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on the Summer Reliability Report Required by AB 205

Additional submitted attachment is included below.

BANC
Comments on the Summer Reliability Report Required by AB-205

I. Description of BANC

The Balancing Authority of Northern California (BANC) is a joint powers agency whose members include the Modesto Irrigation District (MID), City of Redding (Redding), City of Roseville (Roseville), Sacramento Municipal Utility District (SMUD), City of Shasta Lake (Shasta Lake), and Trinity Public Utilities District (TPUD). BANC is a registered entity under the North American Electric Reliability Corporation (NERC) standards as a Balancing Authority Area (BAA) and Planning Coordinator (PC). At an approximately 5,000MW peak load, BANC is the third largest BAA in CA and a mid-size BAA in the Western Interconnection. BANC is also a participant in the California Independent System Operator's (CAISO) Western Energy Imbalance Market (EIM) as an EIM Entity under the CAISO Tariff and is considering participation in the CAISO's proposed Extended Day Ahead Market (EDAM). In addition to its members, BANC provides BA services to the Western Area Power Administration – Sierra Nevada Region (WAPA-SNR) resources and to the Transmission Agency of Northern California (TANC) for the 500 kV California-Oregon Transmission Project (COTP). WAPA-SNR and TANC facilities are located within BANC's BAA. BANC provides these set of services via contract arrangements with several entities.

II. Summary of Summer 2022 Assessment

During the first quarter of each year, BANC coordinates with its members and entities that contract for BA services to conduct a detailed loads and resources assessment of readiness to meet the upcoming summer forecasted needs under various scenarios. This evaluation provides an assessment of the load forecast, resource supply, and energy imports in the summer operating season (June 1 through October 31) for the BANC BAA. The key analyses and studies included:

a. Assessment of the critical hours of the peak load day, i.e., Hour Ending (HE) 16 through HE 21, to cover both the gross peak load as well as the net peak load
b. Calculation of the hourly Effective Load Carrying Capability (ELCC) and Net Qualifying Capacity (NQC) for all resources, such as Hydro, Thermal, Solar, Wind, etc.
c. Evaluation of the detailed availability of import resources, including both the firm contracted resources and non-dependable import resources
d. Assessing the availability of the Demand Response programs

e. Evaluating the Operating Margin for both the 1-in-2 peak load as well as the 1-in-10 peak load
f. Conducting Monte Carlo probability simulations to assess the Loss of Load Probability over a large number of scenarios during critical peak hours with simulated 3-year history on thermal unit outages, hydro generation, and solar and wind generation. This also simulates a greater than 1-in-10 load forecast and the reduction of non-dependable imports when the load is higher than 1-in-10 to simulate a West-wide heat wave
g. Perform analysis on special operating scenarios regarding California-Oregon Intertie (COI) derate due to wildfires, CAISO in an Energy Emergency Alert (EEA) 3, West-wide heat wave causing a reduction in non-dependable imports, and impact of wildfire smoke on solar production and system load within the BANC BAA.

The results of the assessment for 2022 showed that:

a. BANC's hourly gross peak load was forecasted to be at HE17 and BANC's hourly net peak load was forecasted to be at HE18.
b. The most stressed operating condition was when BANC's peak load occurs in August as the available Hydro generation and Solar generation in August is forecasted to be less than June and July.
c. The base case assessment demonstrated that BANC has sufficient generation and transmission capacity to meet the forecasted 1-in-2 and 1-in-10 load for 2022 summer with sufficient operating margin (OM).
d. The Monte Carlo probability simulation results showed that BANC has a low risk (1 day in 17 years) to be in an EEA 3 and an extremely low risk (1 day in 166 years) to shed firm load, both of which are lower than the industry benchmark of 1 day in 10 years.
e. The analyses indicated that BANC would have sufficient operating margin for the special operating scenarios of wildfire smoke and the CAISO BA in an EEA 3.
f. BANC would have risks of being in an EEA 3 when there is a West-wide heat wave causing 1-in-20 load with no non-dependable import available or when the COI has a significant derate after losing two 500 kV lines due to wildfires under 1-in-10 load.

In addition to the assessments noted above, BANC also updated its operating procedures, trained its operators, and engaged in joint training exercises with the CAISO and other adjacent BAAs in preparation for the summer of 2022.[1]

[1] The Summer Assessment is accepted by the BANC Commission by resolution and vote in public session. Attached is the BANC 2022 Summer Assessment.

III. Summary of Summer 2022 Operations

At the beginning of the summer of 2022, BANC's largest member, SMUD, lost a 500 MW natural gas fired combined cycle generating unit, the Consumnes Power Plant, due to a steam turbine generator failure. SMUD took immediate action to replace the lost capacity and energy from this unit via bilateral market purchases, primarily from the Pacific Northwest. In addition, SMUD worked with the unit manufacturer to test the capability to run the unit in a simple-cycle configuration. This capability was confirmed by physical test. SMUD then worked with the Sacramento Metropolitan Air Board and the California Energy Commission to receive any necessary permit and license modifications to obtain permission to run the unit in a simple-cycle mode. This provided approximately one-half of the normal capacity, or 270 MW for use in meeting loads.

During most of the summer of 2022, temperatures in the BANC footprint were reasonable and did not challenge the capability to serve loads. The exception to this was the heat wave that occurred from August 31-September 9. The Sacramento area experienced 10 consecutive days above 100 degrees with a new all-time highest temperature record of 116 degrees on September 6, 2022. BANC also set its new peak load record of 4943 MW at 15:58:14 on September 6, 2022, which was 37 MW higher than the previous peak load record of 4906 MW set on July 24, 2006. BANC's load could have been even higher with the continuous temperature rise on that day, but various emergency load reduction programs, demand response programs, and public appeals helped reduce load, especially between 15:00~21:00 hours. During the course of the heat wave, BANC initiated operational responses to meet this challenge including:

- Increased communications outreach, including
    - Daily BANC participant operational readiness calls
    - Participation in the twice daily state led update calls
    - Close coordination with adjacent BAAs, including the CAISO
    - Public appeals for conservation
- Appropriate use of Energy Emergency Alerts to assist in initiating demand response programs and deploying reserves
- Increased energy procurement efforts by members as needed
- Waiver request to US Department of Energy (USDOE) to facilitate use of certain backup generators

On this latter issue, over and Labor Day Heat Wave and extending through the following week, BANC worked with SMUD to enable the operation of certain SMUD customer back-up generation that was operated under Federal air permits. In coordination with the Governor's Office, the CEC, and the CAISO, BANC petitioned the USDOE under Section 202(c) of the Federal Power Act for emergency waivers of the federal air permits in certain respects to allow the units to be called during certain conditions. These conditions included certain EEA conditions for both BANC and the CAISO. The USDOE granted both the original Emergency Petition for Waiver and an Extension over the course the Labor

Day weekend and the following week.[2] The covered units were in fact dispatched (resulting in a metered demand reduction) by BANC for both BANC and, independently, CAISO needs.

BANC and SMUD are currently in the process of working with the DOE to evaluate the actions taken and the impact on the community.

BANC also experienced some minor unplanned generation outages during the course of the heat wave, but the units were able to be returned to service to meet critical operational hours. BANC was on the verge of having to initiate rotating outages a couple of times during the heat wave but due to the efforts noted above was able to meet loads and avoid having to impact customers. This was aided by the fact that there were no major transmission system outages or major loss of in-area generation and that this event was not a West-wide heat wave.

IV. Looking Forward: Lessons-learned, Challenges, and Solutions

In assessing the summer 2022 operations and looking forward to summer 2023 and beyond, BANC is considering the following:

- Continuing to conduct the detailed annual summer assessment of BANC readiness
- Continuing to conduct pre-summer readiness coordination both with BANC participants and adjacent BAAs
- Evaluating the need for additional changes to resource adequacy policies in response to heat events
- Continuing to perform enhanced communications during critical events both internally and with adjacent BAAs
- Working with the State agencies and other BAAs to enhance communications channels
- Working with the State agencies and other BAAs to better communicate and make use of demand-side programs
- Working with the State agencies, DOE, and other BAAs to identify supply resources that may be underutilized including better facilitate the use of backup emergency generation through the DSGS program or other programs.

[2] Attached are copies of the BANC Petition for Emergency Waiver and Extension, and the respective DOE Emergency Waivers.

2022 SUMMER

LOADS & RESOURCES ASSESSMENT

May 2022

Balancing Authority of Northern California

A Joint Powers Authority Among
Modesto Irrigation District, City of Redding, City of Roseville, City of Shasta Lake,
Trinity Public Utilities District, and Sacramento Municipal Utility District
www.thebanc.org

Table of Contents

1. Executive Summary

The Balancing Authority of Northern California (BANC) is a Joint Powers Authority (JPA) consisting of the Sacramento Municipal Utility District (SMUD), Modesto Irrigation District (MID), City of Roseville (RSC), Redding Electric Utility (REU), City of Shasta Lake (CSL), and Trinity Public Utilities District (TPUD). BANC assumed the Balancing Authority (BA) responsibilities on May 1, 2011, from SMUD that include balancing the generation, load, and interchange, and coordinating system operations with neighboring BAs – Bonneville Power Administration (BPA), Turlock Irrigation District (TID), and California Independent System Operator (CAISO). There are two footprints within BANC – SMUD and Western Area Power Administration – Sierra Nevada Region (WAPA), which includes WAPA, MID, RSC, REU, CSL, and TPUD. The Figure 1-1 below shows the geographical map of BANC system.

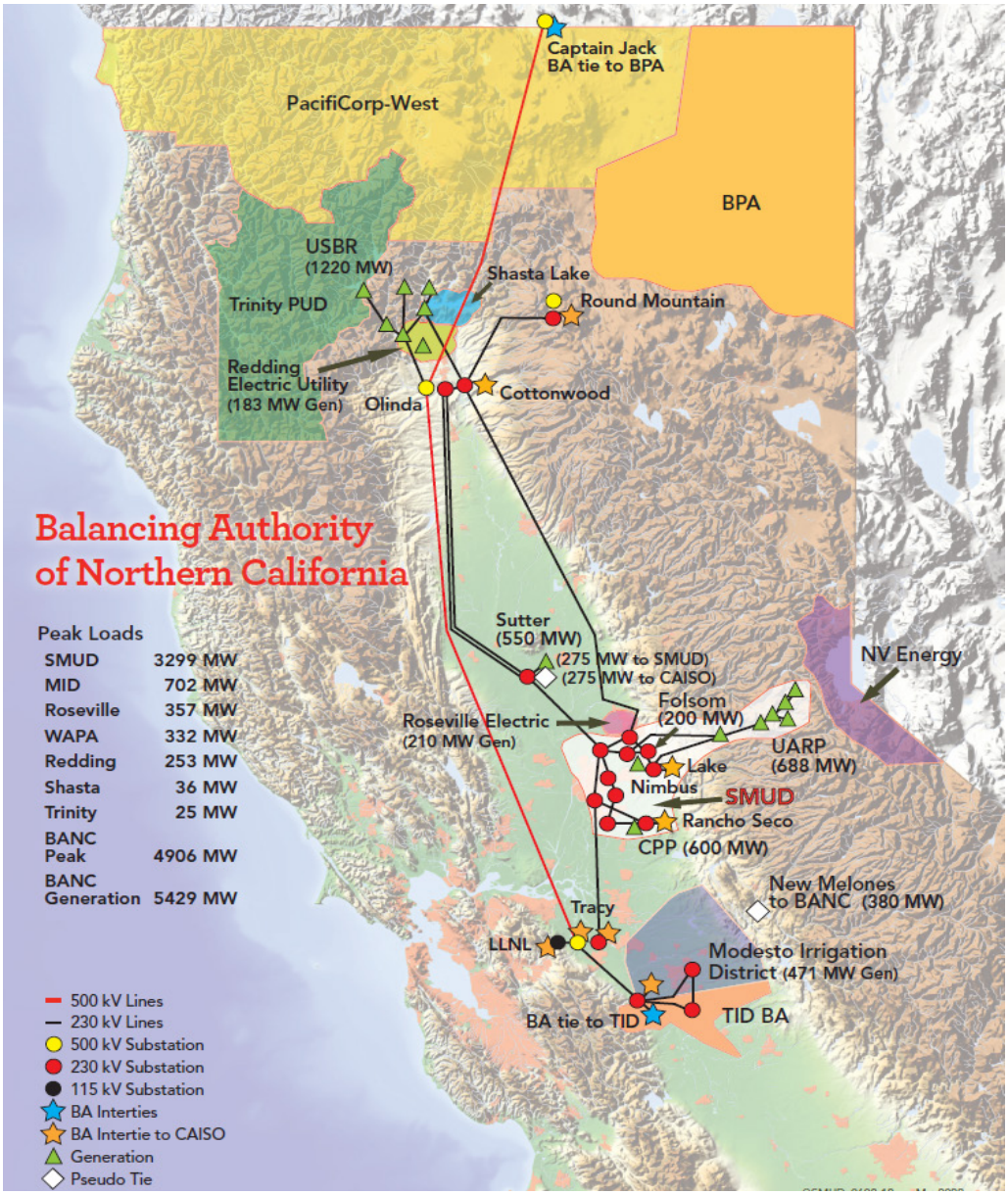

Figure 1-1: Geographical Map of BANC System

This BANC summer loads and resources assessment report provides an assessment of the load forecast, resource supply, and energy imports in the 2022 summer operating season – June 1st, 2022, through October 31st, 2022, for the BANC Balancing Authority Area (BAA).

The forecasted BANC 1-in-2 peak load for 2022 summer is 4513 MW which is 29 MW or 0.6% higher than the actual 2021 BANC peak load of 4484 MW. The forecasted 1-in-2 peak loads for the SMUD and WAPA footprints are 2950 MW and 1563 MW, respectively.

The forecasted BANC 1-in-10 peak load for 2022 summer is 4840 MW which is 356 MW or 7.9% higher than the actual 2021 BANC peak load of 4484 MW. The forecasted 1-in-10 peak loads for the SMUD and WAPA footprints are 3176 MW and 1664 MW, respectively.

Considering the rotating outages within the CAISO BAA that occurred during the 2020 summer, the potential resource shortfalls in CAISO footprint and Western Power Pool (WPP) area, and the reliance of BANC entities on the imports from the CAISO and WPP areas, more thorough and detailed analyses are performed to assess BANC's load and resource outlook and evaluate BANC's risk of energy or capacity shortages either during normal or emergency conditions. The key analyses and studies that are performed are summarized as follows:

(1) Assess the critical hours of the peak load day, i.e., Hour Ending (HE) 16 through HE 21, to cover both the gross peak load as well as the net peak load
(2) Calculate the hourly Effective Load Carrying Capability (ELCC) and Net Qualifying Capacity (NQC) for all resources and imports, such as Hydro, Thermal, Solar, Wind, etc.
    - Hydro ELCC and NQC are calculated based on the historical hydro capacity in the past 3 similar water years.
    - Thermal ELCC and NQC are calculated based on the Ambient Temperature Derate and the forced outage data in the past 3 years.
    - Solar and Wind ELCC and NQC are calculated based on the actual output of the plants during the critical hours in the past 3 years.
(3) Evaluate the detailed availability of import resources, including both the firm contracted resources and non-dependable import resources
(4) Assess the availability of the Demand Response programs
(5) Evaluate the Operating Margin for both the 1-in-2 peak load as well as the 1-in-10 peak load
(6) Conduct Monte Carlo probability simulations to assess the Loss of Load Probability (LOLP) as follows:
    - Simulate 2,000 cases for each of the critical hours HE16 through HE21, representing 2,000 years of simulation
    - Simulate Thermal generator outages based on the actual outage data in the past 3 years
    - Simulate Hydro generator capacity based on the actual operating capacity in the past 3 similar water years
    - Simulate Solar and Wind generation output based on the historical data in the past 3 years
    - Simulate load beyond 1-in-10 peak load forecast
    - Simulate the reduction of non-dependable import when the load is higher than 1-in-10 load forecast, representing a West-Wide heat wave
(7) Perform analysis to the special operating scenarios as listed below:
    - California Oregon Intertie (COI) derate due to wildfires
    - CAISO BAA is in an Energy Emergency Alert 3 (EEA 3)

- West-Wide heat wave causing the reduction of non-dependable imports
- Impacts of wildfire smoke on the solar generation and system load

The assessment results show that

- BANC's hourly gross peak load is forecasted to be at HE17 and BANC's hourly net peak load is forecasted to be at HE18.
- The most stressed operating condition will be when BANC's peak load occurs in August as the available Hydro generation and Solar generation in August is forecasted to be less than June and July.
- The base case assessment demonstrates that BANC has sufficient generation and transmission capacity to meet the forecasted 1-in-2 and 1-in-10 load for 2022 summer with sufficient operating margin (OM) as shown in Table 1-1 below.
- The Monte Carlo probability simulation results show that BANC has a low risk of 5.65% (or 1 day in 17 years) to be in an EEA 3 and an extremely low risk of 0.60% (or 1 day in 166 years) to shed firm load, both of which are lower than the industry LOLP benchmark of 1 day in 10 years.
- The analyses indicate that BANC would have sufficient operating margin for the special operating scenarios of wildfire smoke and the CAISO BA in an EEA 3.
- However, BANC would have risks of being in an EEA 3 when there is a West-Wide heat wave causing 1-in-20 load with no non-dependable import available or when the COI has a significant derate after losing two 500 kV lines due to wildfires under 1-in-10 load.

Table 1-1: 2022 Summer Base Case Supply & Demand Outlook at Gross & Net Peak Hours

	BANC BA		SMUD Footprint		WAPA Footprint	
2021 Generation (MW)	5413		2607		2806	
Generation Outage (MW)	(35)		(0)		(35)	
Retired Generation (MW)	0		0		0	
New Generation (MW)	16		8		8	
2022 Generation (MW)	5394		2615		2779	
Peak Load Hour	HE17	HE18	HE17	HE18	HE17	HE18
Equivalent ELCC	79.5%	78.4%	83.2%	81.2%	75.9%	75.8%
Total Generation NQC (MW)	4286	4229	2176	2123	2110	2106
Forecasted Import (MW)	1828	1816	1451	1443	620	616
Forecasted Export (MW)	(342)	(353)	(0)	(0)	(585)	(595)
Demand Response (MW)	73	73	54	54	19	19
Total Supply (MW)	5844	5765	3680	3620	2164	2145
1-in-2 Load + Reserves (MW)	4816	4781	3115	3075	1701	1706
1-in-2 OM * (MW)	1028	984	565	544	463	439
1-in-2 OM * (%)	21.3%	20.6%	18.1%	17.7%	27.2%	25.7%
1-in-10 Load + Reserves (MW)	5164	5127	3354	3311	1810	1816
1-in-10 OM * (MW)	680	638	326	309	354	329
1-in-10 OM * (%)	13.2%	12.4%	9.7%	9.3%	19.6%	18.1%

* Operating Margin (OM) (MW) = Total Supply – (Load + Reserves)
* Operating Margin (OM) (%) = (Total Supply – (Load + Reserves)) / (Load + Reserves)

Water Conditions as of April 1, 2022:

- United States Bureau of Reclamation's (USBR) Central Valley Project (CVP) reservoir storage levels were at approximately 57% of historical average
- Northern Sierra snowpack was only at 30% of its historical average
- Northern California precipitation was at 75% of its historical average
- Forecasted statewide snowmelt runoff is at about 60% of an average water year
- SMUD's storage reservoirs were at 115% of historical average and the inflow to the storage reservoirs is projected to be 120% of median.
- With only 75% of precipitation and 30% snowpack, the 2021-2022 water season is classified as "Critically Dry" according to California Department of Water Resources' (CDWR's) Bulletin 120 released on March 8, 2022.

Resource Availability Forecasts as of April 1, 2022:

- Based on the current outage information, all SMUD and CVP hydro resources are expected to be available during the 2022 summer peak months.
- The total hydro power peak or energy production is projected to be significantly lower than the historical average based on water conditions.
- One-half of the Sutter Energy Center (SEC) or 275 MW will continue to be available to SMUD and the other half of the SEC or 275 MW is available to the CAISO BA.

California Oregon Intertie (COI) Import Capability:

- Based on the seasonal study performed by the California Operating Sub-Committee (OSS), the 2022 summer COI operating nomogram is similar to 2021.
- Wildfire threat continues to be a risk with the threat areas and fire-season period both expanding and increasing the risk of Public Safety Power Shutoff (PSPS) events or actual outages.
- The CAISO has committed to support BANC if a PSPS event on the CAISO controlled portion of COI should create resource shortage conditions for BANC.

2. 2021 Summer Review

2.1 System Load

The recorded BANC peak load for 2021 summer reached 4484 MW at 16:59:29 on June 18, 2021, which was 91 MW (or 2%) lower than BANC's peak load in 2020 (4575 MW) due to a relatively mild summer temperature and the increased installations of the Behind-The-Meter (BTM) photovoltaic (PV) solar generation.

Because BANC entities are located in different geographical areas, they may not reach their peak loads at the same time or date. The BANC entities' load levels at the time of the BANC peak load are defined as the Simultaneous Peak Load and their individual peak load levels are defined as the Non-simultaneous Peak Load.

On June 18, 2021, the BANC BA, SMUD footprint, and WAPA footprint all reached their peak loads on the same day but at different time stamps. The Simultaneous Peak Load for the WAPA footprint was 1464 MW and the Simultaneous Peak Load for the SMUD footprint was 3020 MW. The SMUD footprint reached its Non-simultaneous Peak Load of 3027 MW at 16:49:00 and the WAPA footprint reached its Non-simultaneous Peak Load of 1464 MW at 16:58:57. However, MID reached its Non-simultaneous Peak Load on 7/30/2021 while RSC and REU reached their Non-simultaneous Peak Load on 7/10/2021.

Table 2-1 below shows the Simultaneous Peak Loads and Non-simultaneous Peak Loads and a comparison of 2021 actual Non-simultaneous Peak Loads vs. 2021 forecasted Non-simultaneous Peak Loads for BANC and all BANC entities.

Table 2-1: 2021 Simultaneous and Non-simultaneous Peak Loads vs. 2021 Forecasts

	Non-simultaneous Peak Load Forecast (MW)	Actual Non-simultaneous Peak Load (MW)	Non-simultaneous Peak Load Forecast Error (MW)	Non-simultaneous Peak Load Forecast Error (%)	Actual Simultaneous Peak Load[1] (MW)
BANC BA	4460	4547	-87	-1.9%	4484
SMUD	2938	3027	-89	-2.9%	3020
MID	684	680	4	0.6%	656
RSC	334	352	-18	-5.1%	341
REU	225	236	-11	-4.7%	221
CSL	32	37	-5	-13.5%	34
TPUD	25	25	0	0%	20
WAPA Footprint	1522	1520	2	0.1%	1464

[1] The Actual Simultaneous Peak Load values came from the PI historian data.

2.2 System Generation

The Sutter Energy Center (SEC) continued to be available at 275 MW capacity (17 MW capacity increase from 258 MW in 2020) for summer 2021 as a part of generation for SMUD. In addition, 174 MW of utility-scaled solar and 3 MW of net metered solar generation went on-line in the BANC footprint in 2021. BANC's total generating capacity increased to 5413 MW. Table 2-2 shows generation levels of BANC entities collected in PI at the 2021 BANC peak load moment (16:59:29 on 6/18/2021).

Table 2-2: BANC Entities Generation Levels at 2021 BANC Peak Load Moment

	Generation (MW)	Simultaneous Peak Load (MW)	Generation Capacity (MW)	Generation Output %
BANC BA	2780	4484	5413	51.4%
SMUD	1378	3020	2607	52.9%
MID	222	656	469	34.5%
RSC	181	341	231	78.4%
REU	113	221	182	62.1%
CSL	0	34	0	N/A
TPUD	0	20	0	N/A
WAPA Footprint	1402	1464	2806	50.0%

2.3 System Import

With the completion of PG&E's Palermo-Rio Oso 115 kV reconductoring project in 2014, the transfer capability of COI has been greatly improved (up to 1175 MW increase under high Northern California Hydro condition). Table 2-3 shows BANC entities' simultaneous import levels at the 2021 peak load moment. The data shows BANC entities heavily relied on imports to serve load (approximately half of the load in SMUD, MID, RSC, and REU were served by imports).

Table 2-3: BANC Entities' Import Levels at 2021 Peak Load Moment

	Simultaneous Import (MW)	Simultaneous Peak Load (MW)	Import/Load Ratio
BANC BA	1704	4484	38.0%
SMUD	1642	3020	54.4%
MID	434	656	66.2%
RSC	160	341	46.9%
REU	108	221	48.9%
CSL	32	34	100%
TPUD	19	20	100%
WAPA Footprint	62	1464	4.2%

3. 2022 Summer Assessment

In light of the rotating outages within the CAISO BAA that occurred during the 2020 summer, the potential resource shortfalls in CAISO footprint and Western Power Pool (WPP) area, and the reliance of BANC entities on the imports from the CAISO and WPP areas, more thorough and detailed analyses are performed to assess BANC's load and resource outlook and evaluate BANC's risk of energy or capacity shortages either during normal or emergency conditions. The key analyses and studies that are performed are summarized as follows:

(1) Assess the critical hours of the peak load day, i.e., Hour Ending (HE) 16 through HE 21, to cover both the gross peak load as well as the net peak load
(2) Calculate the hourly Effective Load Carrying Capability (ELCC) and Net Qualifying Capacity (NQC) for all resources and imports, such as Hydro, Thermal, Solar, Wind, etc.
    - Hydro ELCC and NQC are calculated based on the historical hydro capacity in the past 3 similar water years.
    - Thermal ELCC and NQC are calculated based on the Ambient Temperature Derate and the forced outage data in the past 3 years.
    - Solar and Wind ELCC and NQC are calculated based on the actual output of the plants during the critical hours in the past 3 years.
(3) Evaluate the detailed availability of import resources, including both the firm contracted resources and non-dependable import resources
(4) Assess the availability of the Demand Response programs
(5) Evaluate the Operating Margin for both the 1-in-2 peak load as well as the 1-in-10 peak load
(6) Conduct Monte Carlo probability simulation to assess the Loss of Load Probability (LOLP) as follows:
    - Simulate 2,000 cases for each of the critical hours HE16 through HE21, representing 2,000 years of simulation
    - Simulate Thermal generator outages based on the actual outage data in the past 3 years
    - Simulate Hydro generator capacity based on the actual operating capacity in the past 3 similar water years
    - Simulate Solar and Wind generation output based on the historical data in the past 3 years
    - Simulate load demand beyond 1-in-10 peak load forecast
    - Simulate the reduction of non-dependable import when the load is higher than 1-in-10 load, representing West-Wide heat wave
(7) Perform analysis to some special operating conditions as listed below:
    - California Oregon Intertie (COI) derate due to wildfires
    - CAISO BAA is in an Energy Emergency Alert 3 (EEA 3)
    - West-Wide heat wave causing the reduction of non-dependable import
    - Impacts of wildfire smoke to the solar generation and system load

3.1 Forecasted System Load

Due to the increase of the renewable generation within BANC footprint, BANC's summer assessment will need to cover both the gross peak load and the net peak load. The gross peak load is the conventional peak load that is served with all resources. The net peak load is defined as the peak load that is served with the dispatchable traditional resources, such as Hydro and Thermal, and is calculated as gross peak load less the non-dispatchable renewable generation.

As shown in Table 3-1 below, the forecasted BANC 1-in-2 gross peak load for the 2022 summer is 4513 MW, which is 29 MW higher than the actual 2021 BANC peak load of 4484 MW. The forecasted BANC 1-in-10 gross peak load is 4840 MW, which is 356 MW higher than the actual 2021 BANC peak load of 4484 MW. For 2022 summer, the hourly load profiles for the critical hours (HE16 through HE21) are developed for all BANC entities based on the historical hourly load data to assess both the gross peak load and the net peak load. The load profiles showed that BANC's hourly gross peak load is at HE17 and the hourly net peak load is at HE18.

Table 3-1: 2022 Forecasted Peak Loads for BANC Entities

	Forecasted 1-in-2 Gross Peak Load (MW)	Forecasted 1-in-2 Net Peak Load (MW)	Forecasted 1-in-10 Gross Peak Load (MW)	Forecasted 1-in-10 Net Peak Load (MW)
SMUD	2950	2731	3176	2954
WAPA Footprint	1563	1549	1664	1650
MID	665	648	709	692
Roseville Electric	338	338	389	389
REU	236	236	238	238
Shasta Lake	36	36	37	37
Trinity PUD	25	25	28	28
Forecasted BANC Peak Load	4513	4280	4840	4604

Figure 3-1 below shows a comparison of forecasted 2022 non-simultaneous peak load with the historical peak load since 2006 (all-time peak load year) for BANC, SMUD, and WAPA footprint.

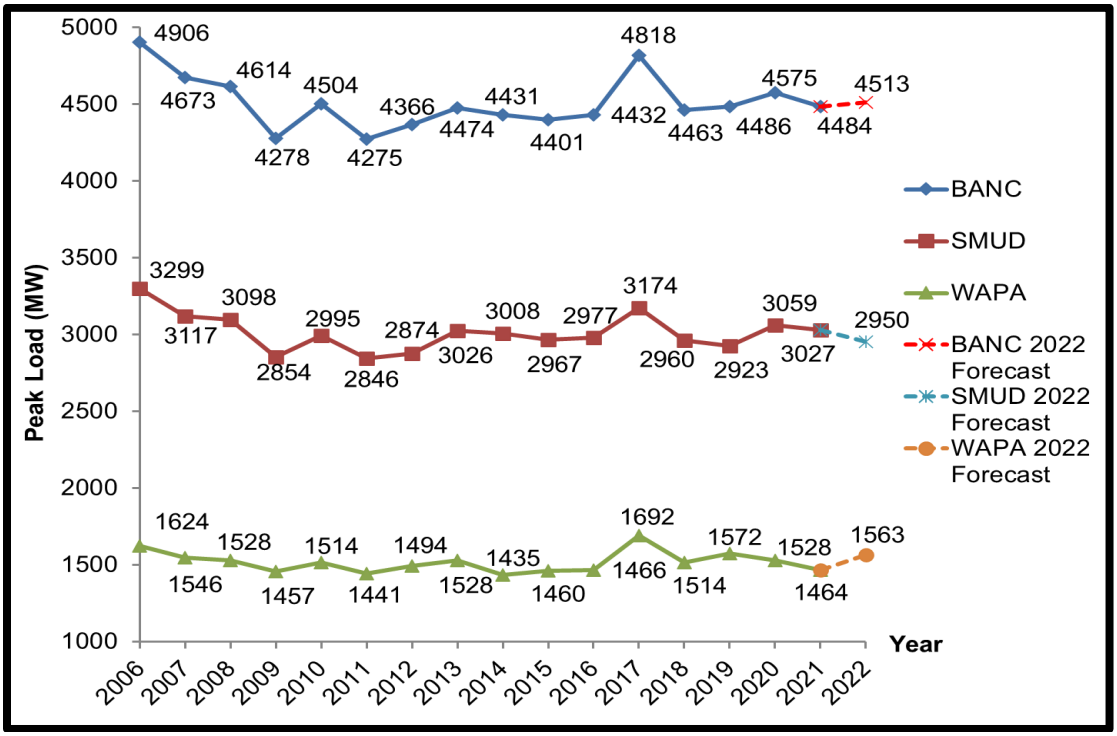

Figure 3-1: 2022 Forecasted Peak Load vs. Historical Peak Load

Figure 3-1 shows that all BANC entities' peak loads declined significantly due to the economic recession after the all-time peak recorded during the 2006 multi-day heat wave. The subsequent peak load demands reached their lowest in 2011 and then started recovering. Due to the unusual heat waves and economic recovery from the recession, BANC's 2017 peak load reached the highest level since 2006, despite the increased installations of the behind-the-meter photovoltaic solar generation. Several BANC entities, such as MID, City of Roseville, City of Shasta Lake, and WAPA footprint, even set their new all-time peak load records in 2017. In 2018 and 2019, BANC entities peak loads have been fairly flat due to the increased installations of BTM solar and SMUD's implementation of the Time-Of-Day rates in 2019.

Two extreme heat waves hit California and the western U.S. in 2020 summer, the original day-ahead load forecast showed that the loads of BANC BA and all BANC entities might get close to or even higher than the all-time peak. However, the severe smoke and ash from the wildfires reduced sun radiation such that the forecasted loads did not materialize. Even though, MID and City of Shasta Lake still set the new peak load records of 702 MW and 37 MW in 2020.

The Figure 3-2 below shows the highest temperature in Sacramento area in recent years. BANC's peak load occurred either on these days or subsequent days due to the impact of holidays or weekends, except for 2017, where BANC's peak load occurred on 6/20/2017. The data also shows that the highest temperature day is moving towards August in recent years. In addition, considering that the hydro generator capabilities and solar generation in August are lower than June and July, it is assumed in this assessment that the 2022 BANC peak load day is in August as it will be the most severe operating condition.

Max °F	Date	Max °C
112	August 16, 2020	44
107	August 15, 2019	42
109	July 25, 2018	43
109	August 28, 2017	43
108	July 26, 2016	42
108	July 29, 2015 +	42
107	August 01, 2014 +	42
110	July 04, 2013	43
107	August 13, 2012	42

Figure 3-2: The Highest Sacramento Temperatures in Recent Years

3.2 Forecasted Resource Supply

In 2021, Roseville Energy Park (REP)'s capacity was increased by 8 MW after steam turbine upgrade and there will be another 8 MW of net metered solar generation in SMUD footprint coming on-line before the 2022 summer. In addition, one-half of SEC (275 MW) will continue to be available as a part of SMUD's generation. BANC's total installed generation capacity will increase to 5429 MW, of which, 2704 MW (49.8%) is hydro generation, 2323 MW (42.8%) is thermal generation, 16 MW (0.3%) is biogas generation, and 386 MW (7.0%) is solar generation. In total, 57.2% of the installed generation capacity within BANC is carbon-free.

As half of BANC's generation capacity is Hydro, it is critical to forecast hydro generation availability based on the Water Conditions, including reservoir levels, snowpack levels, precipitations, and snowmelt runoffs. According to the CDWR's website, the 2022 Water Conditions as of April 1, 2022, are summarized as follows:

- USBR's CVP reservoirs were at approximately 57% of historical average (Figure 3-3)
- Northern Sierra snowpack was only at 30% of its historical average (Figure 3-4)
- Northern California precipitation was at 75% of its historical average (Figure 3-5)
- Forecasted statewide snowmelt runoff was at approximately 60% of an average water year (Figure 3-6)
- SMUD's storage reservoirs were at 115% of historical average and the inflow to the storage reservoirs is projected to be 120% of median.

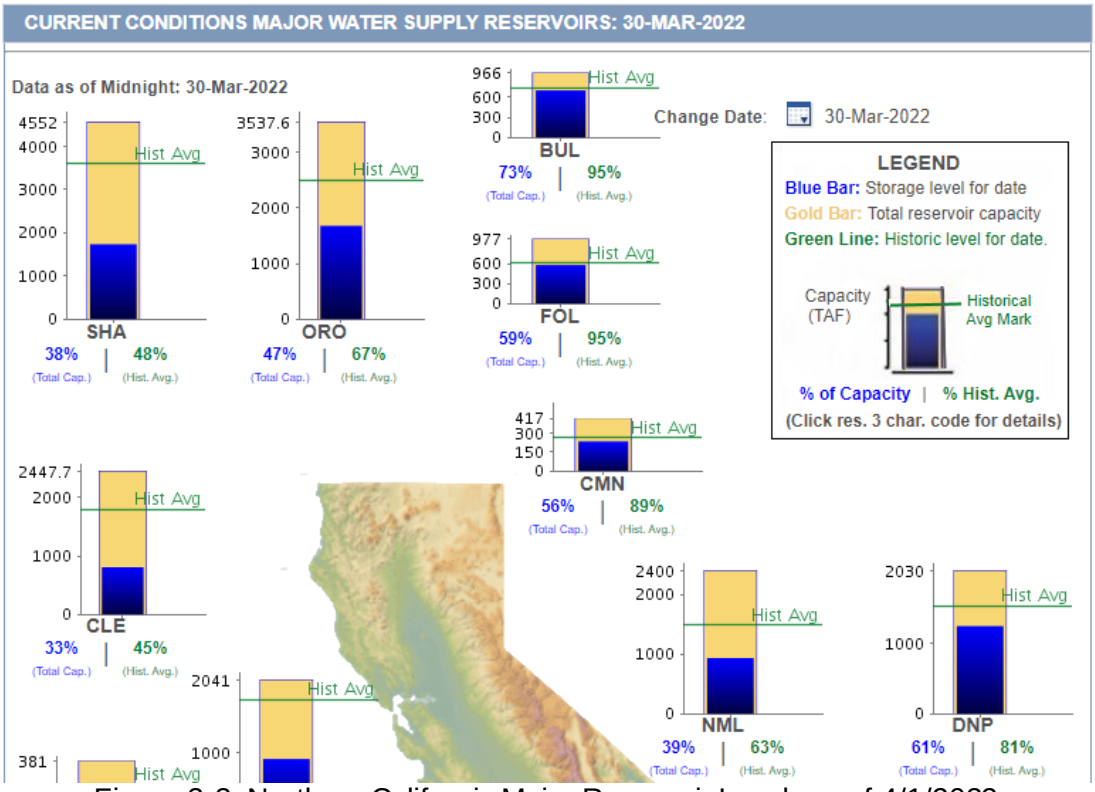

Figure 3-3: Northern California Major Reservoir Levels as of 4/1/2022

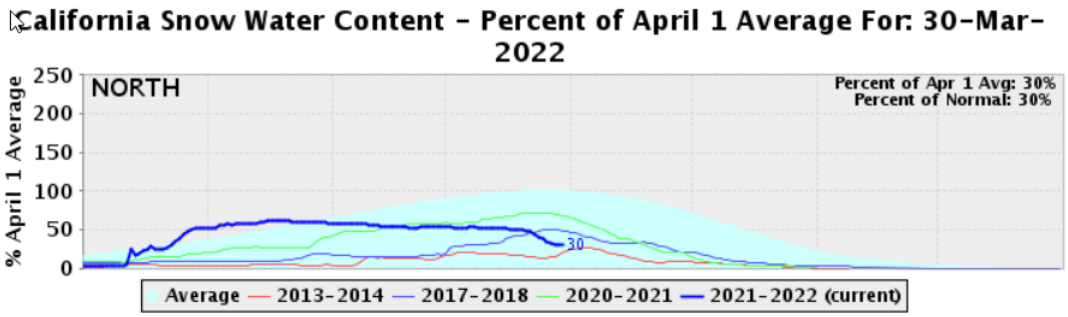

Figure 3-4: Northern Sierra Snowpack Level as of 4/1/2022

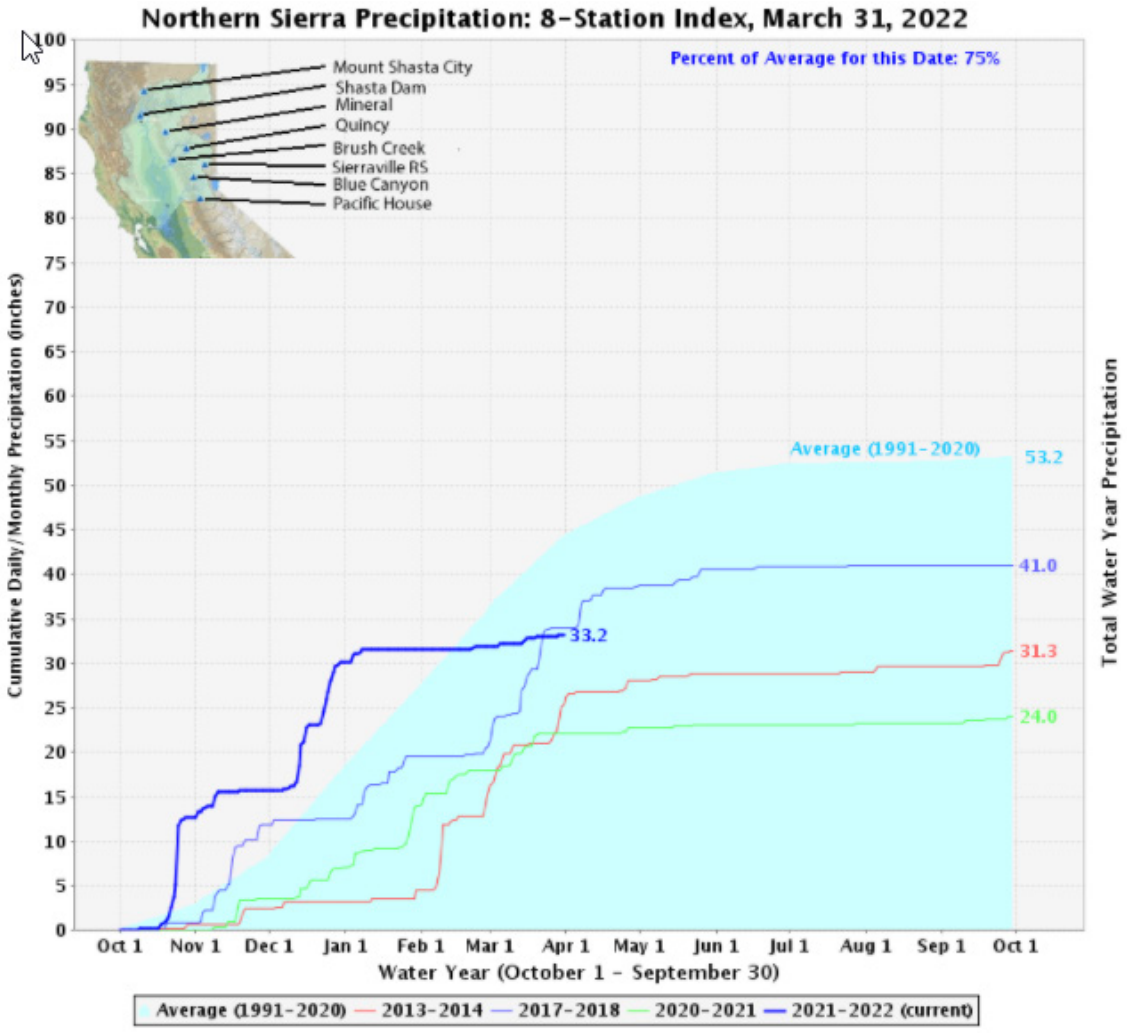

Figure 3-5: Northern Sierra Precipitation as of 4/1/2022

UNIMPAIRED FLOW FOR - MARCH 28, 2022
(Provisional data, subject to change)

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WATER YEAR FORECAST SUMMARY AND MONTHLY DISTRIBUTION (IN THOUSANDS OF ACRE-FEET)													
WATERSHED	OCT THRU JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	WATER YEAR TOTAL	80% PROBABILITY RANGE 90%	10%	WY % AVERAGE
Trinity, Lewiston	215	51	55	90	75	27	8	2	1	524	375	810	40
Inflow to Shasta	1,395	232	235	260	245	180	165	153	150	3,015	2,670	4,175	53
Sacrament, Bend	2,087	318	314	375	325	245	215	187	184	4,250	3,785	6,225	51
Feather, Oroville	1,331	256	347	245	155	95	75	65	56	2,625	2,300	4,085	60
Yuba, Smartville	654	105	145	205	178	48	19	11	11	1,375	1,165	1,970	61
American, Folsom	783	140	224	230	181	50	9	2	2	1,620	1,290	2,455	60

Figure 3-6: Forecasted Snowmelt Runoffs as of 4/1/2022

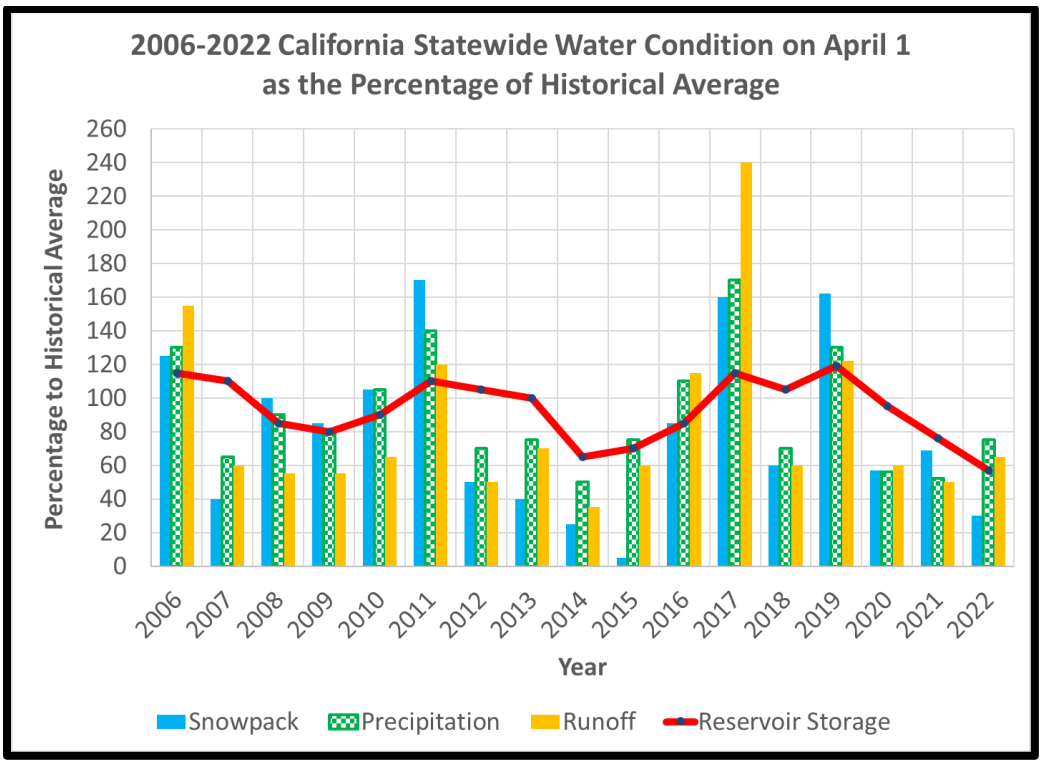

Figure 3-7: 2006-2022 California Statewide Water Condition on April 1

Based on the current outage information, all the SMUD and CVP hydro resources are expected to be available during the 2022 summer except Keswick Unit #3 (35 MW). However, the total hydro power production is projected to be lower than the historical average level due to the "Critically Dry" water condition.

Although BANC's installed generation capacity will reach 5429 MW, not all this MW capacity can be available to serve load. There are several factors that will limit generator's capacities, especially during the critical hours (HE16~HE21) of the peak load day. For example, thermal generators will be derated due to high ambient temperature, hydro generators will be derated due to lower reservoir levels, and solar generators will reduce output when sun sets.

To accurately assess BANC's ability to serve load, more detailed studies are performed to calculate BANC generators' Effective Load Carry Capability (ELCC) and Net Qualifying Capacity (NQC).

ELCC is a metric to evaluate how effective a generator can be to serve load for a given hour of the year and is defined as the percentage of a generator's installed capacity (i.e., Pmax) in this assessment. ELCC can be calculated for each individual generator or for a group of generators with similar characteristics.

NQC is defined as the MW capacity of a generator that can be counted in the resource plan to serve the load for a given hour of the year and can be calculated as:

$$NQC = ELCC * Pmax$$

Different types of generators have different characteristics and therefore different ways of calculating the ELCC and NQC. In this summer assessment, the monthly ELCC and NQC are used and they are calculated as monthly values for each 24 hours of the day.

3.2.1 Hydro Generator ELCC and NQC

Within BANC footprint, there are storage hydro generators and run-of-river hydro generators but no pumped-storage hydro generators. For this summer assessment,

- Storage hydro generators' monthly ELCC and NQC are calculated as the average of the hourly historical operating capacity in each summer month of the past 3 similar water years.
- Run-of-river hydro generators' monthly ELCC and NQC are calculated as the average of the hourly actual output in each summer month of the past 3 similar water years.
- Based on the 2022 Water Conditions shown in Figure 3-3 through Figure 3-7, 2014, 2018, and 2021 are selected as the similar water years.

3.2.2 Thermal Generator ELCC and NQC

As shown in Figure 3-2, BANC entities' peak load in recent years occurred on a hot summer day with temperature between 107 ºF and 112 ºF and the maximum capacities of thermal generators on the peak load day will be lower than their nameplate capacities. In this assessment, all BANC's thermal generators will use their ambient temperature derated capacities at 112 ºF.

In addition, although these thermal generators will normally not have planned outages during summer months, the unexpected, or forced outages do occur occasionally. To account for this impact, the Average Forced Outage Rates (AFORs) are calculated for all thermal generators using the historical forced outage data in the summer months of the past 3 years. Therefore, for thermal generators,

$$\text{Thermal ELCC} = 1 - \text{AFOR}$$

$$\text{Thermal NQC} = \text{ELCC} * \text{Pmax at } 112\ ^{\circ}\text{F}$$

3.2.3 Solar and Wind Generation ELCC and NQC

The hourly solar and wind generators' ELCC are calculated as the average solar outputs for each hour for the days with temperature higher than or equal to 100 ºF in the month of August of the past 3 years. The new solar generation will use the data of the nearby solar generation with similar solar panel technology.

3.3 Forecasted System Import

The COI is the major path for BANC entities to import capacity and energy from Pacific Northwest (Washington and Oregon) sources. Based on the study performed by the California OSS, the 2022 summer COI operating nomogram under all-line-in-service and normal hydro condition is

similar to 2021. According to National Oceanic and Atmospheric Administration (NOAA), the water supply of the Columbia River – the major river runoff supporting hydroelectric power generation in Pacific Northwest (PNW), was forecasted to be 95% of the 30-year normal at the Dalles Dam as of April 1, 2022, which indicates a normal hydro energy supply from Pacific Northwest this summer.

In order to accurately assess the imports that BANC entities can obtain during the high load days, this assessment classifies BANC entities' imports into three categories:

- WAPA Base Resources (adjusted by WAPA's Hydro ELCC)
- Contracted Firm Imports from PNW or CAISO (adjusted by ELCC for Hydro, Solar, Wind)
- Non-Dependable Imports

The Non-Dependable Import is defined as the import which is expected to achieve in the week-ahead or day-ahead timeframe based on historical real-time import data. The Non-Dependable Import is not backed-up with long-term firm contracts and could come from the PNW and/or CAISO market with the risk that there may not be sufficient energy/capacity available in the week-ahead or day-ahead timeframe during a west-wide heat wave.

In order to calculate the hourly Expected Non-Dependable Import for each BANC entity, the Expected Max Import is calculated for each BANC entity as the average of the maximum hourly historical real-time import for the month of August in the past 3 years on high load days. Then, the equation is as follows:

$$\text{Expected Non-Dependable Import} = \text{Expected Max Import} - \text{Firm Import}$$

3.4 Forecasted System Export

All the BANC entities rely on imports to serve load on the high load days, except WAPA, which will export a portion of its Base Resources to the entities within CAISO BAA per contract. In this assessment, the hourly Expected Export is calculated for WAPA as the average of the hourly historical real-time export for the month of August in the past 3 years.

3.5 Forecasted Demand Response

Demand Response (DR) can reduce end-user loads in response to high prices, financial incentives, environmental conditions, or reliability issues. DR can play an important role to offset the need for more generation and provide grid operators with additional flexibility in operating the system during periods of limited supply. There are several DR programs available within BANC BAA with a maximum amount of 73 MW. However, these DR programs have different contracts to be available in different days and hours. Therefore, the hourly DR profiles are created for all BANC entities in this assessment.

3.6 Forecasted Operating Reserves

Per NERC/WECC Reliability Standards, BANC shall maintain sufficient Regulating Reserve and Contingency Reserve during real-time operations. In this summer assessment, the amount of the Operating Reserves (Regulating Reserve plus Contingency Reserve) is calculated for each hour and is considered as a part of BANC's load obligation.

3.7 Scheduled Generation/Transmission Outages

According to the current available information, there are no major transmission or generation outages scheduled within the BANC footprint during the summer peak months – June, July, and August, except that the Keswick Unit #3 (35 MW) will be out of service from mid-Jun to late-July. In early September, SMUD's Consumnes Power Plant (CPP) plans to have some maintenance work. However, these CPP outages can be rescheduled if load is high. The Table 3-2 below lists the major transmission and generation outages within the BANC footprint and the surrounding areas for the 2022 summer.

Table 3-2: Scheduled Major Outages for 2022 Summer

Start Time	End Time	Outage Facility	Description	Outage Area	Outage Impact
5/2/2022	6/10/2022	Carr Unit #2	Maintenance	WAPA	86 MW generation outage
6/6/2022	6/9/2022	Robbs Peak Unit	Maintenance	SMUD	26 MW generation outage
6/6/2022	6/9/2022	Loon Lake Unit	Maintenance	SMUD	78 MW generation outage
6/13/2022	7/22/2022	Keswick Unit #3	Maintenance	WAPA	35 MW generation outage
9/3/2022	9/6/2022	Consumnes Power Plant CTG3	Maintenance	SMUD	298 MW generation outage
9/5/2022	9/16/2022	Folsom Unit #1	Maintenance	WAPA	71 MW generation outage
9/5/2022	9/16/2022	Nimbus Units #1 & 2	Maintenance	WAPA	17 MW generation outage
9/17/2022	9/20/2022	Consumnes Power Plant CTG2	Maintenance	SMUD	298 MW generation outage
9/26/2022	9/30/2022	Captain Jack-Olinda 500 kV Line	Switch Replacement	WAPA	COI derated to 3200 MW

Based on the monthly Hydro ELCC and Solar ELCC studies, the total available resources in July after deducting Keswick Unit #1 will still be higher than the total available resources in August.

3.8 Forecasted Base Case Supply & Demand Outlook

In the base case assessment, the average August ELCC are used for all resources – Hydro, Thermal, and Solar, and the Operating Margins (OMs) are calculated for BANC BA, and SMUD and WAPA footprints for both 1-in-2 and 1-in-10 forecasted peak loads as follows:

Operating Margin = Generation NQC – Outages + Import – Export + DR – Load – Reserves

The Operating Margin calculated in this assessment is different than the Planning Reserve Margin (PRM) that is used in the Resource Adequacy analysis as reserves are counted as a part of load obligation. The Table 3-3 defines the operating conditions for the BANC BA per NERC Reliability

Standard EOP-011-1. As SMUD and WAPA will provide emergency assistance to each other, they would be in EEA conditions only when the BANC BA is in the EEA conditions.

Table 3-3: BANC Operating Condition Definitions

Operating Condition	BA Status	Note
OM >= DR	Sufficient OM	No need to utilize DR
0 <= OM < DR	EEA 2	BA relies on DR to maintain Reserves
OM < 0 & OM + Reserves >=0	EEA 3	BA unable to maintain Reserves
OM + Reserves < 0	Firm Load Shedding	BA unable to serve all load

The base case results show that BANC BA, SMUD footprint, and WAPA footprint all have sufficient resource supplies to meet the forecasted 1-in-2 and 1-in-10 load demands and reserve requirements for 2022 summer with sufficient Operating Margins (OMs) as shown in Table 3-4 below when counting the expected Non-Dependable Imports.

Table 3-4: 2022 Summer Base Case Supply & Demand Outlook at Gross & Net Peak Hours

	BANC BA		SMUD Footprint		WAPA Footprint	
2021 Generation (MW)	5413		2607		2806	
Generation Outage (MW)	(35)		(0)		(35)	
Retired Generation (MW)	0		0		0	
New Generation (MW)	16		8		8	
2022 Generation (MW)	5394		2615		2779	
Peak Load Hour	HE17	HE18	HE17	HE18	HE17	HE18
Equivalent ELCC	79.5%	78.4%	83.2%	81.2%	75.9%	75.8%
Total Generation NQC (MW)	4286	4229	2176	2123	2110	2106
Forecasted Import (MW)	1828	1816	1451	1443	620	616
Forecasted Export (MW)	(342)	(353)	(0)	(0)	(585)	(595)
Demand Response (MW)	73	73	54	54	19	19
Total Supply (MW)	5844	5765	3680	3620	2164	2145
1-in-2 Load + Reserves (MW)	4816	4781	3115	3075	1701	1706
1-in-2 OM * (MW)	1028	984	565	544	463	439
1-in-2 OM * (%)	21.3%	20.6%	18.1%	17.7%	27.2%	25.7%
1-in-10 Load + Reserves (MW)	5164	5127	3354	3311	1810	1816
1-in-10 OM * (MW)	680	638	326	309	354	329
1-in-10 OM * (%)	13.2%	12.4%	9.7%	9.3%	19.6%	18.1%

* Operating Margin (OM) (MW) = Total Supply – (Load + Reserves)
* Operating Margin (OM) (%) = (Total Supply – (Load + Reserves)) / (Load + Reserves)

The Figure 3-8 through Figure 3-10 show the charts of the resource stack vs. load + reserve on the forecasted peak load day over the critical hours of HE16~HE21 under the base case conditions for BANC BA, SMUD footprint, and WAPA footprint.

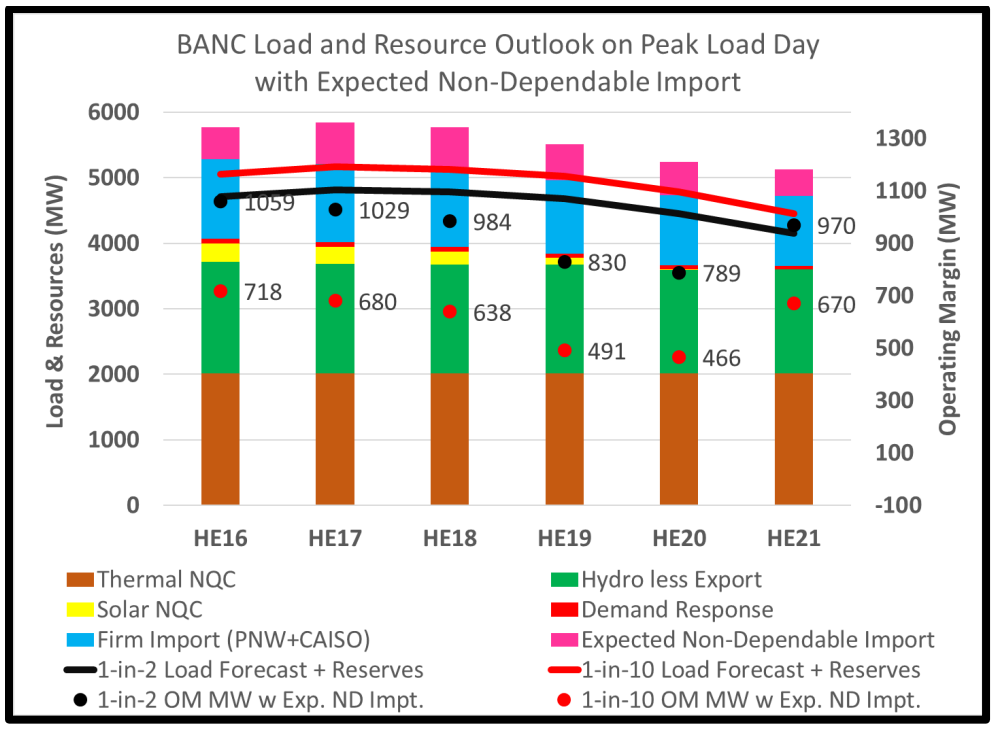

Figure 3-8: BANC Base Case Load and Resources Outlook on Peak Load Day

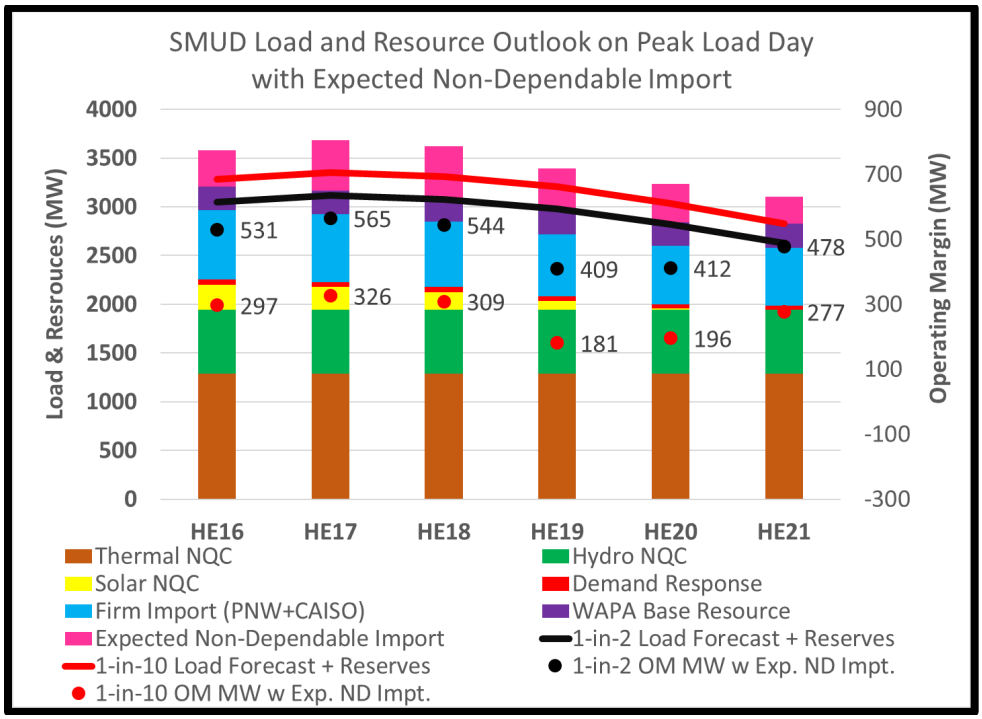

Figure 3-9: SMUD Base Case Load and Resources Outlook on Peak Load Day

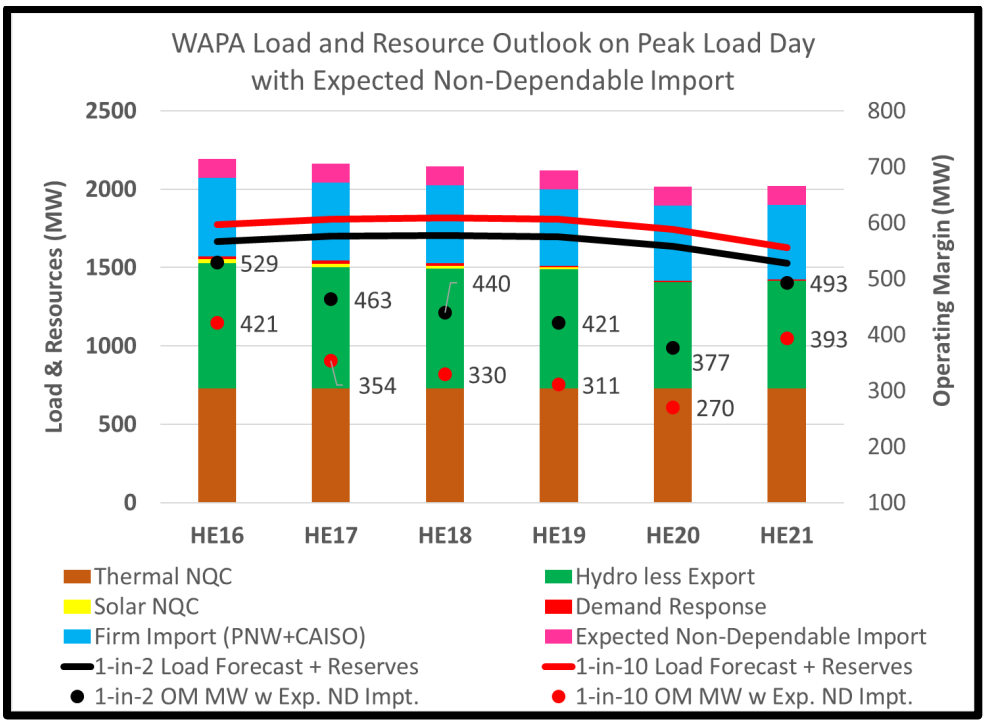

Figure 3-10: WAPA Base Case Load and Resources Outlook on Peak Load Day

The 2022 summer resource supply is similar to the 2021 summer resource supply:

- SMUD's 2022 resource supply is at the same level as 2021 and is estimated to get more non-dependable import based on historical data. Therefore, SMUD's 2022 operating margin is estimated to be higher than 2021 when counting the expected non-dependable import.
- WAPA's 2022 CVP hydro capacity is estimated to be approximately 200 MW less than 2021 due to the worse water conditions. Therefore, WAPA's 2022 operating margin is estimated to be less than 2021.
- Overall, from BANC BA's perspective, the estimated 2022 operating margin is estimated to be at the same level as 2021.

3.9 Monte Carlo Probability Simulation

There are numerous uncertain factors that could affect the actual real-time operating conditions in the upcoming summer, such as unexpected generator outages may occur at any time, water conditions may still change, and extreme heat wave may cause load beyond the 1-in-10 forecast, etc. In order to further evaluate the risks that BANC BA and all BANC entities may encounter in the summer, the Monte Carlo probability simulation is conducted to assess BANC's Loss of Load Probability (LOLP).

The Monte Carlo probability simulation produces a series of random sampling of data based on a mathematical distribution, such as Normal Distribution. Then, the operating conditions are developed based on the randomly sampled data to evaluate the operating risks. The simulated operating conditions are summarized as follows:

- Simulate 2,000 cases for the critical hours HE16~HE21 of the peak load day, representing 2,000 years of simulation.
- Simulate thermal generator outages based on the Average Forced Outage Rate (AFOR) in the past 3 years, i.e., any thermal generator could be forced out of service based on AFOR.
- Simulate hydro generator capacity based on the actual operating capacity in the past 3 similar water years. The hydro generator capacity could be at any level between the minimum level and the maximum level that occurred during the past 3 similar water years.
- Simulate Solar and Wind generation output based on the historical data in the past 3 years. As the solar and wind generation are related to the temperature, solar and wind generation are simulated to be between the maximum and minimum levels in the past 3 years on the days when the temperature exceeded 100 ºF.
- Simulate load demand beyond 1-in-10 peak load forecast.
- Simulate the reduction of non-dependable import when the load is higher than 1-in-10 forecast, indicating a West-Wide heat wave. The non-dependable import will be reduced to zero when the load reaches 1-in-20 forecast and beyond.
- The operating condition definitions in Table 3-2 are used to determine BANC BA status.

As shown in the Table 3-5 through Table 3-7 below, the LOLP study results indicate that

(1) BANC BA has a low risk of 5.45% (or 1 day in 19 years) to be in EEA 3 and an extremely low risk of 0.55% (or 1 day in 182 years) with unserved energy, both of which are lower than the industry LOLP benchmark of 1 day in 10 years.
(2) WAPA maintains sufficient Operating Margin in all 2000 cases
(3) SMUD has a risk of 7.85% (or 1 day in 12 years) not being able to maintain positive Operating Margin. However, SMUD does not have unserved energy until BANC BA has unserved energy.

Table 3-5: BANC LOLP Study Results

BA Status	EEA 2	EEA 3	Unserved Energy
Number of Cases	119	109	11
Probability	5.95%	5.45%	0.55%
Number of Years	1 Day in 17 Years	1 Day in 19 Years	1 Day in 182 Years

Table 3-6: WAPA LOLP Study Results

WAPA Status	OM < DR	OM < 0	Unserved Energy
Number of Cases	0	0	0
Probability	0%	0%	0%
Number of Years	N/A	N/A	N/A

Table 3-7: SMUD LOLP Study Results

SMUD Status	OM < DR	OM < 0	Unserved Energy
Number of Cases	178	157	11
Probability	8.90%	7.85%	0.55%
Number of Years	1 Day in 11 Years	1 Day in 12 Years	1 Day in 182 Years

3.10 Wildfire Outlook

As California is becoming hotter and drier than recent history, these climate changes expand California's wildfire threat area and lengthen the fire season, increasing the risk and the impacts of the wildfires. The wildfire threat has become the No.1 risk to California utility operations. The Carr Fire and the Camp Fire in 2018 caused devastating impacts to people's lives. With a "Critically Dry" 2021-2022 water season, the dry vegetation may expand wildfire risk, potentially impacting the availability of transmission lines and generating units. Potential wildfires in or near the 500 kV line corridors pose a significant risk of derate to the COI (such as the Tucker Fire in July 2019 and the Bootleg Fire in July 2021), and potential wildfires in the mountain areas could affect the availability of hydro generating units (such as the King Fire in 2014 and the Carr Fire in 2018). Public Safety Power Shutdowns (PSPS) are now instituted by California utilities as a measure to mitigate wildfire risks. Under a program to coordinate impacts, the CAISO will provide emergency support to BANC entities in the event where a PSPS impacts the COI and reduces the availability of power to the point of threatening service to load.

According to the National Significant Wildland Fire Potential Outlook released by the Predictive Services National Interagency Fire Center on April 1, 2022, the wildfire risk for June and July is "Above Normal" for Northern California and "Normal" for Southern California as shown in the Figure 3-11 below. The wildfire outlook for August and September will be released on May 1, 2022.

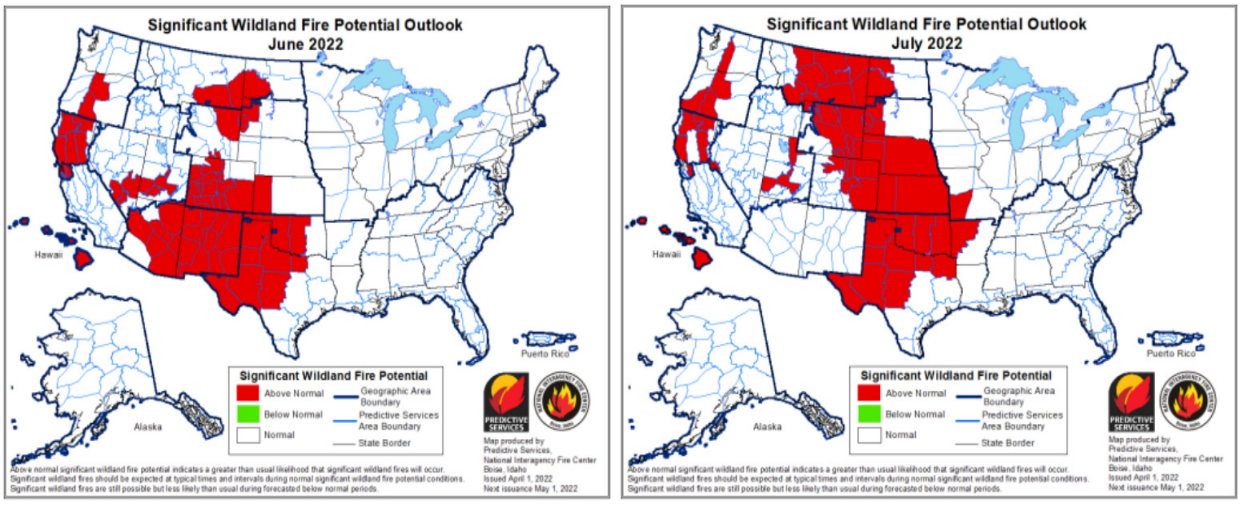

Figure 3-11: U.S. Significant Wildland Fire Potential Outlook for June and July 2022

3.11 Special Operating Scenarios

In addition to the base case analysis and LOLP study, four special operating scenarios are also simulated to assess the potential risks that BANC may face in the upcoming summer.

3.11.1 Loss of Two 500 kV Lines Due to Wildfires

With the "Above Normal" wildfire risk in 2022 summer as shown in Figure 3-11, there will be an above normal risk for COI to be derated due to wildfires. In the past 4 years, the wildfires created significant impacts to the California's transmission grid, such as the Carr Fire in 2018 (taking out nine 230 kV lines), the Tucker Fire in 2019 (taking out two 500 kV lines), the Lake Fire in 2020 (taking out two 500 kV lines), and the Bootleg Fire in 2021 (taking out three 500 kV lines).

In order to capture the significant operational risk, the condition that two of the 500 kV lines in the COI transmission corridor trip due to wildfire is simulated to assess the impacts to BANC entities under both 1-in-2 and 1-in-10 load forecasts. The results are shown in the Figure 3-12 through Figure 3-14 and are summarized as follows:

- With the loss of two COI 500 kV lines, BANC would need to curtail more than 800 MW imports from Pacific Northwest (PNW) region which is approximately 70% of the total imports from PNW.
- Although BANC could still maintain sufficient operating margin under 1-in-2 load, BANC would have a risk of being in EEA 3 under 1-in-10 load.
- Although WAPA could maintain sufficient operating margin under both 1-in-2 load and 1-in-10 load, SMUD would not be able to maintain sufficient operating margin under either 1-in-2 load and 1-in-10 load.

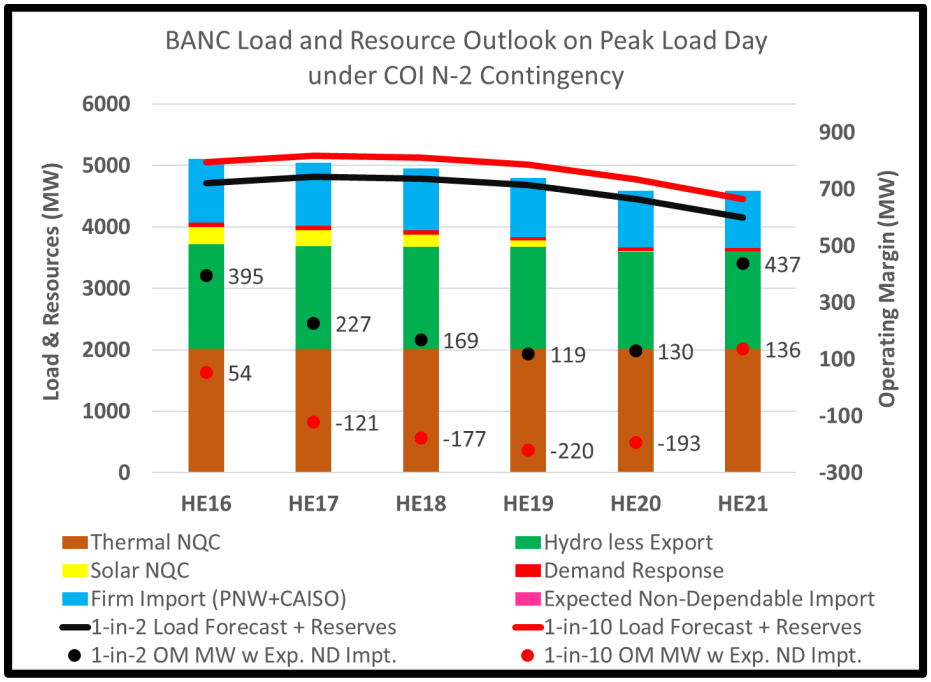

Figure 3-12: BANC Load & Resources Outlook under COI N-2 Contingency Due to Wildfires

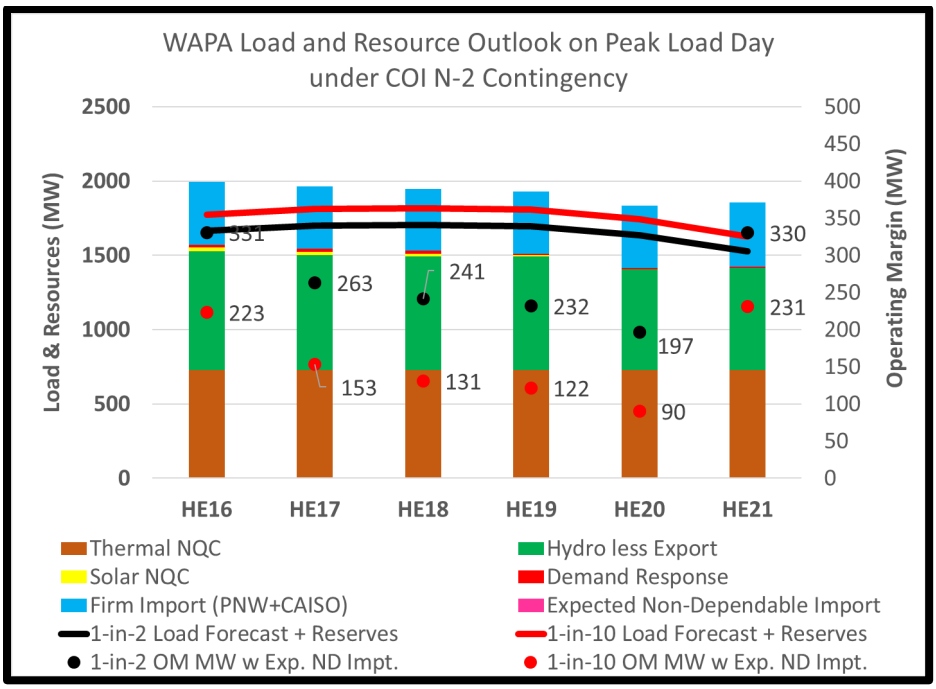

Figure 3-13: WAPA Load & Resources Outlook under COI N-2 Contingency Due to Wildfire

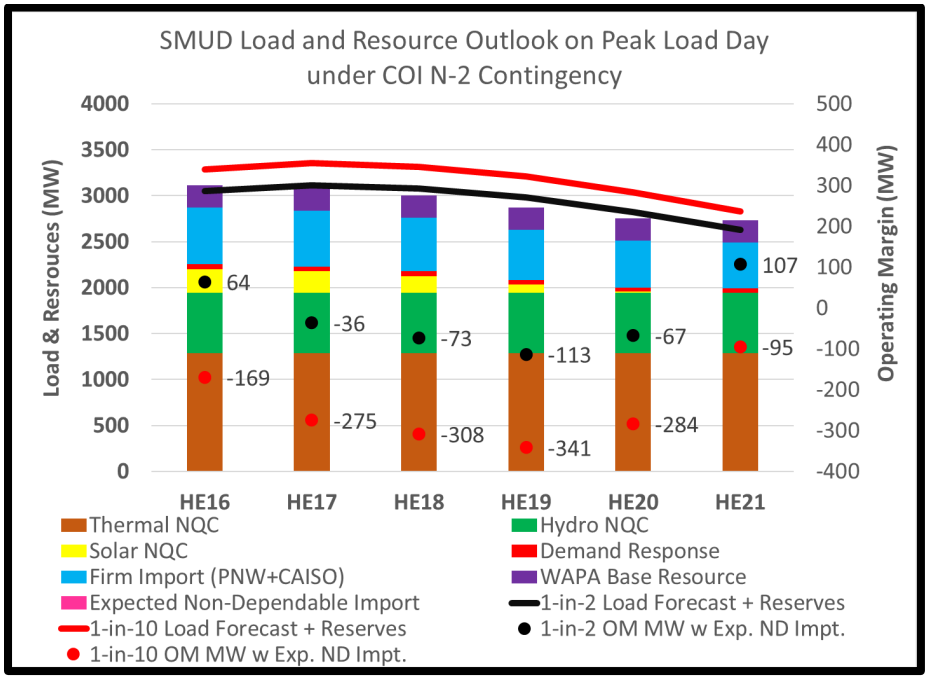

Figure 3-14: SMUD Load & Resources Outlook under COI N-2 Contingency Due to Wildfire

3.11.2 Extreme West-Wide Heat Wave

The BANC entities rely upon the energy and capacity that can be procured in the week-ahead and day-ahead timeframes from PNW and/or CAISO areas to serve load. These energy and capacity are normally available for BANC entities to import. However, they are non-dependable imports as they are not supported by long-term firm contracts. If an extreme west-wide heat wave

causes high loads across the western U.S., those non-dependable energy and capacity may not be available to import.

A special operating scenario is evaluated in this assessment, where it is assumed that an extreme west-wide heat wave impacts the western U.S causing 1-in-20 load in BANC with no non-dependable imports available. The simulated 1-in-20 loads are listed in the Table 3-8 together with the 1-in-2 and 1-in-10 load forecasts as a comparison.

Table 3-8: Simulated 1-in-20 Peak Loads for BANC Entities

	Forecasted 1-in-2 Gross Peak Load (MW)	Forecasted 1-in-10 Gross Peak Load (MW)	Simulated 1-in-20 Gross Peak Load (MW)
SMUD	2950	3176	3240
WAPA Footprint	1563	1664	1693
MID	665	709	725
Roseville Electric	338	389	408
REU	236	238	239
Shasta Lake	36	37	37
Trinity PUD	25	28	29
BANC Total	4513	4840	4933

As shown in the Figure 3-15 through Figure 3-17, the analysis results indicate that SMUD would not be able to maintain sufficient Operating Margin for 1-in-20 load and BANC BA would also be in potential EEA 3 due to negative Operating Margin, although WAPA would still be able to maintain sufficient Operating Margin.

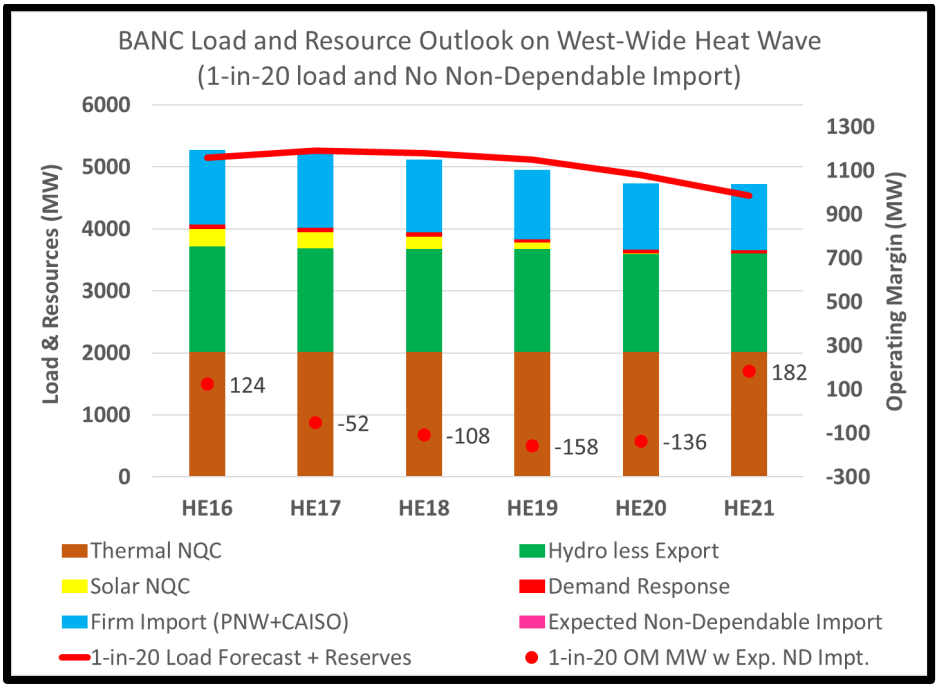

Figure 3-15: BANC Load & Resources Outlook with 1-in-20 Load and No ND Import

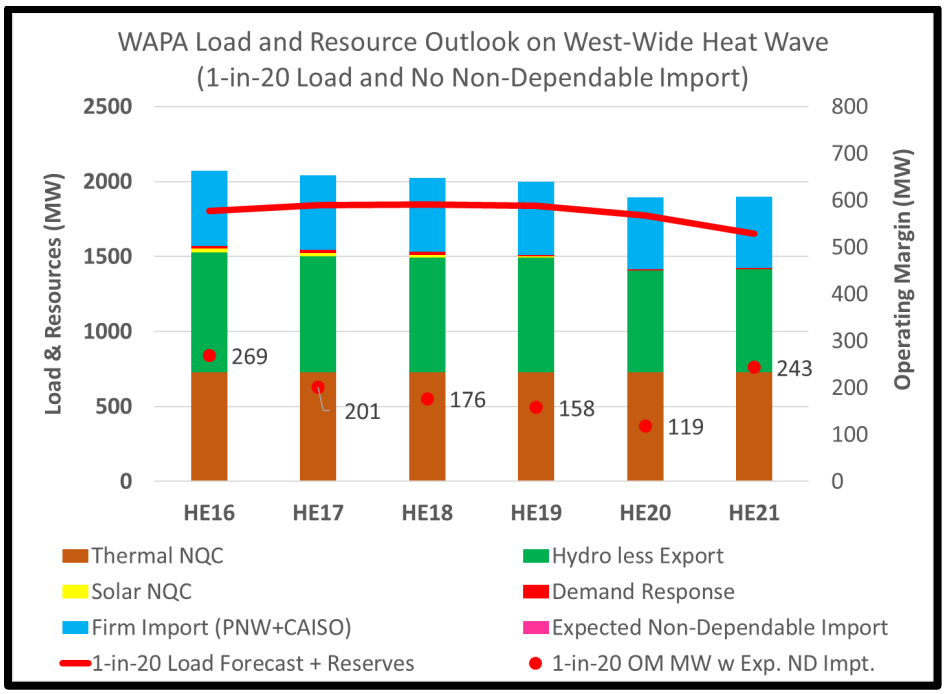

Figure 3-16: WAPA Load & Resources Outlook with 1-in-20 Load and No ND Import

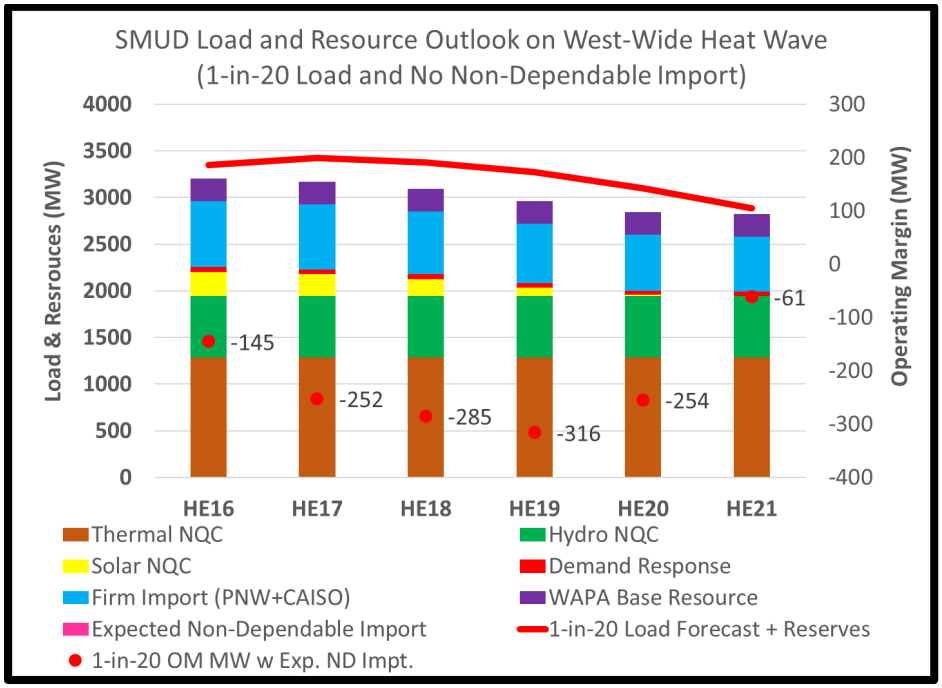

Figure 3-17: SMUD Load & Resources Outlook with 1-in-20 Load and No ND Import

3.11.3 CAISO in EEA 3

As the BANC entities also rely on importing the energy and capacity from the CAISO BAA, some of these imports may be subject to curtailment if the CAISO BA is in EEA 3. The current CAISO market rule is to treat the Price-Taker Exports, Price-Taker Wheels, and Self-Scheduled Load with the same priority in market optimization and they will be curtailed pro-rata if needed.

Therefore, if a rotating load shed event occurred again like August 2020, BANC entities' Price-Taker imports from CAISO would only be curtailed by a minimal amount of 1~4%. SMUD, WAPA, and BANC BA would still be able to maintain sufficient Operating Margins for both 1-in-2 and 1-in-10 load forecasts.

3.11.4 Smoke Impacts Due to Wildfires

During the Carr Fire and Camp Fire in 2018 and a series of wildfires in August 2020, the severe smoke and ash covered the central valley area for many days, reducing the output of solar generation. The analysis estimated that the solar generation could be reduced by 30~50% due to smoke, which would be approximately 90~150 MW reduction during the peak load hours.

However, further analysis showed that the smoke could also reduce the temperature and therefore reduce the load. In the heat wave of August 2020, the original weather forecast was above 110 °F for several consecutive days such that the original peak load forecast was above 4900 MW for BANC. However, due to the smoke cover and delta breeze, the original peak load forecast did not materialize. The estimated peak load reduction by smoke was approximately 3~5%, which was 140~230 MW.

Therefore, at the current solar generation level, the impact of smoke on solar output is less than the reduction on load for BANC. With more and more solar integration within BANC footprint, the impact of smoke on solar output could be more than the reduction on load.

3.12 Engineering Studies

The BANC entities coordinated with the neighboring BAs, TOPs, and RC West and performed the following engineering studies for the 2022 summer:

- California Operating Study Sub-committee (OSS)
- Sacramento Valley Study Group (SVSG)
- Westley Transmission Study Group (WTSG)

The OSS study focuses on COI transfer capability and produces the COI operating nomogram. the SVSG study focuses on determining the Load Serving Capability (LSC) of Sacramento Valley area (SMUD and RSC) and developing associated operating nomograms, and the WTSG study focuses on identifying the import and export limits for MID and TID and developing associated operating nomograms. All studies concluded that BANC will be able to serve the forecasted 2022 summer 1-in-2 and 1-in-10 load demands while meeting NERC/WECC Reliability Standards.

3.13 Conclusions

The 2022 forecasted 1-in-2 and 1-in-10 peak loads for BANC BA are 4513 MW and 4840 MW respectively. Although the 2021-2022 water season is classified as "Critically Dry" due to the less-than-70% precipitation and the less-than-30% snowpack, the summer load and resources assessment and engineering studies show that BANC will be able to meet the forecasted 1-in-2

and 1-in-10 peak loads for the 2022 summer operating season with sufficient Operating Margins and low risks of energy or capacity shortage.

The BANC/SMUD Power System Operators and the System Operators and Dispatchers of WAPA, MID, RSC, & REU have been provided summer readiness training on the updated Operating Procedures to prepare for the 2022 summer operations. Additionally, BANC has coordinated with the State and local agencies, RC West, and neighboring BAs and TOPs to ensure reliable operations for the 2022 summer under normal and emergency system conditions.

BALANCING AUTHORITY OF NORTHERN CALIFORNIA

6001 S STREET • MS D109 • SACRAMENTO • CA 95852-1830

September 2, 2022

The Honorable Jennifer Granholm
Secretary of Energy
United States Department of Energy
1000 Independence Ave, SW
Washington DC 20585

RE: Request for Emergency Order Pursuant to Section 202(c) of the Federal Power Act

Dear Secretary Granholm:

Pursuant to Section 202(c) of the Federal Power Act (FPA),[1] and the Department of Energy (DOE) Administrative Procedures and Sanctions,[2] the Balancing Authority of Northern California (BANC)[3] requests the Secretary of Energy find an electric reliability emergency exists within the State of California that requires intervention, in the form of a Section 202(c) emergency order, to preserve the reliability of the bulk electric power system in California. As described below, an emergency order will allow the BANC Balancing Authority Area (BAA) to request the dispatch of generation within the BANC BAA, specifically set forth and described herein, that may be necessary for the BANC to meet demand in the face of extreme heat. BANC notes that, on September 1, 2022, the California Independent System Operator Corporation (CAISO) made a similar request on behalf of specific resources within its BAA (CAISO Emergency Request). BANC has attached the CAISO Emergency Request as Attachment A to this request. BANC further has incorporated some of the CAISO's description of the background leading to this request, which is equally applicable to BANC as a BAA interconnected to the CAISO BAA and within California. BANC further notes that the DOE has granted the CASIO's request on September 2, 2022, pursuant to Order No. 202-22-1. BANC is including this Order as Attachment B as the findings are relevant to the BANC request.

[1] 16 U.S.C. § 824a(c).

[2] 10 C.F.R. Part 205, Subpart W.

[3] BANC is a joint powers authority established pursuant to Section 6500 *et seq.* of the California Government Code. BANC operates as a public agency and is governed by the BANC Commission, currently made up of an executive representative from each of its members. BANC's members include the Cities of Redding, Roseville, and Shasta Lake, the Modesto Irrigation District, the Sacramento Municipal Utility District, and the Trinity Public Utilities District. While the Western Area Power Administration is not a formal member of BANC, WAPA operates within the BANC Balancing Authority Area and participates in BANC processes and projects through contracts. BANC is a registered Balancing Authority with the North American Electric Reliability Corporation and operates as a neighboring BAA to the CAISO BAA.

BANC respectfully requests that the Secretary issue the requested emergency order as soon as possible, authorizing specific electric generating resources (Covered Resources) located within California to operate at their maximum generation output levels when directed to do so between 2:00 p.m. and 10:00 p.m. by BANC, notwithstanding air quality or other permit limitations. BANC requests that the Secretary make this order effective for an initial period of seven (7) days. The Covered Resources, set forth below and described further herein, subject to this request include:

- **NTT Global Data Centers America, CA1**
- **NTT Global Data Centers America, CA2**

BANC has prepared this request in consultation with the California Energy Commission (CEC), the California Governor's Office, and the CAISO.

BANC estimates that granting this request will provide additional generation supply from the Covered Resources when conditions merit. ***Exhibit A*** includes a list of the Covered Resources, each of which is within the Sacramento Metropolitan Air Quality Management District. This list includes: (1) the name of each Covered Resource and its location by city, zip code, and geographic information system (GIS) coordinates[4]; (2) the owner of the Covered Resource; (3) an estimated amount of additional megawatts this request may allow the BANC to dispatch at each Covered Resource; and (4) permit exceedances that BANC understands may occur, if the BANC dispatches the resources to the levels requested under the emergency order. Each of these generating units utilizes diesel as a fuel supply. ***Exhibit B*** identifies the nearest air quality monitoring station to each Covered Resource.[5] If BANC identifies additional generation units it deems necessary to operate in excess of federal environmental permitting limits to maintain electric reliability, BANC will request authorization to amend the list of Covered Resources.

In accordance with 10 CFR §205.391(a), BANC requests that DOE issue an emergency order at the earliest practical time to remain effective – subject to the conditions described below – for a period of 7 days, without prejudice to the possible issuance of further orders as necessary to address the emergency should it continue or recur. This initial period will ensure additional supply is available when California experiences extreme heat and the potential for insufficient energy and reserves.

I. Background

As noted in Section I (Background) of the CAISO Emergency Request, California is experiencing extreme heat. On Tuesday, August 30, 2022, the National Weather Service issued excessive heat warnings for parts of California.[6] The threat of wildfire to the reliable operation of the bulk power system remains significant and drought conditions are affecting the availability of hydroelectric power. BANC expects abnormally high temperatures to continue over the next week and its operator is forecasting potential supply deficiencies. For the next several days, BANC risks supply deficiencies to meet demand during peak demand hours. Granting this request for an emergency order and authorizing the operation of additional generating capacity identified in this request when conditions merit will support the BANC's efforts to maintain reliability and serve electric demand.

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[4] BANC has obtained these coordinates from NTT.

[5] NTT has obtained this information by comparing the Covered Resource coordinates to the map of Sacramento Metropolitan Air Quality Management District's monitoring stations at Air Monitoring (airquality.org).

[6] More information is available on the National Weather Service website: https://alerts.weather.gov/cap/ca.php?x=1

On August 31, 2022, the Governor of California issued a proclamation declaring a state of emergency regarding electricity from September 2 through September 7, 2022.[7] The proclamation, *inter alia*, authorizes emergency measures so that energy customers can make contingency plans ahead of the Labor Day holiday weekend, including the use of stationary and portable generation to operate outside of state regulation and permitting requirements when an Energy Emergency Alert (EEA) Level 2 or EEA Level 3 is in effect, as declared by the CAISO in its role as Reliability Coordinator. It is BANC's understanding that further amendments to the proclamation continue to be considered based on changes circumstances and evolving grid conditions.

BANC forecasts a potential supply deficiency to meet demand during peak demand hours. BANC is therefore taking all available steps to address this shortfall, including this request for an emergency order from the Secretary of Energy.

II. BANC and the CAISO Collaborate to Address Electric Supply Deficiencies

In collaboration and coordination with the CEC, the CAISO and the Governor's Office, electric utilities inside of BANC have implemented conservation and other extraordinary efforts to procure additional supply beyond the already prudent planning reserves procured by entities within BANC, to bring some relief to the bulk power system during stressed grid conditions. The NTT generators are planned to participate in a CEC-administered program that facilitates availability of resources for emergency purposes.

In consultation with the CEC and NTT, BANC understands that, given their permit limits that restrict operation of the units to very limited circumstances not covered by a grid-wide emergency, the owners of the Covered Resources cannot make additional identified capacity available absent an order from the Secretary under FPA Section 202(c). Authorizing these facilities to operate, notwithstanding permit and other limitations, would help mitigate shortages of expected energy and reserve requirements.

BANC therefore seeks an order from DOE authorizing the Covered Resources to provide additional energy beyond their permitted levels. This authorization will help the BANC meet the existing emergency and serve the public interest by preventing or mitigating power disruptions and the potential curtailment of electricity load within the BANC BAA. To minimize any adverse impact on the environment, BANC will make reasonable efforts to only dispatch the generating units identified in this request above their permitted levels during its peak demand hours.

III. Relief Requested

The emergency for which BANC seeks relief could have a meaningful impact on its ability to serve load in its BAA. BANC therefore respectfully requests that DOE issue an order, effective for 7 days, that allows the generating units identified in Exhibit A that are subject to permit limits to operate at their maximum levels. BANC proposes that DOE grant this relief subject to the following and any additional conditions DOE may deem appropriate:

[7] https://www.gov.ca.gov/wp-content/uploads/2022/08/8.31.22-Heat-Proclamation.pdf?emrc=78e3fc.

1. Use of the generating capacity of Covered Resources may create permit exceedances during the pendency of an Energy Emergency Alert condition or greater between the peak demand hours of 2:00 p.m. and 10:00 p.m. after exhausting all reasonably and practically available resources, or otherwise consistent with applicable Emergency Proclamations issued by the Governor of California.

2. Report to DOE at requested intervals on emergency operations, permit exceedances, and other DOE-specified information.

3. Support with data from BANC for any environmental impact review DOE may be required to undertake regarding the effects of the emergency order, including analysis of or modeling to assess the impact on NO_2 and ozone levels.

BANC greatly appreciates DOE's expedited consideration of this request. Please do not hesitate to contact the undersigned if you have any questions or require additional information in order to act on this request.

Respectfully submitted,

James R. Shetler
General Manager
Balancing Authority of Northern California

Exhibit A - BANC List of Covered Resources

Exhibit A - BANC List of Covered Resources

Power plant and location	Owner/Operator	Estimated MW affected by limitation	Permit Exceedances
NTT Global Data Centers Americas, CA1 1200 Striker Ave Sacramento, CA 95834 Coordinates, Mechanical Yard Lat: 38.649968 Long: -121.489737	NTT Global Data Centers Americas, Inc	32MW of generation capacity across 16 diesel generators. Back up capacity designed to support 12.6MW of critical IT load with built in redundancy.	Nitrogen oxide emissions
NTT Global Data Centers Americas, CA2 1312 Striker Ave Sacramento, CA 95834 Coordinates, Mechanical Yard (East) Lat: 38.649918 Long: -121.491378 Coordinates, Mechanical Yard (West) Lat: 38.649908 Long: -121.492920	NTT Global Data Centers Americas, Inc	48MW of generation capacity across 24 diesel generators. Back up capacity designed to support 26.1MW of critical IT load with built in redundancy	Nitrogen oxide emissions

Exhibit B –

Nearest Air Quality Monitoring Stations for each Covered Resource

Exhibit B - Nearest air quality monitoring stations for each Covered Resource

Power Plant	Nearest Air Quality Monitoring Station
NTT Global Data Centers Americas, CA1 1200 Striker Ave Sacramento, CA 95834	Sacramento - Bercut Drive Lat: 38.59333 Long: -121.50375 Date Est.: 2015 Operating Agency: Sacramento Metro. AQMD Pollutants: CO, NO2, PM2.5, BC, Met Real-time Data: Yes http://www.arb.ca.gov/aqmis2/aqdselect.php
NTT Global Data Centers Americas, CA2 1312 Striker Ave Sacramento, CA 95834	Sacramento - Bercut Drive Lat: 38.59333 Long: -121.50375 Date Est.: 2015 Operating Agency: Sacramento Metro. AQMD Pollutants: CO, NO2, PM2.5, BC, Met Real-time Data: Yes http://www.arb.ca.gov/aqmis2/aqdselect.php

BALANCING AUTHORITY OF NORTHERN CALIFORNIA

6001 S STREET • MS D109 • SACRAMENTO • CA 95852-1830

September 7, 2022

The Honorable Jennifer Granholm
Secretary of Energy
United States Department of Energy
1000 Independence Ave, SW
Washington DC 20585

RE: Revised Request for Extension and Limited Amendment of Emergency Order Pursuant to Section 202(c) of the Federal Power Act

Dear Secretary Granholm:

Pursuant to Section 202(c) of the Federal Power Act (FPA),[1] and the Department of Energy (DOE) Administrative Procedures and Sanctions,[2] the Balancing Authority of Northern California (BANC)[3] respectfully submits this Revised Request for an Extension and Limited Amendment of Order No. 202-22-2 (Order), to provide the continued ability of certain generation within the BANC's balancing authority area, as identified in the Order, to operate in support of emergency operations of the bulk power grid in California.

Extension of Order

BANC hereby requests an extension of the Order until 2359 hours Sunday, September 11, 2022, as outlined below. An emergency order will allow the BANC Balancing Authority Area (BAA) to request the dispatch of generation within the BANC BAA, specifically set forth and described herein, that may be necessary for the BANC to meet demand in the face of extreme heat.

[1] 16 U.S.C. § 824a(c).
[2] 10 C.F.R. Part 205, Subpart W.
[3] BANC is a joint powers authority established pursuant to Section 6500 *et seq.* of the California Government Code. BANC operates as a public agency and is governed by the BANC Commission, currently made up of an executive representative from each of its members. BANC's members include the Cities of Redding, Roseville, and Shasta Lake, the Modesto Irrigation District, the Sacramento Municipal Utility District, and the Trinity Public Utilities District. While the Western Area Power Administration is not a formal member of BANC, WAPA operates within the BANC Balancing Authority Area and participates in BANC processes and projects through contracts. BANC is a registered Balancing Authority with the North American Electric Reliability Corporation and operates as a neighboring BAA to the CAISO BAA.

As noted in the Order:

> California has experienced several periods of extreme heat, drought conditions, and threat of wildfires. Such conditions are expected to occur over the next several days and threaten the reliable operation of the bulk electric power system in California. The loads from the forecasted heat wave over the next week are expected to push demand for electric energy by BANC members to at or over historical peaks and higher than normally expected planning targets for this time of year.
>
> On August 31, 2022, California Governor Gavin Newsom issued a proclamation declaring a state of emergency regarding electricity from September 2 through September 7, 2022. In declaring a statutory emergency, the proclamation cited a number of factors and observations, including the following:
>
> - A significant heat wave will bring temperatures "in excess of 100 degrees throughout the State and is forecast to bring record temperatures 10–20 degrees above normal throughout the State, exceeding 110 degrees in some areas (the "Extreme Heat Event");
>
> - The extreme heat will put a significant demand and strain on California's energy grid and is forecast to be a "West-wide event" meaning that energy demand will be high across the region and "California will have limited ability to import energy from out-of-state;"
>
> - The CAISO issued a Heat Bulletin forecasting high electric demand during the extreme heat event that will "stress the energy grid, with peak load for electricity projected to reach its highest level of the year, exceeding 48,000 megawatts on September 5, 2022;" and
>
> - The CAISO is forecasting supply deficiencies of "over 3000 megawatts during the evening hours from September 4, 2022, through September 6, 2022" and advised that emergency interventions would allow energy customers to make contingency plans ahead of the Labor Day holiday weekend. [4]

The actual heat event has been more severe and record loads have been experienced. Also, it is ongoing. BANC established a new record peak of approximately 4943 MW on September 6, 2022. BANC entered into an EEA-2 as of 1330 hours that same day. During this period BANC had forced outages of significant generation but was able to return units to service in approximately 90 minutes. It is believed that BANC members Roseville and Modesto exceeded their all-time peaks.

Across the system, it is believed that the Western Interconnection experienced its all-time peak of approximately 165,000 MW. The CAISO experienced its all-time peak of approximately 52,061 MW, surpassing its previous all-time peak of 50,270 experienced in 2006. The CAISO balancing authority area entered into an EEA-3 condition.

[4] Order No. 202-22-2 at 1-2 (footnotes and citations omitted).

Extreme temperatures are anticipated to continue though most of the week. The temperature forecast for Sacramento is as follows:

Wednesday,	9/7/2022	108 F
Thursday,	9/8/2022	112 F
Friday,	9/9/2022	108 F

In addition, nighttime low temperatures continue to be 10-12 degrees above normal, allowing little time for equipment to cool.

As such, BANC is requesting that the effective date for the Order be extended through the weekend until Sunday, 9/11/2022, hour 2359. While some cooling is expected over the weekend, the system is coming off stressed conditions, and it is prudent to extend the Order for an additional period in case equipment failures are experienced after having run through this extremely hot period.

Limited Amendment to Order on Run Time Hours

The Order applied to a limited set of back up generation units identified as NTT Global Data Centers America CA2. Further, the Order allowing operation of these units in circumstances not contemplated by the units' existing federal air permits was limited to the hours of 2 PM and 10 PM Pacific Time. Further, trigger of the Order was an EEA2 condition experienced in BANC or the CAISO.

The NTT Units were indeed dispatched pursuant to an EEA2 condition in the CAISO as experienced on September 5, 2022. During that real life dispatch case, it became apparent that additional flexibility for dispatch of the NTT Units would be very valuable. NTT has represented to BANC that it takes roughly two hours for CA2 to ramp and fully transition load off the grid. On September 5, 2022, the CAISO called an EEA2 roughly 30 minutes in advance of entering the EEA2 at 1830 hours, at which time NTT began responding to the EEA2 and turning on its units. Specifically, because of the time needed for the start-up routine of the units themselves and communication protocols of the EEA2 from one BAA to another, the NTT Units were only partially brought up through the most stressed peak period.

Therefore, BANC respectfully requests that the Order be modified to remove the 2 PM to 10 PM run time limitation so as to allow additional operational flexibility. BANC specifically requests that the NTT Units be allowed to run during anytime that they have received notice of an EEA2 or more severe grid condition from either BANC or the CAISO. The practical impact of this will be to allow NTT more notice to follow their protocols for ramping up their units. BANC would also clarify that under this request the ramp down of the NTT units could extend beyond the period in which the EEA 2 condition exists. Specifically, the ramp down would commence at the time the EEA 2 condition is declared ended and should be completed as soon as possible consistent with good utility and operational practices.

All statements with respect to BANC's practices, mitigation measures, and collaboration with state agencies and the CAISO are as stated in our Original and Amended, Supplemented, and Clarified Requests. All commitments to support analysis of any environmental impacts and the associated costs of such analysis remain as articulated by BANC and contained in the Order.

BANC greatly appreciates DOE's expedited consideration of this request. Please do not hesitate to contact the undersigned if you have any questions or require additional information in order to act on this request.

Respectfully submitted,

James R. Shetler
General Manager
Balancing Authority of Northern California

Department of Energy

Washington, DC 20585

Order No. 202-22-2

Pursuant to the authority vested in the Secretary of Energy by section 202(c) of the Federal Power Act (FPA), 16 U.S.C. § 824a(c), and section 301(b) of the Department of Energy Organization Act, 42 U.S.C. § 7151(b), and delegated to the Deputy Secretary of Energy by paragraph 1.12(A) of Delegation Order No. S1-DEL-S2-2022 (Mar. 14, 2022), and further delegated by the Deputy Secretary by email correspondence (Sept. 2, 2022), and for the reasons set forth below, I hereby determine that an emergency exists in California due to a shortage of electric energy, a shortage of facilities for the generation of electric energy, and other causes, and that issuance of this Order will meet the emergency and serve the public interest.

Emergency Situation

On September 2, 2022, the Balancing Authority of Northern California (BANC) filed a *Request for Emergency Order Pursuant to Section 202(c) of the Federal Power Act* (Application) with the United States Department of Energy (Department or DOE) "to preserve the reliability of the bulk electric power system in California," and more specifically to allow the BANC Balancing Authority Area (BAA) to request the dispatch of generation within the BANC BAA "that may be necessary for BANC to meet demand in the face of extreme heat." BANC is a joint powers authority whose members include the Sacramento Municipal Utility District and other municipalities, irrigation districts, and public utilities districts. BANC is a registered Balancing Authority with the North American Electric Reliability Corporation and operates as a neighboring BAA to the California Independent System Operator Corporation (CAISO) BAA. On September 4, 2022, BANC filed an *Amended, Supplemented and Clarified Request for Emergency Order Pursuant to Section 202(c) of the Federal Power Act* (Amended Application) in response to questions from DOE.

California has experienced several periods of extreme heat, drought conditions, and threat of wildfires. Such conditions are expected to occur over the next several days and threaten the reliable operation of the bulk electric power system in California. The loads from the forecasted heat wave over the next week are expected to push demand for electric energy by BANC members to at or over historical peaks and higher than normally expected planning targets for this time of year. Amended Application at 2.

On August 31, 2022, California Governor Gavin Newsom issued a proclamation declaring a state of emergency regarding electricity from September 2 through September 7, 2022.[1] In declaring a statutory emergency, the proclamation cited a number of factors and observations, including the following:

- A significant heat wave will bring temperatures "in excess of 100 degrees throughout the State and is forecast to bring record temperatures 10–20 degrees

[1] GSS_9534-1E-20220831133826 (ca.gov)

above normal throughout the State, exceeding 110 degrees in some areas (the 'Extreme Heat Event');"

- The extreme heat will put a significant demand and strain on California's energy grid and is forecast to be a "West-wide event" meaning that energy demand will be high across the region and "California will have limited ability to import energy from out-of-state;"

- The CAISO issued a Heat Bulletin forecasting high electric demand during the extreme heat event that will "stress the energy grid, with peak load for electricity projected to reach its highest level of the year, exceeding 48,000 megawatts on September 5, 2022;" and

- The CAISO is forecasting supply deficiencies of "over 3,000 megawatts during evening hours from September 4, 2022, through September 6, 2022" and advised that emergency interventions would allow energy customers to make contingency plans ahead of the Labor Day holiday weekend.

The proclamation authorizes several measures aimed at mitigating the emergency and avoiding jeopardizing public health or safety, including directing the California Air Resources Board (CARB) to "implement its State-funded Climate Heat Impact Response Program (CHIRP) to mitigate emissions from any operation pursuant to this Proclamation." The proclamation also directs the California Energy Commission (CEC) to "provide information requested by [CARB] to assist with its implementation" of CHIRP.

BANC noted that it "has prepared this request in consultation with the California Energy Commission (CEC), the California Governor's Office, and the CAISO." Application at 2.

Description of Mitigation Measures

In its Application, BANC described actions it has taken in order to alleviate the generation shortfall. Electric utilities within BANC, in coordination with CEC, CAISO, and the California Governor's Office, have implemented conservation and other extraordinary efforts to procure additional supply. BANC members have been able to obtain some purchases from the Pacific Northwest (PNW) bilateral wholesale markets to help offset the additional need, but the physical interties with PNW are near physical limits. BANC members have also been making use of demand-side programs, including commercial interruptible load programs, residential peak shaving programs, and public appeals for conservation. Amended Application at 2.

Request for Order

BANC has requested an emergency order to allow the BANC BAA to dispatch the Covered Resource described below within the BANC BAA that may be necessary for

the BANC to meet demand in the face of extreme heat, subject to the terms set forth herein.

The generators for which BANC is seeking this emergency order consist of 24 diesel-fired generator units owned by NTT Global Data Centers Americas (NTT), located at 1312 Striker Ave, Sacramento, CA 95834, known as "CA 2" and more fully described in the Application Exhibit A – List of Covered Resources (NTT Generators or Covered Resource). The Covered Resource plans to participate in the CEC-administered Demand Side Grid Support program that facilitates availability of resources for emergency purposes. Application at 3; Amended Application at 3-4. Therefore, while the Covered Resource has an aggregate installed capacity of 48MW, BANC requests that this emergency order apply only to capacity necessary to supply the load at the NTT facility served by the Covered Resource, up to 26.1 MW (Covered Maximum Output). Amended Application at 3-4.

BANC has requested that the Secretary issue the requested emergency order by Sunday, September 4, 2022, or as soon as possible thereafter, authorizing the Covered Resource to operate at the Covered Maximum Output level between 2:00 p.m. and 10:00 p.m., when directed to do so by BANC, notwithstanding air quality or other permit limitations.

ORDER

Given the emergency nature of the expected load stress and generation shortfall, the responsibility of BANC as the Balancing Authority to balance generation and load in its BAA to ensure maximum reliability on its system, and the ability of BANC to identify and dispatch generation necessary to meet additional load if an order is issued, I have determined that, under the conditions specified below, generation from the Covered Resource is necessary to best meet the emergency and serve the public interest for purposes of FPA section 202(c) up to the Covered Maximum Output. This determination is based on, among other things:

- The expected shortage of electric energy, shortage of facilities for the generation of electric energy, and other causes in the State of California and within the BANC BAA, including as declared in the Governor's August 31 emergency proclamation and as described in the Application and Amended Application, demonstrate the need for the Covered Resource to contribute to the reliability of the BANC BAA.

- The availability of 26.1 MW of reduced load as enabled by generation from the Covered Resource up to the Covered Maximum Output provides significant assistance by freeing up system generating resources to help alleviate the shortage of generation and meet demand in the BANC BAA.

- The Covered Resource is enrolled in CEC's Demand Side Grid Support (DSGS) program. The DSGS program establishes procedures for qualification, operation, and reporting to ensure that enrolled generation such as the Covered Resource

provides verifiable load reduction and thereby increase available system capacity during energy emergency events.

- The conditions in CEC's DSGS and those specified below restrict operation of the Covered Resource to those circumstances necessary to avoid load shed.

In line with the emergency proclamation's anticipation of near-term energy shortages, this Order is limited to a 5-day period, from September 4, 2022, through September 8, 2022. Because the additional generation may result in a conflict with environmental standards and requirements, I am authorizing only the necessary additional generation, under the conditions and with reporting requirements as described below.

FPA section 202(c)(2) requires the Secretary of Energy to ensure that any order that may result in a conflict with a requirement of any environmental law be limited to the "hours necessary to meet the emergency and serve the public interest, and, to the maximum extent practicable," be consistent with any applicable environmental law, and minimize any adverse environmental impacts. BANC anticipates that this Order may result in exceedance of National Ambient Air Quality Standards (NAAQS) under the Clean Air Act and other conflicts with environmental law. This Order would permit operation of the Covered Resource and corresponding emissions of volatile organic compounds (VOCs), nitrogen oxides (NOx), sulfur dioxide (SO_2), coarse particles (PM10), and carbon monoxide (CO), in circumstances not contemplated by the units' Title V permit. Namely, under its Title V permits, the Covered Resource is permitted to operate at certain emission rates during maintenance and when electric service from the serving utility is interrupted by an unforeseeable event, but not in order to assist the utility in avoiding service interruptions for other customers. The Order would permit operation under grid emergency conditions; however, under the conditions specified below, it would not permit exceedance of the emission limits otherwise applicable to the units constituting the Covered Resource, including limits on the pounds of VOC, NOx, SO_2, PM10, and CO emitted per year.

Based on my determination of an emergency set forth above, I hereby order:

A. From September 4, 2022, to September 8, 2022, in the event that BANC determines that generation from the Covered Resource is necessary to preserve the reliability of the bulk electric power system in California, I direct BANC to dispatch such unit or units and to order their operation solely under the following conditions: the issuance and continuation of an Energy Emergency Alert Level 2[2] condition or greater between the hours of 14:00 Pacific Time and 22:00 Pacific Time after exhausting all reasonably and practically available resources.

B. Consistent with good utility practice, BANC shall exhaust all reasonably and practically available resources, including other demand response and

[2] For the purposes of this Order, "Energy Emergency Alert Level 2" has the meaning set forth in Section 3.6.3 of the California ISO System Emergency Operating Procedure, Procedure No. 4420, Version 14.0, Effective Date May 1, 2022 (CAISO Emergency Operating Procedure).

identified behind-the-meter generation resources to the extent that such resources provide support to maintain grid reliability, prior to dispatching the Covered Resource.

C. All operation of the Covered Resource must comply with applicable environmental requirements, including but not limited to monitoring, reporting, and recordkeeping requirements, to the maximum extent feasible while operating consistent with the emergency conditions. This Order does not provide relief from any obligation to pay fees or purchase offsets or allowances for emissions that occur during the emergency condition or to use other geographic or temporal flexibilities available to generators. The Covered Resource must comply with the requirements of the CARB Mandatory Reporting Regulation and California's Cap-and-Trade regulation, to the extent applicable. This Order allows operation of the Covered Resource under operating conditions not otherwise permitted by the Covered Resource's Title V permit but does not provide relief from the obligation to operate the Covered Resource within the equipment-specific or cumulative emission limit requirements specified in the Covered Resource's Title V permit.

D. BANC shall provide such additional information regarding the environmental impacts of this Order and its compliance with the conditions of this Order, in each case as requested by the Department from time to time. By October 10, 2022, BANC shall report source-specific data for all dates between September 4, 2022, and September 8, 2022, on which the Covered Resource was operated, including, for each unit, (1) the hours of operation, as well as the hours in which any permit limit was exceeded, and (2) a preliminary description of each permit term that was exceeded and the manner in which such exceedance occurred. BANC shall also submit a final report by November 14, 2022, with any revisions to the information reported on December 12, 2022. The environmental information submitted in the final report shall also include the following information:

i. Emissions data in pounds per hour for each Covered Resource unit, for each hour of the operational scenario, for CO, NOx, PM10, VOC, and SO_2;

ii. Emissions data must include emissions (lbs/hr) calculated consistent with reporting obligations pursuant to operating permits, permitted operating/emission limits, and the actual incremental emissions above the permit limits;

iii. The number and actual hours each day that each Covered Resource unit operated in excess of permit limits or conditions, e.g. "Generator #1; September 5, 2022; 4 hours; 18:00-22:00 PT";

iv. Amount, type and formulation of any fuel used by each Covered Resource;

v. All reporting provided over the last three years to the United States Environmental Protection Agency or Sacramento Metropolitan Air Quality Management District pursuant to operating permit requirements;

vi. Information provided to the CARB in response to the CARB's development and implementation of the plan to mitigate the effects of additional emissions authorized by the August 31, 2022 proclamation;

vii. Additional information requested by DOE as it performs any environmental review relating to the issuance of this Order; and

viii. Information provided by the Covered Resource describing how the requirements in paragraph C above were met by the Covered Resource while operating under the provisions of this Order.

E. BANC shall inform all affected communities where the Covered Resource operates that BANC has been issued this Order, in a manner that ensures that as many members of the community as possible are aware of the Order, and explain clearly what the Order allows BANC to do, including potential impacts to the community where the Covered Resource is located and communities adjacent to the Covered Resource. BANC shall describe the actions taken to comply with this paragraph in the reports delivered to the Department pursuant to paragraph D above.

F. This Order shall not preclude the need for the Covered Resource to comply with applicable state, local, or Federal law or regulations following the expiration of this Order.

G. BANC shall be responsible for the reasonable third-party costs of performing analysis of the environmental and environmental justice impacts of this Order, including any analysis conducted pursuant to the National Environmental Policy Act.

H. This Order shall be effective upon its issuance, and shall expire at 23:59 Pacific Time on September 8, 2022, with the exceptions of paragraphs F and G and the reporting and analysis requirements in paragraphs D and E. Renewal or amendment of this Order, should it be needed, must be requested before this Order expires.

Issued in Washington, D.C. at 16:20 Eastern Time on this 4th day of September, 2022.

Kathleen Hogan
Acting Under Secretary for
Infrastructure

Department of Energy
Washington, DC 20585

Amendment Number 1 to Order No. 202-22-2

On September 4, 2022, because of a shortage of currently operational electric generating facilities, high demand for electricity, and other adverse conditions resulting from the extreme heat event in California, I issued Order No. 202-22-2. Order No. 202-22-2 authorized the Balancing Authority of Northern California (BANC) to direct the identified electric generating resource (Covered Resources) to operate in BANC's Balancing Authority Area (BAA), under specified conditions, to prevent or mitigate potential power disruptions and provide relief to the bulk power system during stressed grid conditions caused by extreme heat until September 8, 2022. Order No. 202-22-2 expires at the end of the day on September 8, 2022, by its own terms.

On September 7, 2022, BANC submitted a *Request for Extension and Limited Amendment of Emergency Order Pursuant to Section 202(c) of the Federal Power Act* (Renewal Application) to the Department. In its Renewal Application, BANC requests an extension of Order 202-22-1 through September 11, 2022 and certain modifications to the run time hour limitations contained in Order No. 202-22-2. On September 8, 2022, BANC filed a Revised Request for *Request for Extension and Limited Amendment of Emergency Order Pursuant to Section 202(c) of the Federal Power Act* in response to questions from DOE.

Emergency Situation

In its Renewal Application, BANC states that "the actual heat event has been more severe and records loads have been experienced." The emergency conditions brought about by the ongoing extreme heat event in California have continued and worsened and the supply of electricity is at increased risk for meeting system demand. As stated in its Renewal Application, BANC established a new record peak of approximately 4943 MW on September 6. BANC entered into an EEA-2 as of 1330 hours that same day. During this period BANC had forced outages of significant generation but was able to return units to service in approximately 90 minutes. It is believed that BANC members Roseville and Modesto exceeded their all-time peaks. Consequently, BANC requests the expiration date of Order No. 202-22-2 be extended through September 11, 2022.

In addition to the extension of Order No. 202-22-2, BANC has requested that the Order be modified to remove the 2 PM to 10 PM run time limitation so as to allow additional operational flexibility. BANC specifically requests that the Covered Resource be allowed to run during anytime that they have received notice of an Energy Emergency Alert Level 2 (EEA2) condition or greater. The practical impact of this will be to allow the Covered Resource more notice to follow their protocols for ramping up their diesel-fired generator units. In addition, BANC has requested the ramp down of the Covered Resource could extend beyond the period in which the EEA 2 condition exists. Specifically, the ramp down would commence at the time the EEA 2 condition is declared ended and should be completed as soon as possible consistent with good utility and operational

Consultation

In considering renewal or reissuance of an order under FPA section 202(c) that may conflict with an environmental law or regulation, DOE is required to "consult with the primary Federal agency with expertise in the environmental interest protected by such law or regulation" and to include "conditions as such Federal agency determines necessary . . . to the extent practicable." 16 U.S.C. § 824a(c)(4). The Environmental Protection Agency (EPA) is the primary federal agency in this case with expertise in the protected environmental interest, specifically Title V of the Clean Air Act and the Department consulted with EPA after receiving the Renewal Application and EPA did not request any additional conditions be included in this Order. Email from Acting Assistant Administrator Larry Starfield, EPA Office of Enforcement and Compliance Assurance to Kathleen Hogan, Acting Under Secretary for Infrastructure for DOE, September 7, 2022.

Based on the information submitted to the Department, I have determined that an emergency continues to exist in California due to a shortage of electric energy. I find that the issuance of this Order will help to meet the emergency conditions and serve the public interest as required by FPA section 202(c).

ORDER

For the reasons set forth above, pursuant to Section 202(c) of the FPA, I hereby grant BANC's Renewal Application and issue this Order, with modifications as explained below, to extend the expiration date of Order No. 202-22-2 through September 11, 2022.

1. Ordering Paragraph A appearing on page 4 of Order No. 202-22-2 is hereby deleted and replaced in its entirety by the following:

   A. From September 8, 2022, to September 11, 2022, in the event that BANC determines that generation from the Covered Resource is necessary to preserve the reliability of the bulk electric power system in California, I direct BANC to dispatch such unit or units and to order their operation solely under the following conditions: the notification of an Energy Emergency Alert Level 2[1] condition or greater after exhausting all reasonably and practically available resources, together with such reasonable and limited time as is necessary for a Covered Resource to ramp down following an Energy Emergency Alert Level 2 or greater, consistent with good utility practice as directed by the BANC with the goal of limited operation outside of an Energy Emergency Alert Level 2 or greater to the greatest extent possible.

[1] For the purposes of this Order, "Energy Emergency Alert Level 2" has the meaning set forth in Section 3.6.3 of the California ISO System Emergency Operating Procedure, Procedure No. 4420, Version 14.0, Effective Date May 1, 2022 (CAISO Emergency Operating Procedure).

2. The date September 8, 2022 where it appears in Ordering Paragraphs D and H of Order No. 202-22-2 is hereby replaced by the date September 11, 2022.

3. All other terms of Order No. 202-22-2 remain the same and in effect, including Ordering Paragraphs A-H, except as modified herein.

4. This Amendment Number 1 to Order No. 202-22-2 shall be effective upon its issuance, and shall expire at 23:59 Pacific Time on September 11, 2022.

Issued in Washington, D.C. at 16:38 Eastern Time on this 8th day of September, 2022.

Kathleen Hogan
Acting Under Secretary for
Infrastructure