

Integrating Dynamic Ratings into PJM Operations (Phase 1)

Issue Source

PJM and FERC (see appendix to this Issue Charge for specific Commission directives from Order No. 881 issued on December 16, 2021)

Issue Content

Develop guidance and requirements to facilitate PJM's operational implementation of dynamic ratings systems.

Key Work Activities and Scope

~~The scope of Phase 1 work is focused on developing~~ Through the quick fix stakeholder process, develop guidance and requirements to facilitate PJM's operational implementation of dynamic ratings or Dynamic Line Rating [DLR] systems. Consistent with Order No. 881, ~~the focus in Phase 1 will be establishing PJM and member dynamic rating procedures, in support of DLR systems and their maintenance, to better reflect the actual transfer capability of the transmission system~~ PJM proposes to develop manual language that will help it establish and maintain systems and procedures necessary to allow transmission owners to electronically update transmission line ratings (for each period for which transmission line ratings are calculated) at least hourly. Order No. 881 at P37, P255.¹

~~In Order No. 881, the Commission "decline[d] to mandate DLR implementation" and instead opened a new docket – Docket No. AD22-5-000 – "to further explore DLR implementation." Consistent with FERC's approach, upon completion of Phase 1, PJM's proposed Phase 2 will offer stakeholders an opportunity to further explore dynamic rating system implementation to the extent not already addressed by Order No. 881 and PJM's compliance filing in accordance with the Order.~~

Expected Deliverables

1. Stakeholder education
 - a. Education already provided: the March 30, 2021 Operating Committee Special Session on DYNAMIC RATING Education.
 - <https://pjm.com/-/Dynamic Rating Impacts>
 - <https://pjm.com/-/Dynamic Rating Market Efficiency>
 - <https://pjm.com/-/Emergent Technologies Modeling Overview>
 - <https://pjm.com/-/Dynamic Line Ratings>
 - b. Additional education as needed
2. ~~Phase 1:~~ Develop guidance and requirements related to the operational and technical implementation of a new dynamic rating system. ~~Likely codified~~ Codified in new or modified language in Manual 01, ~~;~~ ; Section 3, Manual 03, ~~;~~ ; Section 2, and Manual 03A, ~~;~~ ; Appendix A.

¹ PJM proposes the development of a separate Problem Statement and Issue Charge to explore a different set of issues relating to dynamic line ratings at the appropriate Standing Committee(s) or a new Senior Task Force. Topics for discussion as part of this separate stakeholder process would include: impact (if any) to ARR/FTR markets, impact (if any) to planning processes, and potentially other topics.

~~3. Phase 2: Upon completion of Phase 1, the Operating Committee will be consulted and will provide further guidance on the next phase of work efforts to explore dynamic rating system implementation to the extent not already addressed by Order No. 881 and PJM's compliance filing made pursuant to it.~~

Out of Scope

~~See the phased approach above~~

[The authority of Transmission Owners to voluntarily implement DLR, determine transmission line rating methodologies, and calculate transmission line ratings.](#)

Decision-Making Method

Tier 1, consensus (unanimity) on a single proposal

Stakeholder Group Assignment

All presentations and discussions regarding this issue will be handled within the routine monthly meetings of the OC.

Expected Duration of Work Timeline

It is expected that ~~Phase 1~~ of this stakeholder issue atwithin the Operating Committee will take approximately two months using ~~CBIR Lite~~Quick Fix.

~~An expected duration of work for Phase 2 will be set following the completion of Phase 1 and in consultation with the Operating Committee.~~

Start Date	Priority Level	Timing	Meeting Frequency
Click here to enter a date.	<input checked="" type="checkbox"/> High <input checked="" type="checkbox"/> Medium <input type="checkbox"/> Low	<input checked="" type="checkbox"/> Immediate <input checked="" type="checkbox"/> Near Term <input type="checkbox"/> Far Term	<input type="checkbox"/> Weekly <input checked="" type="checkbox"/> Monthly <input type="checkbox"/> Quarterly

Charter

(check one box)

<input type="checkbox"/>	This document will serve as the Charter for a new group created by its approval.
<input checked="" type="checkbox"/>	This work will be handled in an existing group with its own Charter (and applicable amendments).



More detail available in M34; Section 6

Appendix:

Managing Transmission Line Ratings, Order No. 881, 177 FERC ¶ 61,179, at P37, P255 (2021) (“Order No. 881”):

P37: [C]urrent transmission line rating practices in RTOs/ISOs that do not permit the acceptance of DLRs from transmission owners that use DLRs are contributing to unjust and unreasonable wholesale rates by acting as a barrier to accurate transmission line ratings. Therefore, as part of remedying inaccurate transmission line ratings that result in unjust and unreasonable wholesale rates, we require RTOs/ISOs to establish and maintain the systems and procedures necessary to permit the acceptance of DLRs from transmission owners that use them. As the Commission explained in the NOPR, some RTOs/ISOs rely on software that cannot accommodate transmission line ratings that frequently change, such as DLRs.⁴⁹ Without reflecting such frequent changes to transmission line ratings, such software serves as a barrier that prevents transmission owners in RTOs/ISOs from implementing DLRs and better reflecting the actual transfer capability of the transmission system. The result is that, even if a transmission owner sought to implement DLRs, the RTO's/ISO's energy management system (EMS) may not be able to accept and use the resulting transmission line rating. The potential inability of RTOs/ISOs to accept and use a DLR prevents RTO/ISO markets from benefiting from the more accurate representation of current system conditions. Therefore, we require RTOs/ISOs to establish and maintain the systems and procedures necessary to permit the acceptance of DLRs from transmission owners that use them.

P255: [W]e adopt the Commission's proposal in the NOPR to require RTOs/ISOs to establish and maintain systems and procedures necessary to allow transmission owners to electronically update transmission line ratings (for each period for which transmission line ratings are calculated) at least hourly, with such data submitted by transmission owners directly into the RTO's/ISO's EMS through SCADA or related systems. We continue to find that, because DLR implementation may be economic in certain applications, absent RTOs/ISOs having these capabilities, voluntary implementation of DLRs by transmission owners in some RTOs/ISOs would be of limited value, as their more dynamic ratings and resulting benefits would not be incorporated into RTO/ISO markets. Absent these minimum capabilities, RTO/ISO software would serve as a barrier that prevents transmission owners in RTOs/ISOs from implementing DLRs that can better reflect the actual transfer capability of the transmission system and, consequently, wholesale rates would not remain just and reasonable. Additionally, as the Commission stated in the NOPR, we continue to expect that many of the systems and procedures RTOs/ISOs would need to develop to accept DLRs are likely to already be required as part of compliance with the AAR requirements adopted in this final rule.

In addition, effective March 14, 2022, Order No. 881 has amended Part 35, Chapter I, Title, 18 of the Code of Federal Regulations as follows:

18 C.F.R. § 35.28(g)(13)(i)

(g) *Tariffs and operations of Commission-approved independent system operators and regional transmission organizations.* * * *

(13) *Transmission line ratings*

(i) Each Commission-approved independent system operator or regional transmission organization must establish and maintain systems and procedures necessary to allow any public utility whose transmission facilities are under the independent control of the independent system operator or regional transmission organization to electronically update transmission line ratings for such facilities (for each period for which transmission line ratings are calculated) at least hourly, with such data submitted by those public utility transmission owners directly into the independent system operator's or regional transmission organization's EMS through SCADA or related systems.

[Implementation of Dynamic Line Ratings, Notice of Inquiry, 178 FERC ¶ 61,110, at P3, P7 \(2022\): Order No. 881 requires RTOs “to establish and maintain the systems and procedures necessary to allow transmission owners in](#)



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their regions to electronically update transmission line ratings on at least an hourly basis (thereby enabling the RTO/ISO to use DLRs from transmission owners that voluntarily adopt them)” and stating that the Commission is “issuing this NOI to further explore whether DLR implementation is required.”