



Department of Energy
Western Area Power Administration
P.O. Box 281213
Lakewood, CO 80228-8213

MEMORANDUM FOR TRACEY A. LEBEAU
ADMINISTRATOR AND CHIEF EXECUTIVE OFFICER

FROM: MICHELLE R. WILLIAMS
SENIOR VICE PRESIDENT AND
SIERRA NEVADA REGIONAL MANAGER

SUBJECT: Recommendation for the Western Area Power Administration's Sierra Nevada Region to Participate in California Independent System Operator's Extended Day Ahead Market

REQUESTED ACTION:

Conditional Approval for the Western Area Power Administration (WAPA) Sierra Nevada Region (SN) to work with the Balancing Authority of Northern California (BANC) on participation in California Independent System Operator's (CAISO) Extended Day Ahead Market (EDAM) and to negotiate and execute necessary agreements to allow SN to participate in EDAM; provided:

1. The CAISO EDAM market design and implementation enables Inter-SC Trades (IST) of energy at the Central Valley Project (CVP) Trading Hub according to the Memorandum of Understanding (WAPA Agreement No. 24-SNR-03098) between WAPA and the CAISO¹.
2. The CVP generation in EDAM footprint is eligible to provide Resource Adequacy (RA) and qualifies as Use-Limited Resource (ULR) and Conditionally Available Resource (CAR) under the CAISO Tariff².
3. The federal contract provisions applicable to WAPA as previously accepted by the CAISO will be incorporated into any EDAM agreement executed by WAPA and BANC on behalf of WAPA consistent with the letter from the CAISO to WAPA dated May 11, 2020.

¹ According to the MOU, the hourly price for the inter-SC trades executed at the CVP Trading Hub needs to be the hourly weighted average of the locational marginal prices for the aggregated CVP generation resources with the weights being the hourly energy awards of the resources, as produced by the EDAM. The price for CVP Trading Hub will also need to be published at the same time as other inter-SC trade prices.

² As Use-Limited Resource and Conditionally Available Resource, CVP generation would not be required to submit energy bids to match the Resource Adequacy capacity reported to the CAISO one year to one month in advance, i.e., the Must-Offer obligation, CVP generation is not able to meet the CAISO's Must-Offer obligation because of hydro forecasting uncertainty and water management constraints.

If the CAISO is unable to implement the above requirements in EDAM, then SN's participation in EDAM will be delayed until such time when these provisions are available to SN.

BACKGROUND:

In the last twenty-five years, the electric power grid in the western United States has dramatically changed. In 1998, CAISO and California Power Exchange developed a dynamic and fluid energy market that changed the historic bilateral, negotiated, cost-based, contract system. In addition, the expanding deployment of intermittent renewable resources, retirement of coal-fired generation, expanding environmental requirements, implementation of reliability standards, and changing climate are all adding to operational issues that make it more difficult to manage the system in isolation of the expanding energy markets.

With all these dynamics affecting system operations and economics, at both the wholesale and retail level, SN started examining greater participation in the CAISO's markets. In Spring 2021, SN began participation in CAISO's real-time Western Energy Imbalance Market (EIM). Following the success of EIM, the CAISO is planning to expand the market in the much larger day-ahead timeframe under EDAM.

Similar to EIM, the EDAM is a voluntary day-ahead electricity market designed to deliver significant reliability, economic, and environmental benefits to balancing areas and utilities throughout the west. By leveraging the significant resource diversity and transmission connectivity between major supply and demand regions throughout the western United States, the EDAM is designed to deliver additional benefits to those realized in the EIM through greater reliability coordination and resource optimization.

RISK ASSESSMENT:

Many investor-owned utilities and public power entities in the western United States are currently exploring joining CAISO's EDAM to take advantage of economies of scale and the inherent diversity between loads and resources across a larger geographic footprint. PacifiCorp and Portland General Electric have announced their go-live date of Spring/ Fall 2026. Los Angeles Department of Water & Power, NV Energy, Idaho Power, and BANC are planning to join EDAM in Spring 2027. Additionally, the following BANC members have received approval from their respective Boards to move forward to join EDAM: Sacramento Municipal Utilities District (SMUD), City of Redding, City of Roseville, and Modesto Irrigation District. If SN's recommendation to join EDAM is approved, SN along with the rest of the BANC members will join EDAM with a go-live date in Spring 2027.

As more organizations join EDAM, it will impact traditional, bilateral, contract-based energy sales in the day-ahead market. CAISO EDAM design requires participants to commit transmission and day-ahead energy to EDAM. This reduces day-ahead energy and transmission available for bilateral sales.

COST AND BENEFITS:

SN has worked with BANC and evaluated the costs and benefits of participating in CAISO EDAM. SN anticipates estimated one-time implementation costs of \$450,000 and estimated ongoing, annual costs of \$33,000. These estimates are SN's share of the BANC cost and are based on a go-live date of Spring 2027.

From the benefits perspective, BANC contracted with the Brattle Group to perform an EDAM Market Results study for the BANC participant's potential participation in EDAM. Based on the analysis, BANC's 2032 footprint annual benefits are estimated to be \$9.5 million per year. Excluding SMUD, rest of the BANC participant's (including SN) estimated benefits are \$4.1 million per year. The Brattle study did not evaluate SN benefits only.

Industry wide, PacifiCorp released the results of their study that Brattle Group performed on EDAM benefits. The PacifiCorp study simulated an expanded 2032 EDAM footprint including all entities that have announced their decision to join, including BANC³. The study shows net annual EDAM benefits of \$889 million for the expanded EDAM footprint.

Although there may be a financial benefit, as noted above, SN's primary reason for participating is to ensure SN secures adequate trading partners to ensure a robust energy market for just and reasonable prices. Additionally, SN believes that participating in CAISO's EDAM:

- Reduces WAPA financial risk if there are little or no resources to purchase.
- Mitigates the negative impacts of a changing generation mix.
- Addresses WAPA energy imbalance requirements with greater available resources.

INFORMAL CUSTOMER STAKEHOLDER PROCESS:

SN started communication and coordination with U.S. Department of the Interior, Bureau of Reclamation and CVP customers in Fall 2023. SN held six customer meetings over a 11-month period from September 2023 through August 2024. Two initial meetings were held in September 2023 and December 2023. After the December meeting, SN staff worked with BANC and CAISO to address the following issues that are critical to SN's potential participation in EDAM.

1. Transmission Revenue Recovery
2. Transmission Loss Revenue Recovery
3. SN Power Marketing Plan Implementation
4. CVP Generation qualifies for Resource Adequacy

After the issues were discussed with CAISO, and CAISO agreed to address those, SN re-started the customer stakeholder process with four meetings held from June 2024 through August 2024.

In customer meetings, SN shared information about EDAM and how it will impact business processes. The information from the BANC EDAM Market Results study were also presented during the stakeholder process on December 5, 2023. SN encouraged its customers to provide comments and concerns regarding SN's participation in EDAM. SN did not receive any negative comments indicating that it should not explore or participate in EDAM. However, Northern California Power Agency (NCPA) is concerned about how much Resource Adequacy (RA) will be provided from CVP under EDAM (see issue #4 above). SN and Reclamation met with NCPA to better understand the concerns and answer questions. NCPA still has residual concerns which will be addressed during EDAM implementation.

³ Other Entities are PacificCorp, Portland General, CAISO, Idaho Power, LADWP, NV Energy, Seattle City Light

All meeting presentations, customer questions and responses are documented in meeting notes posted on an external WAPA website at

<https://www.wapa.gov/about-wapa/regions/sn/sn-power-marketing/extended-day-ahead-market-activities/>

SN evaluated and prepared a National Environmental Policy Act Categorical Exclusion (NEPA CX) document for potential participation in EDAM. The NEPA CX is posted on the website link above.

CRITICAL ISSUES FOR SN'S PARTICIPATION IN EDAM:

After approval of the CAISO EDAM design, SN staff engaged in the CAISO's EDAM stakeholder process to assess the impact to SN and the feasibility of joining EDAM. During the EDAM analysis phase, SN identified four critical issues listed below.

Issue #1 (Resolved): Transmission Revenue Recovery: SN needs to continue to receive revenues from short-term transmission sales.

Resolution: On June 11, 2024, FERC approved the CAISO's Tariff filed on April 12, 2024, regarding EDAM transmission access charge. SN expects to recover short-term transmission revenues through EDAM.

Issue #2 (Resolved): Transmission Loss Revenue Recovery: SN needs to continue to recover transmission losses according to its rate schedule.

Resolution: SN will continue to recover transmission loss revenues according to its rate schedule. The CVP generation covering the losses for non-preference power will be paid by the Locational Marginal Price (LMP) in EDAM. If the LMP is less than the CVP generation cost, SN will collect the remaining balance from the transmission customers. The preference customers will continue to pay transmission losses for delivering preference power through the power revenue requirement.

Issue #3 (Pending Resolution): SN Power Marketing Plan Implementation: SN needs to continue to serve CVP customers according to the SN Power Marketing Plan. Currently CVP generation is delivered to the customers using contract-path based schedules. After EDAM, contract-path based scheduling practice will be replaced by the CAISO's flow-based market optimization. A new mechanism is needed for SN to pass CVP generation to its customers.

Resolution: Under EDAM, CVP generators will be modeled in the CAISO's system by three generation aggregations: New Melones Aggregation, Folsom and Nimbus Aggregation, and Shasta and Trinity River division Aggregation. These generation aggregations will bid and receive payment by LMP at their respective locations. The CAISO will create a CVP Trading Hub for Inter-SC Trades, and the price will be the weighted average of the hourly LMPs at the three CVP generation aggregates with the weights being the EDAM schedules.

SN will transfer energy to preference customers by Inter-SC Trade at the CVP Trading Hub. The precise definition of the CVP Trading Hub and its pricing is important to ensure settlement neutrality, i.e., what SN receives from the CAISO is exactly what SN passes to its preference

customers. This new definition of the CVP Trading Hub requires the CAISO to extend its current definition of the trading hubs in the CAISO Balancing Authority Area to the EDAM participants. The CAISO has agreed to make the change and started a stakeholder process to amend its Tariff to enable Inter-SC Trade in the EDAM footprint outside of CAISO Balancing Authority Area. The CAISO Board of Governors and Western Energy Imbalance Market (WEIM) Governing Body approved the Inter-SC Trades proposal at their September 25, 2024, meeting. A tariff amendment is expected to be filed with FERC in mid-October.

Issue #4 (Pending Resolution): CVP Generation needs to be eligible for providing Resource Adequacy (RA): SN will use CVP to provide RA to CVP customers in the CAISO Balancing Authority Area (BAA). Currently, CVP generation is not recognized by the CAISO as eligible resource to provide RA because CVP generation is not in the CAISO BAA. The CAISO's market model does not link the CVP energy import into the CAISO BAA because the import can also come from other sources.

Resolution: Once SN joins EDAM, CVP generation will be visible in the EDAM footprint and CAISO has acknowledged that CVP generation would be eligible as RA resources even though CVP generation still would not be in the CAISO BAA. However, as hydro generation with forecast uncertainties and water management limitations, CVP generation will not meet CAISO's Must-Offer obligation for RA resources (i.e., bidding full RA capacity based on month-ahead forecast) unless CVP generation qualifies as ULR and CAR which relax the Must-Offer obligation. Although the CAISO did not see why CVP would not qualify as ULR and CAR resource, CVP generation still needs to go through the CAISO application process to be officially certified as ULR and CAR resource. The CAISO has no incentive to take a position on not qualifying CVP generation as such but until CVP generation is officially certified as such, there is still an uncertainty.

In addition to the above four issues, SN notes as BANC negotiates the terms of its participation with the CAISO, other issues may arise that are not immediately apparent, and SN may need to revisit SN's assumptions about joining EDAM and address new issues.

ACTION REQUESTED OF ADMINISTRATOR AND CEO:

Approval for SN to:

Negotiate and execute necessary agreements to allow SN participation in EDAM provided Issues #3 and #4 listed above are implemented in EDAM by the CAISO, and no other issues arise during negotiations or implementation.

If Issues #3 and #4 are not implemented, SN's participation in EDAM will be delayed until such time when these two issues are addressed for SN.

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Michelle R. Williams

Senior Vice President and SN Regional Manager

ADMINISTRATOR AND CEO DECISION:

APPROVED: _____

DISAPPROVED: _____

cc: (Electronics Copies)

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