

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

**Managing Transmission Line Ratings )**

**Docket No. RM20-16-000**

**MOTION TO INTERVENE AND COMMENTS  
OF THE DEPARTMENT OF MARKET MONITORING  
OF THE CALIFORNIA INDEPENDENT SYSTEM OPERATOR CORPORATION**

Pursuant to Rules 212 and 214 of the Rules of Practice and Procedure of the Federal Energy Regulatory Commission (“FERC” or “Commission”), 18 C.F.R. §§385.212, 385.214, the Department of Market Monitoring (“DMM”), acting in its capacity as the Independent Market Monitor for the California Independent System Operator Corporation (“CAISO”), submits this motion to intervene and comment in the above-captioned proceeding.

**I. MOTION TO INTERVENE**

DMM respectfully requests that the Commission afford due consideration to these comments and motion to intervene, and afford DMM full rights as a party to this proceeding. Pursuant to the Commission’s Order 719, the CAISO tariff states that “DMM shall review existing and proposed market rules, tariff provisions, and market design elements and recommend proposed rule and tariff changes to the CAISO, the CAISO Governing Board, FERC staff, the California Public Utilities Commission, Market Participants, and other interested entities.”<sup>1</sup> As this proceeding involves policy which would affect the efficiency of CAISO markets, it implicates matters within DMM’s purview.

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<sup>1</sup> CAISO Tariff Appendix P, Section 5.1.

## **II. SUMMARY**

In this Notice of Proposed Rulemaking, the Commission preliminarily finds that transmission line ratings, and the rules by which they are established, are practices that directly affect the cost of wholesale energy, capacity and ancillary services, as well as the cost of delivering wholesale energy to transmission customers. As such, inaccurate transmission line ratings may result in rates that are unjust and unreasonable.<sup>2</sup>

To address this preliminary finding, the Commission proposes to require:

1. Transmission providers to implement ambient-adjusted ratings (AARs) on the transmission lines over which they provide transmission service;
2. RTOs and ISOs to establish and implement the systems and procedures necessary to allow transmission owners to update transmission line ratings at least hourly; and
3. Transmission owners to share transmission line ratings and transmission line rating methodologies with their respective transmission provider(s) and, in RTOs/ISOs, their respective market monitor(s).

DMM supports the proposed requirement for transmission owners to submit hourly updated AARs to their respective transmission providers or RTO/ISO. DMM would also support the use of dynamic line ratings (DLRs) where practicable in the future.

More accurate dynamic transmission line ratings can potentially increase efficiency in the use of available transmission, while also reducing congestion costs. However, in the case of the CAISO market, implementation may not be as straightforward as using the most accurate updated transmission limit in each market

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<sup>2</sup> NOPR at 38.

run. For some applications, lower adjusted or more conservative transmission limits may be appropriate.

The CAISO market uses a multi-interval optimization that can result in advisory dispatches and unit commitments multiple hours into the future. Using more conservative (i.e. lower) limits for temporally distant market advisory intervals may be necessary to ensure that commitments made in the market advisory horizon are feasible in the binding market interval and at the time of power flow. Similarly, the use of conservatively lower transmission limits in the day-ahead market can support feasibility of day-ahead commitments in real-time.

Additionally, the CAISO regularly adjusts transmission limits used for flowgates and nomograms in the market optimization model. This is often done to ensure reliability when modeled power flows differ from actual power flows. Any requirement imposed on RTO/ISOs to accept and utilize AARs should continue to allow leeway for the RTO/ISO to adjust modeled limits as needed to ensure reliability.

DMM supports the proposed increase in transparency by requiring transmission owners to submit transmission limits and transmission ratings methodology to the RTO/ISO and their market monitors. This additional transparency is important for RTO/ISOs to facilitate accurate transmission modeling, and provides further data for market monitors to continue performing their role as a secondary reviewer of market data and inputs.

Finally, DMM notes that while more frequently updated transmission limits may improve efficiency of transmission use in energy markets by potentially increasing the expected real time transmission limits, ISOs and RTOs should not interpret this

expectation of increased transmission availability as a reason to increase limits used in CRR and FTR auction models. Transmission limits determining the amount of CRRs and FTRs potentially auctioned on behalf of ratepayers should be among the most restrictive limits, below the expected amount of transmission availability, in order to minimize ratepayer losses.

### **III. COMMENTS**

#### **DMM supports use of AARs and DLRs in future where practicable, but encourages the Commission to allow leeway where needed to support reliability**

DMM agrees with the Commission's assessment that transmission line ratings and the rules by which they are established directly impact the cost of wholesale energy delivery and related services. Static, conservative estimates of transmission limits based on extreme conditions can lead to increased congestion costs that are not representative of actual system conditions or the true cost of delivering energy when such extreme conditions are not realized. This outcome may be inefficient and can result in excess cost paid by load.

DMM supports the use of hourly AARs as a means to improve the accuracy of congestion costs and the efficiency of transmission system use. DMM further supports the use of DLRs in the future when practicable, where the marginal benefit of implementing and using DLRs exceeds the cost of doing so. However, use of these limits may present reliability challenges in some circumstances.

DMM encourages the Commission to allow transmission providers, RTOs, and ISOs some leeway in the use of hourly submitted transmission limits where appropriate to support reliability. Specifically in the case of the CAISO market, in order to ensure

feasible unit commitments, implementation may be more complex than simply using the most updated and accurate transmission limit in each market run. For forward market runs and market advisory intervals, more restrictive and conservative limits may be more appropriate than the most accurate updated limit. Further, should the Commission ultimately require the submission and use of AARs or DLRs, the Commission should preserve the ability of RTOs and ISOs to adjust modeled transmission limits as appropriate to reflect and manage real-time operational conditions.

**The ability to use more conservative transmission limits in forward markets and real-time advisory intervals may support reliable implementation in CAISO.**

The use of hourly updated AARs (and perhaps DLRs in the future) can potentially increase the efficiency of transmission system use while reducing congestion costs. However, the Commission should allow ISOs and RTOs to reserve the option to implement more conservative (i.e. lower) transmission limits in forward markets and real-time market advisory intervals where needed to ensure reliability.

The CAISO real-time market optimization is a multi-interval optimization that can make real-time resource commitments up to 4.5 hours in advance of the binding market interval and power flow. As the time of power flow draws nearer, the ability to commit or position additional resources diminishes. Therefore, a reliable market solution depends on resource commitments from real-time market advisory intervals that will be feasible at the time of power flow. Should an update to an hourly AAR close to the time of power flow result in a lower transmission limit, resource commitments in advisory intervals may become infeasible after time has passed to commit alternative resources.

As an example of the scenario described above, consider the case of a load pocket that contains some higher cost generation, but is also connected to the larger transmission grid and lower cost generation resources outside of the load pocket. Hours before the time of power flow or binding real-time market interval, the real-time market may commit the lower cost generator outside of the load pocket in order to serve the load pocket. This commitment may be feasible based on the most recent transmission limits in the advisory market run. Because load is met in the advisory horizon by the distant lower cost generator, the higher cost generation in the load pocket remains uncommitted.

If updates to AARs or other hourly transmission limits near the time of power flow and the binding market interval result in lower transmission availability, the earlier commitment of lower cost generation outside of the load pocket may no longer be feasible to serve the load pocket. However, there may not be sufficient time remaining to commit the generation within the load pocket. This can lead to a potential reliability issue if load cannot be met. Therefore, maintaining the ability to use lower and more conservative transmission limits in more distant advisory market dispatches can reduce the likelihood of this situation occurring, and help to support reliable market solutions.

Similarly, hourly updates to transmission limits in real-time may also reduce transmission availability from the limits used in the day-ahead market. This can have the effect of rendering some day-ahead resource commitments infeasible in real-time, when the pool of alternate resources available for commitment after the day-ahead market is reduced. The potential reliability impact is similar to that of lowering

transmission limits between advisory and binding real-time market runs, and may also be addressed by allowing the use of more conservative transmission limits in the day-ahead market where needed to support reliable market solutions.

**ISOs and RTOs need to maintain the ability to adjust modeled transmission limits as needed to support reliability.**

As explained in numerous prior DMM reports to the Commission, the ISO regularly adjusts limits used for transmission constraints in the real-time market.<sup>3</sup> This process is often used by the CAISO to manage differences between modeled and observed power flows, and other physical system conditions. The ability for ISO and RTO operators to use adjusted transmission limits in market models where needed to reflect physical system conditions is an important tool to manage system reliability. This flexibility should be preserved, even if the Commission ultimately requires transmission owners to submit, and RTO/ISOs to use, hourly AARs or DLRs to reflect transmission line ratings.

**Increased transparency for RTO/ISOs and market monitors promotes efficient and reliable market operations**

The Commission proposes additional transparency by requiring transmission owners to submit their transmission limits and transmission ratings process to their respective RTO/ISO and their market monitors. DMM supports this requirement for additional transparency for both the RTO/ISO and the market monitors.

Accurate modeling of transmission constraints is crucial to the operation of a reliable and efficient market. RTOs and ISOs rely on high quality, accurate inputs to

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<sup>3</sup> For example and further discussion of this type of adjustment, see: *2014 Annual Report on Market Issues and Performance*, Section 8.3, Department of Market Monitoring, June 2015.  
[http://www.caiso.com/Documents/2014AnnualReport\\_MarketIssues\\_Performance.pdf](http://www.caiso.com/Documents/2014AnnualReport_MarketIssues_Performance.pdf)

achieve the goals of efficiency and reliability. Transparency to the grid operator in the transmission limits and processes used to determine transmission limits allows ISOs and RTOs to confirm the quality of these market inputs.

The role of RTO/ISO market monitors should be to serve as secondary reviewers of market inputs and outcomes to assess efficiency and provide confidence in the market. As transmission limits are a key input to an RTO/ISO market model, visibility to this data and the processes that determine this input can enhance market monitoring by enabling market monitors to better assess and report on market outcomes, and make any related recommendations.

**Expectations of increased real-time transmission availability do not justify higher transmission limits in CRR/FTR auction models**

The CAISO's CRR auction and similar FTR auctions in other markets allow the purchase of financial forward contracts on locational price differences. However, unlike most other forward contract markets, the CRR auction allows participants to take positions without a counterparty offering to take the opposite position. Transmission ratepayers become the counterparty when there is no counterparty to a purchased CRR. CRRs auctioned on behalf of transmission ratepayers can result in substantial losses to ratepayers who become obligated to CRR payments that can greatly exceed CRR auction revenues.<sup>4</sup>

The volume of CRRs that can be auctioned on behalf of ratepayers is ultimately determined by transmission limits used in the CRR auction model. Consequently,

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<sup>4</sup> See DMM's full discussion and analysis of the congestion revenue rights auction design: *Shortcomings in the congestion revenue right auction design*, Department of Market Monitoring, November 28, 2016. <http://www.caiso.com/Documents/DMM-WhitePaper-Shortcomings-CongestionRevenueRightAuctionDesign.pdf>

DMM strongly cautions against using any increase in expected transmission availability resulting from the proposed rulemaking as justification for ISOs and RTOs to increase the transmission limits used in CRR and FTR auction models.

Transmission limits in the CRR auction model need not reflect the expectation of transmission availability because CRRs do not represent transmission rights, nor do the limits reflect a willingness by transmission owners to sell transmission rights or rights to congestion revenue. Therefore, to minimize potential ratepayer losses resulting from CRRs auctioned on behalf of ratepayers, DMM continues to recommend that CRR auction models use the minimum possible transmission limits, at values below the level of expected available transmission.

#### **IV. CONCLUSION**

DMM supports the proposed requirement for transmission owners to submit hourly updated AARs to their respective transmission providers or RTO/ISO, and would support the use of dynamic line ratings (DLRs) where practicable in the future. More accurate dynamic transmission line ratings hold the potential to increase efficiency in the use of available transmission, while also reducing congestion costs. However, in the case of the CAISO market, implementation may not be as straightforward as using the most accurate updated transmission limit in each market run.

ISOs and RTOs need to reserve the ability to use more conservative, lower transmission limits in forward and real-time advisory market runs as needed to ensure feasible resource commitments. ISOs and RTOs also need to maintain the ability to adjust modeled transmission limits to better reflect and manage real time physical system conditions.

DMM supports the proposed increase in transparency for ISOs/RTOs and their market monitors that would come from transmission owners providing transmission ratings and related methodologies.

Finally, DMM strongly cautions against using any increase in expected transmission availability resulting from the proposed rulemaking as justification for ISOs and RTOs to increase the transmission limits used in CRR and FTR auction models.

DMM respectfully requests that the Commission afford due consideration to these comments as it continues to contemplate the proposed rulemaking.

Respectfully submitted,

**By: /s/ Adam Swadley**

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Dated: March 22, 2021

## **CERTIFICATE OF SERVICE**

I hereby certify that I have served the foregoing document upon the parties listed on the official service lists in the above-referenced 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 22<sup>nd</sup> day of March, 2021.

*(s/ Adam Swadley*  
Adam Swadley