	79,237	805.63	(4,816)	-6%
Net Annual Budget Cost to Participants	\$ 18,539	\$ 17,291	\$ 175.81	\$ 1,248	7%
Net Generation--MWh @ Meter	1,599,464	98,354			
\$/MWh (A)	\$ (4.70)	\$ (89.35)			

MWhs Generated



	Combustion Turbine No. 2 (STIG)				
	Budget	Actual	\$/MWh Actual	Under(Over) Budget	YTD % Remaining
Routine O & M	\$ 1,595	\$ 1,513	\$ 1,761.12	\$ 83	5%
Fuel and Pipeline Transport Charges	1,089	1,595	1,856.79	(506)	-46%
Capital Assets/Spare Parts Inventories	418	33	38.54	385	92%
Other Costs	486	430	500.78	56	11%
CA ISO Charges	53	225	261.68	(172)	-323%
Debt Service	5,796	5,717	6,654.84	80	1%
Annual Budget	9,438	9,513	11,073.74	(74)	-1%
Less: Third Party Revenue					
Interest Income	109	120	139.91	(12)	-11%
ISO Energy Sales	819	2,137	2,487.26	(1,317)	-161%
Ancillary Service Sales	-	-	-	-	0%
Fuel and Pipeline Transport Credits	1,687	2,446	2,847.21	(759)	-45%
Misc	-	-	-	-	0%
	2,615	4,703	5,474.39	(2,087)	-80%
Net Annual Budget Cost to Participants	\$ 6,823	\$ 4,810	\$ 5,599.36	\$ 2,013	30%
Net Generation--MWh @ Meter	9,206	859			
\$/MWh (A)	\$ 111.53	\$ (1,055.48)			



Footnotes:

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

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

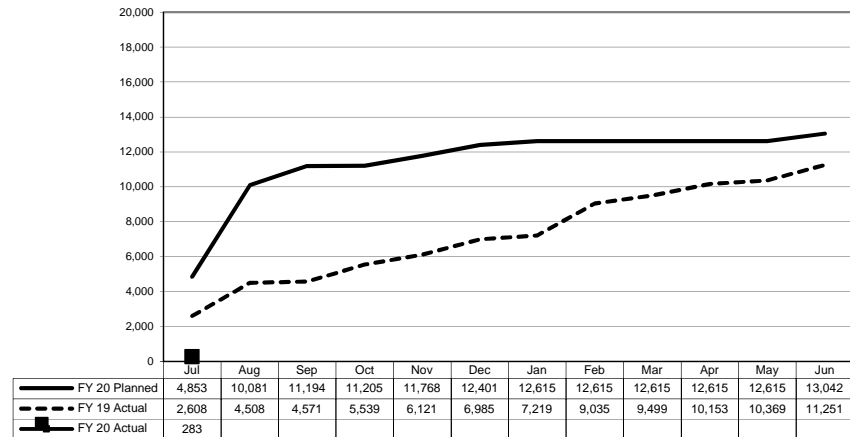
Generation Cost Analysis

	Combustion Turbine No. 1				
	Budget	Actual	\$/MWh Actual	Under(Over) Budget	YTD % Remaining
Routine O & M	\$ 2,268	\$ 2,847	\$ 10,046.74	\$ (579)	-26%
Fuel and Pipeline Transport Charges	975	1,230	4,341.22	(255)	-26%
Capital Assets/Spare Parts Inventories	2,110	4,268	15,064.23	(2,158)	-102%
Other Costs	747	513	1,812.30	233	31%
CA ISO Charges	69	591	2,085.13	(522)	-753%
Debt Service	-	-	-	-	-
Annual Budget	6,170	9,449	33,349.62	(3,280)	-53%
Less: Third Party Revenue					
Interest Income	-	2		(2)	
ISO Energy Sales	1,266	2,016	7,115.71	(750)	-59%
Ancillary Services Sales	-	-	-	-	0%
Misc	-	16	55.21	(16)	0%
	1,266	2,034	7,170.92	(768)	-61%
Net Annual Budget Cost to Participants	\$ 4,904	\$ 7,415	\$ 26,171.57	\$ (2,512)	-51%
Net Generation--MWh @ Meter	13,042	283			
\$/MWh (A)	\$ 375.97	\$ 26,171.57			

MWhs Generated

In MWh

CT - 1



Footnotes:

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