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BUSINESS PROGRESS REPORT

JANUARY 2018



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Generation Costs & Reliability

Combustion Turbine Project

Unit Operation for December

Unit	Availability		Production		Reason for Run
CT1 Alameda	Unit 1	Unit 2	Unit 1	0.0 MWh	No Runs. / CAISO
	0.0%	100.0%	Unit 2	42.8	
Curtailements, Outages, and Comments:					
Alameda CT Unit 1 o/s for exhaust inspection ETR 11/15 OMS 5441014 / No Comment					
Unit	Availability		Production		Reason for Run
CT1 Lodi	99.9%		0.2 MWh		Reliability Test
Curtailements, Outages, and Comments:					
Lodi GT available for ISO system or transmission emergencies only OMS 5361817; 12/19/17 - Lodi GT test run – failed on first try due to compressor bleed valve #1 stuck open, breaker closed on second attempt after repairs to stuck valve. 12/21/17 – Lodi GT failed to start for testing due to bad diesel start motor, replaced motor & paralleled to system – Unit Ready and Available to Run beginning January 2018					
Unit	Availability		Production		Reason for Run
CT2 STIG	100.0%		0.0 MWh		No operational runs.
Curtailements, Outages, and Comments:					
In standby status awaiting loading orders.					
Unit	Availability		Production		Reason for Run
LEC	100.0%		149,304.9 MWh		CAISO
Curtailements, Outages, and Comments:					
No comment					

Maintenance Summary – Specific per asset above.

Geothermal Facilities

Availability/Production for December

Unit	Availability	Net Electricity Generated/Water Delivered	Out-of-Service/Descriptors
Unit 1	64.99 %	19,209 MWh	U1 off line from 12/11/17 until 12/22/17 for PG&E line work/bad NCPA 480v transformer/replacement
Unit 2	N/A %	N/A* MWh	U2 remained off line for December due to 2.4kv transformer failure on 11/30/17
Unit 3	N/A %	N/A	Unit 3 remains out of service.
Unit 4	98.12 %	30,939 MWh	U4 was off line 12/16/17 from 0330 until 1730 for PG&E line work
Southeast Geysers Effluent Pipeline	98.7 %	186.6 mgallons	Average flow rate: 4,215 gpm
Southeast Solar Plant	N/A	43,006 KWh	Year-to-date KWh: 917,725
Bear Canyon Pump Station Zero Solar	N/A	85,118 KWh	Year-to-date KWh: 2,074,728

* Accounts for an additional 0 MWh of house load for the 21KV power supply to the effluent pipeline supplied from Unit #2.

Hydroelectric Project

Availability/Production for December

Units	Availability	Net Electricity Generated	Out-of-Service
Collierville Unit 1	100.00 %	14,651 MWh	CV #1 unit no reportable outages.
Collierville Unit 2	99.50 %	4,150 MWh	CV #2 unit derate to 110mw's due to stator ground fault repair. CV #2 unit was out of service on, 12/31/17 at 1249 through 1628 due to mechanical overspeed switch trouble.
Spicer Unit 1	100.00 %	1,041 MWh	NSM #1 unit no reportable outages.
Spicer Unit 2	100.00 %	432 MWh	NSM #2 unit no reportable outages.
Spicer Unit 3	100.00 %	172 MWh	NSM #3 unit no reportable outages.

Operations & Maintenance Activities:

- Monthly CMMS work orders
- Adit 4 Slide repair completion
- Murphys Micro-wave project
- Hydro Project Physical Security Upgrade equipment installation
- Emergency Response Plan first responder tabletop discussion/training
- FERC Project 11056 Dam Monitoring Report (FERC and DSOD)

Environmental, Health & Safety (EH&S) Projects

Incident Reports

- No vehicle accidents, lost time accidents, or recordable incidents occurred in December.
- Find below a Safety Report that highlights the following areas: recordable incidents and lost time accidents (LTAs) reported this period and this calendar year; the number of days since last recordable or LTA; the number of work hours since last recordable or LTA; and vehicle accidents reported this month and this calendar year. In September of 2012, Generation Services completed an internal audit of its records with the results reflected in this report and as updated through the payroll period ended December 23, 2017.
- The “CT Group” column reflects the combined safety numbers of all CT employees. Beginning with the November 2009 report, the CT Group Column also includes Lodi Energy Center staff.

December Generation Services Safety Report

	Hydro	GEO	CT Group *	NCPA HQ **
CalOSHA Recordable (this month)	0	0	0	0
CalOSHA Recordable (calendar year)	0	2	0	0
Days since Recordable	1102	36	992	6,060
Work Hours Since Last Recordable	96,037	7,415	145,015	2,184,978
LTA's (this month)	0	0	0	0
LTA's (calendar year)	0	0	0	0
Days without LTA	3,718	855	8,896	4,989
Work Hours without LTA	341,602	174,083	586,379	1,806,998
Vehicle Incident (month)	0	0	0	0
Vehicle Incident (calendar year)	0	2	1	1

* CT Group: Combines CT-1, CT-2 and LEC Operations

** NCPA HQ: Roseville employees at the Main Office

Data originates from OSHA logs, HR records and payroll information.
Days and Hours are calculated through pay period ended December 23, 2017.

Power Management/NCPA Market Results

Dispatch and Schedule Coordination

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

Current Year 2017 Data

	December 2017		Calendar Year 2017	
	Peak MW	MWh	Peak MW	MWh
NCPA Pool	333.3 12/4 @1900	198,634	485.85 9/1 @1700	2,383,468
SVP	462.79 12/7 @1500	308,021	586.59 9/1 @1600	3,727,192
MSSA	791.23 12/4 @ 1900	506,655	1070.79 9/1 @ 1700	6,110,660

Last Year 2016 Data*

	December 2016		Calendar Year 2016	
	Peak MW	MWh	Peak MW	MWh
NCPA Pool	351.07 12/7 @1800	204,677	449.75 7/27 @1700	2,369,410
SVP	452.28 12/9 @1400	299,549	534.21 9/26 @ 1700	3,559,212
MSSA	797.44 12/7 @ 1800	504,226	968.73 7/27 @ 1600	5,928,622

*Last year's data added for comparison purposes only

System Peak Data

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

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

NCPA Deviation Band Performance		
	December 2017	Calendar Year 2017
MSSA % Within the Band	99.37%	97.92%

- Spicer Meadows:
 - No curtailments

- Geothermal Units:
 - December 11 – 14, Unit 1 off line for scheduled PG&E Geysers 9 – Lakeville 230kV line outage.
 - December 14 – 21, Unit 1 o/s for 480v transformer replacement.
 - December 1 – 31, Unit 2 o/s due to 2.4kV transformer replacement.
 - December 16 @ 0330 – 1726, Unit 4 off line for PG&E Geysers 12 – Fulton 230kV line outage

- Lodi Energy Center:
 - No curtailments

- Alameda CTs:
 - December 1 - 31, Unit 1 o/s for repairs to exhaust tunnel seal.
 - December 19 @ 0953 – 1344, Unit 2 unavailable due to comm circuit trouble requiring router reset

- Lodi CT:
 - December 1 – 31, unit o/s due to emissions limitation on total annual run hours
 - Unit remains available in the event of CAISO declared Stage or Transmission emergency

- Collierville Units:
 - December 1 – 31, Unit 2 remains derated due stator ground fault repair
 - December 31 @ 1249 – 1628, Unit 2 o/s due to mechanical over speed sensor trouble

- STIG:
 - No curtailments

Pooling & Portfolio Planning & Forecasting

- Actual NCPA Pool load of 198.6 GWh during December was 99.2% of the pre-month forecast of 200.2 GWh. Pool load, running 49.9 GWh through January 8, may not quite reach the forecast of 204.1 GWh, with mostly above-normal temperatures forecasted through the balance of January.

- The Lodi Energy Center (LEC) generated 26,850 MWh for the pool in December, about 85% the 31,754 MWh forecast, aided by the significant drop in local transport rates. Supply disruptions in SoCal kept implied heat rates there well above the norm, adding to LEC run hours. For January 2018, pool share of LEC generation was optimistically forecasted at 36,145 MWh and had reached 7,850 MWh by January 8.

- For the month of December, 0.68” of rain was recorded at Big Trees gage. December Big Trees average precipitation is 8.96”.

- The Value of Storage (VOS) of New Spicer Meadow Reservoir (NSMR) is being maintained at \$55/MWh.
- NSMR storage as of December 31 was at 79,372 acre feet. The historical average NSMR storage at the end of December is 114,695 acre feet. As of January 9, NSMR storage is 81,600 acre feet. The current NCPA Pool share of NSMR storage is 43,582 acre feet.
- Combined Calaveras Project generation for the Pool in December totaled 9.5 GWh, down from 11.9 GWh in November. The Pool's 9.5 MWh in December was less than the pre-month forecast of 11.9 GWh. Through January 9, Calaveras generation for the Pool is 4.1 GWh, with the full month forecasted at 18.0 GWh.
- Western Base Resource (BR) Pool delivery in December was 19.8 GWh, or 150% of the forecast of 13.0 GWh. Through January 8, BR pool allocations of 4.57 GWh (0.4 GWh Displacement, which will continue through the winter) are likely to fall short of the 39.5-GWh January forecast, due to dry conditions last month.
- The PG&E City-Gate gas index traded at \$2.85/MMBtu for January 9 delivery - compared to an average of \$2.92/MMBtu (with a high of just \$3.05/MMBtu) during December. Wellhead freeze-offs and heavy demand in the East increased prices early this month, but prices now are moderating as temperatures become more seasonal. The PG&E January Bidweek price is \$2.86, or 26 cents lower than December's, and January gas prices should average lower as constraints ease.
- Day-ahead NP15 electricity prices averaged \$36.29/MWh (HLH) and \$31.81(LLH) during December, with the TH_NP15 maximum a relatively sedate \$69.60/MWh and the minimum \$14.99. So far in January, on-peak prices have averaged \$38.70.

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 March 2018:
 - Monthly System Resource Adequacy Demonstration (filed January 15, 2018)
 - Monthly Supply Plan (filed January 15, 2018)

Industry Restructuring

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

Commitment Costs and Bidding Enhancements

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

Review of TAC Structure

- As described in the CAISO 2017 Stakeholder Initiative Catalog, during calendar year 2018 the CAISO will conduct a stakeholder initiative process to consider possible changes to the structure of the Transmission Access Charge (TAC). The CAISO currently charges the TAC to each MWh of metered internal end-use load (i.e., Gross Load) and exports, to recover participating transmission owners' costs of owning, operating and maintaining transmission facilities under CAISO operational control. Included in the initiative scope will be questions such as: (1) whether the current purely volumetric TAC rate structure should be retained, or should be changed to include other factors such as peak demand; and (2) whether the billing determinant for internal load should be modified to account for the load that is offset by the energy output of Distributed Energy Resources (DER).

Western

Western Base Resource Tracking (NCPA Pool)

Western Base Resource Tracking - NCPA Pool							
	Actual			Costs & Rates			
	BR Forecast ¹ (MWh)	BR Delivered (MWh)	Difference (MWh)	Base Resource & Restoration Fund (\$)	Monthly Cost of BR ² (\$/MWh)	CAISO LMP Differential ³ (\$/MWh)	12-Mo Rolling Avg. Cost of BR ⁴ (\$/MWh)
Jul-17	71,656	82,819	11,163	\$2,334,679	\$ 28.19	\$ 1.60	\$ 27.59
Aug-17	55,736	79,371	23,635	\$2,334,679	\$ 29.41	\$ 0.08	\$ 27.14
Sep-17	56,044	57,011	967	\$1,979,032	\$ 34.71	\$ 0.12	\$ 26.27
Oct-17	33,604	39,352	5,748	\$833,923	\$ 21.19	\$ 0.79	\$ 25.27
Nov-17	19,601	22,441	2,840	\$833,923	\$ 37.16	\$ 0.27	\$ 24.46
Dec-17	15,404	19,821	4,417	\$833,923	\$ 42.07	\$ 0.25	\$ 24.15
Jan-18	7,358	-	(7,358)	\$833,923	\$ 113.34	\$ 0.10	\$ 25.83
Feb-18	13,359	-	(13,359)	\$833,923	\$ 62.42	\$ 0.10	\$ 28.01
Mar-18	30,216	-	(30,216)	\$833,923	\$ 27.60	\$ 0.10	\$ 29.52
Apr-18	50,443	-	(50,443)	\$2,035,038	\$ 40.34	\$ 0.10	\$ 30.44
May-18	66,832	-	(66,832)	\$2,035,038	\$ 30.45	\$ 0.10	\$ 32.68
Jun-18	74,030	-	(74,030)	\$2,035,038	\$ 27.49	\$ 0.10	\$ 33.09
1/	As forecasted in NCPA 17/18 Budget						
2/	= (Western Cost + Restoration Fund)/BR Delivered, for Pool Participants only.						
3/	= (MEEA LMP - PG&E LAP LMP) using public market information (i.e. not settlement quality).						
4/	Based on BR Delivered (Actual) when available and BR Forecast in all other cases. Includes CAISO LMP impact.						

Debt and Financial Management

- After months of build-up and speculation, Congress passed a controversial tax cut bill in late December. This new legislation, the first major tax reform since 1986, lowers the corporate tax rate to 21% from 35%, while also lowering individual tax rates. Early assessments suggest a positive economic reaction for the near-term. However, the reform also included the elimination of advance refunding of tax-exempt bonds.
- On December 20th, NCPA staff finalized the advance refunding of the 2017 Lodi Energy Center, Indenture One, Series A bonds. Final numbers for the project participants included the following:
 - Rate: 2.27%
 - NPV Savings: \$2.2 million through final maturity of 2025
 - Percentage savings of refunded bonds: 6.15%
 - Average annual savings: ~\$319,000
- Inflation, which has the potential to be the primary deterrent to future Fed rate hikes, remains well below the Fed's target of 2%. Core personal consumption expenditures (PCE), year-over-year, have posted sub-two percent levels for consecutive months since May 2012.
- The U.S. Treasury yield curve continued to flatten in December. The combination of Fed rate hikes buoying the front end of the curve and tepid inflation restraining long-term Treasury rates has resulted in the least slope in the yield curve since 2007. Ten-year Treasury yields were unchanged in December at 2.41%, while two-year yields rose 10 basis points (bps) to 1.89%.
- As we pass the ten-year anniversary of the official start of the nation's most recent recession (December 2007), the domestic economic landscape continues to show signs of resilience, breadth and positive momentum.
- NCPA staff has started the process to refund the 2008 Hydro Series C bonds. Over the next few months, staff will be reviewing and updating documents necessary for this refunding. The tentative plan is to seek Commission approval in February with pricing and closing scheduled for early April.

Schedule Coordination Goals

Software Development

- NCPA commenced scheduling coordination operation for PCWA's Middle Fork Project on 12/31/2017 for the 01/01/2018 operating date.
- NCPA IS staff is assisting Santa Clara to transition its MSS portfolio from scheduling via Web Service into the use of the new client-based NCPA Scheduling Suite. Rollout is anticipated for February 2018.
- Various other software development is underway. The Resource Adequacy Compliance App is a tool to manage RA supply planning and compliance tracking.

The Green House Gas (GHG) Accounting App is a tool for the business user to track GHG transactions by Member. The Shared Services App has three modules about Training, Support Services, and Vendor Contracts. It calculates the billable amount for the Member's portion of the Shared Services.

Network

- Additional collaboration sites are being created to expand the functionality of the Agency's new extranet, "NCPA Connect." This will provide further capabilities to share and edit documents for specific working groups and committees.
- Additional 56k circuit upgrades to T1 at Portola, Ukiah and the Disaster Recovery Center have been successfully completed. Information Services is currently working on upgrading the Ukiah Orchard substation.
- Work continues on streamlining the meetings workflow process using SharePoint to assist in preparing documents and presentations for a variety of NCPA committees. A soft launch of this new service will happen in January and a full go-live is expected by March.
- Information Services continues to work alongside Generation Services to help expand their physical security presence at the plant locations. This includes diagramming, installing and configuring network switches in preparation for security devices.
- NCPA began performing PCWA Scheduling Coordination services beginning January 1st, 2018. Testing of network, telemetry and SCADA operations helped to ensure a smooth and successful transition. NCPA and PCWA continue to troubleshoot Radio over IP (RoIP) connection issues and are currently using satellite phones to communicate with PCWA technicians when out of cell coverage. Expected to have the RoIP resolved by mid-January.
- NCPA performed a red team assessment at the Roseville office using a company called Rapid 7. This is a type of penetration test that evaluates the physical and network security defenses. Waiting on a final report from Rapid 7 to review the results.
- Information Services rolled out the first phase of the E-mail Records Retention policy to roughly half the Agency, with the other half expected to be completed sometime in May 2018.

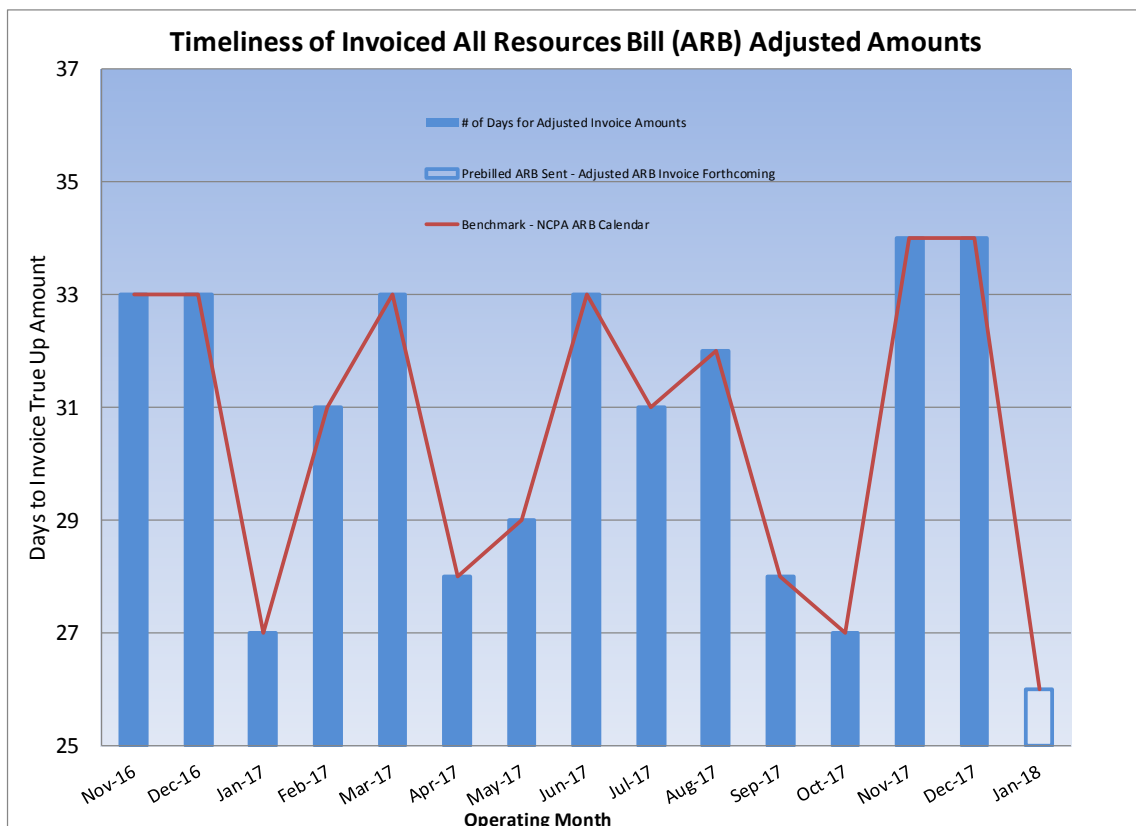
NCPA Bills & Settlements

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 January 2018 NCPA All Resources Bill (ARB) monthly invoice sent to members on December 22, 2017 contains:

- January 2018 monthly pre-billed budget/forecast amounts;
- November 2017 (1st Adjustment) NCPA Project and CAISO Initial settlement true-ups;
- October 2017 (2nd Adjustment) NCPA Project settlement true-up and T+12 business day recalculated CAISO settlement true-up allocations;
- August 2017 (3rd Adjustment) T+55 business day recalculated CAISO settlement true-up allocations and NCPA Projects true-up;
- February 2017 (4th Adjustment) T+9 month recalculated CAISO settlement true-up allocations;
- April 2016 (5th Adjustment) T+18 month recalculated CAISO settlement true-up allocations;
- January 2015 (6th Adjustment) T+33 month recalculated CAISO settlement true-up
- October 2014 (7th Adjustment) T+35 month CAISO settlement true-up



Legislative & Regulatory

Political Arena State/Federal/Western Programs

- **RPS Compliance:** NCPA was notified by the California Energy Commission (CEC) in late December that all NCPA members have officially been deemed in full compliance with the states' Renewable Portfolio Standard (RPS) Program for the 2011-13 compliance period. This outcome was the result of more than three years of review by the CEC, with specific attention focusing on the use of alternate compliance mechanisms for utilities unable to reach the 20% RPS target. Four NCPA members (Biggs, Gridley, Redding, and Shasta Lake) were successful in applying an alternate compliance provision in the first compliance period. In the case of Biggs and Gridley, NCPA created a cost limitation provision that reduced its combined procurement costs by more than \$120,000. In the absence of such an outcome, potential penalties for non-compliance for these members would have exceeded \$500,000.
- **State Legislative Efforts:** Over the past several weeks, NCPA's state legislative team has been meeting with key policymakers and stakeholders regarding our priority issues, including SB100, legislation to establish a 100% RPS and clean energy standard, and regionalization of the CAISO. We have laid the groundwork for the advancement of policies to address a transition for natural gas facilities and prevent the creation of stranded assets, and to streamline reporting and oversight of smaller POU systems. Many of the state leaders on these issues will also be speaking to NCPA members during the 2018 Strategic Issues Conference.

Human Resources

Hires:

Anthony Allegra joined NCPA on December 15, 2017 as the Environmental Health and Safety Specialist at our Geothermal Facilities in Middletown, CA. Anthony has over 10 years of Environmental Health and Safety experience having previously worked for Nor-Cal Beverage, as the Environmental Safety and Health Coordinator.

Intern Hires:

None.

Promotions/Position Changes:

None.

Separations:

None.