

**Balancing Authority of Northern California**

# Regular Meeting of the Commissioners of BANC

**2:00 P.M.**

**Wednesday, May 24, 2023  
555 Capitol Mall, Suite 570  
Sacramento, CA 95814**

# Balancing Authority of Northern California

## NOTICE OF REGULAR MEETING AND AGENDA

Notice is hereby given that a regular meeting of the Commissioners of the Balancing Authority of Northern California (BANC) will be held on **May 24, 2023 at 2:00 p.m. at 555 Capitol Mall, Suite 570, Sacramento, CA 95814.**

The following information is being provided as the forum by which members of the public may observe the meeting and offer public comment:

**Phone:** 1-646-558-8656 or 1-309-205-3325

**Meeting ID:** 843 9200 8773

**Passcode:** 821195

**Meeting Link:** <https://us06web.zoom.us/j/84392008773?pwd=bGlpTWt4Y2QxM0ZrckpXNXVaNiBjWUUT09&from=addon>

### AGENDA

- 1 Call to Order and Verification of Quorum.**
- 2 Matters subsequent to posting the Agenda.**
- 3 Public Comment** – any member of the public may address the Commissioners concerning any matter on the agenda.
- 4 Consent Agenda.**
  - A. Minutes of the Regular Commission Meeting held on April 26, 2023.
  - B. BANC Operator Report (April).
  - C. Compliance Officer Report (May).
  - D. PC Committee Chair Report (May).
  - E. General Manager's Report and Strategic Initiatives Update.
- 5 Regular Agenda Items – Discussion and Possible Action.**
  - A. General Manager Updates.
    - i. Market Updates – EIM, EDAM, Markets+, WMEG, WRAP.
    - ii. SB100 Update.
    - iii. Administrative Items.
  - B. Consider and Possibly Approve Resolution 23-05-01 *Acknowledgement and Acceptance of the 2023 Summer Load & Resources Assessment of the Balancing Authority of Northern California.*
  - C. Member Updates.
- 6 Adjournment.**

Accessible Public Meetings - Upon request, BANC will provide written agenda materials in appropriate alternative formats, or disability-related modification or accommodation, including auxiliary aids or services, to enable individuals with disabilities to participate in public meetings. Please send a written request, including your name, mailing address, phone number and brief description of the requested materials and preferred alternative format or auxiliary aid or service at least 3 days before the meeting. Requests should be sent to: Kris Kirkegaard, 555 Capitol Mall, Suite 570, Sacramento, CA 95814 or to [administrator@braunlegal.com](mailto:administrator@braunlegal.com).

## **Balancing Authority of Northern California**

# Consent Agenda Items

- A. Minutes of the April 26, 2023 BANC Regular Meeting.**
- B. BANC Operator Report (April).**
- C. Compliance Officer Report (May).**
- D. PC Committee Chair Report (May).**
- E. General Manager Report and Strategic Initiatives Update.**

MINUTES OF THE REGULAR MEETING  
OF THE COMMISSIONERS OF  
THE BALANCING AUTHORITY OF NORTHERN CALIFORNIA (BANC)

April 26, 2023

On this date, a Regular Meeting of the Commissioners of the Balancing Authority of Northern California was held at 555 Capitol Mall, Suite 570, Sacramento, CA 95814.

Representatives:

<b>Member Agency</b>	<b>Commissioner</b>
Modesto Irrigation District (MID)	James McFall, Chair
City of Redding	Nick Zettel
City of Roseville	Shawn Matchim, Alternate
Sacramento Municipal Utility District (SMUD)	Steve Lins, Alternate
City of Shasta Lake	James Takehara
Trinity Public Utilities District (TPUD)	Paul Hauser

Other Participants:

Jim Shetler	General Manager
Tony Braun	General Counsel
Kevin Smith	General Counsel
Kris Kirkegaard	General Counsel Support
Mark Willis	BANC Operator
James Leigh-Kendall	BANC Compliance Officer
Jon Aust	WAPA
Jeanne Haas	WAPA
Arun Sethi	WAPA

1. Call to Order: Mr. Shetler verified that there was a quorum to proceed; attendance is noted above. Chair McFall called the meeting to order at 2:00 p.m.
2. Matters Subsequent to Posting the Agenda: None.
3. Public Comment (any matter on the agenda): None.
4. Consent Agenda: Chair McFall invited comments from the Commission and a motion on the Consent Agenda; no comments.

<b>ACTION:</b> M/S (Hauser/Lins) to <b>approve the Consent Agenda</b> . Motion carried by a unanimous roll call vote.
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MINUTES OF THE REGULAR MEETING  
OF THE COMMISSIONERS OF  
THE BALANCING AUTHORITY OF NORTHERN CALIFORNIA (BANC)

5. Regular Agenda Items.

A. General Manager Updates:

i. Market Updates – EIM, EDAM, Markets+, WMEG, WRAP:

Mr. Shetler provided a brief overview of ongoing operations; EIM Committee oversight, including subcommittee updates; an EDAM markets update; EDAM cost considerations and an update on Brattle’s EDAM benefit analysis; the proposed BANC EDAM decision-making timeline; and updates on SPP Markets+, WMEG, and WRAP, responding to questions from the Commissioners. Mr. Braun and Mr. Smith provided additional insights on certain topics, and questions from the Commission were addressed.

ii. SB100 Update.

Mr. Shetler provided a brief update. The next report is due January 1, 2025.

B. Resolution 23-04-01 Accepting and Adopting the BANC Member Participation Percentages for 2023.

Mr. Shetler introduced this item, updating the Commission on dialogue with accounting regarding timing and applicability to future budget updates. There were no questions from the Commission.

<p><b>ACTION:</b> M/S (Zettel/Lins) to <b>approve Resolution 23-04-01 Accepting and Adopting the BANC Member Participation Percentages for 2023.</b> Motion carried by a unanimous roll call vote.</p>
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C. Member updates.

Alternate Commissioner Matchim shared an update related to global semiconductor manufacturer Bosch’s plans to acquire assets of a Roseville-based company and invest more than \$1.5 billion in the site. Commissioner Zettel noted that there has been significant movement from the surrounding county areas into the city of Redding, resulting in commercial growth and other investments in the area.

The Commission adjourned at 2:53 p.m.

Minutes approved on May 24, 2023.

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C. Anthony Braun, Secretary



# BALANCING AUTHORITY OF NORTHERN CALIFORNIA

P.O. BOX 15830 • D109 • SACRAMENTO • CA 95852 -1830

**TO:** BANC Commission

**RE:** BANC Operator Report for April 2023

## Operations:

- BA Operations: Normal
- Significant BA Issues: None
- Declared BA Energy Emergency Alert Level (EEA): EEA0
- NWPP Reserve Energy Activations
  - 1 contingency requiring activation of NWPP
  - 45 MW average generation lost
  - 45 MW maximum generation lost
  - Generating unit(s) and date(s) affected: Sutter
  - All recoveries within 1 minute
- USF
  - 2 of 30 days with instances of USF mitigation procedure utilized
  - 0 days on Path 66
  - No operational impact on BANC
- BAAL Operation:
  - Maximum duration of BAAL exceedance: 2 Minutes
  - Number of BAAL exceedance >10 minutes: None
  - BAAL violation (BAAL exceedance >30 minutes): None
- Frequency Response (FR) Performance – Quarterly Metric:
  - 2023 Frequency Response Obligation (FRO): -18.8 MW/0.1Hz

## Monthly Notes:

- No additional notes or impacts

A JOINT POWERS AUTHORITY AMONG

Modesto Irrigation District, City of Redding, City of Roseville, Trinity Public Utilities District,

6

City of Shasta Lake, and Sacramento Municipal Utility District

# Compliance Officer Report

## BANC Commission Meeting

### May 2023

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The following summarizes routine issues for the Commission's information and consideration. Any major issues or action items will be identified on the Commission agenda for action.

#### **BA Compliance Issues:**

- No significant operational Balancing Authority compliance events occurred.
- All required BA compliance reports and operating data were submitted to WECC.
- NERC issued a Level 3 Alert: Essential Actions for Cold Weather Preparations for Extreme Weather Events on May 15<sup>th</sup> (RC, BA, TOP, GO) with the purpose of increasing readiness and enhancing plans for, and progress toward, mitigating risk for the upcoming winter and beyond. BANC has acknowledged receipt of this notice, and a response will be coordinated prior to the October 6, 2023 due date.

#### **BANC MCRC:**

- The next BANC MCRC meeting is scheduled to be held at 10:00 AM on Monday, May 22<sup>nd</sup> via teleconference.

# PC Committee Chair Report

## BANC Commission Meeting

### May 2023

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The following summarizes Planning Coordinator-related activities and updates for the Commission's information and consideration. Any major issues or action items will be identified separately on the Commission agenda for action.

#### **BANC PC Committee Updates and/or activities:**

SMUD staff continue to work toward demonstrating compliance with PC-related NERC reliability standards.

- TPL-001-5 - Transmission System Planning Performance – Staff worked with Redding on newly implemented TPL-001-5, P5 contingency study and potential spare equipment study for the GSUs in the REU system. Study base cases and contingencies are currently under development.
- PRC-023-4, PRC-026-1, and FAC-014-2 Study Plans and Simulations – Staff finalized and distributed the three (3) 2023 NERC Standard study plans (PRC-023-4, PRC-026-1, and FAC-014-2) on April 28<sup>th</sup> after incorporating BANC PC Participant comments. Staff is currently working on PRC-023 simulations based on the PRC-023 study plan and will communicate the study results by 06/02/23.
- PRC-006-5 Underfrequency Load Shedding: The WECC Off Frequency System & Protection Restoration Committee (OFSPR) data collector sent out the new 2023 data request. BANC PC Participants have been requested to CC the BANC PC on their responses, which are due by June 2<sup>nd</sup> to SMUD. SMUD will be a technical writer for the report of 2023 WECC Underfrequency Implementation Plans of the WECC Southern Island.
- TPL-007-4 Transmission System Planned Performance for Geomagnetic Disturbance Events - Staff collected Geomagnetic Disturbance data and uploaded to the NERC website based on the NERC request for the April 23<sup>rd</sup>-24<sup>th</sup> GMD Event. So far this year, staff has submitted Geomagnetic Disturbance data for upload to the NERC website for two other NERC-requested GMD events (February 26-28, 2023 and March 23-24, 2023).



The table below shows the current status of all PC-related NERC standards:

	<b>PC Standard</b>	<b>Estimated % Complete</b>	<b>Notes</b>
1	FAC-002-3 Interconnection Studies		There are no BES interconnection projects for 2023-24 for BANC PC Participants.
2	FAC-010-3 SOL Methodology for Planning Horizon	100%	An updated version was sent to external stakeholders and BANC PC Participants on 12/31/2022.
3	FAC-014-2 Establish and Communicate SOLs	25%	2023 FAC-014-2 SOLs will be established based on this year's study plan. The study plan was finalized on 04/28/23 and shared with BANC PC Participants.
4	IRO-017-1 Outage Coordination	0%	Awaiting the completion of the 2023 annual assessment to send to the Reliability Coordinator.
5	MOD-031-2 Demand and Energy Data	100%	Staff is coordinating the 2023 data request cycle. The two sets of data have been uploaded to WECC. BANC also provided responses to L&R Narrative questions on 03/20/23.
6	MOD-032-1 Data for Power System Modeling & Analysis		Ongoing activity. Data request to fulfill 13 month cycle for compliance was sent on 02/03/2023.
7	MOD-033-1 System Model Validation	0%	Data requests and study will be performed later in the year
8	PRC-006-5 Underfrequency Load Shedding	33%	The WECC Off Frequency System & Protection Restoration Committee (OFSPR) data collector sent out the new 2023 data request. BANC PC Participants have been requested to CC BANC PC on their responses due by 06/02/23 to SMUD, since SMUD is the technical writer for 2023.
9	PRC-010-2 Undervoltage Load Shedding	0%	Another study is due by 12/30/2024.
10	PRC-012-2 Remedial Action Schemes	80%	New Standard effective on 01/01/2021. Study Plan finalized on 04/10/2020. Working on performing studies for each RAS scheme.
11	PRC-023-4 Transmission Relay Loadability	50%	The study plan was finalized on 04/28/23 and shared with BANC PC Participants. Staff is currently working on PRC-023 simulations as based on the PRC-023 study plan, and will communicate the results by 06/02/23.
12	PRC-026-1 Relay Performance During Stable Power Swings	25%	The study plan was finalized on 04/28/23 and shared with BANC PC Participants.
13	TPL-001-5 Transmission System Planning Performance	15%	Contingencies and base cases are currently under development

	PC Standard	Estimated % Complete	Notes
14	TPL-007-4 Transmission System Planned Performance for Geomagnetic Disturbance Events	100%	<p>Registered the SMUD/BANC PC GIC monitoring device at Carmichael with NERC – compliance requirement.</p> <p>Made request to the GIC manufacturer to increase sampling rate from the default once every hour to once every 10s or faster per NERC recommendation.</p> <p>SMUD sent the TPL-007-4 requirement R12 and R13 to the BANC PC members. The effective date for these requirements was 07/01/2021.</p> <p>Ongoing, NERC has declared a GMD event (<math>Kp &gt; 7</math>) for reporting purposes. The GMD event duration was from 11/3 2021 3:00pm to 11/4/2021 11:59pm. Recording data for these two events was downloaded and saved for reporting prior to the annual due date (06/30/2022).</p> <p>SMUD uploaded all 3 GMD events that were requested by NERC (due 06/30/2022).</p> <p>Completed benchmarking and supplemental GMD Vulnerability Assessment of the Near-Term Transmission Planning Horizon (R4 and R8), provided GIC flow information to the BANC PC members (R5 and R9) – Due 01/01/2023.</p>

# GM Report

## BANC Commission Meeting

### May 24, 2023

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I wanted to summarize routine issues for the Commission's information and consideration. Any major issues or action items will be identified separately on the Commission agenda for action.

#### **Outreach Efforts:**

Refer to GM outreach report provided under separate distribution. In addition, here are some other noteworthy items:

#### **LADWP/Seattle City Light/SRP**

Dialogue continues with these entities regarding EIM participation. We continue to interact on an informal basis to make sure we are aligned on EIM issues from a POU perspective. We are routinely holding bi-weekly calls to provide updates and discuss issues. We have also used this forum to discuss POU positions regarding the EDAM development, other market design issues (e.g.- SPP Markets+), and to discuss potential summer heat wave impacts on EIM and EDAM design.

#### **POU Western Markets Initiative**

BANC continues to participate in this effort, which is being coordinated by APPA. The group has stepped back and is taking a less formal role with occasional update conference calls. The last call was on September 29, 2022.

#### **Market Initiatives:**

##### **EIM Participation**

Staff continues monitoring EIM participation. CAISO quarterly benefit reports continue to show that BANC is seeing benefits from EIM participation, with the 4<sup>th</sup> Quarter 2022 report showing gross benefits of \$83.44 million for BANC, with a total of \$457.48 millions of gross benefits for BANC since joining in 2019.

With respect to BANC EIM Phase 2 effort, BANC has been passing both the EIM Capacity and Flex Ramp tests with a high success rate. Both the Technical Evaluation Subcommittee and the Settlements Subcommittee are meeting routinely and evaluating EIM operations, with reports out to the EIM Committee. The BANC Settlements group developed a recommendation regarding seasonal adjustment to the EIM Reserve Account to address potential heat wave price impacts on EIM transactions. This was approved at the EIM Committee and the Commission at the

February meetings. The Settlements group is also discussing with the Settlements Subcommittee the pros and cons of increasing the level of guarantee transfer from the EIM Participants to BANC.

### **EDAM Participation**

The CAISO provided a review of the final EDAM straw proposal to the EIM Governing Body/CAISO Board of Governors at their December 14, 2022, meeting. The CAISO obtained approval by the EIM Governing Body/Board of Governors at their February 1, 2023. BANC attended the February meeting and made supportive comments consistent with the Commission approved EDAM talking points. BANC is participating with other interested EDAM parties and the CAISO on EDAM tariff development. The draft tariff was posted on March 30, 2023. BANC filed comments on the tariff in early May in general support of the proposed EDAM tariff. Stakeholder meetings are scheduled for May and June with filing at FERC forecasted by the end of June.

### **Other Market Developments**

In parallel with the re-initiation of the EDAM process, two other West-wide market developments are also in process:

1. SPP has announced its “Markets +” effort to support utilities in the West with a range of market options from EIM to full RTO services. SPP provided a final straw proposal in late 2022. SPP has received funding from twenty-two entities for the next phase of the market development. Staff views Markets+ as a fallback option for BANC and will continue to monitor this market option but does not plan on seeking funding for participation in this next phase of their efforts. SPP held a Markets+ executive forum in Portland on May 12, 2023, which BANC attended.
2. A group of Western utilities have formed a group called Western Market Exploratory Group (WMEG) with a stated purpose of identifying what a full market in the West should entail. They have hired Utilicast to assist in this effort. BANC has executed the necessary agreements to participate in the WMEG as authorized by the Commission at the May meeting. The WMEG selected E3 to conduct a cost benefits analysis considering different future market options. As noted in prior communications, BANC has elected not to fund and formally participate in this study. However, BANC supported providing data for the study and will be provided the overall results of the study. Current forecast is for the cost benefit study and other WMEG efforts to be completed by mid-2023. Initial results of the cost benefit study are being reviewed by the individual funders.

## **WAPA:**

### **Market Engagement**

WAPA-SNR continues to be an active participant in the EIM.

We have also held several discussions with WAPA-SNR on how staff could assist in their decision-making on EDAM participation. This has included joint discussions with the CAISO.

## **WECC**

### **WECC Board Meetings**

The last set of Board and committee meetings was held on March 7-8, 2023, in Salt Lake City, UT. The next set of meetings will be June 6-7, 2023, in Salt Lake City, UT.

## **Western Power Pool (WPP)**

### **Resource Adequacy Project**

As agreed previously, BANC has informed WPP that it will not be participating in the Western Resource Adequacy Program (WRAP) due to our lack of ability to have firm, long-term transfer capability at Mid-C, which is the hub for the WRAP interchanges. BANC continues to monitor development of the WRAP and hold periodic discussions with WPP regarding our ability to participate in the future. SPP has indicated that they intend to use the WRAP as the model of a Resource Adequacy program for “Markets +” development. However, an entity does not have to be a WRAP participant to join “Markets+” but does need to have an equivalent Resource Adequacy program. WPP filed the tariff for the WRAP at FERC on August 31, 2022. There were some interventions filed by the September 30, 2022, due date. BANC has filed a “plain vanilla” intervention in order to be able to monitor the proceedings. FERC issued a deficiency letter to WPP on November 21, 2022, and WPP submitted a response on December 12, 2022. FERC provided tariff approval on 2/10/23. WPP has issued requests to the WRAP participants for additional funding to continue the effort into 2023 and ~20 parties have agreed to provide funding.

### **RSG and FRSG Participation**

BANC continues to participate in the Reserve Sharing Group and the Frequency Response Sharing Group through the WPP and receive benefits in doing so.

## **CDWR Delta Pumping Load:**

BANC is coordinating with SMUD, CDWR, WAPA, and the CAISO regarding how the construction and pumping loads and ancillary services will be provided for this project. The CAISO has reached out to BANC/SMUD/WAPA-SNR regarding contacts for initiating discussions on how CAISO will supply energy for the construction

loads in our footprints. With the Governor’s announcement that the project will be downsized from two to one tunnel, CDWR has withdrawn the current applications and will be submitting revised environmental documentation. SMUD reported that CDWR has approached them regarding the revised environmental review and updated project schedule and SMUD is initiating updated studies. The current schedule for the project is to initiate construction in 2030 with operations initiated in 2040.

## **SB100 Implementation**

As part of SB100, the CPUC, CEC, and CARB (Joint Agencies) are required to collaborate with the California BAs to develop a quadrennial report on the status of achieving the goals of SB100. The four POU BAs (BANC, IID, LADWP, and TID) are collaborating on positions and responses. The final, initial report was issued on 3/15/21. The CEC did reach out to the POU BAAs via CMUA in early March 2021 seeking more engagement with the BAAs for the next round of analysis for the SB100 effort. The POU BAAs are coordinating via CMUA on how to engage in this request. A subgroup of the POU BAAs, including BANC, participated in a Joint Agency SB100 workshop on June 2, 2021. We have also had several follow-up discussions with the Joint Agencies. Based upon recent discussions, the POU BAAs have hired a consultant via CMUA to assist in this effort. We are also working on concepts for a reliability analysis effort and providing current known interconnection queue information as well as forecast renewable resource procurement assumptions. The Joint Agencies have also indicated that they will be initiating the next cycle of the SB100 effort to support issuing an update report by the required date of 1/1/25. The CA POU BAAs are waiting for the CEC to reengage in the dialogue.

## **Western Electricity Industry Leaders (WEIL) Group**

The WEIL CEOs last met on March 3, 2023, in San Diego, CA. The next meeting of the WEIL group is planned for September 29, 2023, in Portland, OR.

## **Strategic Initiatives**

The 2022/2023 Strategic Initiatives updates are attached to this report.

BANC 2022/2023 Strategic Plan - Routine Initiatives - May 2023 Update

No./Priority	Focus Area	Initiative	Responsibility	Target Due Date	Status
1 Medium	INDEPENDENCE	Effectively oversee the BA operations.	Jim Shetler	Ongoing	See monthly Ops, PC, Compliance, & GM Reports
2 Medium		Maintain long-term succession plan and traits for General Manager	Jim Shetler/Commission	Ongoing as Necessary	On hold for 2023
3 Medium		Develop appropriate policies, procedures, & action tracking	Jim Shetler/BBW	4th Qtr. 2023	Initiating staff discussions
4 Medium	OUTREACH	Engage in industry forums (WECC, RC West, NWPPA, etc.)	Jim Shetler	Ongoing	Attend RC West, WECC Board, WEIL, & NWPP Exec. Forum meetings
5 Medium		Coordinate with other POU BAs (Ca and regionally)	Jim Shetler	Ongoing	Coordinating with SCL/SRP/LA/TP/TID on EIM/EDAM & SB100
6 Medium		Outreach to regulatory and legislative bodies on key issues	Jim Shetler/BBW/WEL	Ongoing as Necessary	FERC update discussion 1/12
7 Medium		More formal engagement with TID on BA/EIM/EDAM issues	Jim Shetler/BBW/WEL	Ongoing	Continue periodic discussions on areas of collaboration
8 Medium	ASSETS	Establish BANC criteria for RA	Jim S./Res. Com.	4th Qtr. 2022	Resource Committee and Commission approved in Feb.
9 Low	MEMBER SERVICES	Identify and outreach to potential new BANC members	Jim Shetler	Ongoing as Appropriate	

BANC 2022/2023 Strategic Plan - Focused Initiatives - May 2023 Update

No./Priority	Focus Area	Initiative	Responsibility	Target Due Date	Status
10 High	INDEPENDENCE	Manage EIM Phase 2 Going Forward	Jim Shetler/SMUD	Ongoing	Manage Phase 2 operations including EIM, Tech Anal. & Settlements committees
11 High		EDAM evaluation effort ~ CAISO Stakeholder Process	Jim Shetler/BBW/WEL	Dec-22	EIM GB/BOG approved 2/1
		~ CAISO Tariff Development ~ BANC EDAM participation decision	Jim Shetler/BBW/WEL Jim Shetler/BBW/WEL/ Commission	Mid-2023 4th Qtr. 2023	Draft posted 3/30/23 Reviewing benefits study w/ EIM Committee
12 Medium	OUTREACH	Evaluate opportunities to engage other entities in market development	Jim Shetler	Ongoing	Coordinating with SCL, SRP, LADWP, TID, & Tacoma
13 Medium		Regional Policy Issues: Monitor/ weigh-in where appropriate	Jim Shetler/Commission	Ongoing	Support letter for EDAM Coordinating on ACR188
14 High		Market Regionalization: ~ Monitor ongoing discussions at WEIL & other venues	Jim Shetler/BBW/WEL	Ongoing	Participating at WEIL/WMEG
15 High		Coordinate with CA BAs on SB100 effort	Jim Shetler/BBW	Ongoing	Waiting on CEC to reengage
16 Medium	ASSETS	~ Evaluate state & federal funding for BANC projects ~ Evaluate future BANC projects	Jim S./BBW/Res. Com. Jim S./BBW/Res. Com.	2nd Qtr. 2023 12/1/23	Follow-on discussion w/ GSCE
17 Medium	MEMBER SERVICES	Evaluate possible support to participants for EIM operations	Jim S.	Ongoing	



## Balancing Authority of Northern California

### Agenda Item 5B

1. **2023 Summer Loads & Resources Assessment of the Balancing Authority of Northern California.**
2. **Resolution 23-05-01 *Acknowledgement and Acceptance of 2023 Summer Load & Resources Assessment of the Balancing Authority of Northern California.***

# Braun Blaising & Wynne, P.C.

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Attorneys at Law

05/16/23

**To: BANC Commission**  
**From: BANC Counsel**  
**RE: 2022 BANC Summer Load & Resources Assessment**

Included in the Commission packet for the May 24, 2023 BANC Commission meeting is the 2023 Summer Load and Resources Assessment. This document is produced by the Operating Committee. It includes a summary of expected conditions, including peak loads, generation availability, planned physical outages of generation and transmission, and other information. The information is included for individual members, each of the Sacramento Municipal Utility District and Western Area Power Administration sub-areas, as well as on a BANC-wide basis.

It should be noted that, similar to last year, the Operating Committee again developed a much more detailed evaluation looking at such issues as:

- Peak and Net Peak for both 1:2 and 1:10 load forecasts
- Reassessed both Effective Load Carrying Capability (ELCC) and Net Qualifying Capacity (NQC) based upon actual historical data
- Dependability of planned imports
- Various scenarios

The Assessment concludes that BANC will be able to meet the load demand for the 2023 summer operating season with sufficient Operating Margins and low risks of energy or capacity shortage.

Because reliable grid operation is the central and paramount function of BANC, the Commission is requested to acknowledge receipt and accept the 2023 Summer Load and Resources Assessment by resolution.

# 2023 SUMMER

## LOADS & RESOURCES ASSESSMENT



Balancing Authority of Northern California

May 2023

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](http://www.thebanc.org)*

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## 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



## 2023 BANC SUMMER LOADS & RESOURCES ASSESSMENT

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This BANC summer loads and resources assessment report provides an assessment of the load forecast, resource supply, and energy imports in the 2023 summer operating season – June 1<sup>st</sup>, 2023, through October 31<sup>st</sup>, 2023, for the BANC Balancing Authority Area (BAA).

The forecasted BANC 1-in-2 peak load for 2023 summer is 4426 MW which is 517 MW or 10.4% lower than the actual 2022 BANC peak load of 4943 MW – the new all-time peak load for BANC. The forecasted 1-in-2 peak loads for the SMUD and WAPA footprints are 2833 MW and 1593 MW, respectively.

The forecasted BANC 1-in-10 peak load for 2023 summer is 4742 MW which is 201 MW or 4.0% lower than the actual 2022 BANC peak load of 4943 MW. The forecasted 1-in-10 peak loads for the SMUD and WAPA footprints are 3052 MW and 1690 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

## 2023 BANC SUMMER LOADS & RESOURCES ASSESSMENT

- 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 2023 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 2.05% (or 1 day in 48 years) to be in an EEA 3 and an extremely low risk of 1.00% (or 1 day in 100 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: 2023 Summer Base Case Supply & Demand Outlook at Gross & Net Peak Hours

	BANC BA		SMUD Footprint		WAPA Footprint	
	HE17	HE18	HE17	HE18	HE17	HE18
2022 Generation (MW)	5431		2617		2814	
Generation Outage (MW)	(85)		(0)		(85)	
Retired Generation (MW)	0		0		0	
New Generation (MW)	5		5		0	
2023 Generation (MW)	5351		2622		2729	
Peak Load Hour	HE17	HE18	HE17	HE18	HE17	HE18
Equivalent ELCC	81.7%	80.7%	78.0%	76.2%	85.2%	85.1%
Total Generation NQC (MW)	4370	4319	2044	1997	2326	2322
Forecasted Import (MW)	2185	2167	1548	1537	637	630
Forecasted Export (MW)	(860)	(860)	0	0	(860)	(860)
Demand Response (MW)	70	70	54	54	16	16
Total Supply (MW)	5765	5696	3646	3588	2119	2108
1-in-2 Load + Reserves (MW)	4725	4691	2992	2953	1733	1738
1-in-2 OM * (MW)	1040	1005	654	635	386	370
1-in-2 OM * (%)	22.0%	21.4%	21.9%	21.5%	22.3%	21.3%
1-in-10 Load + Reserves (MW)	5062	5025	3223	3181	1839	1844
1-in-10 OM * (MW)	703	671	423	407	280	264
1-in-10 OM * (%)	13.9%	13.4%	13.1%	12.8%	15.2%	14.3%

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

## 2023 BANC SUMMER LOADS & RESOURCES ASSESSMENT

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### Water Conditions as of April 1, 2023:

- United States Bureau of Reclamation's (USBR) Central Valley Project (CVP) reservoir storage levels were at approximately 101% of historical average.
- Northern Sierra snowpack was at 191% of its historical average.
- Northern California precipitation was at 135% of its historical average.
- Forecasted statewide snowmelt runoff is at about 120% of an average water year.
- SMUD's storage reservoirs were at 104% of historical average and the inflow to the storage reservoirs is projected to be 180% of median.
- With 135% precipitation and 191% snowpack, the 2022-2023 water season is classified as "Wet" according to California Department of Water Resources' (CDWR's) Bulletin 120 released on March 8, 2023.

### Resource Availability Forecasts as of April 1, 2023:

- Based on the current outage information, all SMUD and CVP hydro resources are expected to be available during the 2023 summer peak months, except Spring Creek Unit #2 which will reduce CVP generation capacity by 85 MW.
- The total hydro power peak or energy production is projected to be higher 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 2023 summer COI operating nomogram is approximately 300 MW lower than 2022 due to the derates of 500 kV lines owned by Pacific Gas & Electric (PG&E).
- 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. 2022 Summer Review

### 2.1 System Load

An extreme heat wave occurred in California from August 31, 2022, through September 9, 2022. 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. However, various emergency load reduction programs, demand response programs, and public appeals worked effectively in reducing the system load, especially between 15:00~21:00 on September 6, 2022.

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 September 6, 2022, the WAPA footprint reached its peak load of 1659 MW at the same time when BANC BA reached the peak load at 15:58:14, while SMUD footprint reached its Non-simultaneous Peak Load of 3291 MW at 16:54:05, which is 8 MW less than SMUD’s all-time peak load record of 3299 MW set in 2006. The SMUD footprint’s Simultaneous Peak Load at 15:58:14 was 3284 MW. In addition, MID and RSC set new all-time peak load records of 760 MW and 371 MW on September 6, 2022, respectively. However, REU, CSL, and TPUD reached their Non-simultaneous Peak Load on July 28, 2022.

Table 2-1 below shows the Simultaneous Peak Loads and Non-simultaneous Peak Loads and a comparison of 2022 actual Non-simultaneous Peak Loads vs. 2022 1-in-10 forecasted Non-simultaneous Peak Loads for BANC and all BANC entities.

Table 2-1: 2022 Simultaneous and Non-simultaneous Peak Loads vs. 2022 Forecasts

Entity	1-in-10 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 <sup>1</sup> (MW)
<b>BANC BA</b>	4840	4950	-110	-2.2%	4943
<b>SMUD</b>	3176	3291	-115	-3.5%	3284
<b>MID</b>	709	760	-24	-3.3%	730
<b>RSC</b>	389	371	18	4.9%	367
<b>REU</b>	238	239	-1	-0.4%	230
<b>CSL</b>	37	38	-1	-2.6%	33
<b>TPUD</b>	28	27	1	3.7%	20
<b>WAPA Footprint</b>	1664	1659	5	0.3%	1659

<sup>1</sup> The Actual Simultaneous Peak Load values came from the PI historian data.

## 2023 BANC SUMMER LOADS & RESOURCES ASSESSMENT

### 2.2 System Generation

The Sutter Energy Center (SEC) continued to be available at 275 MW capacity for summer 2022 as a part of generation for SMUD. In addition, 10 MW of net metered solar generation went on-line in the BANC footprint in 2022. BANC's total installed generating capacity increased to 5431 MW. Table 2-2 shows generation levels of BANC entities collected in PI at the 2022 BANC peak load moment (15:58:14 on 9/6/2022).

Table 2-2: BANC Entities Generation Levels at 2022 BANC Peak Load

	Generation (MW)	Simultaneous Peak Load (MW)	Generation Capacity (MW)	Generation Output %
<b>BANC BA</b>	2677	4943	5431	49.3%
<b>SMUD</b>	1529	3284	2617	58.4%
<b>MID</b>	348	730	469	74.2%
<b>RSC</b>	198	367	239	82.8%
<b>REU</b>	171	230	182	94.0%
<b>CSL</b>	0	33	0	N/A
<b>TPUD</b>	0	20	0	N/A
<b>WAPA Footprint</b>	1148	1659	2814	40.8%

### 2.3 System Import

Table 2-3 shows BANC entities' simultaneous import levels at the 2022 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 2022 Peak Load

	Simultaneous Import (MW)	Simultaneous Peak Load (MW)	Import/Load Ratio
<b>BANC BA</b>	2266	4943	45.8%
<b>SMUD</b>	1755	3284	53.4%
<b>MID</b>	382	730	52.3%
<b>RSC</b>	150	367	40.9%
<b>REU</b>	61	230	26.5%
<b>CSL</b>	33	33	100.0%
<b>TPUD</b>	20	20	100.0%
<b>WAPA Footprint</b>	511	1659	30.8%

### 3. 2023 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.

## 2023 BANC SUMMER LOADS & RESOURCES ASSESSMENT

As shown in Table 3-1 below, the forecasted BANC 1-in-2 gross peak load for the 2023 summer is 4426 MW, which is 517 MW lower than the actual 2022 BANC peak load of 4943 MW. The forecasted BANC 1-in-10 gross peak load is 4742 MW, which is 201 MW lower than the actual 2022 BANC peak load of 4943 MW. For 2023 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: 2023 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)
<b>SMUD</b>	2833	2617	3052	2834
<b>WAPA Footprint</b>	1593	1578	1690	1675
<b>MID</b>	679	662	722	705
<b>Roseville Electric</b>	338	338	389	389
<b>REU</b>	224	224	226	226
<b>Shasta Lake</b>	36	36	38	38
<b>Trinity PUD</b>	27	27	27	27
<b>Forecasted BANC Peak Load</b>	4426	4195	4742	4509

Figure 3-1 below shows a comparison of forecasted 2023 non-simultaneous 1-in-2 peak load with the historical peak load since 2006 for BANC, SMUD, and WAPA footprint.

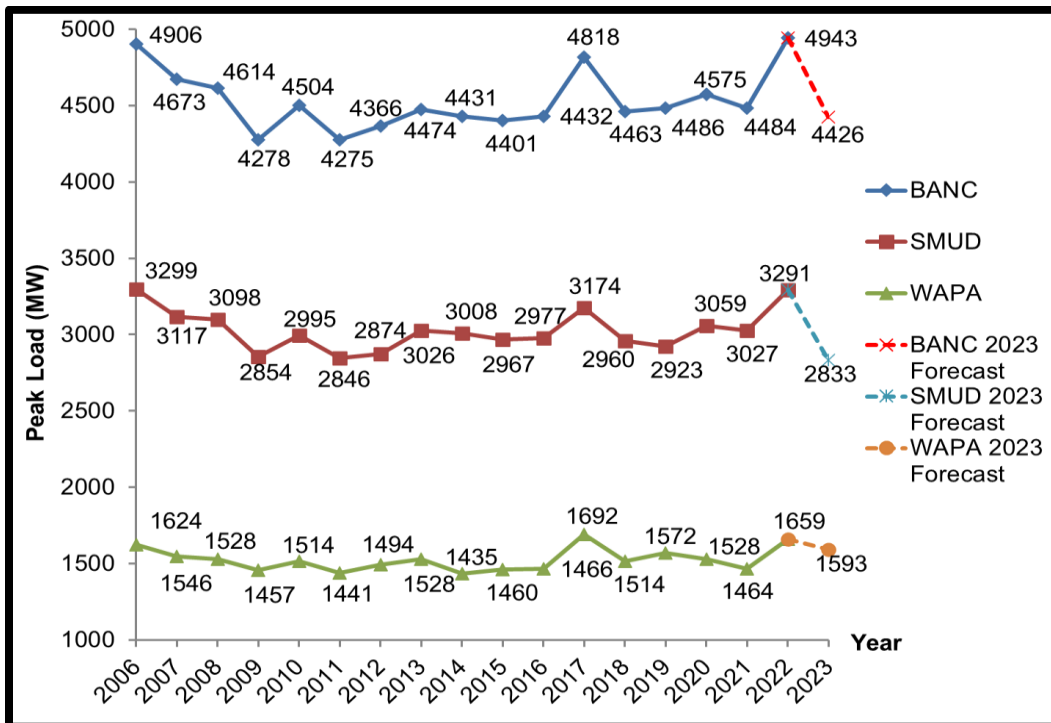


Figure 3-1: 2023 Forecasted Peak Load vs. Historical Peak Load

## 2023 BANC SUMMER LOADS & RESOURCES ASSESSMENT

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, RSC, CSL, 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. Despite the reduction in sun radiation, MID and CSL still set the new peak load records of 702 MW and 37 MW in 2020.

In 2022 summer, an extreme heat wave occurred in California from August 30<sup>th</sup> to September 9<sup>th</sup> such that the Sacramento area experienced 10 consecutive days above 100 degrees with a new highest temperature record of 116 degrees. BANC also set a new all-time peak load of 4943 MW.

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, when BANC's peak load occurred on 6/20/2017, instead of 8/28/2017. 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, this assessment assumes the 2023 BANC peak load day to be in August as it will represent the most severe operating condition.

Max °F	Date	Max °C
116	September 06, 2022	47
113	July 10, 2021	45
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
102	September 09, 2011 +	39
108	August 25, 2010	42

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

### 3.2 Forecasted Resource Supply

In 2022, 10 MW of net metered solar generation in SMUD footprint came online and there will be 5 MW of net metered solar coming on-line before the 2023 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 5436 MW, of which, 2704 MW (49.8%) is hydro generation, 2323 MW (42.7%) is thermal generation, 16 MW (0.3%) is biogas generation, and 393 MW (7.2%) is solar generation. In total, 57.3% of the installed generation capacity within BANC is carbon-free.

As the 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 2023 Water Conditions as of April 1, 2023, are summarized as follows:

- USBR’s CVP reservoirs were at approximately 101% of historical average (Figure 3-3).
- Northern Sierra snowpack was at 191% of its historical average (Figure 3-4).
- Northern California precipitation was at 135% of its historical average (Figure 3-5).
- Forecasted statewide snowmelt runoff is projected to be 120% of an average water year (Figure 3-6).
- SMUD’s storage reservoirs were at 104% of historical average and the inflow to the storage reservoirs is projected to be 180% of median.

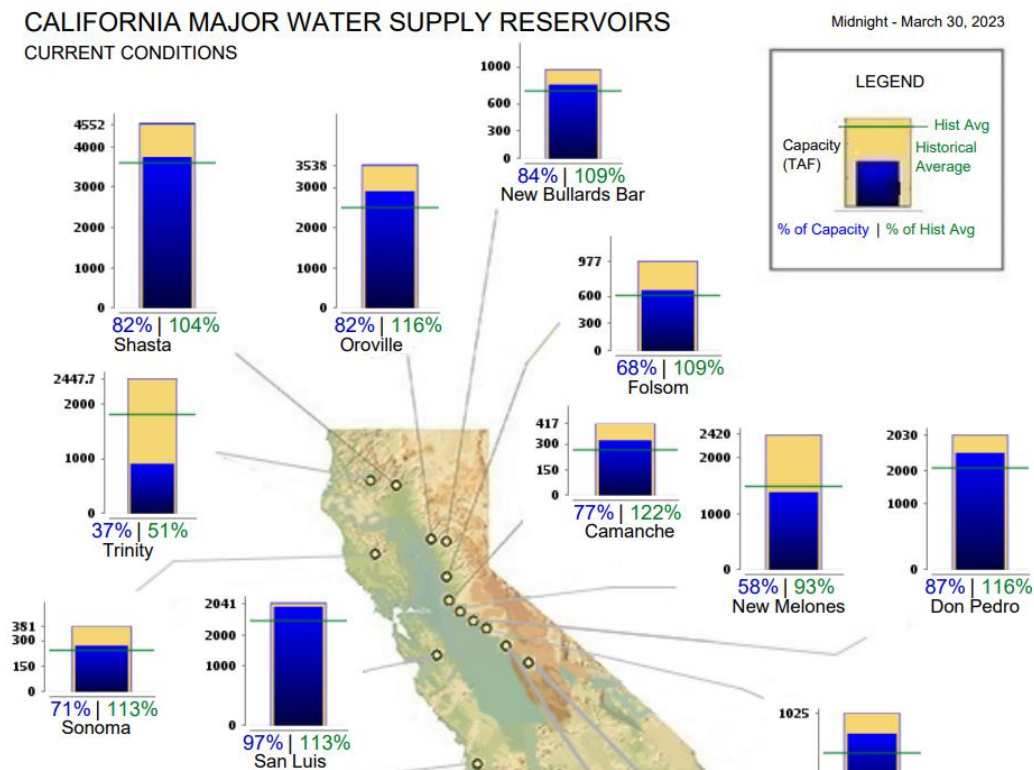


Figure 3-3: Northern California Major Reservoir Levels as of 4/1/2023



## 2023 BANC SUMMER LOADS & RESOURCES ASSESSMENT

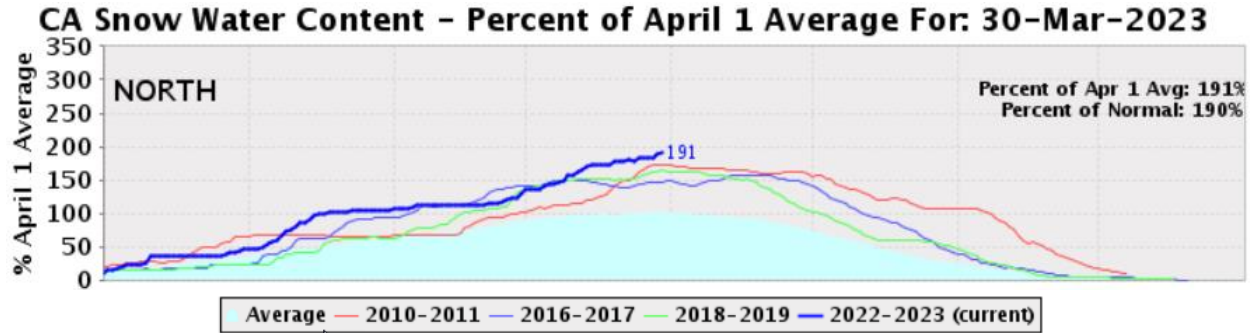


Figure 3-4: Northern CA Snowpack as of 4/1/2023 Compared with 3 Similar Historical Years

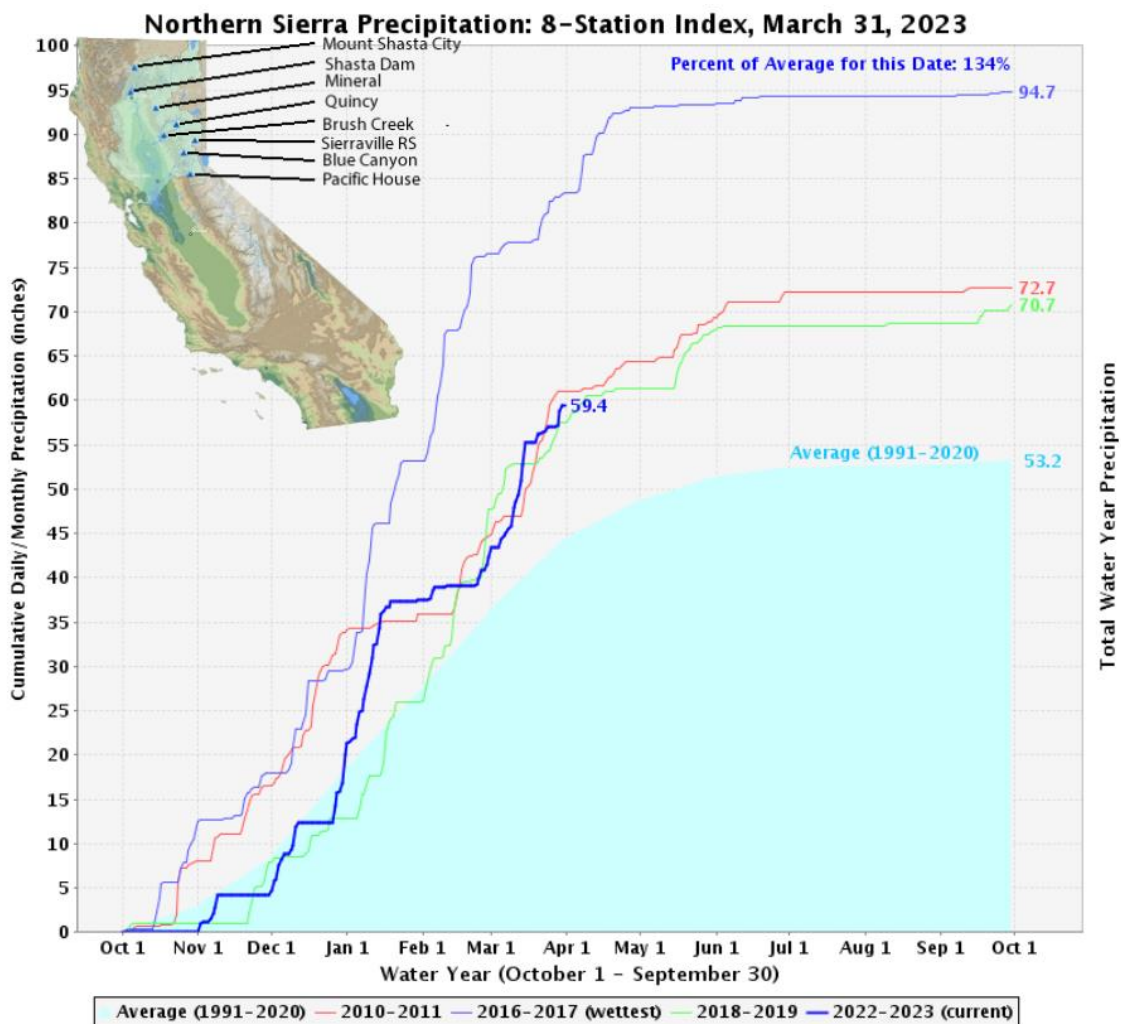


Figure 3-5: Northern CA Precipitation as of 4/1/2023 Compared with 3 Similar Historical Years

**2023 BANC SUMMER LOADS & RESOURCES ASSESSMENT**

**UNIMPAIRED FLOW FOR - March 28, 2023**

(Provisional data, subject to change)

Report generated: March 30, 2023 11:55

WATER YEAR FORECAST SUMMARY AND MONTHLY DISTRIBUTION (IN THOUSANDS OF ACRE-FEET)														
WATERSHED	OCT	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	WATER YEAR TOTAL	80% PROBABILITY RANGE			WY % AVERAGE
	THRU JAN								90%			10%		
Trinity, Lewiston	319	66	155	338	423	260	79	24	17	1,680	1,405		2,035	127
Inflow to Shasta	1,712	308	1,110	945	670	350	255	223	222	5,795	5,130		7,190	103
Sacrament, Bend	2,973	499	2,020	1,290	890	500	340	295	293	9,100	7,960		11,635	109
Feather, Oroville	1,790	349	1,250	1,200	1,090	590	220	125	106	6,720	6,025		8,260	155
Yuba, Smartville	999	147	630	585	650	425	100	35	29	3,600	3,165		4,300	158
American, Folsom	1,397	226	920	745	870	570	145	34	23	4,930	4,330		5,785	183

Figure 3-6: Forecasted Snowmelt Runoffs as of 4/1/2023

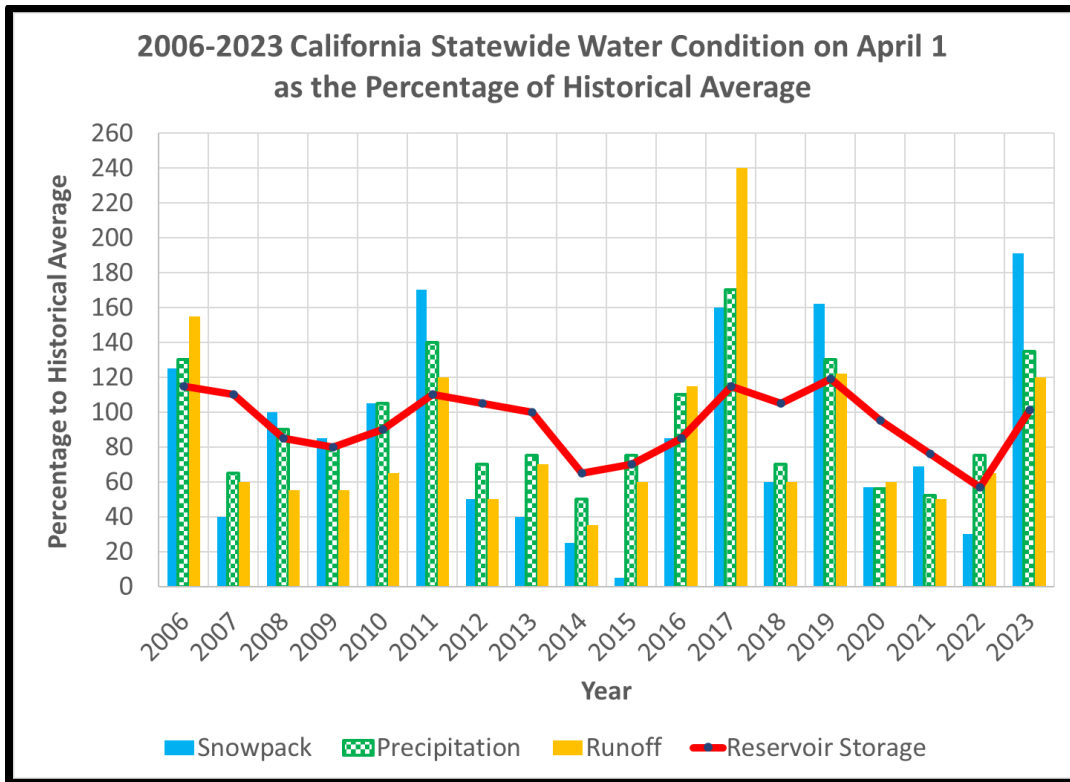


Figure 3-7: 2006-2023 California Statewide Water Condition on April 1

Based on the current outage information, all the SMUD and CVP hydro resources are expected to be available during the 2023 summer except Spring Creek Unit #2 (85 MW generation reduction). The total hydro power production is projected to be higher than the historical average level.

Although BANC’s installed generation capacity will reach 5436 MW, not all this MW capacity can be available to serve load. There are several factors that will limit generator’s capacities,



## 2023 BANC SUMMER LOADS & RESOURCES ASSESSMENT

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:

$$\text{NQC} = \text{ELCC} * \text{Pmax}$$

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 2023 Water Conditions shown in Figure 3-3 through Figure 3-7, 2011, 2017, and 2019 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 °F and 116 °F 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 °F.

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,

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

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

### 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 °F 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 2023 summer COI operating nomogram under all-line-in-service is approximately 300 MW lower than 2022 due to the derates of PG&E's 500 kV lines. 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 83% of the 30-year normal at the Dalles Dam as of April 1, 2023, which indicates a slightly lower than 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 69 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 generation outages scheduled within the BANC footprint during the summer peak months – June, July, and August, except the Spring Creek Unit #2 (85 MW generation reduction). The Round Mountain-Table Mountain 500 kV #1&2 lines series capacitors at Table Mountain will be out of service during the summer causing 50 MW derate on COI, in addition to the 300 MW COI nomogram reduction caused by the derates of PG&E’s 500 kV lines. The Table 3-2 below lists the major transmission and generation outages within the BANC footprint and the surrounding areas for the 2023 summer.

Table 3-2: Scheduled Major Outages for 2023 Summer

Start Time	End Time	Outage Facility	Description	Outage Area	Outage Impact
10/17/2022	10/20/2023	Spring Creek Unit #2	Runner replacement	WAPA	85 MW generation outage
10/1/2022	7/31/2022	Woodland Unit #1	Upgrade	MID	45 MW generation outage
2/3/2023	10/10/2023	Round Mountain-Table Mountain 500 kV #1&2 lines series capacitors	Maintenance	CAISO	50 MW COI derate
6/19/2023	6/22/2023	Captain Jack-Olinda 500 kV line series capacitor	Maintenance	BPA	50 MW COI derate
9/25/2023	9/29/2023	Captain Jack-Olinda 500 kV line	Maintenance	BPA	COI derated to 3200 MW
9/11/2023	11/1/2023	Campbell Soup Power Plant	Maintenance	SMUD	156 MW generation outage

### 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:

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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 the 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 2023 summer with sufficient Operating Margins (OMs) as shown in Table 3-4 below when counting the expected Non-Dependable Imports.

Table 3-4: 2023 Summer Base Case Supply & Demand Outlook at Gross & Net Peak Hours

	BANC BA		SMUD Footprint		WAPA Footprint	
	HE17	HE18	HE17	HE18	HE17	HE18
2022 Generation (MW)	5431		2617		2814	
Generation Outage (MW)	(85)		(0)		(85)	
Retired Generation (MW)	0		0		0	
New Generation (MW)	5		5		0	
2023 Generation (MW)	5351		2622		2729	
Peak Load Hour	HE17	HE18	HE17	HE18	HE17	HE18
Equivalent ELCC	81.7%	80.7%	78.0%	76.2%	85.2%	85.1%
Total Generation NQC (MW)	4370	4319	2044	1997	2326	2322
Forecasted Import (MW)	2185	2167	1548	1537	637	630
Forecasted Export (MW)	(860)	(860)	0	0	(860)	(860)
Demand Response (MW)	70	70	54	54	16	16
Total Supply (MW)	5765	5696	3646	3588	2119	2108
1-in-2 Load + Reserves (MW)	4725	4691	2992	2953	1733	1738
1-in-2 OM * (MW)	1040	1005	654	635	386	370
1-in-2 OM * (%)	22.0%	21.4%	21.9%	21.5%	22.3%	21.3%
1-in-10 Load + Reserves (MW)	5062	5025	3223	3181	1839	1844
1-in-10 OM * (MW)	703	671	423	407	280	264
1-in-10 OM * (%)	13.9%	13.4%	13.1%	12.8%	15.2%	14.3%

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

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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.

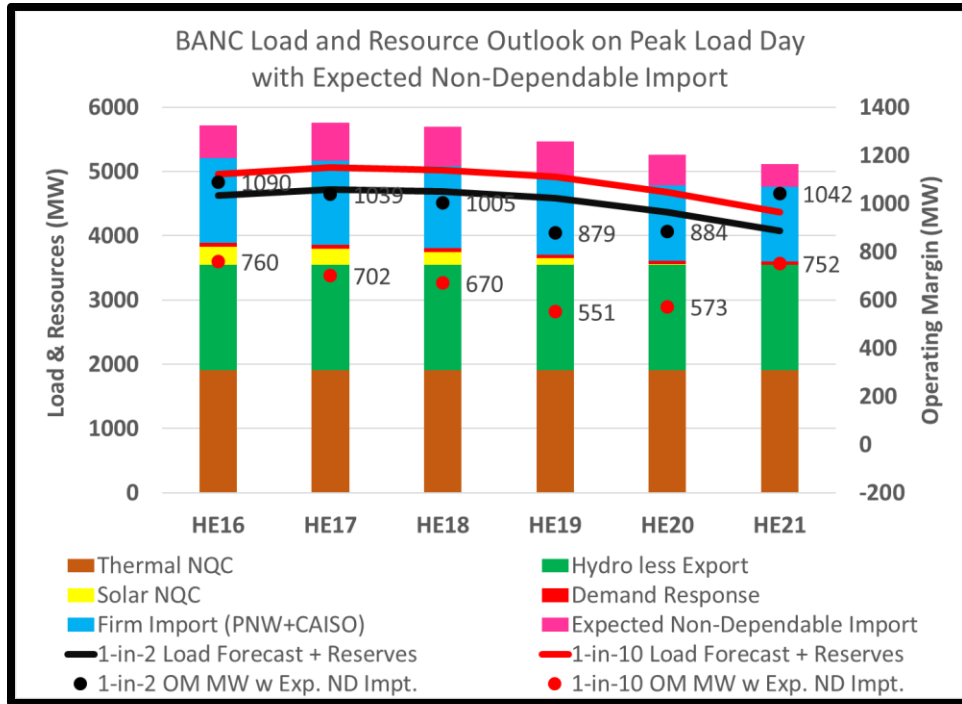


Figure 3-8: BANC Base Case Load and Resources Outlook on Peak Load Day

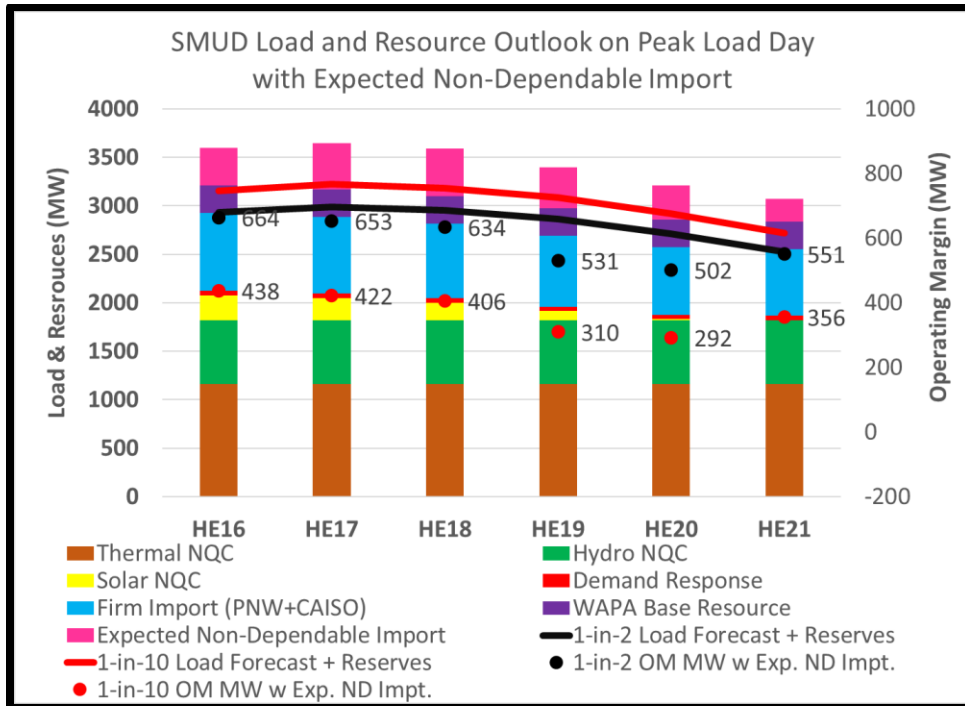


Figure 3-9: SMUD Base Case Load and Resources Outlook on Peak Load Day

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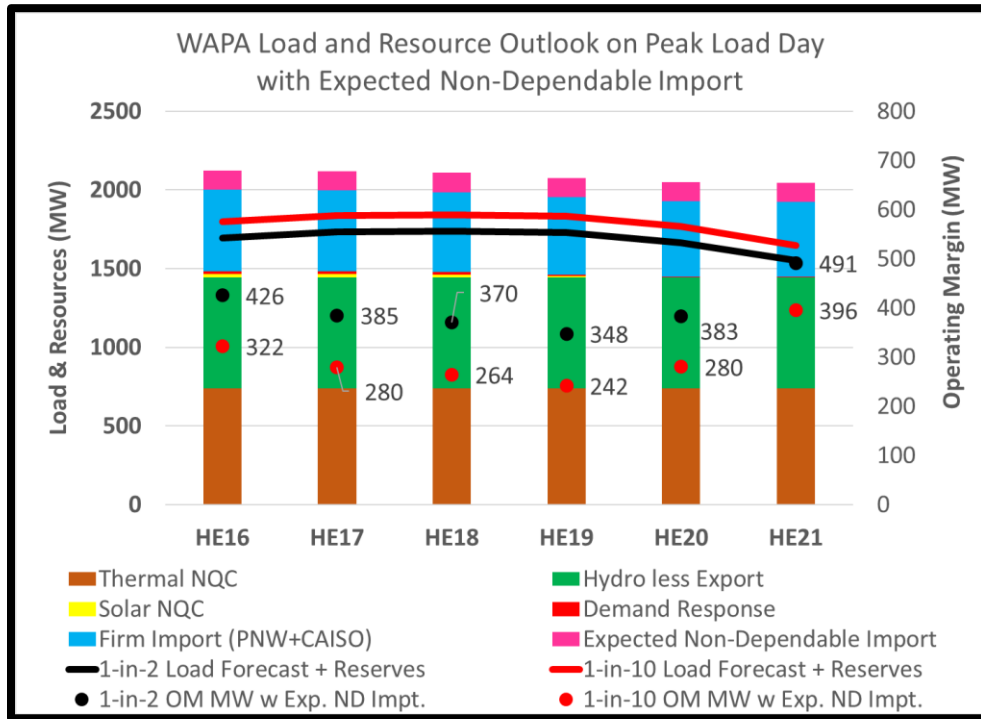


Figure 3-10: WAPA Base Case Load and Resources Outlook on Peak Load Day

The 2023 summer resource supply is similar to the 2022 summer resource supply:

- SMUD’s 2023 total resource supply, including non-dependable import is projected to be at a similar level as 2022. However, SMUD’s 2023 load forecast is 100 MW lower than 2022 such that SMUD’s 2023 operating margin is estimated to be 100 MW higher than 2022 when counting the expected non-dependable import.
- Although WAPA’s 2023 CVP hydro capacity is estimated to be approximately 200 MW more than 2022 due to the good water conditions, most of the increased CVP hydro energy will be exported out of WAPA footprint. Therefore, WAPA’s 2023 operating margin is estimated to be at a similar level as 2022.
- Overall, from BANC BA’s perspective, the estimated 2023 operating margin is estimated to be slightly higher than 2022, when counting the expected non-dependable import.

### 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

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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 °F.
- 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 2.05% (or 1 day in 48 years) to be in EEA 3 and an extremely low risk of 1.00% (or 1 day in 100 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 11.3% (or 1 day in 8 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
<b>Number of Cases</b>	57	41	20
<b>Probability</b>	2.85%	2.05%	1.00%
<b>Number of Years</b>	1 Day in 35 Years	1 Day in 48 Years	1 Day in 100 Years

Table 3-6: WAPA LOLP Study Results

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



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Table 3-7: SMUD LOLP Study Results

SMUD Status	OM < DR	OM < 0	Unservd Energy
<b>Number of Cases</b>	281	226	56
<b>Probability</b>	14.05%	11.3%	2.80%
<b>Number of Years</b>	1 Day in 7 Years	1 Day in 8 Years	1 Day in 35 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 “Wet” 2022-2023 water season, more vegetation will grow and turn into dry vegetation in late summer, which 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, 2023, the wildfire risk for June and July is “At or Below Normal” for California as shown in the Figure 3-11 below. The wildfire outlook for August and September will be released on May 1, 2023.

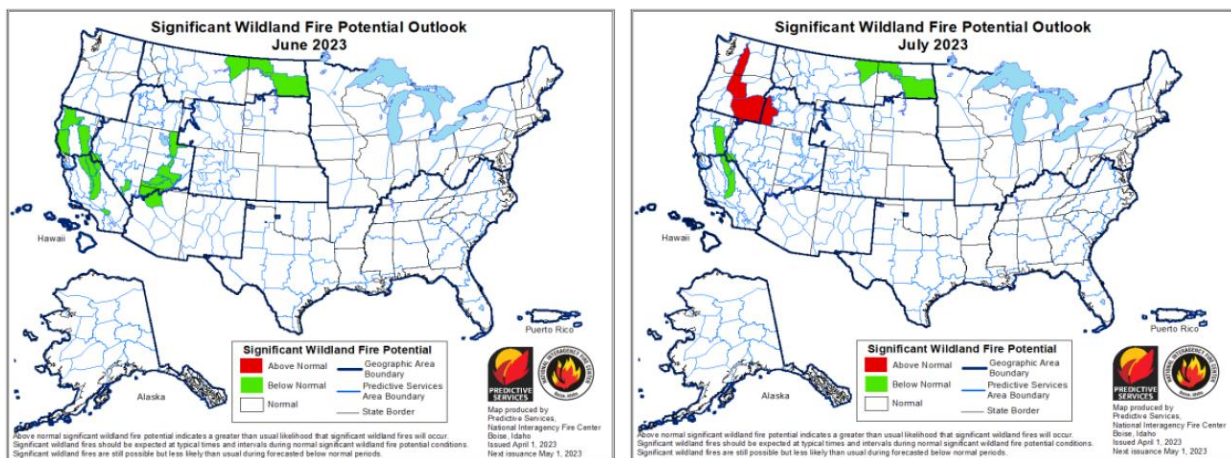


Figure 3-11: U.S. Significant Wildland Fire Potential Outlook for June and July 2023



**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**

In the past 5 years, the wildfires created significant impacts to the California’s transmission grid, such as the Carr Fire in 2018 (removing nine 230 kV lines), the Tucker Fire in 2019 (removing two 500 kV lines), the Lake Fire in 2020 (removing two 500 kV lines), and the Bootleg Fire in 2021 (removing 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.

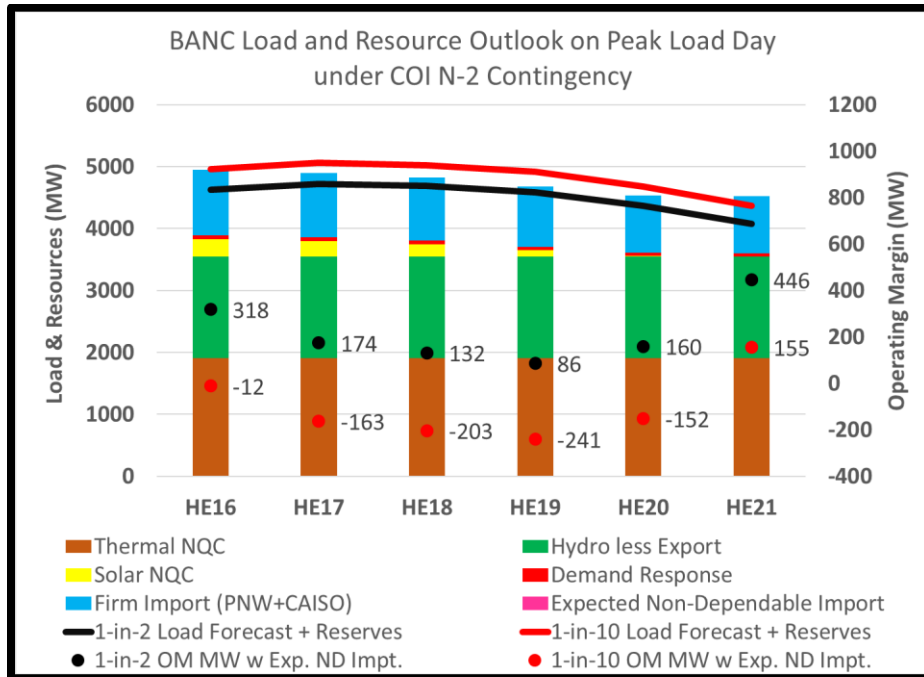


Figure 3-12: BANC Load & Resources Outlook under COI N-2 Contingency Due to Wildfires

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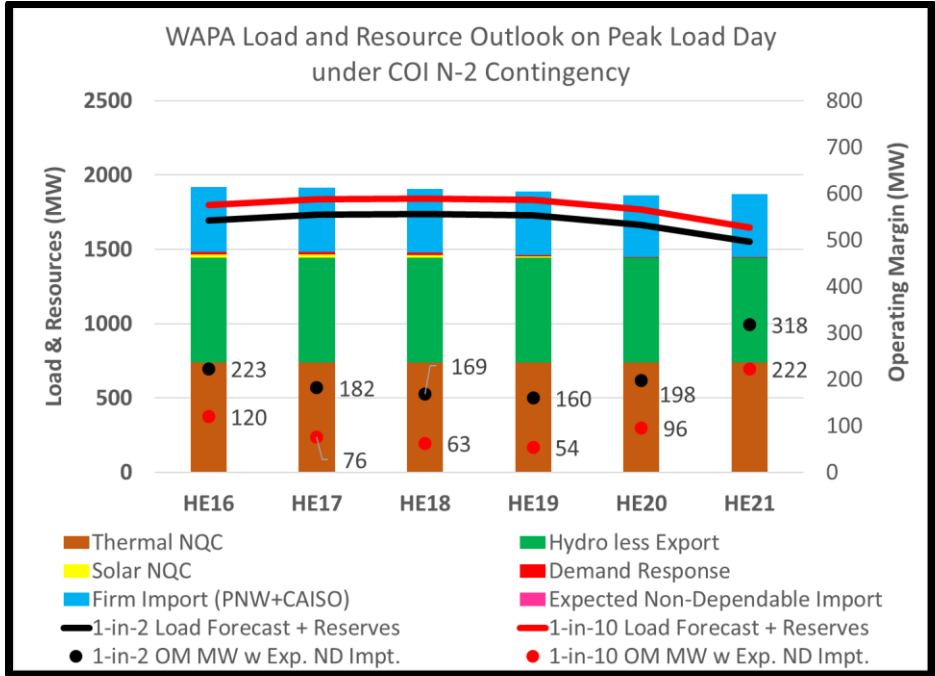


Figure 3-13: WAPA Load & Resources Outlook under COI N-2 Contingency Due to Wildfire

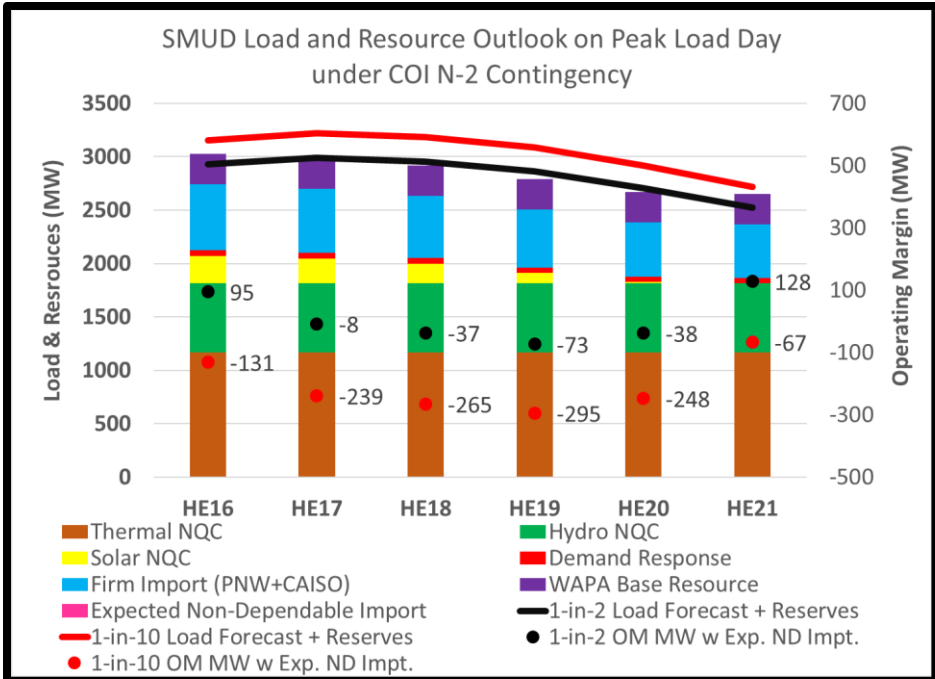


Figure 3-14: SMUD Load & Resources Outlook under COI N-2 Contingency Due to Wildfire

**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

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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)
<b>SMUD</b>	2833	3052	3114
<b>WAPA Footprint</b>	1593	1690	1718
<b>MID</b>	679	722	734
<b>Roseville Electric</b>	338	389	403
<b>REU</b>	224	226	227
<b>Shasta Lake</b>	36	38	39
<b>Trinity PUD</b>	27	27	27
<b>BANC Total</b>	4426	4742	4832

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.

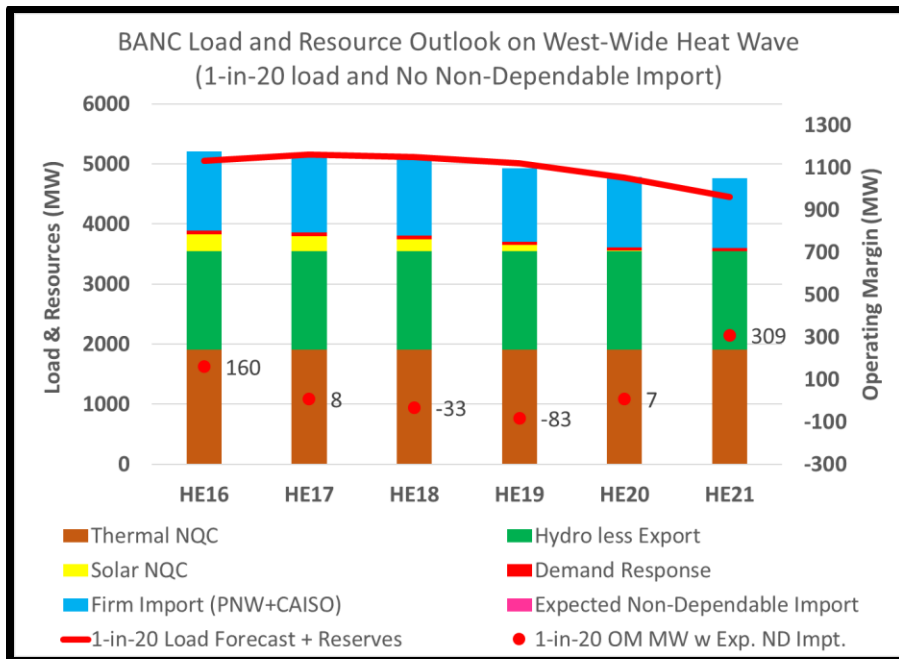


Figure 3-15: BANC Load & Resources Outlook with 1-in-20 Load and No ND Import

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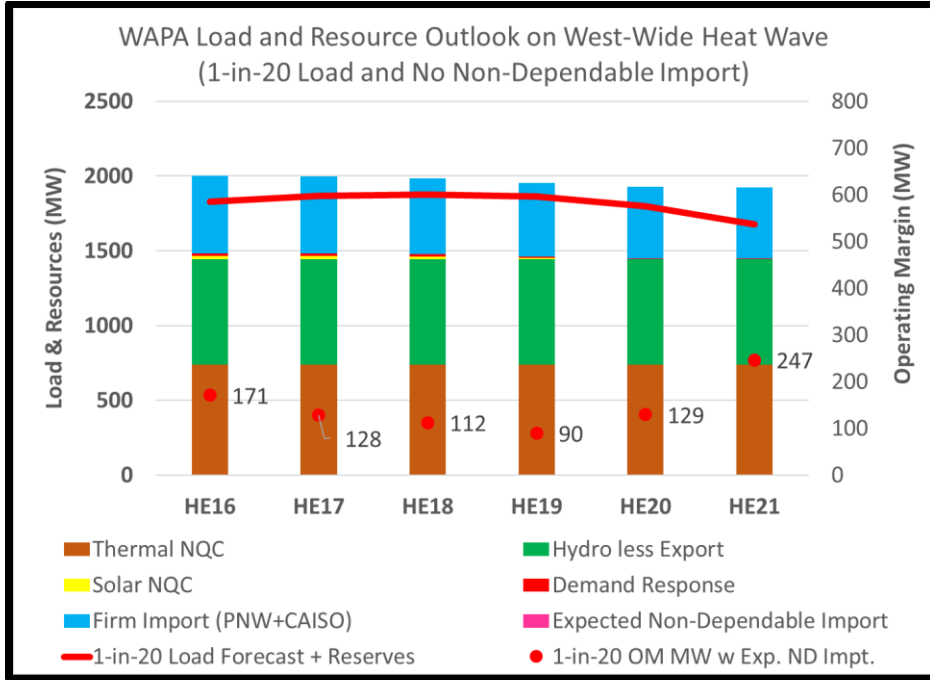


Figure 3-16: WAPA Load & Resources Outlook with 1-in-20 Load and No ND Import

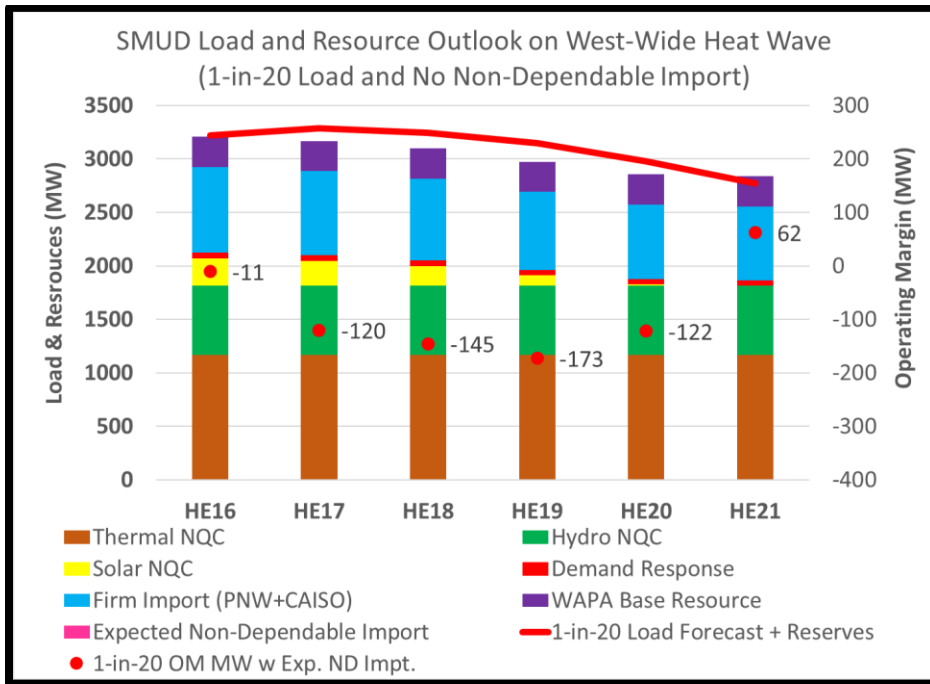


Figure 3-17: SMUD Load & Resources Outlook with 1-in-20 Load and No ND Import

**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 2023 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 2023 summer 1-in-2 and 1-in-10 load demands while meeting NERC/WECC Reliability Standards.

### 3.13 Conclusions

The 2023 forecasted 1-in-2 and 1-in-10 peak loads for BANC BA are 4426 MW and 4742 MW respectively. With 191% of snowpack and 135% of precipitation, the 2022-2023 water season is classified as "Wet", indicating a higher-than-normal hydro energy. The summer load and resources assessment and engineering studies show that BANC will be able to meet the

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forecasted 1-in-2 and 1-in-10 peak loads for the 2023 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 2023 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 2023 summer under normal and emergency system conditions.

**Balancing Authority of Northern California  
Resolution 23-05-01**

**ACKNOWLEDGEMENT AND ACCEPTANCE OF THE 2023 SUMMER LOAD & RESOURCES  
ASSESSMENT OF THE BALANCING AUTHORITY OF NORTHERN CALIFORNIA**

WHEREAS, the Balancing Authority of Northern California (“BANC”) was created by a Joint Powers Agreement (“JPA”) to, among other things, acquire, construct, maintain, operate, and finance Projects; and

WHEREAS, in consultation with the Operating Committee, the BANC Operator has coordinated and collaborated with members and produced the 2023 Summer Load & Resource Assessment (“Assessment”), which describes expected loads, resources, and operating conditions for the coming summer season, and the Operating Committee has concurred with the inputs, assessments, and conclusions contained therein.

NOW, THEREFORE, BE IT RESOLVED that the Commissioners of the Balancing Authority of Northern California hereby acknowledge and accept the Assessment.

PASSED AND ADOPTED by the Commissioners of the Balancing Authority of Northern California this 24<sup>th</sup> day of May 2023, by the following vote:

		Aye	No	Abstain	Absent
Modesto ID	James McFall				
City of Redding	Nick Zettel				
City of Roseville	Dan Beans				
City of Shasta Lake	James Takehara				
SMUD	Paul Lau				
TPUD	Paul Hauser				

\_\_\_\_\_  
James McFall  
Chair

\_\_\_\_\_  
Attest by: C. Anthony Braun  
Secretary