

**UNITED STATES OF AMERICA  
BEFORE THE  
FEDERAL ENERGY REGULATORY COMMISSION**

**California Independent System  
Operator Corporation**

**Docket No. ER22-2362-\_\_\_\_\_**

**MOTION OF THE CALIFORNIA INDEPENDENT SYSTEM OPERATOR  
CORPORATION FOR EXTENSION OF TIME**

**I. Introduction**

Pursuant to Rules 212 and 2008(a) of the Federal Energy Regulatory Commission's (Commission) Rules of Practice and Procedure,<sup>1</sup> the California Independent System Operator Corporation (CAISO) submits this motion to request an extension of time to comply with Order No. 881 adopted by the Commission to improve the accuracy and transparency of electric transmission line ratings.<sup>2</sup> Specifically, the CAISO requests: (1) an extension of time to implement its Order No. 881 tariff provisions up to and including December 17, 2026, subject to the CAISO filing a notice with the Commission 7 days before the actual effective date; (2) an extension of time up

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<sup>1</sup> 18 C.F.R. §§ 385.212 and 385.2008(a). Separate from this motion, the CAISO plans to file additional tariff revisions to support its Order No. 881 implementation pursuant to Section 205 of the Federal Power Act. The CAISO requests the Commission address this motion when it issues an order on those tariff revisions.

<sup>2</sup> *Managing Transmission Line Ratings* 177 FERC ¶ 61,179 (2021); *Order Addressing Arguments Raised on Rehearing and Clarification*, 179 FERC ¶ 61,125 (Order No. 881-A) (2022).

to and including October 15, 2027 for the CAISO's participating transmission owners<sup>3</sup> to implement their requirements under Order No. 881 and the CAISO tariff; and (3) an extension of time up to and including October 15, 2027 for public utility transmission providers in the Extended Day Ahead Market (EDAM) and Western Energy Imbalance Market (WEIM) as Order No. 881 relates to their submission of ratings for use in the day-ahead and real-time markets administered by the CAISO. Participating transmission owners, EDAM entities and WEIM entities will not be able to implement the requirements under Order No. 881 as part of their participation in the markets administered by the CAISO until the CAISO has deployed and tested the systems, software and business rules that are necessary to integrate transmission ratings contemplated by Order No. 881 into these markets.

As described herein, the CAISO plans to target a date earlier than December 17, 2026 to make functionality available to submit transmission ratings for use in the real-time and day-ahead markets. However, based on information and belief, the CAISO understands that not all of its participating transmission owners may be ready to submit ratings required by Order No. 881 at that time. For this reason, the CAISO asks the Commission to authorize additional time – up to and including October 15, 2027 - to allow for implementation of Order No. 881 in the CAISO balancing authority area and in

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<sup>3</sup> Pacific Gas and Electric Company; San Diego Gas & Electric Company; Southern California Edison; Western Area Power Administration - Sierra Nevada Region; Trans Bay Cable LLC; Valley Electric Association, Inc.; GridLiance West LLC; DesertLink, LLC; Horizon West Transmission, LLC; DCR Transmission, LLC.; SunZia Transmission, LLC; and LS Power Grid California, LLC. To the extent new participating transmission owners who calculate and submit transmission line ratings join the CASIO balancing authority area, the CAISO requests the Commission extend the relief requested in this motion to those entities.

the markets it administers.<sup>4</sup> This additional time recognizes the necessity of completing additional implementation work likely to extend into 2027 and also avoids undertaking final implementation efforts during the summer season when operational conditions may make deploying new systems and processes challenging.

The extension of time requested in this motion will allow the CAISO to coordinate necessary software deployment to support Order No. 881 implementation with two major market initiatives – its day-ahead market enhancements and EDAM. The extension of time will provide transmission owners and market participants with the opportunity to familiarize themselves with tools the CAISO will use to receive and store transmission line ratings as well as their own systems for developing, transmitting and storing hourly ratings. The extension of time will also allow the CAISO to conduct a market simulation involving the use hourly of ambient adjusted ratings. The CAISO commits to submit informational reports no later than January 28, 2027 and January 28, 2028 to detail the status of Order No. 881 implementation in its balancing authority area as well as in the EDAM and WEIM.

## **II. Background**

Order No. 881 establishes requirements for public utility transmission providers to use ambient adjusted ratings and seasonal ratings in connection with transmission service they offer. In markets administered by regional transmission organizations

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<sup>4</sup> If necessary, the CAISO will inform the Commission and seek additional relief if any of its participating transmission owners cannot adhere to the requirements of Order No. 881 by October 15, 2027. In addition to the informational reports referenced in Section IV of this motion, the CAISO is also willing to provide a status report to the Commission on implementation efforts 90 days prior to December 17, 2026, if the Commission so orders.

(RTOs) and independent system operators (ISOs), Order No. 881 requires RTOs/ISOs to implement systems and procedures necessary to allow transmission owners to update transmission line ratings electronically at least hourly. Transmission providers must use uniquely determined emergency ratings for contingency analysis in the operations horizon and in post-contingency simulations of constraints and implement specific transparency reforms.

In addition to the functions it performs with its balancing authority area, the CAISO also serves as the market operator for the WEIM, which provides real-time market services to participants throughout the Western Interconnection. In addition, the CAISO is working to deploy EDAM. Implementing Order No. 881 will include integrating hourly transmission line ratings into these markets. Each transmission owner submitting ratings to the CAISO will need to access and validate new rating information to confirm that it is accurate, verifiable, and validated such that it can be relied upon for the conduct of market transactions.<sup>5</sup>

The CAISO submitted a filing in July 2022 that proposed tariff revisions to comply with Order No. 881. The Commission accepted the CAISO's Order No. 881 compliance filing, subject to further compliance.<sup>6</sup> In June 2023, the CAISO submitted a filing in further compliance with Order No. 881, which the Commission accepted.<sup>7</sup> The Commission accepted the CAISO's proposal to make its Order No. 881 tariff revisions

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<sup>5</sup> In its Order No. 881 tariff accepted by the Commission, the CAISO established a requirement that Participating Transmission Owners and WEIM Entities validate Ambient Adjusted Ratings, Dynamic Line Ratings or alternative ratings. The CAISO intends to extend this requirement to EDAM Entities in an upcoming tariff amendment it will submit pursuant to Section 205 of the Federal Power Act.

<sup>6</sup> *California Independent System Operator Corp.*, 183 FERC ¶ 61,037 (2023).

<sup>7</sup> See Letter order issued December 13, 2023 in docket ER22-2632-001.

effective no later than June 15, 2025, subject to filing a notice of the actual effective date of the tariff revisions within five business days of their implementation. The CAISO now seeks additional time to implement these tariff revisions.

### **III. Request for Relief and Argument**

The CAISO requests: (1) an extension of time to implement its Order No. 881 tariff provisions up to and including December 17, 2026, subject to the CAISO filing a notice with the Commission 7 days before the actual effective date; (2) an extension of time up to and including October 15, 2027 for the CAISO's participating transmission owners to implement their requirements under Order No. 881 and the CAISO tariff; and (3) an extension of time up to and including October 15, 2027 for public utility transmission providers in the EDAM and WEIM as Order No. 881 relates to their submission of ratings for use in the day-ahead and real-time markets administered by the CAISO. The CAISO submits this request on its own behalf and on behalf of its Participating Transmission Owners. The CAISO also submits this request on behalf of public utility transmission providers in relation to their participation in the EDAM and public utility transmission providers seeking to participate in WEIM.

The Commission should grant this motion because good cause exists to do so.<sup>8</sup> Based on current internal development efforts and the scheduled delivery of tools and software code from the CAISO's external vendors, implementation of Order No. 881 on June 15, 2025 is not possible. Once the CAISO has received tools and software code,

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<sup>8</sup> 18 C.F.R. § 385.2008(a).

the CAISO must conduct testing to ensure the proposed enhancements functions properly. The CAISO must also provide all market participants with an opportunity to test and validate that their business and market systems are functioning. Once testing and market simulation efforts are complete, the CAISO must deploy any necessary tools and software into production. As part of this effort, the CAISO must ensure deployment does not create system problems that may otherwise delay its implementation until an even later date. Granting this motion will allow for additional time necessary to develop and test tools the CAISO and market participants will use to integrate hourly transmission line ratings into market processes as well as store and make transmission line ratings available consistent with the requirements of Order No. 881. Participating transmission owners, EDAM entities, and WEIM entities will each need to closely scrutinize and validate ratings for accuracy so that they do not cause operating problems. It will also allow the CAISO to coordinate software changes with two major market initiatives – its day-ahead market enhancements and EDAM. Finally, the relief will create flexibility for multiple entities to manage their own work to support implementation of Order No. 881. The Commission has granted extensions of time for other transmission providers to comply with Order No. 881 in order to allow them to coordinate other planned work with Order No. 881 implementation.<sup>9</sup>

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<sup>9</sup> *N.Y. Indep. Sys. Operator, Inc.*, 186 FERC ¶ 61,237 (2024) (granting an extension until no later than December 31, 2028); *S. Co. Servs. Inc.*, 187 FERC ¶ 61,055 (2024) (granting an extension up to and including December 31, 2026).

**A. The CAISO's implementation of Order No. 881 requires new applications and software changes for which the CAISO needs additional time to deploy.**

The CAISO is undertaking work to develop new applications and processes to support Order No. 881 implementation. In the fourth quarter of 2024, the CAISO completed system changes to support the provision of transmission line ratings to its Energy Management System (EMS) via Inter-Control Center Communications Protocol (ICCP). The CAISO now has the capability to receive hourly ambient adjusted ratings in its EMS via ICCP. In addition to this capability, the CAISO is actively working to deploy a custom version of webLineR to support the submission of ambient adjusted ratings. This application will support the submission to the CAISO of transmission line rating methodologies, seasonal ratings, emergency ratings, and hourly ratings consistent with the requirements of Order No. 881. The CAISO will pull ratings from this application for use in its day-ahead and real-time markets. The application will also serve as a repository to allow market participants and non-market participants access to the ratings utilized by the day-ahead and real-time markets. The CAISO is currently working with its vendor to complete the requirements for this application and expects to have it available for testing by the second quarter of 2025. The CASIO's webLineR application should be ready to receive ratings by the third quarter of 2025. Once available, the CAISO will allow entities to submit transmission line rating methodologies and ratings into the application. The CAISO also will assess how the application receives and

stores this information. The CAISO expects his work to continue through the remainder of 2025.

Alongside deploying its webLineR application, the CAISO is working to design software necessary for its day-ahead and real-time market systems to consume hourly ratings from webLineR as well as reflect alternative ratings, when necessary. This work involves ensuring the CAISO can successfully populate its base market model for purposes of running advisory day-market results the CAISO runs two days prior to the trading day, integrated forward market, the residual until commitment process and each of its real-time market processes. As such, implementation of Order No. 881 affects multiple internal and external applications.

The CAISO is currently in the design and development phases of its implementation of Order No. 881. It has provided its vendor with business requirements specifications and published external business requirement specifications for market participants. The CAISO is coordinating implementation through its Release User Group and Technical User Group as well as with individual discussions with participating transmission owners, WEIM entities and prospective EDAM entities.<sup>10</sup> The CAISO expects to receive delivery of software code from its external vendors and complete development efforts for its internal applications in the third quarter of 2025. Upon receipt of the software code, the CAISO plans to conduct testing and undertake a market simulation before moving Order No. 881 into the final deployment

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<sup>10</sup> Separately, the CAISO is coordinating integration of ratings required by Order No. 881 in its reliability coordinator function, which the CAISO performs for balancing authorities and transmission operators as RC West.



implementation phase. Once the CAISO has completed this final phase, it plans to promote its software enhancements into production for the real-time market and day ahead market applications in the first quarter or second quarters of 2026.<sup>11</sup> The CAISO requests an extension until December 17, 2026 out of an abundance of caution in case it encounters unforeseen implementation issues and delays.

Based on the schedule for delivery of software code for the CAISO's day-ahead and real-time market systems, the CAISO cannot implement Order No. 881 on June 15, 2025 in a manner consistent with good utility practice. The CAISO will not receive this software code or complete its own software development efforts with respect to internal applications until the third quarter of 2025. Once the CAISO receives software code from its vendors and completes its enhancements for internally developed applications, it is imperative that the CAISO undertake testing as well as other implementation steps prior to promoting software code into production. This is standard practice in connection with deploying new software or changing software in the CAISO's market systems.

The CAISO tariff requires the CAISO to perform its tariff obligations, which includes the implementation of market enhancements pursuant to tariff provisions, in

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<sup>11</sup> Based on current planning efforts, the CAISO may have the capability to implement Order No. 881 in its real-time market applications before it does so in its day-ahead market applications. For this reason, the CAISO is requesting implementation flexibility. The CAISO acknowledges the decision to do so requires that both the CAISO and its market participants have completed readiness activities and requires weighing the benefits of implementing hourly ambient adjusted ratings in the real-time market while still using seasonal ratings in the day-ahead market. Any decision to implement Order No. 881 in its real-time market applications before it does so in its day-ahead market applications requires additional stakeholder input.

accordance with good utility practice.<sup>12</sup> This standard makes implementing Order No. 881 by June of 2025 infeasible because the CAISO and market participants need delivery of applications and software enhancements, need to conduct software testing, and need to complete market simulation and deployment work. The Commission has granted the CAISO extension of time to comply with final rules in similar circumstances.<sup>13</sup>

**B. The CAISO needs to coordinate Order No. 881 implementation with its deployment of day ahead market enhancements and an extended day-ahead market.**

The CAISO is currently working to develop and deploy software code to support a target go-live date for its day-ahead market enhancements and the EDAM in the spring of 2026. Among other changes, the day-ahead market enhancements will include imbalance reserves in the day-ahead market and make changes to the residual unit commitment process. EDAM will allow participants in the WEIM to participate in a day-ahead market clearing process, if they so choose. These market design enhancements have the potential to yield significant benefits to market participants.<sup>14</sup> Optimizing the use of existing transmission and resources across a larger footprint in the West will provide economic and reliability benefits to participants. By leveraging a larger and more diverse set of resources across the Western Interconnection, the day-ahead market enhancements and EDAM will help the CAISO balancing authority area

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<sup>12</sup> See, e.g., CAISO tariff section 7.4 (“When the CAISO is exercising Operational Control of the CAISO Controlled Grid, the CAISO and Market Participants shall comply with Good Utility Practice.”); CAISO tariff section 22.6 (“The CAISO shall engage sufficient staff to perform its obligations under this CAISO Tariff in a satisfactory manner consistent with Good Utility Practice.”).

<sup>13</sup> See e.g. *California Independent System Operator Corp.*, 141 FERC ¶ 61,184 (2012).

<sup>14</sup> *California Independent System Operator Corp.*, 185 FERC ¶ 61,210 (2023) at P 42.

and other participating balancing authority areas manage the impacts of increasing variable energy resources and extreme weather events in the region.

The scope of this effort is significant. Development, deployment and testing will occupy the CAISO and its vendors throughout much of 2025. The CAISO has scheduled a market simulation for the day-ahead market enhancements and EDAM from September through November 2025. The CAISO wishes to coordinate these efforts with its activities to implement Order No. 881. There are benefits in doing so. Through a coordinated software development and deployment exercise, the CAISO and its vendors can ensure the software to support the day-ahead market enhancements and EDAM design will also accommodate hourly transmission line ratings. Undertaking integration and security testing of these software changes as well as a coordinated market simulation will also enhance confidence of market participants and other stakeholders throughout the West that the markets will function as designed and can recognize dynamic changes to transmission line ratings used in the market model. By granting the relief requested in this motion, the Commission will provide the CAISO and its market participants with more time to coordinate the development, deployment, and testing of software to support the day ahead market enhancements, EDAM, and Order No. 881 implementation. This relief will enhance the efficiency of the software upgrades necessary for these initiatives and the confidence of market participants and other stakeholders that these market design changes will work properly together.

**C. Implementation of Order No. 881 requirements necessarily involves coordination with participating transmission owners, EDAM entities and EIM entities.**

As the Commission has recognized, in ISO/RTO regions participating transmission owners need to develop transmission line rating methodologies that align with the requirements of Order No. 881. Participating transmission owners must also submit transmission line ratings that align with Order No. 881's requirements to ISOs/RTOs for use in day-ahead and real-time markets.<sup>15</sup> The CAISO's Order No. 881 tariff sets forth this expectation and dependency.<sup>16</sup> To effect this outcome, the CAISO needs to coordinate the deployment, testing, and readiness of its systems with the readiness of each participating transmission owner's system. For example, the transmission of the new rating information will need to be tested and confirmed to ensure the calculated ratings are accurate and that the data is usable by the CAISO. The relief requested in this motion will also permit participating transmission owners to participate in that effort and coordinate their participation with their own readiness work to finalize transmission line rating methodologies as well as systems and processes to calculate and submit hourly and other ratings that align with the requirements of Order No. 881. Participating transmission owners will need to test their EMS to transmit hourly data to the CAISO's EMS in a form that can be utilized by the CAISO. In addition to integration between the CAISO's systems and participating transmission owners' EMS, additional integration work needs to occur between the rating calculation engine

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<sup>15</sup> In the context of the markets it administers, the CAISO will rely on public utility transmission providers that are EDAM entities or WEIM entities to submit transmission line ratings for use in those markets.

<sup>16</sup> See proposed Appendix JJ to CAISO tariff submitted in Commission docket ER22-2362 on July 12, 2022, and as revised on June 16, 2023.

of each participating transmission owner and the CAISO's webLineR application interface before each participating transmission owner can fully comply with the requirements of Order No. 881. These same requirements exist for EDAM entities and WEIM entities.

In addition, the relief requested in this motion will permit participating transmission owners to sequence other work that may relate to or overlap with Order No. 881 implementation. For example, the CAISO is aware that at least two of its participating transmission owners are undertaking efforts to replace their EMS. These efforts will require testing and implementation to verify new features for Order No. 881 implementation do not introduce any stability or performance issues into these operating systems. Based on information and belief, the CAISO understands these efforts require participating transmission owners to undertake implementation work that may stretch into 2027. Implementing Order No. 881 before deployment of these systems would duplicate Order No. 881 implementation work – once using existing energy management systems and once using new energy management systems. Other participating transmission owners, EDAM entities and WEIM entities may have project work that creates dependencies with Order No. 881 and the additional time requested in this motion will support their own internal coordination of those work streams. At the same time, the flexibility requested by the CAISO to make functionality available earlier than December 2026 will support those participating transmission owners, EDAM entities, and WEIM entities who are ready to submit transmission line ratings consistent with the requirements of Order No. 881 in advance of December 2026.

Furthermore, the CAISO is informed that centralized remedial action scheme(s) and/or stand-alone remedial action scheme(s) may require new relay hardware or special software to be programmed into new or existing relays to comply with Order No. 881. Due to the complex nature of these remedial action schemes, an applicable EMS must be able to provide the hourly ambient adjusted ratings in a manner that the schemes can recognize and react to with their arming settings. This work must necessarily occur *after* entities have tested their transmission line rating methodologies solution and demonstrated the capability to generate hourly ratings within a production environment. The CAISO will also need to enhance its ability to model the impacts of remedial action schemes on hourly ratings used in reliability and market applications. Participating transmission owners, EDAM entities or WEIM entities with these remedial action schemes will need to analyze each remedial action scheme individually and make all required upgrades or additional system changes. Testing will then be needed to validate the ratings being used for the alarms before the solution can be used in a production environment. The CAISO is informed and believes these will steps require substantial time and support the need for an extension of time until 2027 for some entities to implement their requirements under Order No. 881.<sup>17</sup>

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<sup>17</sup> A participating transmission owner's centralized remedial action scheme(s) and/or stand-alone remedial action scheme(s) may qualify for use of an alternate rating under the participating transmission owners' transmission line rating methodology and the CAISO tariff. However, use of alternate ratings or exemptions from ambient adjusted ratings require assessment of specific circumstances. The CAISO is informed and believes this effort may take additional time beyond 2026 for some transmission owners.

#### **IV. Informational Reports**

The CAISO recognizes the importance of transparency related to implementation of the requirements of Order No. 881, both in the CAISO balancing authority area as well as in the broader markets the CAISO administers. For this reason, in connection with the relief requested in this motion, the CAISO commits to submit informational reports no later than January 28, 2027 and January 28, 2028 to detail the status of Order No. 881 implementation in its balancing authority area as well as the WEIM and EDAM. As part of these informational reports, the CAISO will confirm the operating status of its tools and software for the submission of hourly ratings and integration of those ratings in its markets as well as any issues it has observed with the use of these ratings in its markets. In addition, the CAISO will confirm whether it is receiving ratings from its participating transmission owners as well as entities participating in the WEIM and EDAM.

#### **V. Conclusion**

The CAISO respectfully requests: (1) an extension of time to implement its Order No. 881 tariff provisions up to and including December 17, 2026, subject to the CAISO filing a notice with the Commission 7 days before the actual effective date; (2) an extension of time up to and including October 15, 2027 for the CAISO's participating transmission owners to implement their requirements under Order No. 881 and the CAISO tariff; and (3) an extension of time up to and including October 15, 2027 for public utility transmission providers in the EDAM and WEIM as Order No. 881 relates to their submission of ratings for use in the day-ahead and real-time markets administered

by the CAISO. This extension of time will allow the CAISO to coordinate necessary software deployment to support Order No. 881 implementation with two major market initiatives – its day-ahead market enhancements and EDAM. The extension of time will provide transmission owners and market participants with the opportunity to familiarize themselves with tools the CAISO will use to receive and store transmission line ratings as well as their own systems for developing, transmitting and storing hourly ratings to allow for compliance with the requirements of Order No. 881. The extension of time will also allow the CAISO to conduct a market simulation involving the use hourly of ambient adjusted ratings. The CAISO commits to submit informational reports as described herein no later than January 28, 2027 and January 28, 2028, if the Commission so directs.

Respectfully submitted,

**/s/ Andrew Ulmer**

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Dated: January 27, 2025



### **CERTIFICATE OF SERVICE**

I certify that I have served the foregoing document upon the parties listed on the official service list in the captioned proceedings, in accordance with the requirements of Rule 2010 of the Commission's Rules of Practice and Procedure (18 C.F.R. § 385.2010).

Dated at Folsom, California this 27<sup>th</sup> day of January, 2025.

/s/ Ariana Rebancos  
Ariana Rebancos