Balancing Authority of Northern California

Regular Meeting of the Commissioners of BANC

2:00 P.M.
Wednesday, May 22, 2024
35 Iron Point Circle, Suite 225
Folsom, CA 95630

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 22, 2024** at **2:00 p.m.** at **35 Iron Point Circle, Suite 225, Folsom, CA 95630.**

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

Phone: 1-301-715-8592 or 1-305-224-1968 **Meeting ID:** 816 3305 9550 **Passcode:** 470924

Meeting Link: https://us06web.zoom.us/j/81633059550?pwd=yeaFFUFPB2XKnHc2xsg3rTyCgmKtpZ.1

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 March 27, 2024.

B. BANC Operator Report (March and April).

C. Compliance Officer Report (April and May).

D. PC Committee Chair Report (April and 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+, WRAP.

B. Consider and Possibly Approve Resolution 23-05-01 *Acknowledgement and Acceptance of the 2024 Summer Load & Resources Assessment of the Balancing Authority of Northern California.*

C. Budget Items.

i. Update on 2023 Budget Performance.

ii. Discuss Planning for BANC 2025 Budget.

D. Discuss Planning for 2023 Strategic Planning Session.

E. 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.

Balancing Authority of Northern California

Consent Agenda Items

A. **Minutes of the March 27, 2024 BANC Regular Meeting.**
B. **BANC Operator Reports (March and April).**
C. **Compliance Officer Reports (April and May).**
D. **PC Committee Chair Reports (April and May).**
E. **General Manager Report.**

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

March 27, 2024

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

Representatives:

Member Agency	**Commissioner**
Modesto Irrigation District (MID)	Martin Caballero
City of Redding	Nick Zettel (remote)
City of Roseville	Dan Beans
Sacramento Municipal Utility District (SMUD)	Paul Lau
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	BANC Counsel
Kris Kirkegaard	General Counsel Support
Michelle Williams	WAPA
Bryan Griess	WAPA

1. Call to Order and Verification of Quorum: Chair Hauser verified that there was a quorum to proceed; attendance is noted above. He then called the meeting to order at 2:00 p.m.

2. Matters Subsequent to Posting the Agenda: Mr. Shetler noted that Agenda item 5B should say '2023 Audited Financials.'

3. Public Comment (any matter on the agenda): None.

4. Consent Agenda: Chair Hauser invited comments from the Commission and a motion on the Consent Agenda; no comments.

ACTION: M/S (Beans/Caballero) to **approve the Consent Agenda**. Motion carried by a unanimous roll call vote.

5. Regular Agenda Items.

A. General Manager Updates:

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

Mr. Shetler briefly touched on the following topics: the latest CAISO Benefits Analysis; an EIM Committee oversight update, noting good progress on CIDI Ticket resolutions and no current Settlements issues; an EDAM/DAME Tariff update, including an update on the status of the Access Charge proposal; a BANC project team update; an update on the West-wide Governance Pathways Initiative; and updates on SPP Markets+ and WRAP. Mr. Shetler also thanked WAPA for their efforts to understand the potential challenges of EDAM and the details around how participation in EDAM would impact their customers. Comments, questions, and input were accepted and addressed.

ii. BANC Resource Development Update.

Mr. Shetler provided an overview of two potential projects and possible BANC member interest in: 1) a Sutter Carbon Capture & Sequestration Project, and 2) Golden State Clean Energy's Project Monarch.

B. Consider and Possibly Approve Resolution 24-03-01 *Acceptance of BANC 2023 Audited Financials*.

Mr. Shetler introduced this resolution. There were no questions.

ACTION: M/S (Lau/Zettel) to **approve Resolution 24-03-01 *Acceptance of BANC 2023 Audited Financials***. Motion carried by a unanimous roll call vote.

C. Consider and Possibly Approve Resolution 24-03-02 *Approval of Revised 2024 Annual Budget for BANC*.

Mr. Shetler overviewed the budget revisions/corrections to the 2024 budget. Comments and questions from the Commission were accepted and addressed.

ACTION: M/S (Beans/Caballero) to **approve Resolution 24-03-02 *Approval of Revised 2024 Annual Budget for BANC***. Motion carried by a unanimous roll call vote.

D. Consider and Possibly Approve Resolution 24-03-03 *Authorization of Amendment to Extend Percipio Contract for Services Related to EDAM Project Management Support*.

Mr. Shetler requested approval from the Commission to approve this resolution, extending the agreement through the end of 2024 per the approved budget. There were no questions.

ACTION: M/S (Caballero/Lau) to **approve Resolution 24-03-03 *Authorization of Amendment to Extend Percipio Contract for Services Related to EDAM Project Management Support***. Motion carried by a unanimous roll call vote.

E. Consider and Possibly Approve Resolution 24-03-04 *Authorization of Amended Legal Services Agreements with Braun Blaising & Wynne, P.C. and Western Energy Law, P.C.*

Mr. Shetler introduced this item, and Mr. Braun gave an overview of the request and noted the involvement of the legal committee in reviewing the BB&W agreement. Comments and questions were accepted from the Commission.

ACTION: M/S (Beans/Caballero) to **approve Resolution 24-03-04 *Authorization of Amended Legal Services Agreements with Braun Blaising & Wynne, P.C. and Western Energy Law, P.C.*** Motion carried by a unanimous roll call vote.

F. Consider and Possibly Approve BANC Membership in CMUA.

Mr. Shetler requested that the Commission concur with the General Manager's decision to join CMUA, per his delegation. He answered questions from the Commission and accepted feedback. The Commission concurred with this decision.

G. Member updates.

Commissioner Caballero noted that EDAM would be discussed at their April board meeting. Commissioner Beans stated that proposed rate increases would be reviewed by their board this month and that Bosch was preparing for construction on the site they acquired. Commissioner Takehara shared that they had recently relocated to a new office building. Commissioner Lau reported that the Department of Energy notified SMUD that they could continue with Phase 2 of their Grid Resilience and Innovation Partnerships Program (GRIP) grant. SMUD also recently celebrated the inaugural graduates of their Lineworker Scholarship Program, created in partnership with IBEW, and he noted SMUD's involvement with the local IBEWs' work to establish a California Utility Worker Appreciation Day on March 14th. Commissioner Hauser gave an update on TPUD rates.

Mr. Shetler notified the Commission the April meeting may be adjourned if no action items arose, but the May meeting is expected to include the 2024 summer assessment.

The Commission adjourned at 3:10 p.m.

Minutes approved on May 22, 2024.

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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 March 2024

Operations:

- BA Operations: Normal
- Significant BA Issues: None
- Declared BA Energy Emergency Alert Level (EEA): N/A
- RSG Activations
  - 2 Qualifying Events
  - 0 MW Qualifying Event request
  - 140 MW average generation lost
  - 180 MW maximum generation lost
  - Generating unit(s) and date(s) affected:
    3/22/24 – Sutter Energy Center
    3/26/24 – Sutter Energy Center
  - All recoveries within 3 minutes
- USF
  - 8 of 31 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: 4 Minutes
  - Number of BAAL exceedance >10 minutes: None
  - BAAL violation (BAAL exceedance >30 minutes): None
- Frequency Response (FR) Performance – Quarterly Metric:
  - 2024 Frequency Response Obligation (FRO): -15.8 MW/0.1Hz
  - 2023 Frequency Response Obligation (FRO): -18.8 MW/0.1Hz
  - 2023 Frequency Response Obligation (FRO): -18.8 MW/0.1Hz
  - Q4 Frequency Response Measure (FRM): -52.7 MW/0.1Hz
  - Q4 Number of Under-Performed Events: 1 out of 12
  - Q1~Q4 Frequency Response Measure (FRM): -52.7 MW/0.1Hz
  - Q1~Q4 Number of Under-Performed Events: 1 out of 24

Monthly Notes:

- None

BALANCING AUTHORITY OF NORTHERN CALIFORNIA

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

TO: BANC Commission

RE: BANC Operator Report for April 2024

Operations:

- BA Operations: Normal
- Significant BA Issues: None
- Declared BA Energy Emergency Alert Level (EEA): N/A
- RSG Activations
  - 3 Qualifying Events
  - 0 MW Qualifying Event request
  - 180 MW average generation lost
  - 200 MW maximum generation lost
  - Generating unit(s) and date(s) affected:
    4/10/24 – Sutter Energy Center
    4/11/24 – Sutter Energy Center
    4/27/24 – Sutter Energy Center
  - All recoveries within 4 minutes
- USF
  - 0 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: 4 Minutes
  - Number of BAAL exceedance >10 minutes: None
  - BAAL violation (BAAL exceedance >30 minutes): None
- Frequency Response (FR) Performance – Quarterly Metric:
  - 2024 Frequency Response Obligation (FRO): -15.8 MW/0.1Hz

Monthly Notes:

- None

Compliance Officer Report
BANC Commission Meeting
April 2024

The following summarizes routine issues for the Commission's information and consideration. Any major issues or action items will be identified on a future 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.
- A mock audit of select standards applicable to the BA/PC functions will be conducted by Archer Energy Group during the last week from May 28th – June 7th. The objective of this mock audit is to ensure that BANC/SMUD are well-prepared for the 2025 WECC Audit (currently expected to take place May 12-23, 2025). An initial submittal of information was made on April 8th, and early Requests for Information (RFIs) are being accepted.

BANC MCRC:

The next BANC MCRC meeting is scheduled to be held at 10:00 AM on Monday, April 22nd via teleconference.

Compliance Officer Report
BANC Commission Meeting
May 2024

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.
- A mock audit of select standards applicable to the BA/PC functions will be conducted by Archer Energy Group during the last week from May 28th – June 7th. The objective of this mock audit is to ensure that BANC/SMUD are well-prepared for the 2025 WECC Audit (expected to take place May 12-23, 2025). Early Requests for Information (RFIs) are being accepted and responded to in advance of the off-site and on-site weeks.

BANC MCRC:

The next BANC MCRC meeting is scheduled to be held at 10:00 AM on Monday, May 20th via teleconference.

PC Committee Chair Report
BANC Commission Meeting
April 2024

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 a future 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.

- MOD-031-2 – Demand and Energy Data – Staff completed the 2024 Loads and Data request cycle. WECC broke up the data request into multiple spreadsheets with two sets of due dates and a narrative request with separate due date. The two sets of sheets have been received and filed with WECC (requested load and energy data) by their respective due dates. WECC's narrative request was sent to BANC PC Participants for input, and responses were aggregated and uploaded to WECC on March 19th.

- FAC-014-3 - Establish and Communicate SOLs - Staff published the documented process, as required by R6 of the revised FAC-014-3, to demonstrate that the criteria used for the BANC PC annual assessment of Near-Term Transmission Planning Horizon are as stringent as or more limiting than the CAISO RC's SOLs criteria and methodology. The finalized version of the documented process was posted on the BANC website on March 29th and distributed to key stakeholders via email.

- TPL-001-5 - Transmission System Planning Performance – Steady state analysis for BANC PC is currently being performed.

- PRC-010-2 - Undervoltage Load Shedding - SMUD sent a data request to BANC PC Participant Roseville Electric for updating the UVLS models in preparation for the PRC-010-2 study, which is due on January 1, 2025. The study is currently being performed.

- PRC-023-6 and PRC-026-2 – Staff distributed the study plans on April 12th for the 2024 BANC PC PRC-023-6 and PRC-026-2 Assessments. BANC PC Participants have been asked to review and comment on both study plans by April 26th.

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

	PC Standard	Estimated % Complete	Notes
1	FAC-002-4 Interconnection Studies	100%	There are no BES interconnection projects in 2024 for BANC PC Participants per 2024 survey, as there are no system upgrades that meet the new definition of qualified changes for the BANC PC for this year.
2	FAC-010-3 SOL Methodology for Planning Horizon	100%	This standard is inactive as of 03/30/2024.
3	FAC-014-3 Establish and Communicate SOLs	100%	Staff published the documented process required by R6 of FAC-013-3 to demonstrate that criteria used for the BANC PC annual assessment of Near-Term Transmission Planning Horizon are as stringent as or more limiting than CAISO RC's SOLs criteria and methodology. The finalized version of the documented process was posted on the BANC website on 03/29/2024 distributed to key stakeholders via email.
4	IRO-017-1 Outage Coordination	0%	Awaiting the acceptance of the 2024 annual assessment to send to the Reliability Coordinator.
5	MOD-031-3 Demand and Energy Data	100%	Staff completed the 2024 Loads and Data request cycle. WECC broke up the data request into multiple spreadsheets with two sets of due dates and a narrative request with separate due date. The two sets of sheets were received and filed with WECC (requested load and energy data) by their respective due dates. WECC's narrative request was sent to BANC PC Participants for input, and responses were aggregated and uploaded to WECC on 03/19/2024.
6	MOD-032-1 Data for Power System Modeling & Analysis	100%	Ongoing activity. Data requests to fulfill 13-month cycle for compliance were sent 02/09/2024.
7	MOD-033-1 System Model Validation	10%	Study will begin in Fall 2024.
8	PRC-006-5 Underfrequency Load Shedding	15%	New BANC PC data request cycle will begin when the WECC OFSPR group data collector sends out a request in April-May 2024 timeframe. Staff has been participating in WECC OFSPR group regular webinars hosted by WECC staff.

	PC Standard	Estimated % Complete	Notes
9	PRC-010-2 Undervoltage Load Shedding	20%	SMUD sent a data request to Roseville for its updating UVLS models in preparation for the PRC-010-2 study due on 01/01/2025. The study is currently being performed.
10	PRC-012-2 Remedial Action Schemes	10%	New Standard effective 01/01/2021. Study Plan finalized 04/10/2020. The R4 assessment is not required until 01/01/2026 which means that the assessment and report must be finalized and published by 01/01/2026.
11	PRC-023-6 Transmission Relay Loadability	25%	A new study plan for the 2024 assessment was shared with BANC PC Participants for review and comment by 04/26/2024.
12	PRC-026-2 Relay Performance During Stable Power Swings	25%	A new study plan for the 2024 assessment was shared with BANC PC participants for review and comment by 04/26/2024.
13	TPL-001-5 Transmission System Planning Performance	40%	Steady State analysis is being performed.
14	TPL-007-4 Transmission System Planned Performance for Geomagnetic Disturbance Events	100%	Ongoing, NERC GIC data submission when GMD event (Kp>7) for reporting purpose. Most recently, SMUD upload the GMD event with duration from 12/1/23 0:00am to 12/02/2023 11:59pm. Recording data for these two events to be downloaded and saved for reporting prior to the annual due date (06/30/2024).

PC Committee Chair Report
BANC Commission Meeting
May 2024

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.

- The BANC PC is preparing for the Mock Audit in June. RFIs for TPL-001-5 and PRC-010 have been received, and data and narratives are being prepared.

- TPL-001-5 - Transmission System Planning Performance – Steady state analysis for the BANC PC is currently being performed.

- PRC-006-5 Underfrequency Load Shedding – Staff sent the WECC requested annual UFLS data request to all BANC PC Participants after the Off-Nominal Frequency System Protection (OFSPR) Southern Island Load Tripping Plan (SILTP) kick off meeting on April 30th. The BANC PC will send a coordinated response to the OFSPR SILTP Data Collector by the due date of May 24th.

- PRC-010-2 - Undervoltage Load Shedding - SMUD sent data request to Roseville to update UVLS models in preparation for the PRC-010-2 study which is due on January 1, 2025. Staff is performing the UVLS assessment studies and report.

- PRC-023-6 and PRC-026-2 – Staff distributed the finalized the study plans for the 2024 BANC PC PRC-023-6 and PRC-026-2 Assessments to BANC PC Participants on May 3rd. Staff is now performing power flow assessments for the PRC-023-6 standard per the study schedule, and the preliminary study results will be sent to all BANC PC Participants to review by May 24th. The PRC-026-2 assessment will be performed afterwards, and preliminary study results will be sent to all BANC PC Participants to review by July 19th.

- TPL-007-4 – Transmission System Planned Performance for Geomagnetic Disturbance Events – Ongoing NERC GIC data submittals when GMD events (Kp>7) occur for reporting purposes. Most recently, SMUD uploaded the GMD event for 03/23/2024 0:00am to 03/25/2024 11:59pm in response to a NERC request.

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

	PC Standard	Estimated % Complete	Notes
1	FAC-002-4 Interconnection Studies	100%	There are no BES interconnection projects in 2024 for BANC PC Participants per the 2024 survey, as there are no system upgrades that meet the new definition of qualified changes for the BANC PC for this year.
2	FAC-010-3 SOL Methodology for Planning Horizon	100%	This standard is inactive as of 03/30/24.
3	FAC-014-3 Establish and Communicate SOLs	100%	Staff published the documented process required by R6 of FAC-014-3 to demonstrate the criteria used for the BANC PC annual assessment of Near-Term Transmission Planning Horizon are as stringent as or more limiting than CAISO RC's SOLs criteria and methodology. The finalized version of the documented process was posted on the BANC PC website on 03/29/2024 and distributed to key stakeholders via email.
4	IRO-017-1 Outage Coordination	0%	Awaiting the acceptance of the 2024 annual assessment to send to the Reliability Coordinator.
5	MOD-031-3 Demand and Energy Data	100%	Staff completed the 2024 Loads and Data request cycle. WECC broke up the data request into multiple spreadsheets with two sets of due dates and a narrative request with a separate due date. The two sets of sheets were received and completed with WECC requested load and energy data by their respective due dates. WECC's narrative request was sent to BANC PC Participants for input, and responses were aggregated and uploaded to WECC on 03/19/2024.
6	MOD-032-1 Data for Power System Modeling & Analysis	100%	Ongoing activity. Data requests to fulfill 13-month cycle for compliance were sent 02/09/2024.
7	MOD-033-1 System Model Validation	10%	Study will begin in Fall 2024.
8	PRC-006-5 Underfrequency Load Shedding	50%	New BANC PC data request cycle began with the WECC OFSPR group data collector request on 04/30/2024 with a due date to BANC PC by 05/24/2024. Staff has been participating in WECC OFSPR group regular webinars hosted by WECC staff.

	PC Standard	Estimated % Complete	Notes
9	PRC-010-2 Undervoltage Load Shedding	45%	SMUD sent a data request to Roseville for its updated UVLS models in preparing for the PRC-010-2 study which is due on 01/01/2025. Staff is performing the UVLS assessment studies and report.
10	PRC-012-2 Remedial Action Schemes	10%	New Standard effective 01/01/2021. Study Plan finalized on 04/10/2020. The R4 assessment is not required until 01/01/2026, which means that the assessment and report must be finalized and published by 01/01/2026.
11	PRC-023-6 Transmission Relay Loadability	50%	The finalized study plan for the 2024 assessment was shared with BANC PC Participants on 05/03/2024. Staff is currently working on powerflow assessments and will notify BANC PC Participants of results by 05/24/2024.
12	PRC-026-2 Relay Performance During Stable Power Swings	33%	The finalized study plan for the 2024 assessment was shared with BANC PC Participants on 05/03/2024. BANC PC Participants will be notified of results by 07/19/2024.
13	TPL-001-5 Transmission System Planning Performance	40%	Steady State analysis is being performed.
14	TPL-007-4 Transmission System Planned Performance for Geomagnetic Disturbance Events	100%	Ongoing NERC GIC data submission when GMD event (Kp>7) occurs for reporting purposes. Most recently, SMUD uploaded the GMD event for 03/23/2024 0:00am to 03/25/2024 11:59pm based on NERC's request.

GM Report
BANC Commission Meeting
May 22, 2024

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.

Market Initiatives:

EIM Participation

Staff continues monitoring EIM participation. CAISO quarterly benefit reports show that BANC is seeing benefits from EIM participation, with the 1st Quarter 2024 report showing gross benefits of $20.78 million for BANC, with a total of $635.90 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 EIM Committee did approve a 6-month pilot program for adjustments to EIM participation regarding capacity offsets for balancing test compliance.

EDAM Participation

FERC approved the EDAM/DAME tariff on 12/21/23 with the exception of the Access Charge. In its order, the Commission accepted the overwhelming majority of the proposed market rules and rejected without prejudice one element of the EDAM

proposal related to transmission revenue recovery (TRR) for market participants. FERC's approval of the CAISO tariff is a major step in the development of a broader market for the West. The rejected issue is better known as the EDAM Access Charge. This is significant for the BANC participants as it deals with TRR cost recovery and wheel through revenue make whole payments for certain lost wheeling revenues and includes the concept of no exposure to WAC charges for Day-Ahead transfers. Staff held discussions with CAISO and other EDAM entities on how to address the FERC concerns in this area. The CAISO filed a revised proposal with FERC on April 12, 2024, with a request for approval within 60 days. BANC provided supporting comments to FERC on the revised proposal.

A group of Western state regulators (AZ, CA, NM, OR, and WA) have sent a letter to CREPC/WIRAB supporting the creation of an independent entity that would leverage the existing CAISO infrastructure for EIM and eventually EDAM to develop a cost-effective West-wide market. This would include a range of market services from EIM to EDAM to an RTO. It also deals with the CAISO governance issue by creating a separate independent entity. BANC views this as a positive development in ensuring a West-wide market that will include CA and supports the effort. The Western Markets Governance Pathways Initiative has formed "Launch Committee" made up of stakeholders from twelve sectors to organize this effort. One of the sectors is for POUs. The BANC General Manager is serving as a representative for the POU Sector. The Launch Committee held a stakeholder meeting on 12/15/23 where it outlined an initial set of governance options for consideration and evaluation and follow-up stakeholder meetings on 1/19/24, 2/16/24, 3/15/24, and 4/19/24. The Launch Committee issued a draft proposal on April 10, 2024, outlining a stepwise approach to independent oversight over CAISO markets. BANC joined in with a group of 32 other entities in support of the Launch Committees Step 1 proposal to move to primary authority for the WEIM Governing Body over market rules and supporting the Launch Committee further fleshing out the draft Step 2 proposal to move to the formation of a Regional Organization with an independent board that would have sole authority over market rules within the current CAISO tariff structure.

Based upon the Commission's unanimous approval at its 8/23/23 meeting, BANC staff have initiated the project efforts for EDAM Implementation, which includes starting dialogue with the CAISO project management group for EDAM and establishing the internal BANC project team. Initial kick-off of the BANC EDAM project team was held on 12/13/23. BANC met with Pacificorp on January 11, 2024, and February 26, 2024, to start discussing joint EDAM implementation issues and has initiated project discussions with the CAISO. We are scheduled have follow-up meetings in early June with Pacificorp and other interested EDAM parties regarding lessons-learned on EDAM project efforts.

Other Market Developments

In parallel with the EDAM process, 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 filed its Markets + tariff at FERC on March 29, 2024, with approval expected by the end of the year. They deferred seeking additional funding for the next phase of market development and commitments to Markets + until later this year. They have also indicated that "go-live" for Markets + will be delayed until 2027. 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.

WAPA:

Market Engagement

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

We have also held several discussions with WAPA-SNR to assist in their decision-making on EDAM participation. This has included more detailed discussions with the Brattle Group on the benefits study, joint discussions with the CAISO, and making the Utilicast consultant available for assistance. WAPA-SNR requested that the BANC contract with Utilicast be used as the mechanism for their EDAM "gap" analysis. The Commission approved this request at its 9/27/23 meeting. Utilicast provided a draft "gap" analysis report in January 2024 and a final report in February 2024. Staff is working with CAISO to assist with resolving WAPA-SNR concerns with EDAM participation. Based upon the last meeting with CAISO on April 5, 2024, and discussions with WAP-SNR, it is believed that the CAISO has resolved the concerns WAPA-SNR had with EDAM. WAPA-SNR has announced its customer meetings for the EDAM decision-making will run through this summer with an Administrator decision to follow. Staff is working with WAPA-SNR to determine what this will mean regarding EDAM go-live.

WECC:

WECC Board Meetings

The last set of Board and committee meetings were held on March 12-13, 2024, in Salt Lake City, UT. The next set of meetings will be June 11-12, 2024, in Salt Lake City, UT.

Western Power Pool (WPP):

Western Resource Adequacy Program (WRAP)

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.

WPP continues to evaluate when it can move to a "binding" WRAP program with imposed penalties. Their preference is to be at the "binding" stage by 2026, but it could be as late as 2028. The WRAP program has also been working with the CAISO to ensure that there is interoperability between the WRAP and the proposed EDAM. WPP announced in late April that their WRAP participants have formally requested a delay in the "binding" date from 2026 to 2027. It is anticipated that there will be some changes to the WRAP rules that will be implemented, but the details have not been released yet.

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.

WPP Strategic Planning Effort

WPP initiated a strategic planning effort in the fall of 2023 to determine member interest in the future direction of the power pool. WPP staff stated that they view one of their roles as providing services to its members that are not currently available since there is no West-wide RTO in place. WPP has initiated a new process called the Western Transmission Expansion Coalition (WestTEC) which is intended to provide coordination among the current regional transmission planning entities in the West (CAISO, Northern Tier, and WestConnect) to determine if there are some broader regional transmission projects that should be considered. It is understood that WPP has obtained some DOE funding for this effort which will get launched later this year.

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. 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 2033 with operations initiated in 2040's.

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, facilitated by CMUA. The final, initial report was issued on 3/15/21. The CEC did reach out to the POU BAAs in early March 2021 seeking more engagement with the BAAs for the next round of analysis for the SB100 effort. Based upon recent discussions, the POU BAAs have hired a consultant via CMUA to assist in this effort. The Joint Agencies have initiated the

next cycle of the SB100 effort to support issuing an update report by the required date of 1/1/25. BANC is working with IID, LADWP, and TID to coordinate our engagement in this effort.

Western Electricity Industry Leaders (WEIL) Group:

The WEIL CEOs last met on February 2, 2024, in San Diego, CA. The next meeting of the WEIL group is planned for May 31, 2024, in Salt Lake City, UT.

Strategic Initiatives:

The 2023/2024 Strategic Initiatives are attached to this report.

BANC 2023/2024 Strategic Plan - Routine Initiatives - May 2024 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	No update planned for 2024
3 Medium		Develop appropriate policies, procedures, & action tracking	Jim Shetler/BB&W	4th Qtr. 2024	Initial policies & procedures approved at 11/15/23 mtg.
4 Medium	OUTREACH	Engage in industry forums (WECC, RC West, NWPPA, etc.)	Jim Shetler	Ongoing	Attend RC West, WECC Board, WEIL, & WPP mtgs.
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/BB&W/WEL	Ongoing as Necessary	Joint & BANC Parthways comments filed 5/8/2024
7 Medium		More formal engagement with TID on BA/EIM/EDAM issues	Jim Shetler/BB&W/WEL	Ongoing	Continue periodic discussions on areas of collaboration
8 Medium	ASSETS	Monitor RA development in WI	Jim S./BB&W/Res. Com.	4th Qtr. 2024	WRAP binding period to be delayed until at least 2027. Program revisions planned.
9 Low	MEMBER SERVICES	Identify and outreach to potential new BANC members	Jim Shetler	Ongoing as Appropriate	

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 ~ Engage Stakeholder Processes ~ Participate in CAISO Tariff Process ~ Manage BANC EDAM implementation	 Jim Shetler/BB&W/WEL Jim Shetler/BB&W/WEL Jim Shetler/BB&W/WEL/ Utilicast	 Ongoing 1st Qtr. 2024 Apr-26	 Approved 12/21/23. Access Charge revision filed 4/12 Project kick-off 12/13/23 Coordinating with WAPA
12 Medium	OUTREACH	Evaluate opportunities to engage other entities in market development	Jim Shetler	Ongoing	Coordinating with SCL, SRP, LADWP, TID, Tacoma, Idaho, PAC, & PGE
13 Medium		Regional Policy Issues: Monitor/ weigh-in where appropriate	Jim Shetler/Commission	Ongoing	Spoke at SRP Market Symposium - 3/13
14 High		Market Regionalization: ~Monitor ongoing discussions at WEIL, WWGPI, & etc.	Jim Shetler/BB&W/WEL	Ongoing	Pathways Initiative LC
15 High		Coordinate with CA BAs on SB100 effort	Jim Shetler/BB&W	Ongoing	
16 Medium	ASSETS	~ Develop agreements for Sutter CS Project ~ Develop agreements for GSCE project participation	Jim S./BB&W/Res. Com. Jim S./BB&W/Res. Com.	6/30/24 6/30/24	Initiating agreement development Draft Term Sheet from 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. **2024 Summer Loads & Resources Assessment of the Balancing Authority of Northern California.**
2. **Resolution 24-05-01 *Acknowledgement and Acceptance of 2024 Summer Load & Resources Assessment of the Balancing Authority of Northern California.***

05/15/24

To: **BANC Commission**

From: **BANC Counsel**

RE: **2024 BANC Summer Load & Resources Assessment**

Included in the Commission packet for the May 22, 2024 BANC Commission meeting is the 2024 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 the last few years, 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 2024 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 2024 Summer Load and Resources Assessment by resolution.

2024 SUMMER

LOAD & RESOURCE ASSESSMENT

May 2024
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.

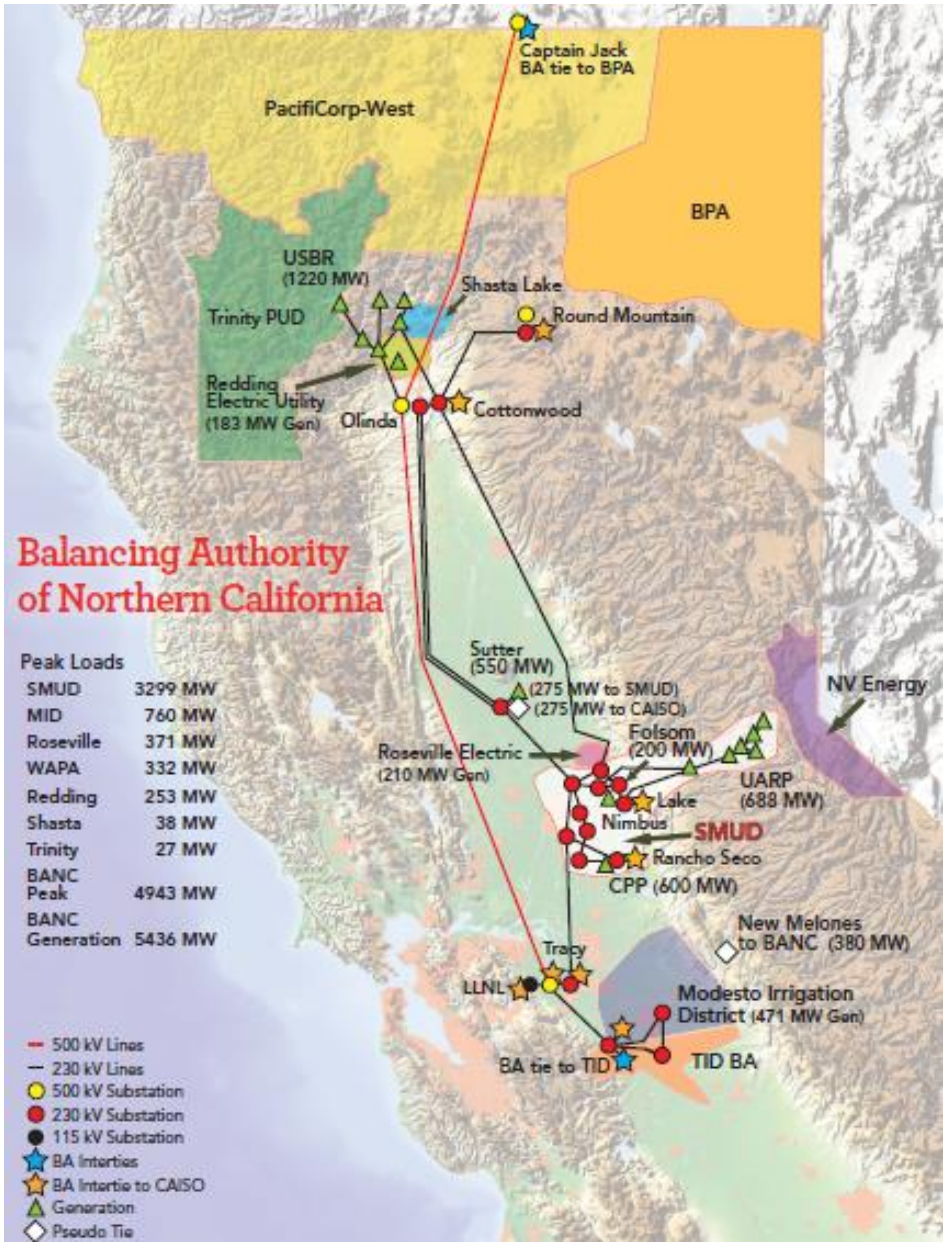

Figure 1-1: Geographical Map of BANC System

This BANC summer load and resource assessment report provides an assessment of the load forecast, resource supply, and energy imports in the 2024 summer operating season – June 1st, 2024, through October 31st, 2024, for the BANC Balancing Authority Area (BAA).

The forecasted BANC 1-in-2 peak load for 2024 summer is 4616 MW which is 40 MW or 0.9% lower than the actual 2023 BANC peak load of 4656 MW. The forecasted 1-in-2 peak loads for the SMUD and WAPA footprints are 3036 MW and 1580 MW, respectively.

The forecasted BANC 1-in-10 peak load for 2024 summer is 4940 MW which is 3 MW lower than BANC's all-time peak load of 4943 MW recorded in 2022. The forecasted 1-in-10 peak loads for the SMUD and WAPA footprints are 3271 MW and 1669 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 and 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 of past 3 years
    - Simulate Hydro generator capacity based on the actual operating capacity in the past 3 similar water years
    - Simulate solar and wind generator outputs based on the actual data of 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 2024 summer with sufficient operating margin (OM) when counting the non-dependable imports, as shown in Table 1-1 below.
- The Monte Carlo probability simulation results show that BANC has a risk of 6.4% (or 1 day in 15 years) to be in EEA 3 and a risk of 2.8% (or 1 day in 35 years) with unserved energy, which is slightly higher than BANC's unserved energy risk of 1% in 2023.
- 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, especially SMUD footprint, would have risks of firm load shedding when there is a west-wide heatwave 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 condition.

Table 1-1: 2024 Summer Base Case Supply & Demand Outlook at Gross & Net Peak Hours

	BANC BA		SMUD Footprint		WAPA Footprint	
2023 Generation (MW)	5,434		2,620		2,814	
Generation Outage (MW)	(0)		(0)		(0)	
Retired Generation (MW)	0		0		0	
New Generation (MW)	2		2		0	
2024 Generation (MW)	5,436		2,622		2,814	
Peak Load Hour	HE17	HE18	HE17	HE18	HE17	HE18
Equivalent ELCC	84.1%	83.2%	82.9%	81.0%	85.3%	85.3%
Total Generation NQC (MW)	4,574	4,524	2,173	2,125	2,401	2,399
Forecasted Import (MW)	2,325	2,301	1,583	1,572	742	729
Forecasted Export (MW)	(999)	(999)	0	0	(999)	(999)
Demand Response (MW)	103	103	89	89	14	14
Total Supply (MW)	6,003	5,929	3,845	3,786	2,158	2,143
1-in-2 Load + Reserves (MW)	4,925	4,878	3,206	3,154	1,719	1,724
1-in-2 OM * (MW)	1,078	1,051	639	632	439	419
1-in-2 OM * (%)	21.9%	21.5%	19.9%	20.0%	25.5%	24.3%
1-in-10 Load + Reserves (MW)	5,270	5,221	3,454	3,398	1,816	1,823
1-in-10 OM * (MW)	733	708	391	388	342	320
1-in-10 OM * (%)	13.9%	13.6%	11.3%	11.4%	18.8%	17.5%

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

Water Conditions as of April 1, 2024:

- United States Bureau of Reclamation's (USBR) Central Valley Project (CVP) reservoir storage levels were at approximately 116% of historical average.
- Northern Sierra snowpack was at 124% of its historical average.
- Northern California precipitation was at 96% of its historical average.
- Forecasted statewide snowmelt runoff is at about 103% of an average water year.
- SMUD's storage reservoirs were at 105% of historical average and the inflow to the storage reservoirs is projected to be 95% of median.
- With 96% precipitation, 124% snowpack, and 116% of reservoir storage level, the 2023-2024 water season is classified as "Above Normal" according to California Department of Water Resources' (CDWR's) Bulletin 120 released on March 26, 2024.

Resource Availability Forecasts as of April 1, 2024:

- Based on the current outage information, all SMUD and CVP hydro resources are expected to be fully available during the 2024 summer peak months.
- 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 and Wildfire Outlook:

- In 2023 summer, the COI operating nomogram was approximately 300 MW lower than normal due to the derates of 500 kV lines owned by Pacific Gas & Electric (PG&E). Since then, PG&E has been working on a series of projects to restore the COI operating nomogram. If those projects can be completed as planned before 6/1/2024, the COI operating nomogram will be restored back to normal level for 2024 summer season.
- 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.
- According to the National Significant Wildland Fire Potential Outlook released by the Predictive Services National Interagency Fire Center on May 1, 2024, the wildfire risk for June, July, and August is "At or Below Normal" for California.

2. 2023 Summer Review

2.1 System Load

The recorded BANC simultaneous peak load for 2023 summer reached 4656 MW at 16:55:44 on August 16, 2023, which was 287 MW (or 6%) lower than the all-time peak load of 4943 MW set in 2022, due to a relatively mild summer temperature and the increased installation 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.

The WAPA footprint reached its non-simultaneous peak load of 1590 MW at 16:58:33 on August 17, 2023, while the SMUD footprint reached its non-simultaneous peak load of 3091 MW at 16:55:50 on August 16, 2023. At the BANC peak load moment of 16:55:44 on August 16, 2023, the WAPA footprint's Simultaneous Peak Load was 1565 MW and the SMUD footprint's Simultaneous Peak Load was 3091 MW.

Table 2-1 below shows the Simultaneous Peak Loads and Non-simultaneous Peak Loads and a comparison of 2023 actual Non-simultaneous Peak Loads vs. 2023 1-in-2 forecasted Non-simultaneous Peak Loads for BANC and all BANC entities.

Table 2-1: 2023 Simultaneous and Non-simultaneous Peak Loads vs. 2023 Forecasts

Entity	1-in-2 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	4426	4681	-255	-5.4%	4656
SMUD	2833	3091	-258	-8.3%	3091
MID	679	685	-6	-0.9%	671
RSC	338	369	-31	-14.0%	360
REU	224	237	-10	-8.4%	235
CSL	36	36	0	0.0%	34
TPUD	27	30	-3	-10%	21
WAPA Footprint	1593	1590	3	0.2%	1565

2.2 System Generation

An additional 3 MW of net metered solar generation went on-line in the BANC footprint in 2023. BANC's total installed generating capacity increased to 5434 MW. With the above normal water

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

condition in 2023, BANC's hydro generation produced more than average power, especially during peak load hours. Table 2 shows generation levels of BANC entities collected in PI at the 2023 BANC peak load moment (16:55:44 on 8/16/2023).

Table 2-2: BANC Entities Generation Levels at 2023 BANC Peak Load

	Actual Simultaneous Generation (MW)	Forecasted Generation (MW)	Simultaneous Peak Load (MW)	Generation Capacity (MW)	Generation Output %
BANC BA	3796	2521	4656	5438	69.8%
SMUD	1869	1286	3091	2624	71.2%
MID	329	366	671	469	49.0%
RSC	196	202	360	239	54.4%
REU	153	171	235	182	65.1%
CSL	0	0	34	0	N/A
TPUD	0	0	21	0	N/A
WAPA Footprint	1927	1235	1565	2814	68.5%

2.3 System Import

The California-Oregon Intertie (COI) is the major transmission path for BANC entities to import power from Pacific Northwest area to serve load demand. For 2023 summer, the transfer capability of COI was reduced by approximately 300 MW due to the derate on various 500 kV transmission lines owned by PG&E. In addition, BANC entities' hydro generation produced more than average power due to the good water condition. Therefore, BANC imported less than average power in 2023 summer, especially during peak hours. Table 2-3 below shows BANC entities' simultaneous import levels at the 2023 peak load moment.

Table 2-3: BANC Entities' Import Levels at 2023 Peak Load

	Actual Simultaneous Import (MW)	Forecasted Import (MW)	Simultaneous Peak Load (MW)	Import/Load Ratio
BANC BA	860	1968	4656	18.5%
SMUD	1222	1547	3091	39.5%
MID	342	356	671	52.3%
RSC	164	136	360	51.0%
REU	82	53	235	34.9%
CSL	34	36	34	100.0%
TPUD	21	27	21	100.0%
WAPA Footprint	-362 (export)	421	1565	-23.1% (export)

3. 2024 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 of 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 actual data of 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 2024 summer is 4616 MW, which is 40 MW lower than the actual 2023 BANC peak load of 4656 MW. The

forecasted BANC 1-in-10 gross peak load is 4940 MW, which is 3 MW lower than BANC's all-time peak load of 4943 MW recorded in 2022. For 2024 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 gross peak load is at HE17 and the net peak load is at HE18.

Table 3-1: 2024 Forecasted Gross and Net 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	3036	2802	3271	3033
WAPA Footprint	1580	1564	1669	1655
MID	699	681	749	731
Roseville Electric	331	331	368	389
REU	232	232	235	226
Shasta Lake	38	38	38	38
Trinity PUD	27	27	27	27
Forecasted BANC Peak Load	4616	4366	4940	4688

Figure 3-1 below shows a comparison of forecasted 2024 non-simultaneous 1-in-2 peak load with the historical peak load since 2006 for BANC, SMUD, and WAPA footprint.

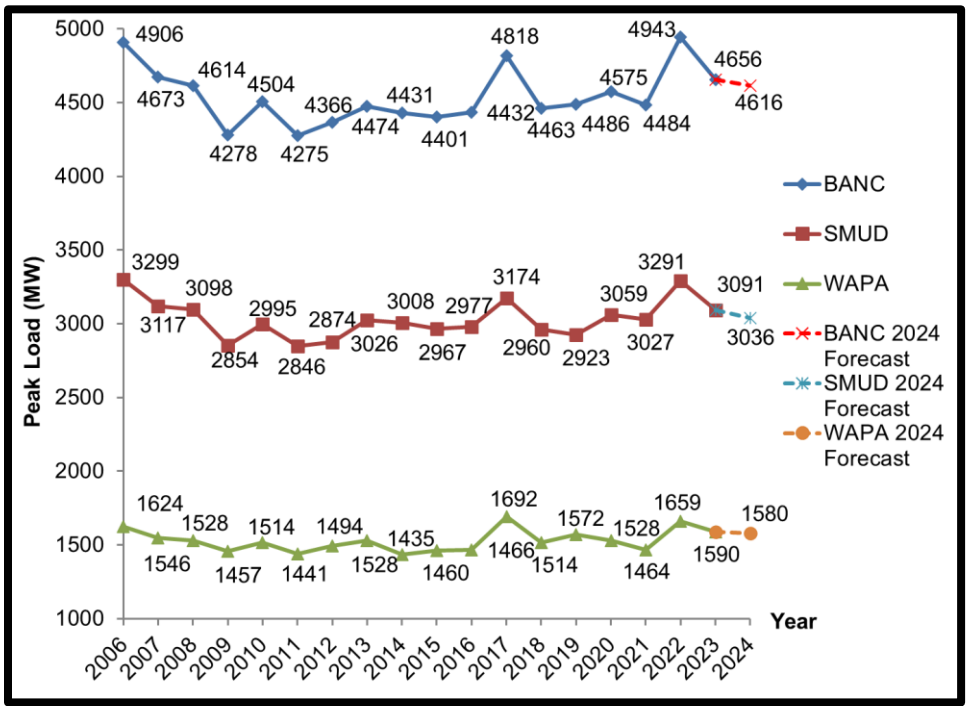

Figure 3-1: 2024 Forecasted Peak Load vs. Historical Peak Load

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, 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 30th to September 9th 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 2024 BANC peak load day to be in August as it will represent the most severe operating condition.

Max °F	Date	Max °C
109	July 16, 2023 +	43
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 2023, 3 MW of net metered solar generation in SMUD footprint came online and there will be 2 MW of net metered solar coming on-line before the 2024 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 one 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 2024 Water Conditions as of April 1, 2024, are summarized as follows:

- USBR's CVP reservoirs were at approximately 116% of historical average (Figure 3-3).
- Northern Sierra snowpack was at 124% of its historical average (Figure 3-4).
- Northern California precipitation was at 96% of its historical average (Figure 3-5).
- Forecasted statewide snowmelt runoff is projected to be 103% of an average water year (Figure 3-6).
- SMUD's storage reservoirs were at 105% of historical average and the inflow to the storage reservoirs is projected to be 95% of median.

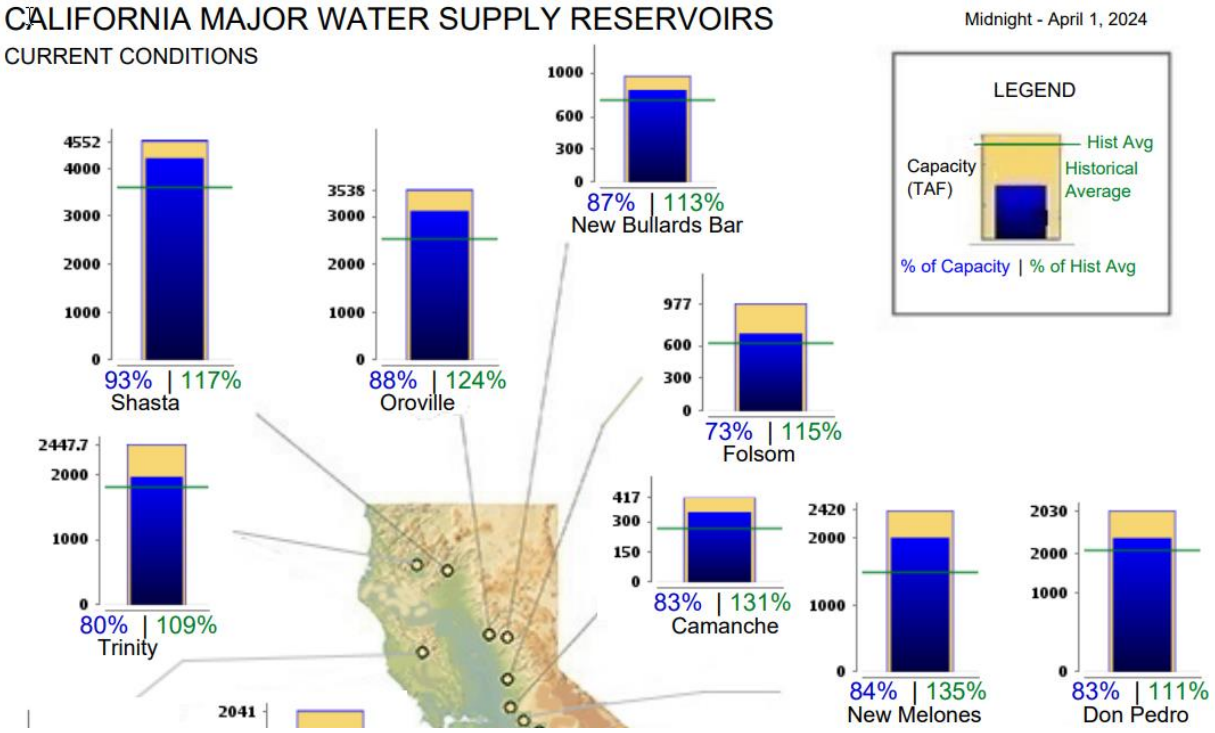

Figure 3-3: Northern California Major Reservoir Levels as of 4/1/2024

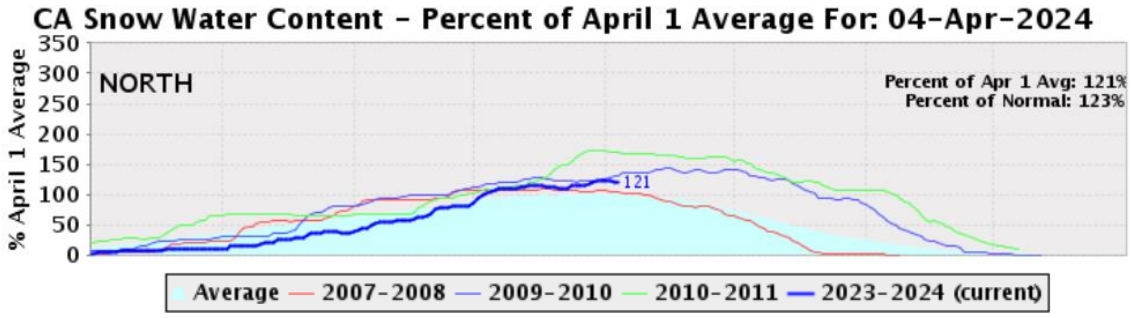

Figure 3-4: Northern CA Snowpack as of 4/1/2024 Compared with 3 Similar Historical Years

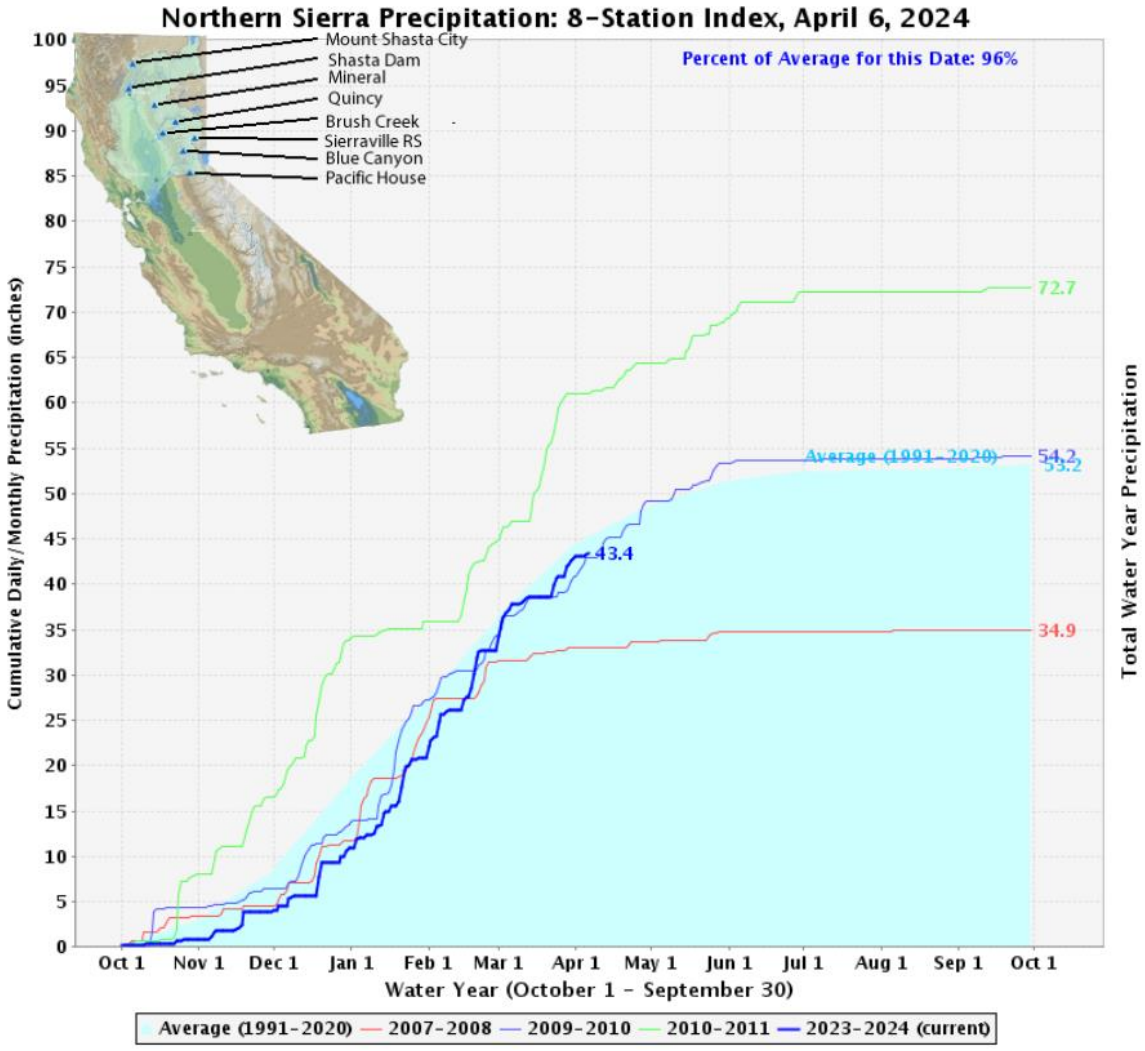

Figure 3-5: Northern CA Precipitation as of 4/1/2024 Compared with 3 Similar Historical Years

UNIMPAIRED FLOW FOR - March 26, 2024

(Provisional data, subject to change)

Report generated: March 28, 2024 13:38

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	377	286	200	250	280	140	40	13	9	1,595	1,370	1,940	121
Inflow to Shasta	1,465	1,229	1,010	660	490	310	240	210	206	5,820	5,175	7,200	103
Sacrament, Bend	2,278	2,001	1,540	860	655	400	305	260	261	8,560	7,555	11,030	103
Feather, Oroville	961	782	850	680	580	275	135	101	86	4,450	3,915	6,155	103
Yuba, Smartville	315	297	315	355	395	155	35	19	19	1,905	1,615	2,580	84
American, Folsom	341	335	465	445	520	245	50	17	11	2,430	2,025	3,310	90

Figure 3-6: Forecasted Snowmelt Runoffs as of 4/1/2024

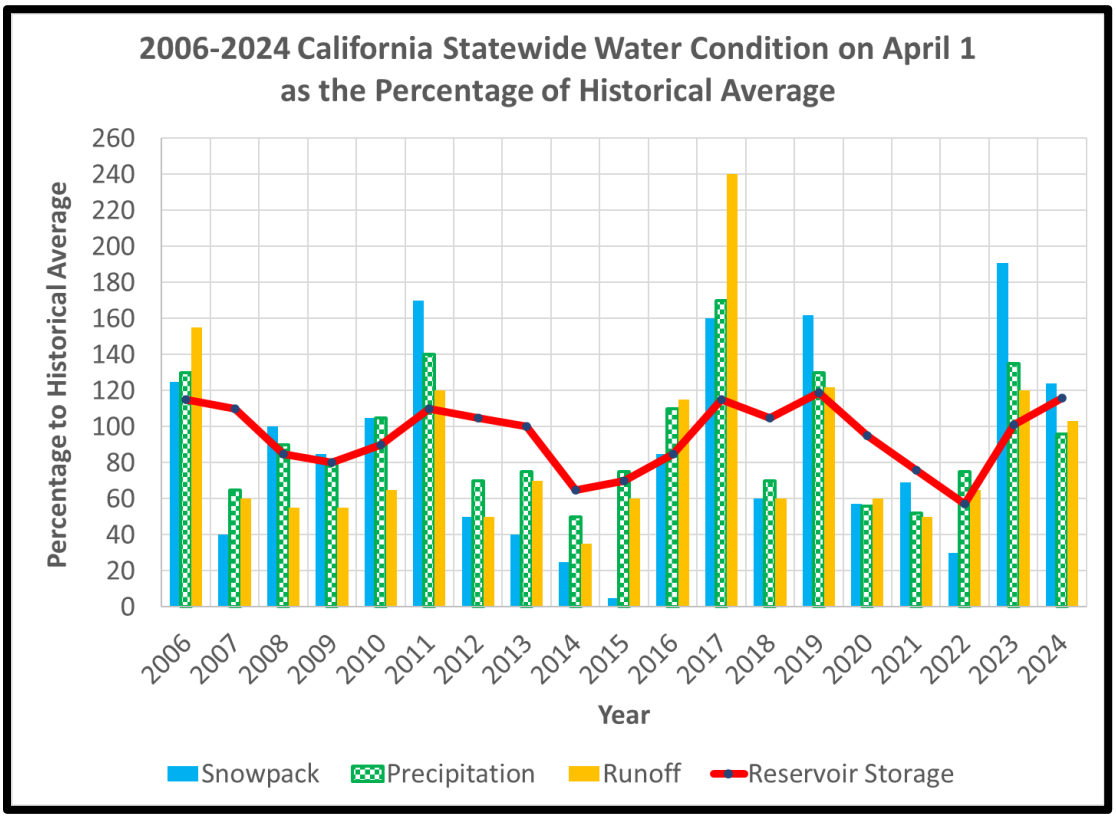

Figure 3-7: 2006-2024 California Statewide Water Condition on April 1

Based on the current outage information, all the SMUD and CVP hydro resources are expected to be available during the 2024 summer and 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, 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 2024 Water Conditions shown in Figure 3-3 through Figure 3-7, 2008, 2010, and 2011 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 116 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,

$$Thermal\ ELCC = 1 - AFOR$$

$$Thermal\ NQC = ELCC * Pmax\ at\ 112\ ºF$$

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. In the 2023 summer, the COI operating nomogram under all-line-in-service was approximately 300 MW lower than normal due to the derates of PG&E's 500 kV lines. Since then, PG&E has been working on a series of projects to restore the COI operating nomogram. If those projects can be completed as planned before 6/1/2024, the COI operating nomogram will be restored back to normal level for 2024 summer season.

According to National Oceanic and Atmospheric Administration (NOAA), the water supply of the Columbia River – the major river supporting hydroelectric power generation in Pacific Northwest (PNW), was forecasted to be 81% of the 30-year normal at the Dalles Dam as of April 1, 2024, which indicates a lower-than-normal hydro energy supply from Pacific Northwest for 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, including California State's Demand Side Grid Support (DSGS) program, available within BANC BAA with a maximum amount of 103 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 and 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. The Rancho Seco-Bellota #1 230 kV inter-tie between SMUD and PG&E is scheduled to be out of service between 5/1/2024 and 6/28/2024 for switch replacement, causing a 500 MW import reduction. In case of a high load condition in late June, this outage can be returned with an advance notice. The Table 3-2 below lists the major transmission and generation outages within the BANC footprint and the surrounding areas for the 2024 summer.

Table 3-2: Scheduled Major Outages for 2024 Summer

Start Time	End Time	Outage Facility	Description	Outage Area	Outage Impact
05/03/2024	06/17/2024	REU Unit #5	Gearbox replacement	WAPA	44 MW generation outage
05/01/2024	06/28/2024	Rancho Seco-Bellota #1 230 kV line	Switch replacement	SMUD	500 MW import limit reduction
06/03/2024	06/14/2024	Carr Unit #1	Maintenance	WAPA	87 MW generation derate
06/03/2024	06/17/2024	Round Mountain #1 500/230 kV Transformer	Maintenance	CAISO	No COI N->S derate 2000 MW COI S->N derate
06/03/2024	06/28/2024	Shasta Unit #3	Maintenance	WAPA	142 MW generation derate
10/01/2024	10/20/2024	Olinda-Tracy 500 kV line	Maintenance	WAPA	1350 MW COI derate

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 the load obligation. The Table 3-3 defines the operating conditions for the BANC BA per NERC Reliability Standard EOP-011-3. 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 2024 summer with sufficient Operating Margins (OMs) as shown in Table 3-4 below when counting the expected Non-Dependable Imports.

Table 3-4: 2024 Summer Base Case Supply & Demand Outlook at Gross & Net Peak Hours

	BANC BA		SMUD Footprint		WAPA Footprint	
2023 Generation (MW)	5,434		2,620		2,814	
Generation Outage (MW)	(0)		(0)		(0)	
Retired Generation (MW)	0		0		0	
New Generation (MW)	2		2		0	
2024 Generation (MW)	5,436		2,622		2,814	
Peak Load Hour	HE17	HE18	HE17	HE18	HE17	HE18
Equivalent ELCC	84.1%	83.2%	82.9%	81.0%	85.3%	85.3%
Total Generation NQC (MW)	4,574	4,524	2,173	2,125	2,401	2,399
Forecasted Import (MW)	2,325	2,301	1,583	1,572	742	729
Forecasted Export (MW)	(999)	(999)	0	0	(999)	(999)
Demand Response (MW)	103	103	89	89	14	14
Total Supply (MW)	6,003	5,929	3,845	3,786	2,158	2,143
1-in-2 Load + Reserves (MW)	4,925	4,878	3,206	3,154	1,719	1,724
1-in-2 OM * (MW)	1,078	1,051	639	632	439	419
1-in-2 OM * (%)	21.9%	21.5%	19.9%	20.0%	25.5%	24.3%
1-in-10 Load + Reserves (MW)	5,270	5,221	3,454	3,398	1,816	1,823
1-in-10 OM * (MW)	733	708	391	388	342	320
1-in-10 OM * (%)	13.9%	13.6%	11.3%	11.4%	18.8%	17.5%

* 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.

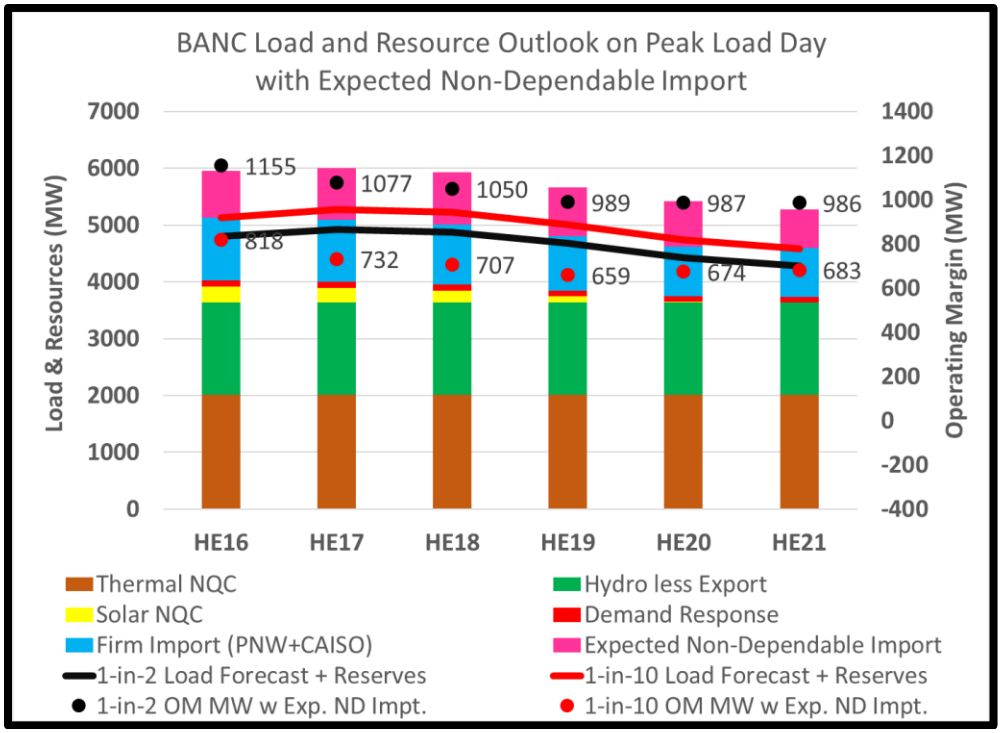

Figure 3-8: BANC Base Case Load and Resources Outlook on Peak Load Day

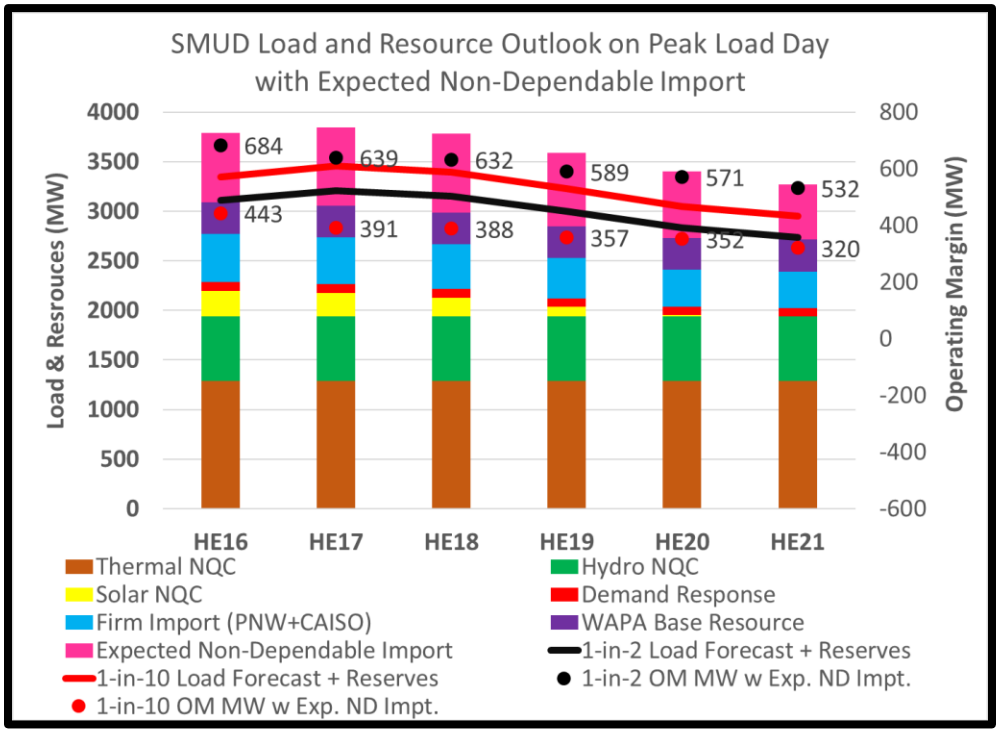

Figure 3-9: SMUD Base Case Load and Resources Outlook on Peak Load Day

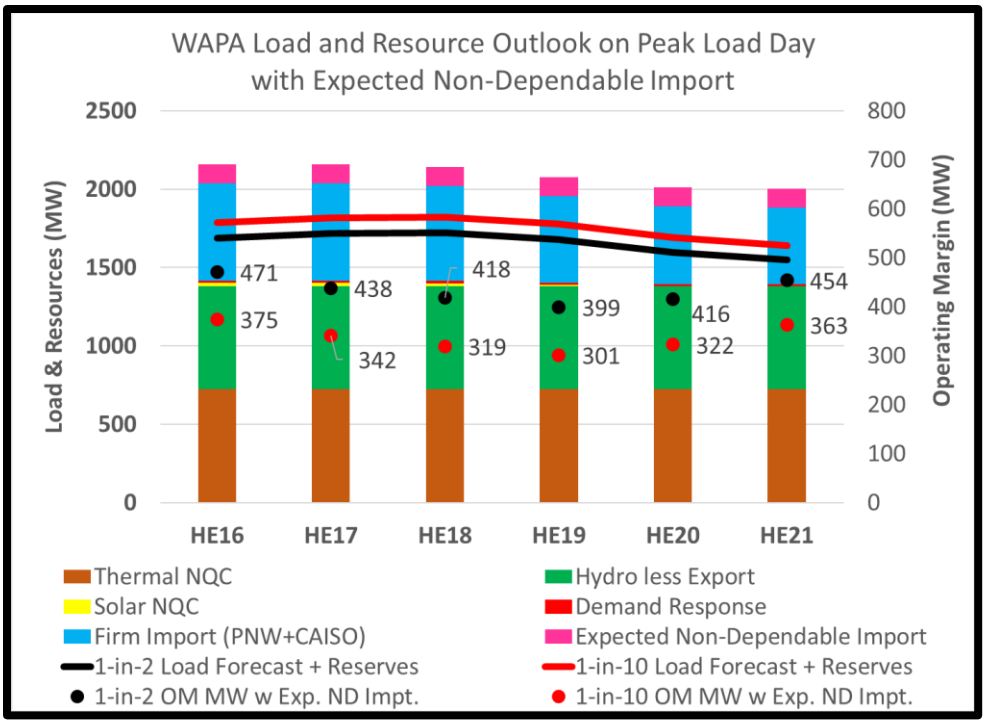

Figure 3-10: WAPA Base Case Load and Resources Outlook on Peak Load Day

Below is a summary of SMUD, WAPA, and BANC's 2024 load and resources outlook:

- SMUD's 2024 total resource supply is approximately 200 MW higher than 2023 due to better thermal generation NQC and higher estimated non-dependable Import. However, SMUD's 2024 1-in-2 and 1-in-10 load forecasts are also higher than 2023 due to the updated load forecasting model. Therefore, SMUD's 2024 operating margins are estimated to be slightly lower than 2023.
- WAPA's 2024 CVP hydro capacity is estimated to be 100 MW higher than 2023 due to no planned outages. Therefore, WAPA's 2024 operating margins are estimated to be slightly higher than 2023.
- Overall, from BANC BA's perspective, the estimated 2024 operating margins for both 1-in-2 and 1-in-10 peak loads are similar to 2023 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

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 risk of 6.35% (or 1 day in 15 years) to be in EEA 3 and a risk of 2.80% (or 1 day in 35 years) with unserved energy. Although BANC's risk of having unserved energy (i.e., firm load shedding) is slightly higher than the firm load shedding risk of 1% (or 1 Day in 100 Years) in 2023, it is still well below the industry LOLP benchmark of 10% (or 1 day in 10 years).
(2) WAPA maintains sufficient Operating Margin in all 2000 cases.
(3) SMUD has a risk of 8.00% (or 1 day in 12 years) to not be able to maintain positive Operating Margin and a risk of 7.00% (or 1 Day in 14 Years) with unserved energy, which is higher than the risk of 2.8% (or 1 Day in 35 Years) with unserved energy in 2023. The reasons of the higher unserved energy risk are the increase of load forecasts and higher than normal reliance on the non-dependable import.

Table 3-5: BANC LOLP Study Results

BA Status	EEA 2	EEA 3	Unserved Energy
Number of Cases	139	127	56
Probability	6.95%	6.35%	2.80%
Number of Years	1 Day in 14 Years	1 Day in 15 Years	1 Day in 35 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	174	160	140
Probability	8.70%	8.00%	7.00%
Number of Years	1 Day in 11 Years	1 Day in 12 Years	1 Day in 14 Years

3.10 Wildfire Outlook

As California is becoming hotter and drier in recent years, 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 an "Above Normal" 2023-2024 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 May 1, 2024, the wildfire risk for May, June, July, and August is "At or Below Normal" for California as shown in the Figure 3-11 below.

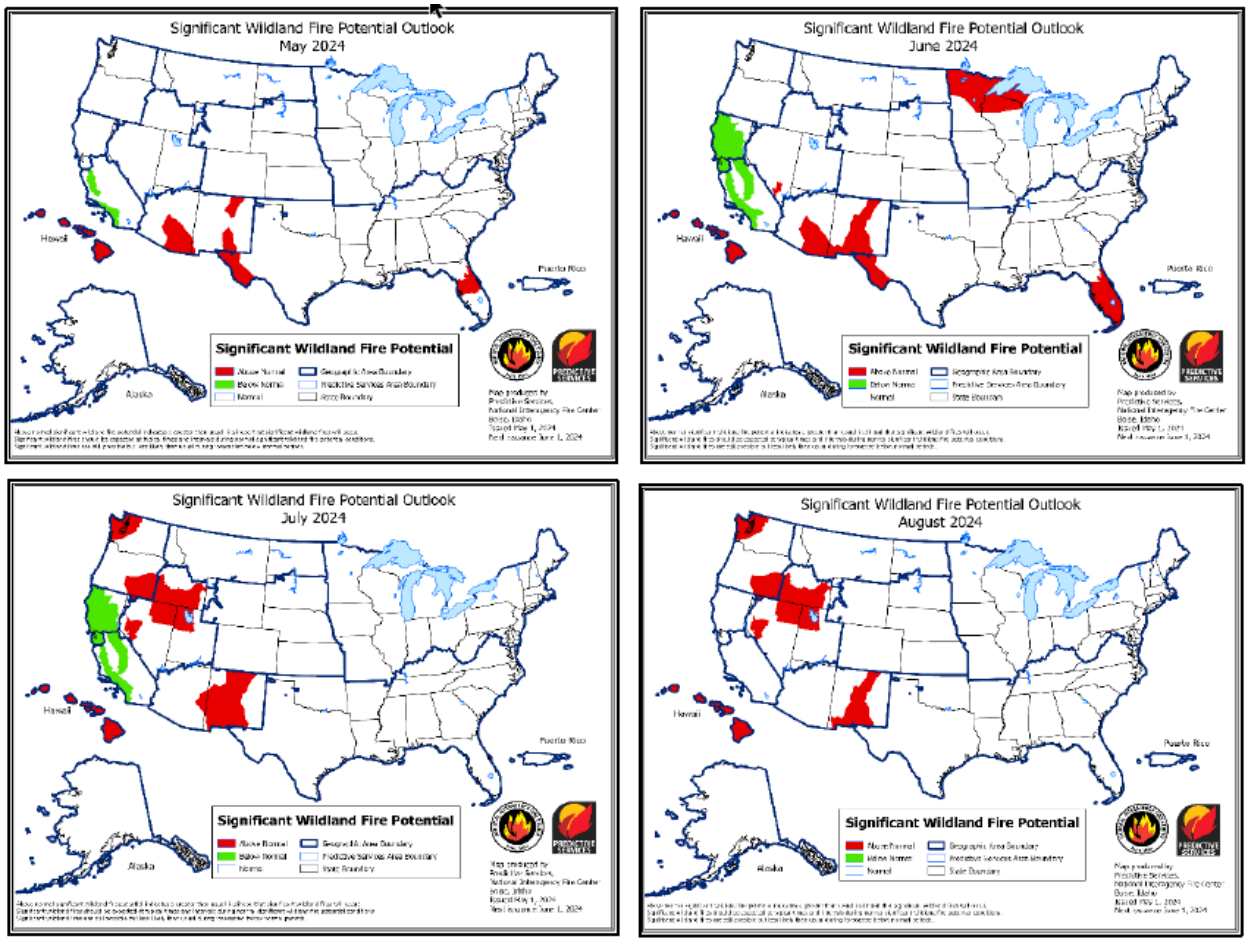

Figure 3-11: U.S. Significant Wildland Fire Potential Outlook for May through August 2024

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.

- BANC would be in EEA 2 under 1-in-2 load condition and would be in EEA 3 with SMUD area having potential firm load shedding risk under 1-in-10 load condition.
- WAPA would be able to maintain sufficient operating margins under both 1-in-2 load and 1-in-10 load.

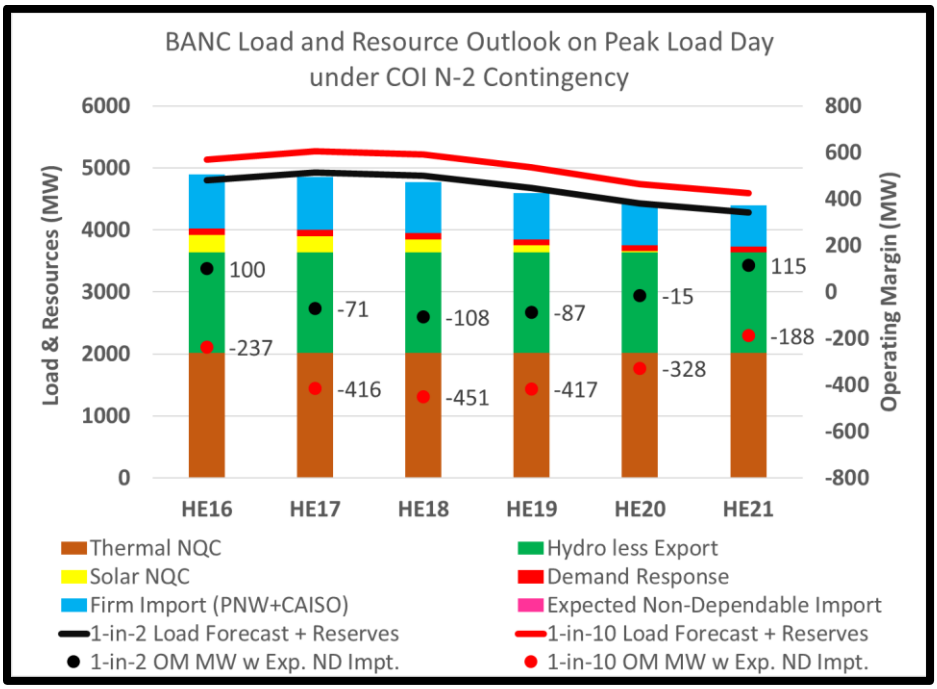

Figure 3-12: BANC Load & Resources Outlook under COI N-2 Contingency Due to Wildfires

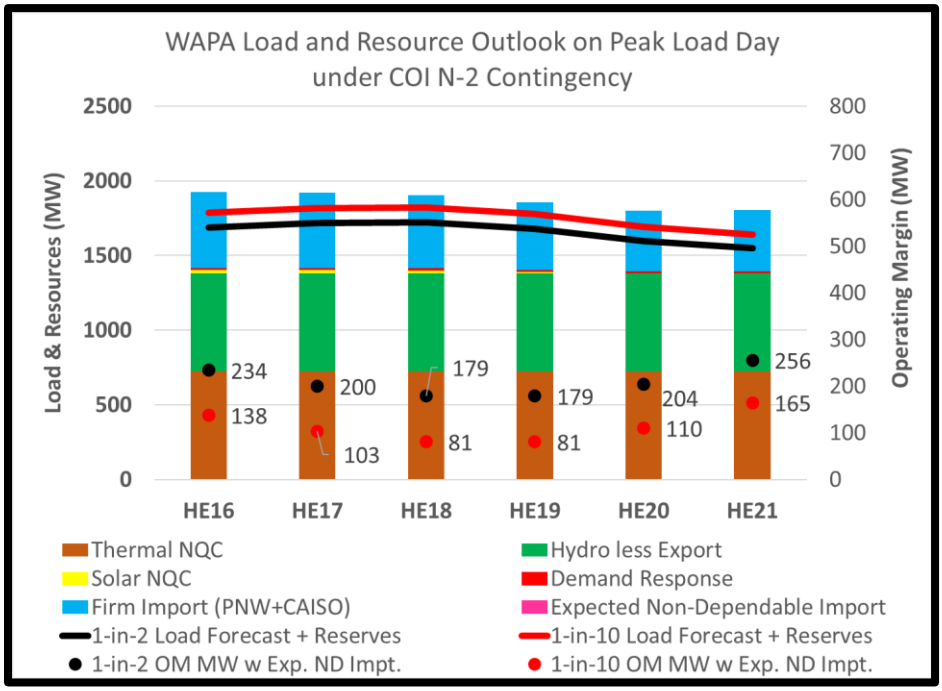

Figure 3-13: WAPA Load & Resources Outlook under COI N-2 Contingency Due to Wildfire

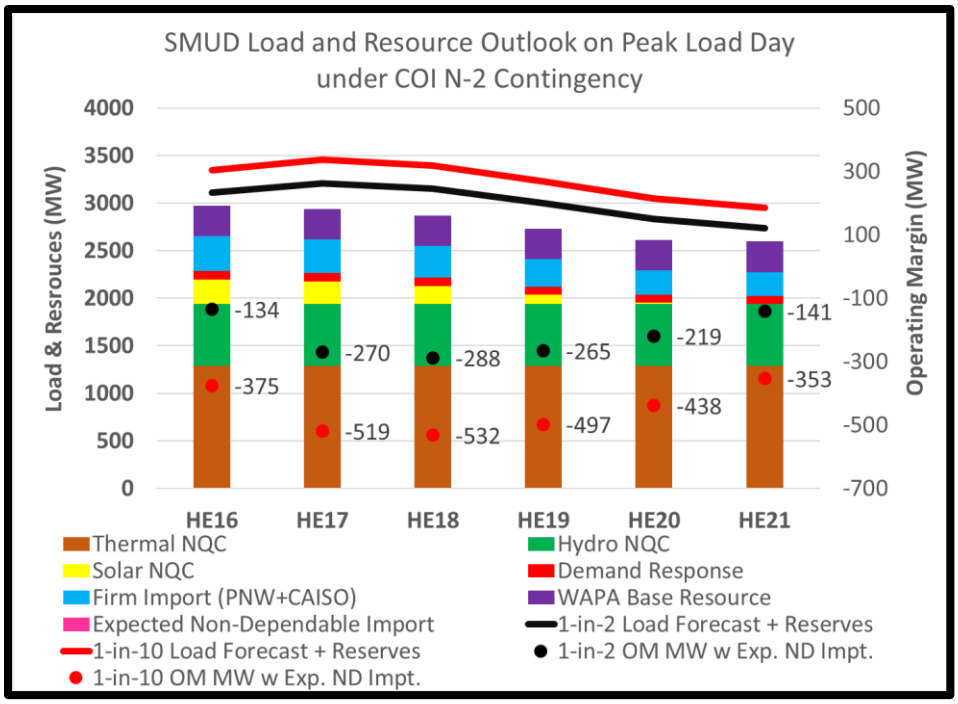

Figure 3-14: SMUD Load & Resources Outlook under COI N-2 Contingency Due to Wildfire

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	3036	3271	3338
WAPA Footprint	1580	1669	1695
MID	699	749	763
Roseville Electric	331	368	378
REU	232	235	235
Shasta Lake	38	38	38
Trinity PUD	27	27	27
BANC Total	4616	4940	5033

As shown in the Figure 3-15 through Figure 3-17, the analysis results indicate that BANC would be in EEA 3 with SMUD area having potential risk of firm load shedding risk for 1-in-20 load. This is due to the high forecasted load and higher than normal reliance on the non-dependable import. On the other hand, WAPA would still be able to maintain sufficient Operating Margin.

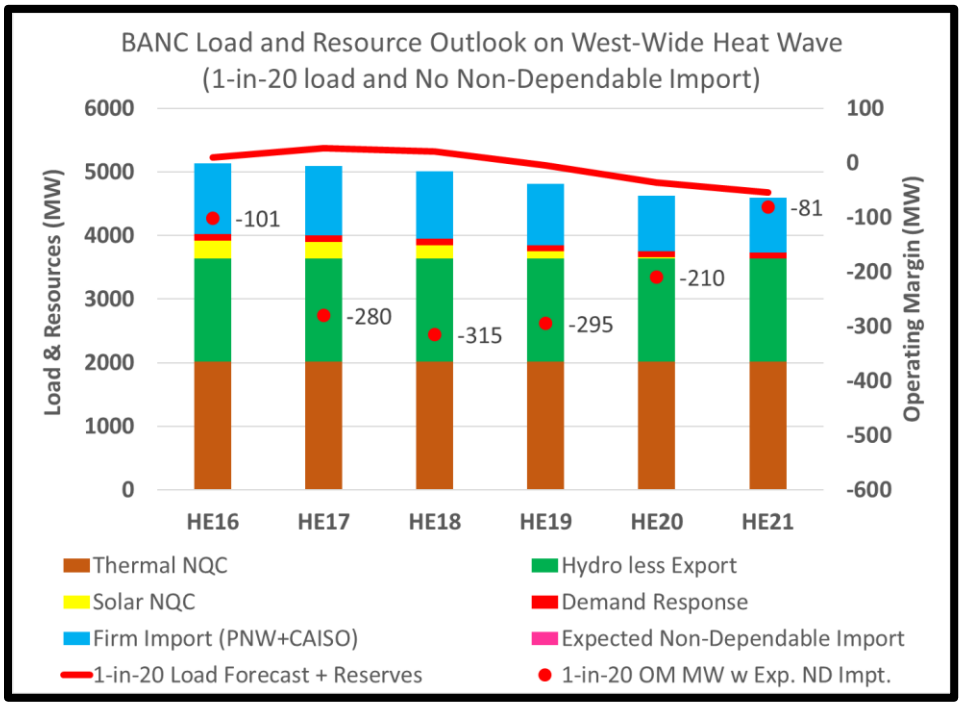

Figure 3-15: BANC Load & Resources Outlook with 1-in-20 Load and No ND Import

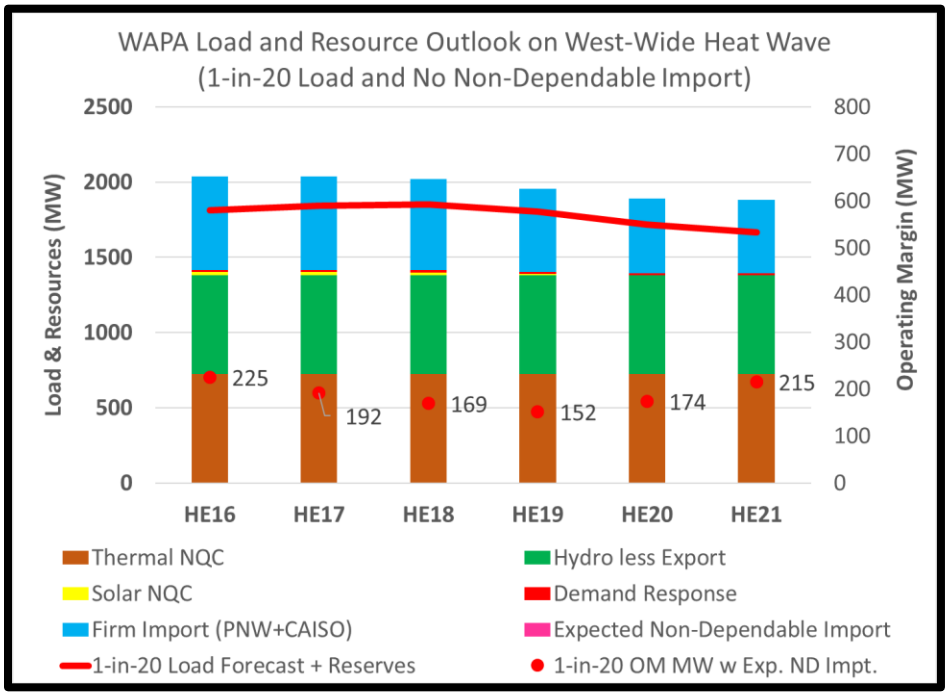

Figure 3-16: WAPA Load & Resources Outlook with 1-in-20 Load and No ND Import

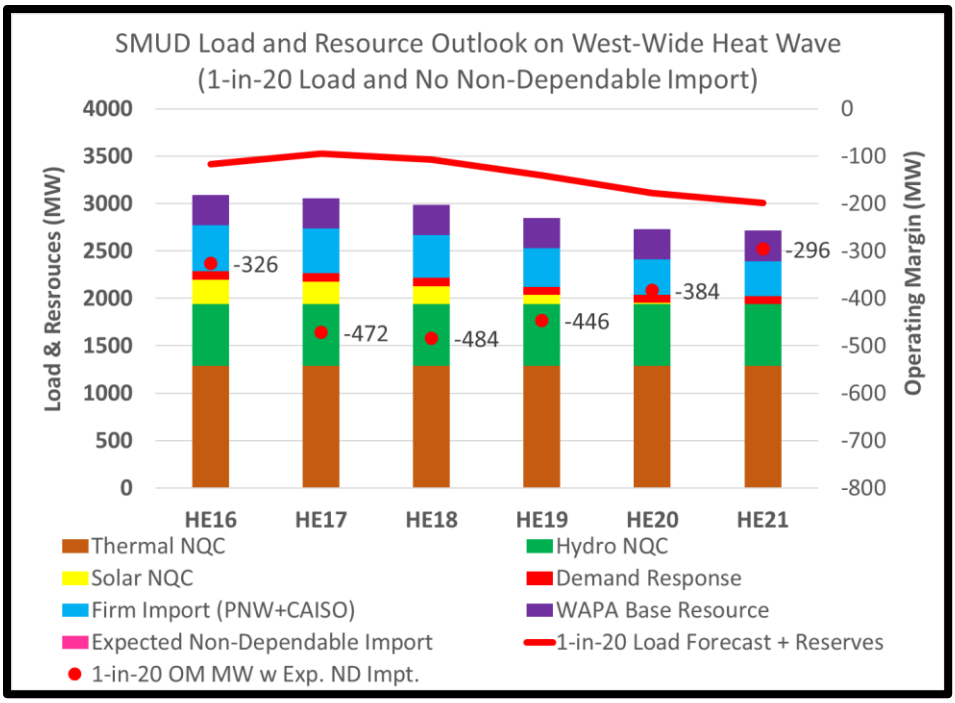

Figure 3-17: SMUD Load & Resources Outlook with 1-in-20 Load and No ND Import

Another special operating condition related to the heatwave is that BPA created a new process since 2023 summer to derate COI when the forecasted temperatures at BPA's load centers are higher than 104ºF for two or more consecutive days – under this heatwave operating conditions, COI could be derated to 3000~3200 MW depending on system conditions. The analysis showed that if COI is derated to 3000 MW when BANC BAA is experiencing 1-in-10 load, BANC could still maintain a positive operating margin although the Demand Response programs may need to be initiated within SMUD footprint.

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 2024 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 2024 summer 1-in-2 and 1-in-10 load demands while meeting NERC/WECC Reliability Standards.

3.13 Conclusions

The 2024 forecasted 1-in-2 and 1-in-10 peak loads for BANC BA are 4616 MW and 4940 MW respectively. With 124% of snowpack, 96% of precipitation, and 116% of reservoir level, the 2023-2024 water season is classified as “Above Normal”, 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 forecasted 1-in-2 and 1-in-10 peak loads for the 2024 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 2024 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 2024 summer under normal and emergency system conditions.

Balancing Authority of Northern California
Resolution 24-05-01

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 2024 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 22nd day of May 2024, by the following vote:

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

_____
Paul Hauser
Chair

_____
Attest by: C. Anthony Braun
Secretary