

Balancing Authority of Northern California

Regular Meeting of the Commissioners of BANC

2:00 P.M.

Wednesday, April 28, 2021

Telephonic Meeting Only

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 **April 28, 2021** at **2:00 p.m.** **The meeting will be telephonic only.**

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

Phone number: 1-408-418-9388
Meeting number (access code): 182 538 1701
WebEx Meeting Link:

<https://braunblaisingsmithwynne.my.webex.com/braunblaisingsmithwynne.my/j.php?MTID=m349232e37126217bdd07e275c77234d>

AGENDA

- 1 Call to Order.**
- 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 24, 2021.
 - B. BANC Operator Report (March).
 - C. Compliance Officer Report (April).
 - D. PC Committee Chair Report (April).
 - E. General Manager’s Report and Strategic Initiatives Update.
- 5 Regular Agenda Items – Discussion and Possible Action.**
 - A. General Manager Updates
 - i. EIM Update.
 - ii. EDAM Update.
 - iii. NWPP Resource Adequacy Program Update.
 - iv. Consider and Possibly Approve Resolution 21-04-19 *Acknowledgement and Acceptance of the 2021 Summer Load & Resources Assessment of the Balancing Authority of Northern California.*
 - v. 2021 BANC Strategic Planning Meeting.
- 6 Closed Session:** Conference with legal counsel in anticipation of litigation pursuant to Cal. Gov’t Code § 54956.9; one matter.
- 7 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 kirkegaard@braunlegal.com.

Balancing Authority of Northern California

Consent Agenda Items

- A. Minutes of the March 24, 2021 BANC Regular Meeting.**
- B. BANC Operator Report (March).**
- C. Compliance Officer Report (April).**
- D. PC Committee Chair Report (April).**
- E. General Manager's Report and Strategic Initiatives Update.**

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

March 24, 2021

On this date, a Regular Meeting of the Commissioners of the Balancing Authority of Northern California (BANC) was held telephonically.

Representatives Present:

Member Agency	Commissioner
Modesto Irrigation District (MID)	James McFall
City of Redding	Dan Beans, Chair
City of Roseville	Todd White, Alternate
Sacramento Municipal Utility District (SMUD)	Paul Lau
City of Shasta Lake	Absent
Trinity Public Utilities District (TPUD)	Paul Hauser

Agency	Liaison(s)
Western Area Power Administration (WAPA)	Sonja Anderson Jeanne Haas Arun Sethi

1. Call to Order: Mr. Jim Shetler reviewed attendance and confirmed that a quorum was present. Chair Beans called the meeting to order at 2:01 p.m.
2. Matters Subsequent to Posting the Agenda: None.
3. Public Comment: Chair Beans invited comments from the public and none were given.
4. Consent Agenda: Alternate Commissioner White moved, Commissioner McFall seconded, and the participating Commissioners unanimously approved the Consent Agenda items comprised of: (A) Minutes of the Regular Commission Meeting held on February 24, 2021; (B) BANC Operator Report for February; (C) Compliance Officer Report for March; (D) PC Committee Chair Report for March; and (E) General Manager's Report and Strategic Initiatives Update. *Note: the agenda incorrectly identified the date of the Minutes being approved as January 27, 2021 rather than February 24, 2021. The minutes included in the packet for approval were the February minutes.*
5. Regular Agenda Items – Discussion and Possible Action:
 - A. Mr. Shetler provided an EIM update, with no new updates on EIM Phase 1. He reported that Parallel Operations ended on March 17th, and EIM Phase 2 was going live at midnight (3/25) concurrent with TID. A tremendous effort has gone into preparations, and no issues were anticipated. LADWP and Public Service of NM are expected to go live April 1st, and Northwestern has delayed their go-live until June as a result of staffing challenges related to the hiring of EIM operators. The CAISO is expected to publish a

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

press release for BANC and TID's go-live, and BANC is working with WAPA to draft a joint press release; both will be shared with the Commission as soon as they are available.

Regarding the EIM Phase 2 collateral approach involving the assignment of participant unsecured credit, SMUD has executed a guaranty with CAISO for a \$5 million assignment to BANC. Other member participants are reviewing next steps for contributing their share/allocation by June 1, 2021. Further discussion is needed between BANC/CAISO/WAPA-SNR.

Mr. Shetler introduced the BANC Internal Risk Management Policy included in the packet and Mr. Kevin Smith, BANC Counsel, offered to answer questions. No questions were raised by the Commission. Commissioner McFall moved, Alternate Commissioner White seconded, and a roll call vote was taken. All participating Commissioners voted unanimously in favor of Resolution 21-03-15 *Approval of BANC Internal Risk Management Policy*.

Mr. Shetler reiterated that the EDAM stakeholder process has been delayed until mid-2021 as the CAISO focuses on the Summer 2021 Readiness initiative. Mr. Tony Braun, BANC Counsel, provided a brief Governance Review Committee (GRC) update. In late 2020, the GRC put out a recommendation on a series of governance reforms to reflect changes in EIM and plan for a prospective EDAM. They included several items, most notably a move from a 'delegated authority' model to a 'joint authority' model. Other recommendations included: integrating public power into an advisory role for the Body of State Regulators (BOSR), engaging an additional market expert at the discretion of the governing body to assist them in making decisions on market issues, confirming that CAISO will not be funding the BOSR, augmenting/maturing the role of the Regional Issues Forum, among others. Because the joint authority recommendation received opposition from multiple stakeholders, an interim recommendation to move forward with the rest of the package is expected, allowing more time to reach consensus on the joint authority model. As early as April, the GRC is expected to consider and possibly approve the final recommendations, which should be released for review soon.

Mr. Shetler provided an update on the CAISO Summer Enhancements initiative. A final straw proposal was issued on March 19th, addressing EIM Resource Sufficiency Test improvements, CAISO Export Priorities, and Wheel-throughs. Dialogue continues among the CAISO and stakeholders on all of these issues. System Market Power Mitigation recommendations have been deferred.

Mr. Mark Willis, representing the BANC Operator, provided an overview of BANC's 2021 Summer Assessment efforts. He thanked all entities for their support in providing data, as these are the most extensive analyses BANC has ever undertaken on both the grid and merchant sides. At the BA level, the preliminary base case summary indicates sufficient resources to meet demand and operating reserves for both 1:2 and 1:10 load forecasts, barring unforeseen events. Additional sensitivity/scenario studies are still underway, and a final draft report is expected to be ready for April BANC Operating Committee review and Commission review and acceptance at its April meeting. A few clarifying questions were asked by Commissioners and additional discussion ensued related to the latest discussions with CAISO regarding summer enhancements, additional procurement authorized by the CPUC, and other considerations. Mr. Shetler stated that additional discussion with the Commission and updates would be forthcoming at the April meeting.

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

Regarding the 2021 BANC Strategic Planning Meeting, Mr. Shetler shared that the proposed date is currently August 25th in the afternoon, either in person or via webinar. Potential topics include: future reliability and planning challenges, market development in the West, and SMUD's 2030 "Zero" Carbon Plan and what it means for BANC. He requested additional input on topics from the Commissioners and noted that he would be conducting individual meetings with Commissioners in the coming months. Commissioner Lau committed to sending SMUD's plan to the Commissioners once it has been released publicly (expected near the end of the month.)

- B. Mr. Shetler introduced the BANC 2020 Audited Financials and noted that BANC once again had a clean audit with no findings. Chair Beans invited questions from the Commission, and none were forthcoming. Mr. Shetler then requested that the Commission accept results of the audit. After no further discussion or objections, the Commission accepted the audited financials.
 - C. Alternate Commissioner White moved, Commissioner Lau seconded, and a roll call vote was taken. All participating Commissioners voted unanimously in favor of Resolution 21-03-16 *Accepting and Adopting the BANC Member Participation Percentages for 2021*.
6. Closed Session: The Commission retired to closed session at 2:54 p.m. for conference with legal counsel in anticipation of litigation pursuant to subdivision (c) of Cal. Gov't Code § 54956.9.

The Commission adjourned from closed session at 3:37 p.m., where no formal action was taken.

Minutes approved on April 28, 2021.

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 2021

Operations:

- BA Operations: Normal
- Significant BA Issues: None
- NWPP Reserve Energy Activations
 - 0 contingency requiring activation of NWPP
 - 0 MW average generation lost
 - 0 MW maximum generation lost
 - Generating unit(s) and date(s) affected: N/A
 - All recoveries within 0 minutes
- USF
 - 10 of 31 days with instances of USF mitigation procedure utilized
 - 7 days on Path 66
 - No operational impact on BANC
- BAAL Operation:
 - Maximum duration of BAAL exceedance: 10 Minutes
 - *6-min 2/9/21 – Caused by slow response EIM dispatch*
 - *11-min 2/10/21 – Caused by slow response to EIM dispatch*
 - Number of BAAL exceedance >10 minutes: None
 - BAAL violation (BAAL exceedance >30 minutes): None
- Frequency Response (FR) Performance – Quarterly Metric:
 - 2021 Frequency Response Obligation (FRO): -15.5 MW/0.1 Hz

Monthly Notes:

- No additional notes or impacts for March 2021

A JOINT POWERS AUTHORITY AMONG

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

City of Shasta Lake, and Sacramento Municipal Utility District

Compliance Officer Report

BANC Commission Meeting

April 2021

The following summarizes 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.

BA Compliance Issues:

- No significant operational Balancing Authority compliance events occurred.
- All required BA compliance reports and operating data were submitted to WECC.
- BANC's previously self-reported instance of potential non-compliance with INT-006-4, R1 ("*Evaluation of Interchange Transactions*") has been closed out as a "Compliance Exception," meaning that WECC will not pursue further enforcement action for this minimal-risk minor infraction.

BANC MCRC:

- The next BANC MCRC meeting is scheduled to be held at 10:00 AM on Monday, April 26th via webinar.

PC Committee Chair Report

BANC Commission Meeting

April 2021

The following summarizes Planning Coordinator-related issues 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 Issues:

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

- FAC-002-3 Interconnection Studies – There are three materially modifying transmission facilities projects in the BANC area in 2021 with updated in-service dates at the end of 2021 or in spring of 2022. The FAC-002-3 Hurley – Procter 230 kV Reconductor project compliance document has been posted on the BANC PC member website.
- MOD-031-2 Demand and Energy Data – Parts 1 and 2 have been completed and uploaded to WECC. There have been no additional data requests from WECC.
- MOD-033-1 Steady-State and Dynamic System Model Validation – The system event for the dynamic model validation portion of MOD-033-1 has been narrowed down to a select few events from which to be selected. Requests for real time data have been sent out to PC participants with a return deadline of late April.
- PRC-006-3 - BANC PC data requests will be sent out following the OFSPR meeting on April 22nd.
- TPL-001-4 - Transmission System Planning Performance – Data and contingency requests for the BANC TPL base case series have been received. Base cases and contingency lists for the 2021 TPLS base case series will be finalized on April 16th.

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

	PC Standard	Estimated % Complete	Notes
1	FAC-002-2 Interconnection Studies	30%	There are 3 materially modifying transmission facilities projects at the BANC area with an updated in-service dates at the end of 2021 or Spring 2022.
2	FAC-010-3 SOL Methodology for Planning Horizon	100%	The finalized version was sent to external stakeholders and BANC PC Participants on 12/28/2020.
3	FAC-014-2 Establish and Communicate SOLs	5%	Study Plan is scheduled to be sent out by May.
4	IRO-017-1 Outage Coordination	0%	Will send out the annual assessment report to neighboring RCs upon completion of the report.
5	MOD-031-2 Demand and Energy Data	100%	2021 Loads and Resources Data Request Part 2 has completed and uploaded to WECC on by 03/05/2021.
6	MOD-032-1 Data for Power System Modeling & Analysis		Ongoing activity.
7	MOD-033-1 System Model Validation	20%	Selection of system event to use for the dynamic model validation portion is underway and data requests have been sent out to PC participants
8	PRC-006-3 Underfrequency Load Shedding	10%	BANC PC data requests will be sent out in the days following the OFSPR meeting on 04/22/2021.
9	PRC-010-2 Undervoltage Load Shedding	100%	Study has been completed. The report was finalized on 12/30/2019.
10	PRC-012-2 Remedial Action Schemes	80%	New Standard to be effective on 1/1/2021. Study Plan has been finalized on 4/10/2020. Working on performing studies for each RAS scheme.
11	PRC-023-4 Transmission Relay Loadability	5%	Study Plan is scheduled to be sent out by May.
12	PRC-026-1 Relay Performance During Stable Power Swings	5%	Study Plan is scheduled to be sent out by May.

	PC Standard	Estimated % Complete	Notes
13	TPL-001-4 Transmission System Planning Performance	30%	The data and contingency requests for the TPL base case series have been received. Base cases and contingencies are being finalized on 4/16/2021.
14	TPL-007-4 R1 GMD	90%	Registered the SMUD/BANC PC GIC monitoring device at Carmichael with NERC – compliance requirement. Made request to the GIC manufacturer to increase sampling rate from the default once every hour to once every 10s or faster per NERC recommendation

GM Report

BANC Commission Meeting

April 28, 2021

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. Based upon the group's discussions, we have agreed to 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. To date, we have collaborated with the other POUs on joint language to use in the EIM Entity agreement, on how to address market-based rate authority with DMM, potential common language for OATT revisions, and joint comments on the EIM governance issues. We have also used this forum to discuss POU positions regarding the EDAM development. Both LADWP and BANC – Phase 2 were successful for go-live 2021, with LADWP and PNM on 4/1/21 (Northwestern has delayed go-live until June 2021) and BANC – Phase 2 and TID on 3/25/21. We have also been using this forum to discuss potential 2020 heat wave impacts on EIM and EDAM design.

POU Western Markets Initiative

BANC continues to participate in this effort, which is being coordinated by APPA. The group will be stepping back and will take on a less formal role with occasional update conference calls. The group also filed joint comments in general support for the EIM Governance Review Committee straw proposal on EIM/EDAM improvements.

Coronavirus Restrictions

With the increased restrictions on public gatherings and travel, BANC has moved to remote meeting attendance, both for our own internal member meetings, as well as outside meetings, for the foreseeable future. We will maintain this approach until public health authorities advise the restrictions can be relaxed. In addition, the BANC BA Operator (SMUD) has instituted measures to reduce coronavirus risks, including stay at home for most employees with only essential staff working at the offices.

August and Labor Day Weekend Heat Wave

The Joint Agencies (CPUC, CEC, and CAISO) issued their initial root cause report from the August 2020 heat wave incidents in late September and a final report on January 13, 2021. Their conclusion is that there was no single root cause for the rotating outages, but rather several contributing factors, including:

1. The climate change-induced extreme heat storm across the western U.S. resulted in the demand for electricity exceeding the existing electricity resource planning targets. The existing resource planning processes are not designed to fully address an extreme heat storm like the one experienced in mid-August.
2. In transitioning to a reliable, clean and affordable resource mix, resource planning targets have not kept pace to lead to sufficient resources that can be relied upon to meet demand in the early evening hours. This makes balancing demand and supply more challenging. These challenges were amplified by the extreme heat storm.
3. Some practices in the day-ahead energy market exacerbated the supply challenges under highly stressed conditions.

There is also a recommendation that the agencies conduct a state-wide summer assessment on resource adequacy for 2021. It is not clear how this will impact the POUs in California; however, no state-wide summer assessment has been initiated to date. BANC implemented a more detailed approach to our normal summer assessment, which was coordinated through both the Operations and Resource Committees. The final BANC summer assessment report will be presented to the Commission at the April 28 meeting. BANC also participated in discussions initiated by the EIM Entities with the CAISO on analysis of the heat wave incidents. The CAISO also instituted a stakeholder process to address market enhancements for summer 2021, including issues around the EIM Resource Sufficiency Test, export priorities, wheel-through transactions, and system market power mitigation. The CAISO has issued its proposals for moving forward for this summer. BANC continues to be engaged in these discussions both jointly with the other EIM Entities and individually as appropriate.

Market Initiatives:

EIM Participation

Staff continues monitoring EIM participation. CAISO quarterly benefit reports continue to show that BANC/SMUD is seeing benefits from the EIM Phase 1 participation, with the 4th Quarter 2020 report showing gross benefits of \$5.42 million and a total for Phase 1 through December 2020 of \$46.22 million.

With respect to BANC EIM Phase 2 effort, staff and the Phase 2 participants successfully achieved go-live on March 25, 2021. Phase 2 operations to date have gone fairly well. There have been the normal startup issues regarding software performance and data availability, but no major concerns have been identified. As of April 16, 2021, the EIM interconnections are open to allow up to ~2,000 MW of exchanges. So far we have primarily been seeing exports from the CAISO to BANC in

the range of 100-400 MW. BANC has been passing both the EIM Capacity and Flex Ramp tests with a high success rate. BANC staff are now focused on transitioning the EIM Committee from a project oversight function to a market monitoring/improvement function.

EDAM Participation

The EDAM effort is on hold due to the CAISO's focus on 2021 Summer readiness. The EIM Entities are also focused on summer readiness. It is expected that the CAISO will not restart formal EDAM stakeholder discussions until after the summer, though there may be some informal outreach.

The EIM Governance Review Committee (GRC) issued its Part One Draft Final Proposal on April 12, 2021. This proposal moves forward with supporting all of the recommendations for CAISO Board of Governors approval except for the issue of joint approval authority. This has been deferred for additional stakeholder outreach and discussion. The recommendations are consistent with positions that BANC has supported in both the EIM group and POU group.

WAPA:

Market Engagement

WAPA-SNR was also successful in its EIM Phase 2 go-live on March 25, 2021.

WAPA-SNR and BANC continue to hold routine calls with NCPA to help facilitate discussions on joint issues.

San Luis Transmission Project

WAPA-SNR has announced its intent to work with the Bureau of Reclamation and CDWR to construct the SLTP. BANC met with WAPA and the other parties to fully understand the implications of having this new transmission project in the BANC BA/WAPA-SNR sub-BA. The SLTP developers (DATC) have withdrawn from the project and the Delta-Mendota Water Agency has issued an RFP for development of the project and responses have been received. We will keep the Commission informed as more information becomes available.

WECC

WECC Board Meetings

The last MAC and Board meetings were on March 16-17, 2021, via webinar rather than in person due to COVID-19 concerns. The next WECC MAC and Board meetings will be held via webinar on June 15-16, 2021.

WECC finalized and posted in early December an event assessment of the recent August heat wave and CAISO load shedding incidents. WECC has also issued an assessment of resource adequacy for the Western Interconnection.

NWPP

Resource Adequacy Project

In light of the concerns raised in 2018 regarding resource adequacy (RA) for the PNW entities, NWPP initiated a formal project to develop an RA program for the region. As a NWPP member, BANC has been providing funding for the initial phases of this effort. NWPP updated the participants on June 25, 2020, regarding the scope, schedule, and budget for the next phase of this effort (Phase 2B). Staff continues to engage in the Phase 2B effort, with active participation on the project design working groups and steering committee. Participants are submitting historical data to the project consultant (SPP) for running of design simulations to determine possible forecasts of RA Program performance. The group is also actively discussing regulatory and governance structure for the program going forward. It is expected that BANC will need to be prepared for a decision on continuing participation in the NWPP RA Program during the first half of 2021.

CDWR Delta Pumping Load:

BANC is coordinating with SMUD, CDWR, WAPA, and the CAISO regarding how the construction and pumping loads and ancillary services will be provided for this project. The CAISO has reached out to BANC/SMUD/WAPA-SNR regarding contacts for initiating discussions on how CAISO will supply energy for the construction loads in our footprints. With the Governor's announcement that the project will be downsized from two to one tunnel, CDWR has withdrawn the current applications and will be submitting revised environmental documentation. SMUD reported that CDWR has approached them regarding the revised environmental review and updated project schedule.

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 initial report is due 1/1/21. The four POU BAs (BANC, IID, LADWP, and TID) are collaborating on positions and responses. In addition, we have done outreach to the CAISO, Pacificorp, NV Energy, and WAPA BA's in California to determine if there is benefit to all BAs coordinating on this effort. BANC filed comments with the agencies on 12/2/19. BANC stated that it supported the long-term goals of the State regarding GHG reductions. However, we also cautioned that the transition from the current mix of resources to the long-term resource mix needs to be done in an orderly manner to ensure that grid reliability and affordability can be maintained for the benefit of the end-use consumers. We also supported a "net zero" carbon approach to meeting the goals, at least on an interim basis. I attended the SB100 workshop on 2/24/2020 and participated on a BA reliability panel. Subsequent to the workshop, staff worked with the other POU BAs (LADWP, IID, and TID) regarding comments to the Joint Agencies. The Joint Agencies held an outreach meeting with the California BAs on August 25 to brief the

BAs on the results of the Agencies initial analysis. This was followed by a public workshop on September 2. BANC coordinated with the POU BAs via CMUA and filed joint comments on September 15. The Joint Agencies have finalized the SB100 report and provided a briefing to the CA BAs on November 30th and conducted a public workshop on the report on December 4th. BANC provided comments as part of the workshop and filed written comments as well. The final report was scheduled for submittal to the Legislature in early January 2021; however, it was issued on 3/15/21. The CEC did reach out to the POU BAAs via CMUA in early March seeking more engagement with the BAAs for the next round of analysis for the SB100 effort. The POU BAAs are evaluating how best to engage in this request.

Western Electricity Industry Leaders (WEIL) Group

The WEIL group has done outreach to the Western Governors' Association with a request to hold discussions on how to better coordinate electricity policy in the West. Based upon these discussions, the Western Governors and WEIL have agreed to make use of the Center for a New Energy Economy (CNEE), which is headed by former CO Governor Ritter, to facilitate further dialogue. This effort has been designated as the Western Interconnection Regional Electricity Dialogue (WIRED). The group agreed to focus discussions around three topics:

- State clean electricity goals and GHG accounting
- Reliability/resource adequacy
- Transmission planning and development.

Initial draft reports have been developed by the work groups and are now being reviewed both by WEIL and the state energy policy advisors. The goal was to have a set of actionable recommendations that could be presented to the December Western Governors meeting. However, it is now expected that it will be mid-2021 before we are ready for any possible recommendations. The WEIL group discussed and reached consensus at its February CEO meeting on a position statement for this effort. WEIL continues to coordinate with CNEE and the key state energy advisors on next steps in this effort. The next WEIL CEO meeting is scheduled for May 10, 2021.

BANC Anniversary

On May 1, 2021, BANC will celebrate ten years as an operating BAA!

Strategic Initiatives

An update of the 2020/2021 Strategic Initiatives is attached to this report.

BANC 2020/2021 Strategic Plan - Routine Initiatives April 2021 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	
3 Medium	OUTREACH	Engage in industry forums (WECC, Peak, NWPPA, etc.)	Jim Shetler	Ongoing	Attend RC West, WECC Board, WEIL, & NWPP Exec. Forum meetings
4 Medium		Coordinate with other POU BAs (Ca and regionally)	Jim Shetler	Ongoing	Coordinating with SCL, SRP, LA, TP, & TID on EIM/EDAM
5 Medium		Outreach to regulatory and legislative bodies on key issues	Jim Shetler/BBSW	Ongoing as Necessary	Participating in WEIL group outreach to West governors
6 Medium		More formal engagement with TID on BA/EIM/EDAM issues	Jim Shetler/BBSW	Ongoing	Continue periodic discussions on areas of collaboration
7 Medium	ASSETS	Evaluate joint options for resource needs for BA	Resource Committee	4th Qtr. 2021	
8 Low	MEMBER SERVICES	Identify and outreach to potential new BANC members	Jim Shetler	Ongoing	

BANC 2020/2021 Strategic Plan - Focused Initiatives April 2021 Update

No./Priority	Focus Area	Initiative	Responsibility	Target Due Date	Status
9 High	INDEPENDENCE	Manage implementation of EIM Phase 2 participation effort	Jim Shetler/SMUD	3/25/21	COMPLETED on 3/25/21
10 High		Manage EIM Phase 2 Going Forward	Jim Shetler/SMUD	Ongoing	Initiated Phase 2 operations
11 High		EDAM evaluation effort ~ CAISO Stakeholder Process ~ CAISO Tariff Development	Jim Shetler/BBSW Jim Shetler/BBSW	3rd Qtr. 2021 1st Qtr. 2022	Engaged in summer '21 eval.
12 Medium	OUTREACH	Evaluate opportunities to engage other entities in market development	Jim Shetler	Ongoing	Coordinating with SCL, SRP, LADWP, TID, & Tacoma
13 Medium		Regional Policy Issues: Monitor/ weigh-in where appropriate	Jim Shetler/Commission	Ongoing	Participating in WEIL effort on WIRED issues
14 High		Regionalization: ~Monitor CAISO GRC effort	Jim Shetler/BBSW	4th Qtr. 2021	Tony Braun active on GRC. Draft proposals finalized
15 High		Coordinate with CA BAs on SB100 effort	Jim Shetler/BBSW	12/31/21	CEC issued report 3/15/21; CEC outreach to BAAs
16 Medium	ASSETS	Evaluate resource criteria for BANC long-term needs	Jim S./Res. Com.	4th Qtr. 2021	
17 Medium	MEMBER SERVICES	Evaluate possible support to participants for EIM operations	Jim S.	Ongoing	Approved EIM Participation Agreement Amendments

Balancing Authority of Northern California

Agenda Item 5Aiv

1. **Resolution 21-04-19 *Acknowledgement and Acceptance of 2021 Summer Load & Resources Assessment of the Balancing Authority of Northern California.***
2. **2021 Summer Load & Resources Assessment of the Balancing Authority of Northern California.**

Braun Blaising Smith Wynne, P.C.

Attorneys at Law

04/19/21

To: BANC Commission

From: BANC Counsel

RE: Acknowledgment & Acceptance of 2021 BANC Summer Load & Resources Assessment

Included in the Commission packet for the April 28, 2021 BANC Commission meeting is the 2021 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 the Operating Committee developed a much more detailed evaluation for 2021 compared to past years. This reflects the concerns raised coming out of the extreme heat wave experienced in the Western Interconnection in 2020. As a result, the analysis looked 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 2021 summer operating season. However, under certain assumptions the operating margin for BANC is narrower than we have seen in the past.

Because reliable grid operation is the central and paramount function of BANC, the Commission is requested to acknowledge receipt and accept the 2021 Summer Load and Resources Assessment by resolution.

**Balancing Authority of Northern California
Resolution 21-04-19**

**ACKNOWLEDGEMENT AND ACCEPTANCE OF THE 2021 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, the Operating Committee has produced the 2021 Summer Load & Resource Assessment (“Assessment”), which describes expected loads, resources, and operating conditions for the coming summer season.

WHEREAS, the Assessment concludes that system resources will be adequate to meet expected load for the coming summer operating season.

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 28th day of April 2021, by the following vote:

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

Dan Beans
Chair

Attest by: C. Anthony Braun
Secretary

2021 SUMMER

LOADS & RESOURCES ASSESSMENT



Balancing Authority of Northern California

April 2021

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.....	3
2. 2020 Summer Review.....	7
2.1 System Load.....	7
2.2 System Generation.....	8
2.3 System Import.....	8
3. 2021 Summer Assessment.....	9
3.1 Forecasted System Load.....	9
3.2 Forecasted Resource Supply.....	11
3.2.1 Hydro Generator ELCC and NQC.....	15
3.2.2 Thermal Generator ELCC and NQC.....	15
3.2.3 Solar and Wind Generation ELCC and NQC.....	15
3.3 Forecasted System Import.....	15
3.4 Forecasted System Export.....	16
3.5 Forecasted Demand Response.....	16
3.6 Forecasted Operating Reserves.....	16
3.7 Scheduled Generation/Transmission Outages.....	17
3.8 Forecasted Base Case Supply & Demand Outlook.....	17
3.9 Monte Carlo Probability Simulation.....	20
3.10 Wildfire Outlook.....	21
3.11 Special Operating Scenarios.....	22
3.11.1 COI N-1 Contingency Due to Wildfires.....	22
3.11.2 Extreme West-Wide Heat Wave.....	24
3.11.3 CAISO in EEA 3.....	26
3.11.4 Smoke Impacts Due to Wildfires.....	26
3.12 Engineering Studies.....	27
3.13 Conclusions.....	27

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 the matching of generation to load 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

2021 BANC SUMMER LOADS & RESOURCES ASSESSMENT

This BANC summer load and resources assessment report provides an assessment of the load forecast, resource supply, and energy imports in the 2021 summer operating season – June 1st, 2021 through October 31st, 2021, for the BANC Balancing Authority Area (BAA).

The forecasted BANC 1-in-2 peak load for 2021 summer is 4460 MW which is 115 MW or 2.5% lower than the actual 2020 BANC peak load of 4575 MW. The forecasted 1-in-2 peak loads for the SMUD and WAPA footprints are 2938 MW and 1522 MW, respectively.

The forecasted BANC 1-in-10 peak load for 2021 summer is 4775 MW which is 200 MW or 4.4% higher than the actual 2020 BANC peak load of 4575 MW. The forecasted 1-in-10 peak loads for the SMUD and WAPA footprints are 3157 MW and 1618 MW, respectively.

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

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

2021 BANC SUMMER LOADS & RESOURCES ASSESSMENT

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

The assessment results show that

- BANC’s hourly gross peak load is forecasted to be at HE18 and BANC’s hourly net peak load is forecasted to be at HE19.
- The most stressed operating condition will be if BANC’s peak load occurs in August as the available Hydro generation and Solar generation is forecasted to be less.
- 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 and system reliability requirements for 2021 summer with sufficient Operating Margin (OM) as shown in Table 1-1 below.
- The Monte Carlo probability simulation results show that BANC has a low risk of 4.70% (or 1 day in 21 years) to be in an EEA 3 and an extremely low risk of 0.15% (or 1 day in 666 years) to shed firm load, both of which are lower than the industry LOLP benchmark of 1 day in 10 years.
- The analyses indicate that BANC would have sufficient OM for the special operating scenarios of N-1 contingency on COI due to wildfires, smoke due to wildfires, and CAISO in an EEA 3.
- The only extreme operating condition where BANC shows a risk of an EEA3 is when there is a West-Wide heat wave causing 1-in-20 load with no non-dependable import available.

Table 1-1: 2021 Summer Base Case Supply & Demand Outlook at Gross & Net Peak Hours

	BANC BA		SMUD Footprint		WAPA Footprint	
	HE18	HE19	HE18	HE19	HE18	HE19
2020 Generation (MW)	5219		2413		2806	
Generation Outage (MW)	(0)		(0)		(0)	
Retired Generation (MW)	0		0		0	
New Generation (MW)	197		197		0	
2021 Generation (MW)	5416		2610		2806	
Peak Load Hour	HE18	HE19	HE18	HE19	HE18	HE19
Equivalent ELCC	81.9%	80.1%	80.4%	76.9%	83.6%	83.3%
Total Generation NQC (MW)	4438	4339	2091	2001	2347	2338
Forecasted Import (MW)	1979	1841	1322	1220	657	621
Forecasted Export (MW)	(770)	(759)	(0)	(0)	(770)	(759)
Demand Response (MW)	81	61	54	47	27	14
Total Supply (MW)	5728	5482	3467	3268	2261	2214
1-in-2 Load + Reserves (MW)	4759	4660	3103	3018	1656	1642
1-in-2 OM * (MW)	969	822	364	250	605	572
1-in-2 OM * (%)	20.4%	17.6%	11.7%	8.3%	36.5%	34.8%
1-in-10 Load + Reserves (MW)	5094	4988	3334	3243	1760	1745
1-in-10 OM * (MW)	643	494	133	25	501	469
1-in-10 OM * (%)	12.4%	9.9%	4.0%	0.8%	28.5%	26.9%

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

2021 BANC SUMMER LOADS & RESOURCES ASSESSMENT

Water Conditions as of April 1, 2021:

- United States Bureau of Reclamation's (USBR) Central Valley Project (CVP) reservoir storage levels were at approximately 76% of historical average
- Northern Sierra snowpack was at 69% of its historical average
- Northern California precipitation was at 52% of its historical average
- Forecasted statewide snowmelt runoff is at about 50% of an average water year
- SMUD's storage reservoirs were at 78% of historical April average and the inflow to the storage reservoirs is projected to be 50% of median.
- With less than 70% of precipitation and snowpack, the 2020-2021 water season is classified as "dry" according to California Department of Water Resources' (CDWR's) Bulletin 120 released on March 8, 2021.

Resource Availability Forecasts as of April 1, 2021:

- Based on the current outage information, all SMUD and CVP hydro resources are expected to be available during the 2021 summer peak months.
- The total hydro power peak or energy production is projected to be lower than the historical average based on water conditions.
- One-half of the Sutter Energy Center (SEC) or 275 MW will continue to be available to SMUD and the other half of the SEC or 275 MW is available to the CAISO BA.

California Oregon Intertie (COI) Import Capability:

- Based on the seasonal study performed by the California Operating Sub-Committee (OSS), the 2021 summer COI operating nomogram is similar to 2020.
- Wildfire threat continues to be a risk with the threat areas and fire-season period both expanding and increasing the risk of Public Safety Power Shutoff (PSPS) events or actual outages.
- The CAISO has committed to support BANC if a PSPS event on the CAISO controlled portion of COI should create resource shortage conditions for BANC.

2. 2020 Summer Review

2.1 System Load

The recorded BANC peak load for 2020 summer reached 4575 MW at 16:46:37 on August 16, 2020, which was 89 MW (or 2%) higher than BANC’s peak load in 2019 (4486 MW). During the 2020 summer, California experienced two extreme heat waves in mid-August and early-September such that BANC reached the second highest load since 2009 despite the increased installations of the Behind-The-Meter (BTM) solar photovoltaic (PV) generation and SMUD’s implementation of its residential Time-Of-Day (TOD) rates.

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

On August 16, 2021, the BANC BA reached its peak load simultaneously when WAPA footprint reached its peak load. The Simultaneous Peak Load for the WAPA footprint was 1527 MW and the Simultaneous Peak Load for the SMUD footprint was 3048 MW. The SMUD footprint reached its Non-simultaneous Peak Load of 3059 MW at 16:42:15 on August 18, 2020. During the 2020 August heat wave, MID and the City of Shasta Lake set their new peak load records of 702 MW and 37 MW respectively.

Table 2-1 below shows the Simultaneous Peak Loads and Non-simultaneous Peak Loads and a comparison of 2020 actual Non-simultaneous Peak Loads vs. 2020 forecasted Non-simultaneous Peak Loads for BANC and all BANC entities.

Table 2-1: 2020 Simultaneous and Non-simultaneous Peak Loads vs. 2020 Forecasts

	Non-simultaneous Peak Load Forecast (MW)	Actual Non-simultaneous Peak Load (MW)	Non-simultaneous Peak Load MW Difference	Non-simultaneous Peak Load % Difference	Actual Simultaneous Peak Load ¹ (MW)
BANC BA	4484	4587	-103	-2.2%	4575
SMUD	2923	3059	-136	-4.4%	3048
MID	706	702	4	0.6%	673
RSC	337	352	-15	-4.3%	344
REU	229	225	4	1.8%	184
CSL	33	37	-4	-10.8%	32
TPUD	24	26	-2	-7.7%	19
WAPA Footprint	1561	1527	34	2.2%	1527

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

2021 BANC SUMMER LOADS & RESOURCES ASSESSMENT

2.2 System Generation

The Sutter Energy Center (SEC) continued to be available at 258 MW capacity for summer 2020 as a part of generation for SMUD. In addition, 9 MW of net metered solar generation went on-line in the BANC footprint in 2020. BANC's total generating capacity increased to 5219 MW. Table 2-2 shows generation levels of BANC entities collected in PI at the 2020 BANC peak load (16:46:37 on 8/16/2020).

Table 2-2: BANC Entities Generation Levels at 2020 BANC Peak Load Moment

	Generation (MW)	Simultaneous Peak Load (MW)	Generation Capacity (MW)	Generation Output %
BANC BA	3374	4575	5219	64.6%
SMUD	1608	3048	2413	66.6%
MID	342	673	469	72.9%
RSC	147	344	231	63.6%
REU	92	184	182	50.5%
CSL	0	32	0	N/A
TPUD	0	19	0	N/A
WAPA Footprint	1766	1527	2806	62.9%

2.3 System Import

With the completion of PG&E's Palermo-Rio Oso 115 kV reconductoring project in 2014, the transfer capability of COI has been greatly improved (up to 1175 MW increase under high Northern California Hydro condition). Table 2-3 shows the simultaneous import levels of BANC entities at the 2020 peak load. The data shows BANC entities heavily relied on imports to serve load (approximately half of the load in SMUD, MID, RSC, and REU were served by imports).

Table 2-3: BANC Entities' Import Levels at 2020 Peak Load Moment

	Simultaneous Import (MW)	Simultaneous Peak Load (MW)	Import/Load Ratio
BANC BA	1201	4575	26.3%
SMUD	1441	3048	47.3%
MID	331	673	49.2%
RSC	197	344	57.3%
REU	92	184	50.0%
CSL	32	32	100%
TPUD	19	19	100%
WAPA Footprint	-238 (Export)	1527	-15.6%

3. 2021 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 Northwest Power Pool (NWPP) area, and the reliance of BANC entities on the imports from the CAISO and NWPP areas, more thorough and detailed analyses are performed to assess BANC's load and resource outlook and evaluate BANC's risk of energy or capacity shortages either during normal or emergency conditions. The key analyses and studies that are performed are summarized as follows:

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

3.1 Forecasted System Load

Due to the increase of the renewable generation within BANC footprint, BANC's summer assessment will need to cover both the gross peak load and the net peak load. The gross peak load is the conventional peak load that is served with all resources. The net peak load is defined

2021 BANC SUMMER LOADS & RESOURCES ASSESSMENT

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 2021 summer is 4460 MW, which is 115 MW lower than the actual 2020 BANC peak load of 4575 MW. The forecasted BANC 1-in-10 gross peak load is 4775 MW, which is 200 MW higher than the actual 2020 BANC peak load of 4575 MW. For 2021 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 net peak load. The load profiles showed that BANC’s hourly gross peak load is at HE18 and the hourly net peak load is at HE19.

Table 3-1: 2021 Forecasted Peak Loads for BANC Entities

	Forecasted 1-in-2 Gross Peak Load (MW)	Forecasted 1-in-2 Net Peak Load (MW)	Forecasted 1-in-10 Gross Peak Load (MW)	Forecasted 1-in-10 Net Peak Load (MW)
SMUD	2938	2795	3157	3009
WAPA Footprint	1522	1504	1618	1600
MID	657	630	684	657
Roseville Electric	334	334	384	384
REU	225	225	237	237
Shasta Lake	32	32	37	37
Trinity PUD	25	25	28	28
2020 Forecasted BANC Peak Load	4460	4299	4775	4609

Figure 3-1 below shows a comparison of forecasted 2020 non-simultaneous peak load with the historical peak load since 2006 (all-time peak load year) for BANC, SMUD, and WAPA footprint.

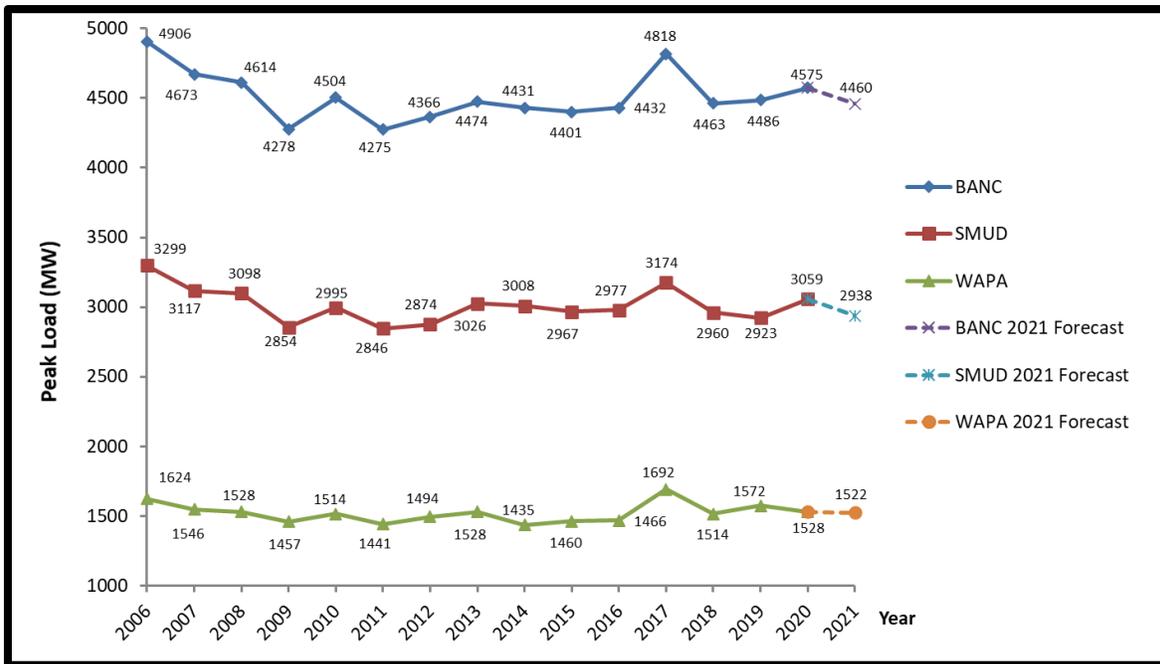


Figure 3-1: 2021 Forecasted Peak Load vs. Historical Peak Load

2021 BANC SUMMER LOADS & RESOURCES ASSESSMENT

Figure 3-1 shows that all BANC entities' peak loads declined significantly after the all-time peak recorded during the 2006 multi-day heat wave due to the economic recession. 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 solar photovoltaic generation. Several BANC entities, such as MID, City of Roseville, City of Shasta Lake, and WAPA footprint, even set their new all-time peak load records in 2017. In 2018 and 2019, BANC entities peak loads have been fairly flat due to the increased installations of BTM solar and SMUD's implementation of the Time-Of-Day rates in 2019.

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

The Figure 3-2 below shows the highest temperature in Sacramento area in recent years. BANC's peak load occurred either on these days or subsequent days due to the impact of holidays or weekends, except for 2017, where BANC's peak load occurred on 6/20/2017. The data also shows that the highest temperature day is moving towards August in recent years. In addition, considering that the hydro generator capabilities and solar generation in August are lower than June and July, it is assumed in this assessment that the 2021 BANC peak load day is in August as it will be the most severe operating condition.

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

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

3.2 Forecasted Resource Supply

In late 2020, 174.4 MW of new solar generation went into service and there will be another 5.6 MW of net metered solar generation coming on-line before the 2021 summer. In addition, one-half of SEC of 275 MW will continue to be available as a part of SMUD's generation. BANC's total installed generation capacity will increase to 5416 MW, of which, 2704 MW (49.9%) is hydro generation, 2315 MW (42.7%) is thermal generation, 16 MW (0.3%) is biogas generation, and

2021 BANC SUMMER LOADS & RESOURCES ASSESSMENT

381 MW (7.0%) is solar generation. In total, 56.9% of the installed generation capacity within BANC is carbon-free.

As half of BANC’s generation capacity is Hydro, the forecasted hydro generation availability is critical based on the Water Conditions, including reservoir levels, snowpack levels, precipitations, and snowmelt runoffs. According to the California Department of Water Resources (CDWR) website, the 2021 Water Conditions as of April 1, 2021 are summarized as follows:

- USBR’s CVP reservoirs were at approximately 76% of historical average (Figure 3-3)
- Northern Sierra snowpack was at 69% of its historical average (Figure 3-4)
- Northern California precipitation was at 52% of its historical average (Figure 3-5)
- Forecasted statewide snowmelt runoff was at approximately 50% of an average water year (Figure 3-6)
- SMUD’s storage reservoirs were at 78% of historical average and the inflow to the storage reservoirs is projected to be 50% of median.

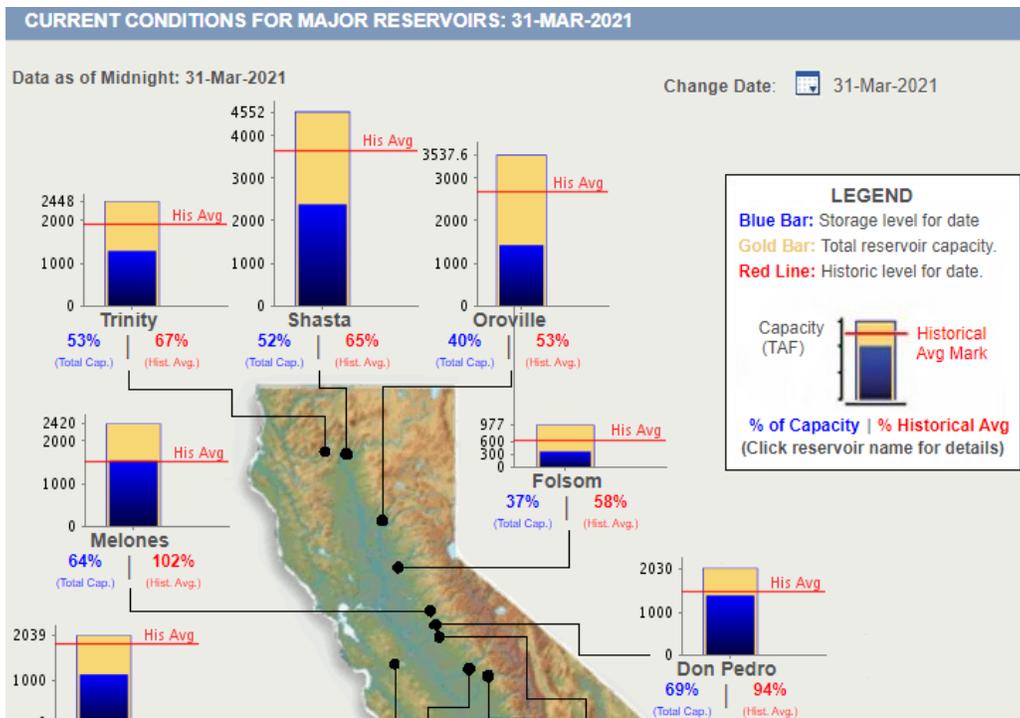


Figure 3-3: Northern California Major Reservoir Level as of 4/1/2021

California Snow Water Content - Percent of April 1 Average For: 29-Mar-2021

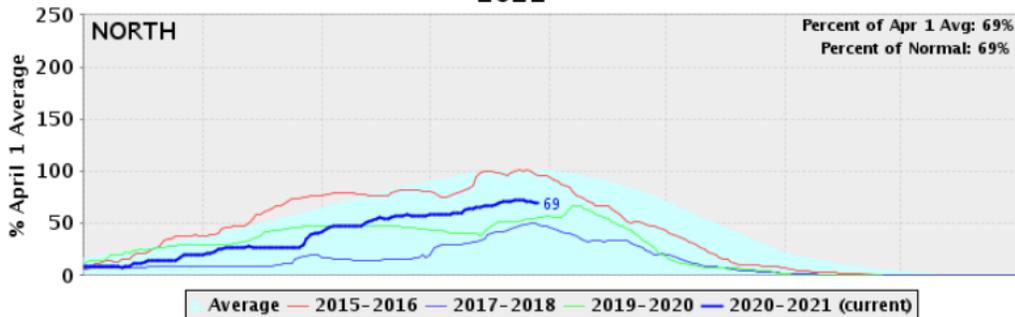


Figure 3-4: Northern Sierra Snowpack Level as of 4/1/2021

2021 BANC SUMMER LOADS & RESOURCES ASSESSMENT

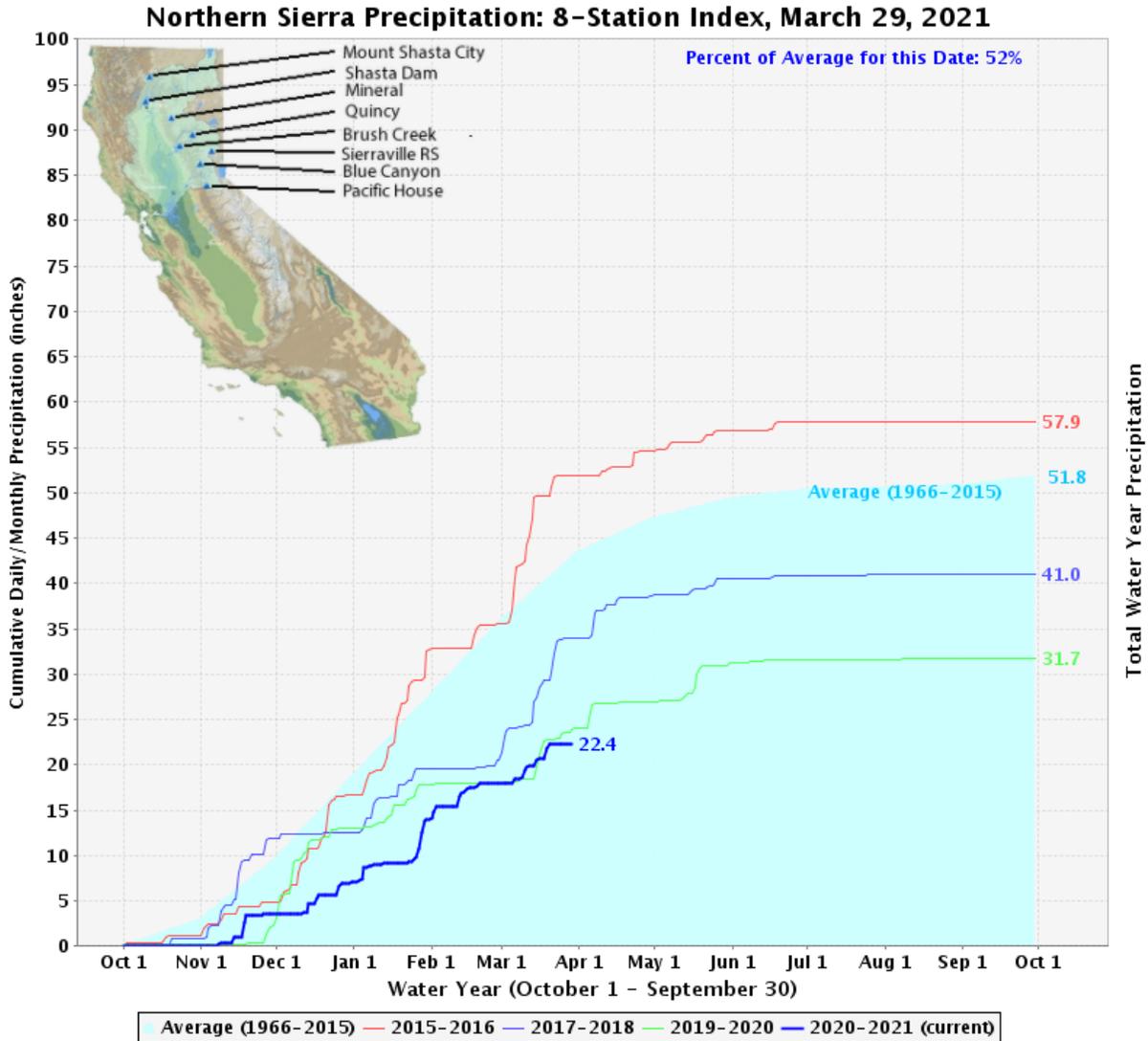


Figure 3-5: Northern Sierra Precipitation as of 4/1/2021

Report generated: March 25, 2021 15:16

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		WY % AVERAGE
											90%	10%	
Trinity, Lewiston	67	52	50	145	156	54	15	4	2	545	395	745	40
Inflow to Shasta	823	282	349	455	355	240	200	179	180	3,063	2,730	3,520	53
Sacramento, Bend	1,162	445	490	578	455	320	247	217	215	4,130	3,590	4,890	48
Feather, Oroville	394	202	240	480	390	175	105	80	70	2,135	1,625	2,645	48
Yuba, Smartville	136	79	95	265	280	90	25	12	12	995	685	1,305	44
American, Folsom	112	110	140	340	330	120	20	7	7	1,185	895	1,590	45

Figure 3-6: Forecasted Snowmelt Runoffs as of 4/1/2021

2021 BANC SUMMER LOADS & RESOURCES ASSESSMENT

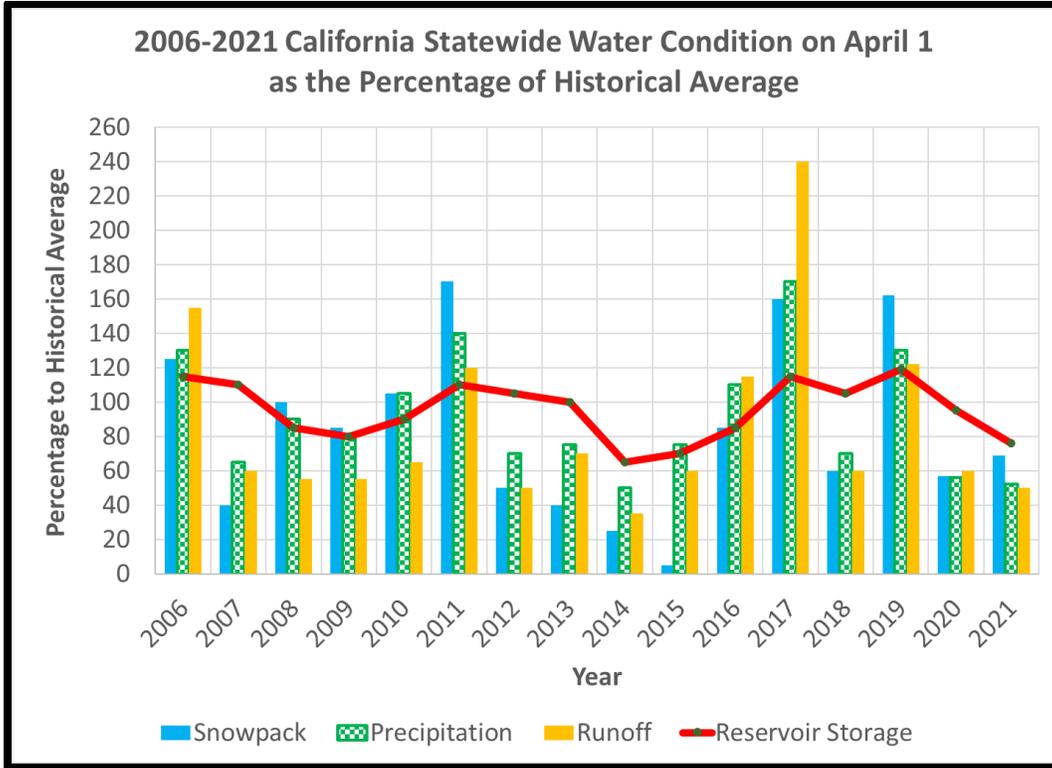


Figure 3-7: 2006-2021 California Statewide Water Condition on April 1

Based on the current outage information, all the SMUD and CVP hydro resources are expected to be available during the 2021 summer. However, the total hydro power production is projected to be lower than the historical average level due to the “Dry” water condition.

Although BANC’s installed generation capacity will reach 5416 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 generator’ 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 2021 Water Conditions shown in Figure 3-3 through Figure 3-7, 2016, 2018, and 2020 are selected as the similar water years.

3.2.2 Thermal Generator ELCC and NQC

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

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

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

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

3.2.3 Solar and Wind Generation ELCC and NQC

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

3.3 Forecasted System Import

The COI is the major path for BANC entities to import capacity and energy from Pacific Northwest (Washington and Oregon) sources. Based on the study performed by the California OSS, the 2021 summer COI operating nomogram under all-line-in-service and normal hydro condition is similar to 2020. According to National Oceanic and Atmospheric Administration (NOAA), the water supply of the Columbia River – the major river runoff supporting hydroelectric power generation in Pacific Northwest (PNW), was forecasted to be 90% of the 30-year normal at the Dalles Dam

2021 BANC SUMMER LOADS & RESOURCES ASSESSMENT

as of April 1, 2021, which indicates a slightly lower than normal hydro energy supply from Pacific Northwest this summer.

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

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

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

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

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

3.4 Forecasted System Export

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

3.5 Forecasted Demand Response

Demand Response (DR) can reduce end-user loads in response to high prices, financial incentives, environmental conditions, or reliability issues. DR can play an important role to offset the need for more generation and provide grid operators with additional flexibility in operating the system during periods of limited supply. There are several DR programs available within BANC BAA with a maximum amount of 81 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

2021 BANC SUMMER LOADS & RESOURCES ASSESSMENT

Operating Reserves (Regulating Reserve plus Contingency Reserve) is calculated for each hour and is considered as a part of BANC's obligation.

3.7 Scheduled Generation/Transmission Outages

According to current available information, there are no major transmission or generation outages scheduled within the BANC footprint during the summer peak months – June, July, and August, except that the Shasta Unit #1 (142 MW) and Trinity Unit #2 (70 MW) will be out of service until late-June. The Table 3-2 below lists the major transmission and generation outages within the BANC footprint and the surrounding areas for the 2021 summer.

Table 3-2: Scheduled Major Outages for 2021 Summer

Start Time	End Time	Outage Facility	Description	Outage Area	Outage Impact
3/25/2021	6/25/2021	Trinity U2	Maintenance	WAPA	70 MW generation outage
4/6/2021	7/20/2021	Lawrence Livermore Lab-Tesla 115 kV Line	CB Maintenance	WAPA	115 kV tie open with CAISO
5/18/2021	6/23/2021	Shasta U1	Maintenance	WAPA	142 MW generation outage

Based on the monthly Hydro ELCC and Solar ELCC studies, the total available resources in June after deducting Shasta Unit #1 and Trinity Unit #2 will still be higher than the total available resources in August.

3.8 Forecasted Base Case Supply & Demand Outlook

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

$$\text{Operating Margin} = \text{Generation NQC} - \text{Outages} + \text{Import} - \text{Export} + \text{DR} - \text{Load} - \text{Reserves}$$

The Operating Margin calculated in this assessment is different than the Planning Reserve Margin (PRM) that is used in the Resource Adequacy analysis as reserves are counted as a part of load obligation. The Table 3-3 defines the operating conditions for the BANC BA per NERC Reliability Standard EOP-011-1. As SMUD and WAPA will provide emergency assistance to each other, they would be in EEA conditions only when the BANC BA is in the EEA conditions.

Table 3-3: BANC Operating Condition Definitions

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

2021 BANC SUMMER LOADS & RESOURCES ASSESSMENT

The base case results show that BANC has sufficient generation and transmission capacity to meet the forecasted 1-in-2 and 1-in-10 load demands and reserve requirements for 2021 summer with sufficient Operating Margin (OM) as shown in Table 3-4 below. However, SMUD may need to activate Demand Response to maintain reserves under a 1-in-10 load condition.

Table 3-4: 2021 Summer Base Case Supply & Demand Outlook at Gross & Net Peak Hours

	BANC BA		SMUD Footprint		WAPA Footprint	
	HE18	HE19	HE18	HE19	HE18	HE19
2020 Generation (MW)	5219		2413		2806	
Generation Outage (MW)	(0)		(0)		(0)	
Retired Generation (MW)	0		0		0	
New Generation (MW)	197		197		0	
2021 Generation (MW)	5416		2610		2806	
Peak Load Hour	HE18	HE19	HE18	HE19	HE18	HE19
Equivalent ELCC	81.9%	80.1%	80.4%	76.9%	83.6%	83.3%
Total Generation NQC (MW)	4438	4339	2091	2001	2347	2338
Forecasted Import (MW)	1979	1841	1322	1220	657	621
Forecasted Export (MW)	(770)	(759)	(0)	(0)	(770)	(759)
Demand Response (MW)	81	61	54	47	27	14
Total Supply (MW)	5728	5481	3467	3267	2261	2214
1-in-2 Load + Reserves (MW)	4759	4660	3103	3018	1656	1642
1-in-2 OM * (MW)	969	822	364	249	605	573
1-in-2 OM * (%)	20.4%	17.6%	11.7%	8.3%	36.5%	34.8%
1-in-10 Load + Reserves (MW)	5094	4988	3334	3243	1760	1745
1-in-10 OM * (MW)	643	494	132	24	500	469
1-in-10 OM * (%)	12.4%	9.9%	4.0%	0.8%	28.5%	26.9%

* 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 shows 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 and SMUD and WAPA footprints.

2021 BANC SUMMER LOADS & RESOURCES ASSESSMENT

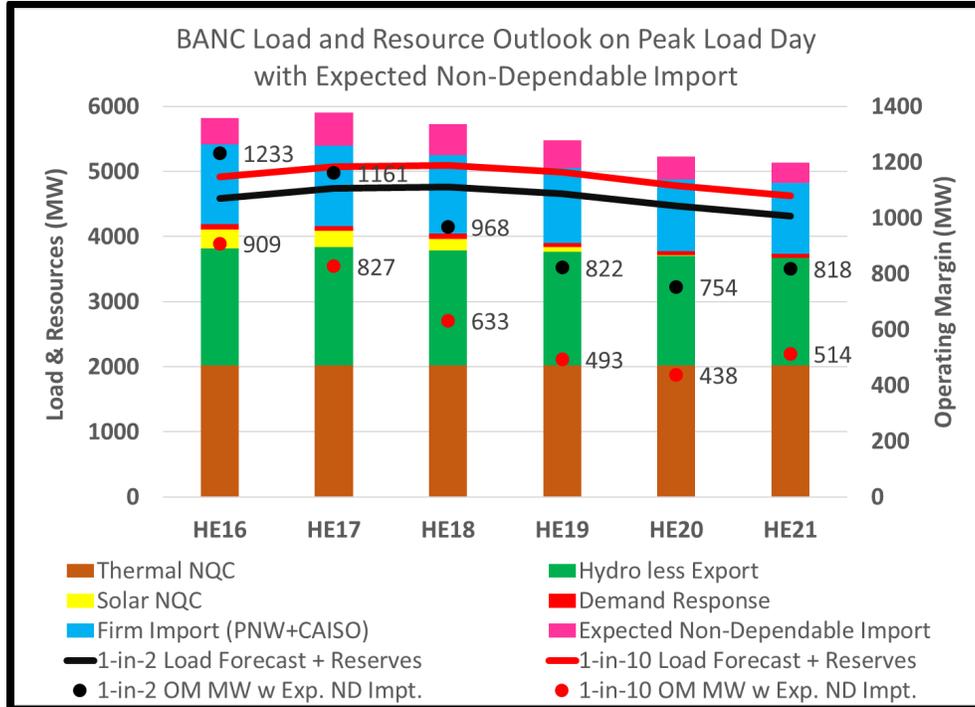


Figure 3-8: BANC Base Case Load and Resources Outlook on Peak Load Day

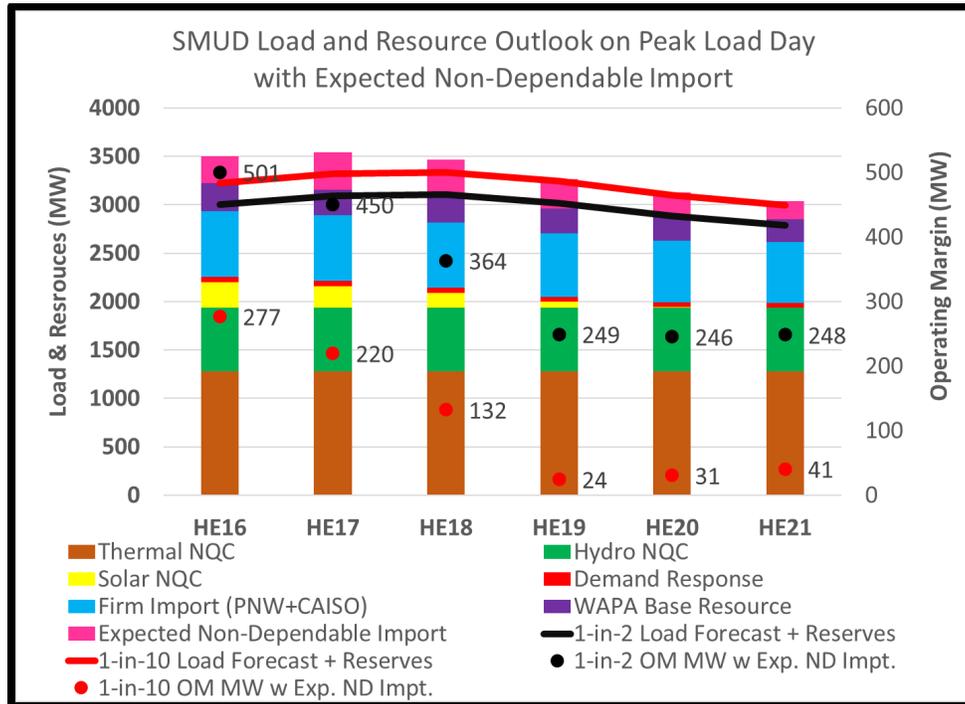


Figure 3-9: SMUD Base Case Load and Resources Outlook on Peak Load Day

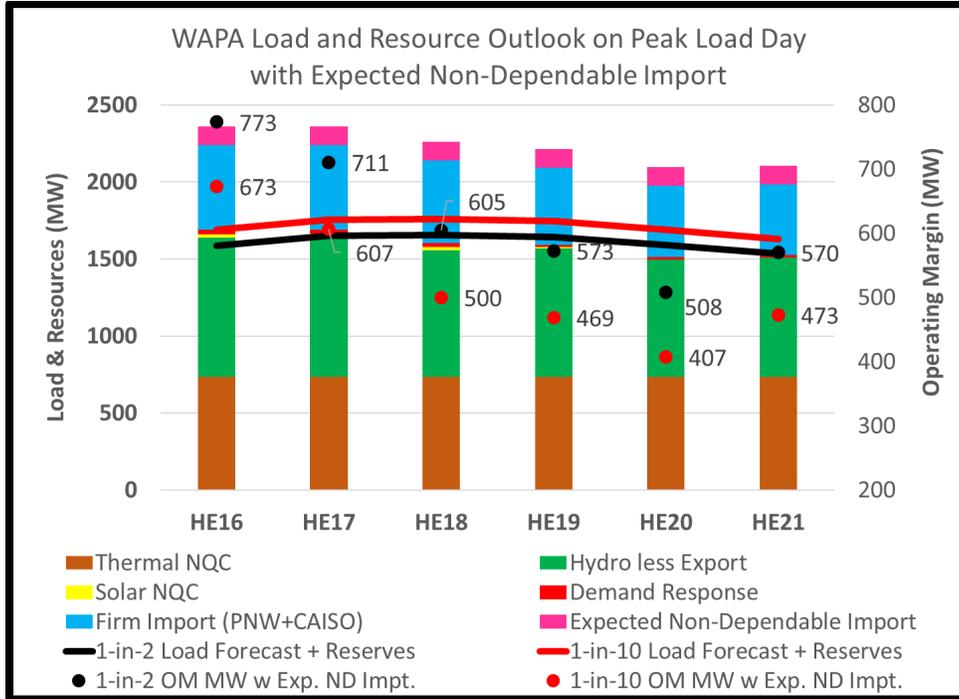


Figure 3-10: WAPA Base Case Load and Resources Outlook on Peak Load Day

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 is to produce a series of random sampling of data based on a mathematical distribution, such as Normal Distribution. Then, the operating conditions will be developed based on the randomly sampled data to evaluate the operating risks. The simulated operating conditions are summarized as follows:

- Simulate 2,000 cases for the critical hours HE16~HE21 of the peak load day, representing 2,000 years of simulation.
- Simulate thermal generator outages based on the Average Forced Outage Rate (AFOR) in the past 3 years, i.e., any thermal generator could be forced out of service based on AFOR.
- Simulate hydro generator capacity based on the actual operating capacity in the past 3 similar water years. The hydro generator capacity could be at any level between the minimum level and the maximum level that occurred during the past 3 similar water years.
- Simulate Solar and Wind generation output based on the historical data in the past 3 years. As the solar and wind generation are related to the temperature, solar and wind generation are simulated to be between the maximum and minimum levels in the past 3 years on the days when the temperature exceeded 100 °F.

2021 BANC SUMMER LOADS & RESOURCES ASSESSMENT

- Simulate load demand beyond 1-in-10 peak load forecast.
- Simulate the reduction of non-dependable import when the load is higher than 1-in-10 forecast, indicating a West-Wide heat wave. The non-dependable import will be reduced to zero when the load reaches 1-in-20 forecast and beyond.
- The operating condition definitions in Table 3-2 are used to determine BANC BA status.

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

- (1) BANC BA has a low risk of 4.70% (or 1 day in 21 years) to be in EEA 3 and an extremely low risk of 0.15% (or 1 day in 666 years) with unserved energy, both of which are lower than the industry LOLP benchmark of 1 day in 10 years.
- (2) WAPA maintains sufficient Operating Margin in all 2000 cases
- (3) SMUD has a risk of 10.55% (or 1 day in 9 years) not being able to maintain positive Operating Margin. However, SMUD does not have unserved energy until BANC BA has unserved energy.

Table 3-5: BANC LOLP Study Results

BA Status	EEA 2	EEA 3	Unserved Energy
Number of Cases	113	94	3
Probability	5.65%	4.70%	0.15%
Number of Years	1 Day in 17 Years	1 Day in 21 Years	1 Day in 666 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	239	211	3
Probability	11.95%	10.55%	0.15%
Number of Years	1 Day in 8 Years	1 Day in 9 Years	1 Day in 666 Years

3.10 Wildfire Outlook

As California is becoming hotter and drier than recent history, these climate changes expand California's wildfire threat area and lengthen the fire season, increasing the risk and the impacts of the wildfires. The wildfire threat has become the No.1 risk to California utility operations. The

Carr Fire and the Camp Fire in 2018 caused devastating impacts to people’s lives. With a “Dry” 2020-2021 water season, the dry vegetation may expand wildfire risk, potentially impacting the availability of transmission lines and generating units. Potential wildfires in or near the 500 kV line corridors pose a significant risk of derate to the COI (such as the Tucker Fire in July 2019), and potential wildfires in the mountain areas could affect the availability of hydro generating units (such as the Carr Fire in 2018). Public Safety Power Shutdowns (PSPS) are now instituted as a measure to mitigate wildfire risks. Under a program to coordinate impacts, the CAISO will provide emergency support to BANC entities in the event where a PSPS impacts the COI and reduces the availability of power to the point of threatening service to load.

According to the National Significant Wildland Fire Potential Outlook released by the Predictive Services National Interagency Fire Center on April 1, 2021, the wildfire risk in Northern California is “Normal” in June and “Above Normal” in July as shown in the Figure 3-11 below. The wildfire outlook for August and September will be released on May 1, 2021.

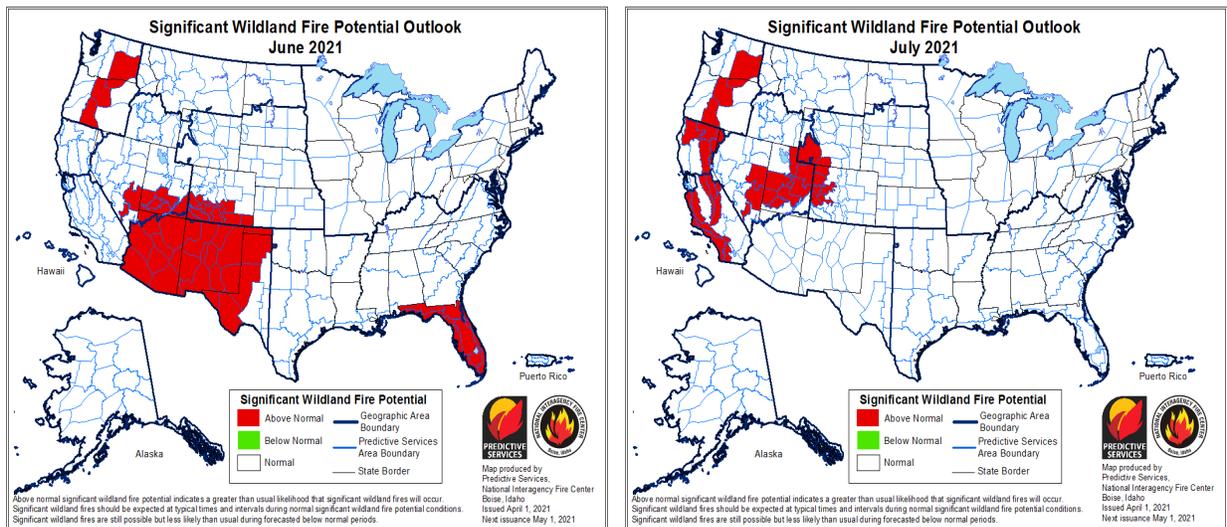


Figure 3-11: U.S. Significant Wildland Fire Potential Outlook for June and July 2021

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 COI N-1 Contingency Due to Wildfires

With the “Above Normal” wildfire risk in 2021 summer as shown in Figure 3-11, there will be an above normal risk for COI to be derated due to wildfires. In the past 3 years, the wildfires created significant impacts to the California’s transmission grid, such as the Carr fire in 2018, the Tucker fire in 2019, and the Lake fire in 2020.

In this assessment, the condition that one of the 500 kV lines in the COI transmission corridor trips due to wildfire is simulated to assess the impacts to BANC entities under both 1-in-2 and 1-

2021 BANC SUMMER LOADS & RESOURCES ASSESSMENT

in-10 load forecasts. The results are shown in the Figure 3-12 through Figure 3-14 and are summarized as follows:

- Event with the significant COI derate, SMUD, WAPA, and BANC BA would be able to maintain sufficient Operating Margins for 1-in-2 load forecast.
- Although SMUD may have a risk of the inability to maintain sufficient Operating Margin under 1-in-10 load forecast, WAPA and BANC BA would be able to maintain sufficient Operating Margins for 1-in-10 load forecast.

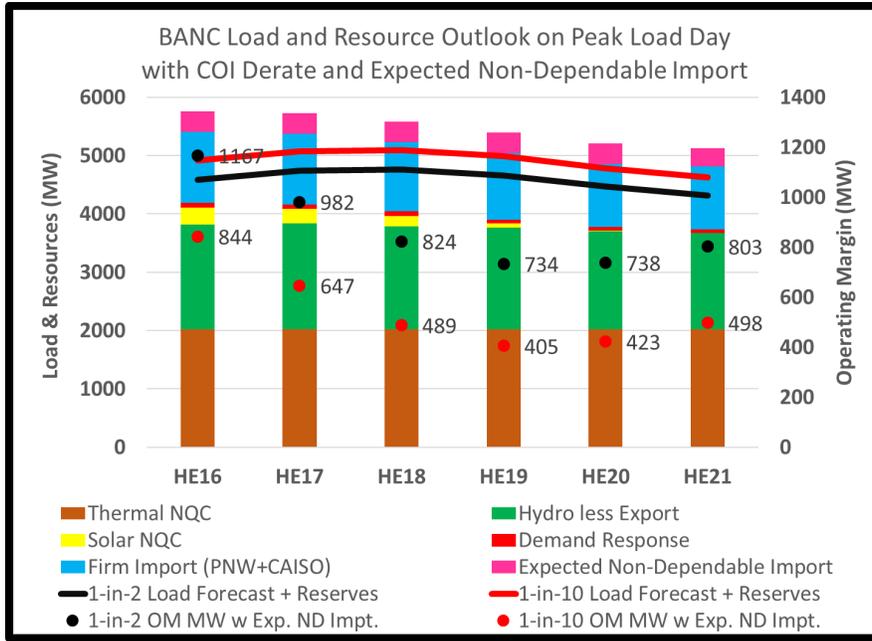


Figure 3-12: BANC Load & Resources Outlook with COI Derate Due to Wildfires

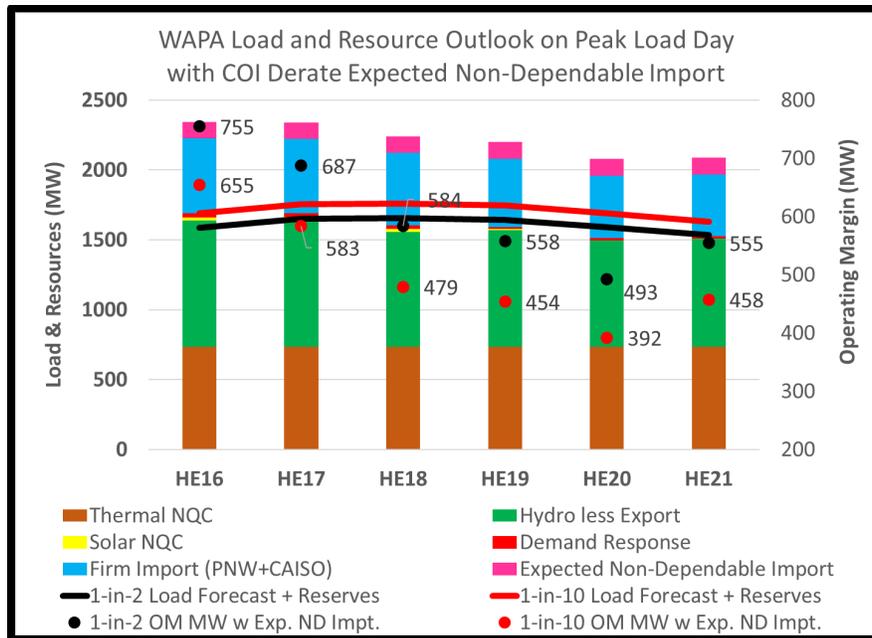


Figure 3-13: WAPA Load & Resources Outlook with COI Derate Due to Wildfire

2021 BANC SUMMER LOADS & RESOURCES ASSESSMENT

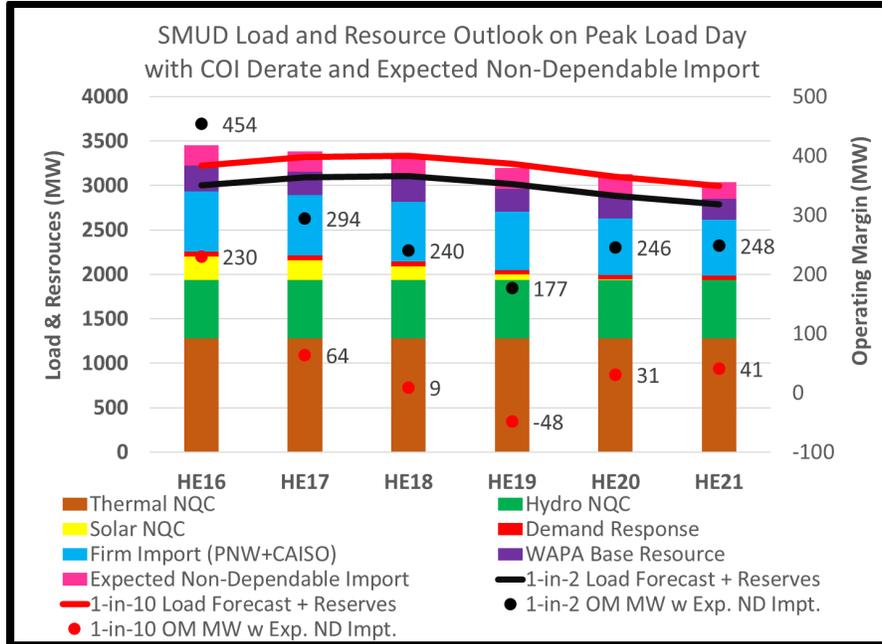


Figure 3-14: SMUD Load & Resources Outlook with COI Derate Due to Wildfire

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	2938	3157	3219
WAPA Footprint	1522	1618	1646
MID	657	684	692
Roseville Electric	334	384	399
REU	225	237	240
Shasta Lake	32	37	38
Trinity PUD	25	28	29
BANC Total	4460	4775	4865

2021 BANC SUMMER LOADS & RESOURCES ASSESSMENT

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

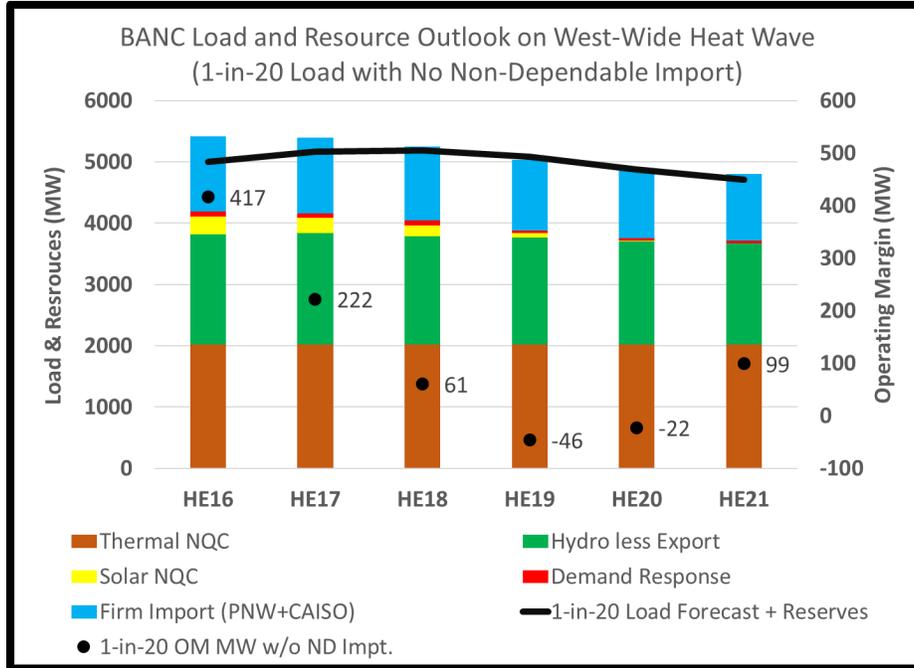


Figure 3-15: BANC Load & Resources Outlook with 1-in-20 Load and No ND Import

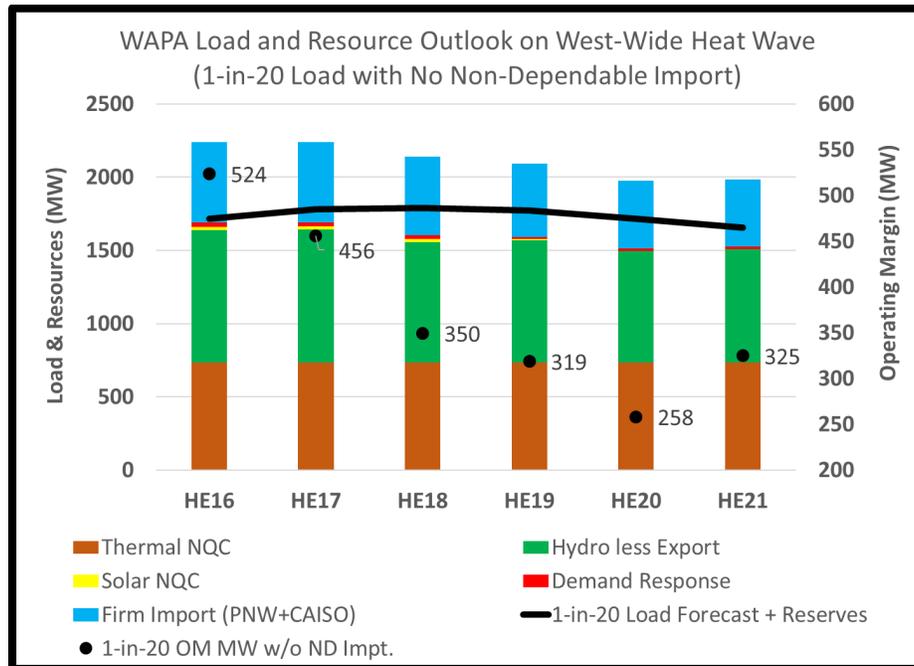


Figure 3-16: WAPA Load & Resources Outlook with 1-in-20 Load and No ND Import

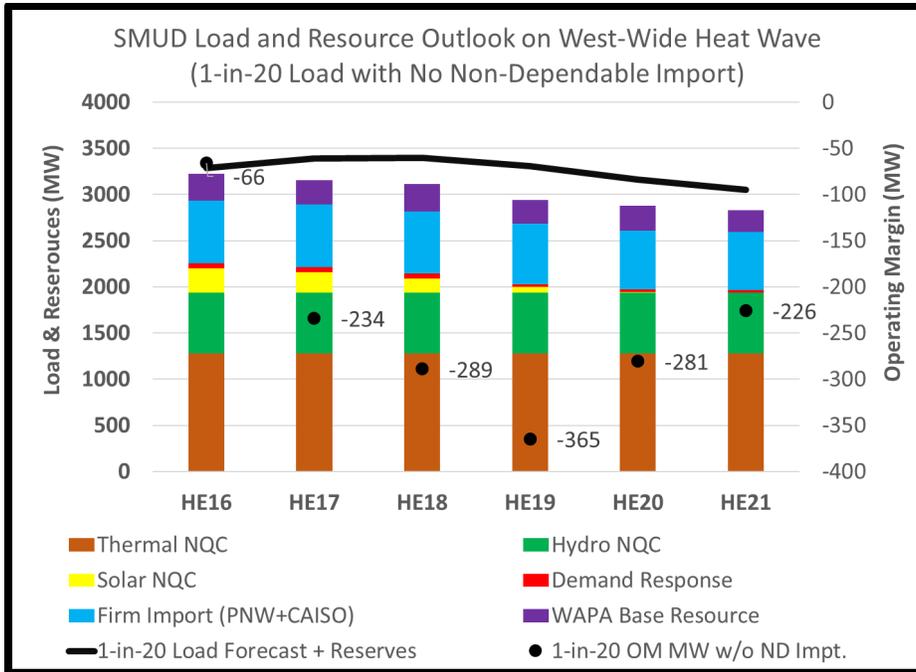


Figure 3-17: SMUD Load & Resources Outlook with 1-in-20 Load and No ND Import

3.11.3 CAISO in EEA 3

As the BANC entities rely heavily 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 latest CAISO proposal for the 2021 summer market enhancement 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 fires in August 2020, the severe smoke and ash covered the central valley area for many days, reducing the output of solar generation. Some basic analysis estimated that the solar generation could be reduced by 30~40%, which would be approximately 30~80 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 2021 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 2021 summer 1-in-2 and 1-in-10 load demands while meeting NERC/WECC Reliability Standards.

3.13 Conclusions

The 2021 forecasted 1-in-2 and 1-in-10 peak loads for BANC BA are 4460 MW and 4775 MW respectively. Although the 2020-2021 water season is classified as “Dry” due to the less-than-60% precipitation and the less-than-70% snowpack, the summer load and resources assessment and engineering studies show that BANC will be able to meet the forecasted 1-in-2 and 1-in-10 peak loads for the 2021 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 2021 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 2021 summer under normal and emergency system conditions.