UNITED STATES OF AMERICA
BEFORE THE
FEDERAL ENERGY REGULATORY COMMISSION

Implementation of Dynamic Line Ratings	:	**Docket No. AD22-5-000**

MOTION FOR LEAVE TO COMMENT AND SUPPLEMENTAL COMMENTS OF PJM INTERCONNECTION, L.L.C.

Pursuant to the Federal Energy Regulatory Commission's ("Commission") Notice of Inquiry,[1] PJM Interconnection, L.L.C. ("PJM") submits[2] these supplemental comments relating to the implementation of dynamic line ratings ("DLR").[3]

PJM reaffirms its commitment to continue assisting any Transmission Owner that elects to implement DLR on its transmission lines. Now nearly two years after PJM's Initial Comments, and with the benefit of additional operational experience with DLR and PJM's review of a broad-array of stakeholder commentary on DLR implementation, PJM provides this update for Commission consideration in this still-pending docket. PJM's supplemental comments address three points: they (1) illustrate a point in PJM's Initial Comments with a compelling recent case study, (2) elaborate on PJM's prior proposed DLR deployment criteria, and (3) encourage the industry generally (and participants like regional transmission organizations ("RTOs"), individually, where appropriate) to develop a DLR application guide to transparently identify DLR deployment criteria and experiences across the country.[4] The

[1] *See* Notice of Inquiry, *Implementation of Dynamic Line Ratings*, Docket No. AD22-5-000 (Feb. 24, 2022) ("NOI").
[2] PJM respectfully seeks leave to file these comments beyond the indicated period to assist in the development of a fulsome record.
[3] PJM previously filed comments in this docket. *See* Motion for Leave to Comment and Comments of PJM Interconnection, L.L.C., Docket No. AD22-5-000 (May 9, 2022) ("PJM's Initial Comments").
[4] *See* Technical Conference Transcript, *Transmission Planning and Cost Management*, Docket No. AD22-8-000, at pages 147-148 (Oct. 6, 2022).

development of deployment criteria and application guides specific to each region can provide a path forward for Commission action in this docket to realize operational benefits of DLR without overstating DLR's ability to supplant necessary long term regional transmission planning.[5] These points are addressed in turn.

First, in support of selected deployment of DLR as an operational tool, PJM supplements its prior point about DLR's potential real-time system optimization and reliability benefits based on recent experience. During Winter Storm Elliott, before a long-term transmission planning upgrade was in service, PPL Electric Utilities ("PPL") had DLR installed on its Cumberland – Juniata transmission line. The DLR ratings on this line during the storm proved higher than the ambient adjusted ratings PJM would have operated to otherwise. Had PJM not had the higher dynamic line ratings, PJM would have had to take action to re-dispatch the system to maintain reliability. Such action would have been very difficult under the critical operating conditions. This experience evidences the operational benefit of well-placed DLR and provides further support for PJM's position that the Commission's focus should be on noting DLR's operational benefits in certain defined circumstances rather than as a broad planning solution that somehow obviates the need for long term regional transmission planning, most especially reliability criteria-based transmission planning.

Second, as part of outlining a path forward for the Commission in this docket, PJM reiterates the potential benefits of each region establishing criteria[6] that encourage DLR deployment on thermally limited lines/circuits experiencing:

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[5] *See* Statement of Kenneth Seiler, Vice President of Planning, on Behalf of PJM Interconnection, L.L.C., *FERC Technical Conference on Transmission Planning and Cost Management*, Docket No. AD22-8-000, Panel #3, at Attachment B (pages 8, 105-109) (Sept. 27, 2022) (attaching PJM's comments in response to *Building for the Future Through Electric Regional Transmission Planning and Cost Allocation and Generator Interconnection*, 179 FERC ¶ 61,028, 87 Fed. Reg. 26,504 (May 4, 2022)).

[6] PJM's Initial Comments at 9-10.

- at least $2 million if not more per year in market congestion, on average, over some number of prior years; and

- projected congestion of $1 million or more over some future time period identified consistent with current RTO economic planning processes (*e.g.*, five years, or another time period that comports with the current model building protocols of the NERC Multi-Regional Modeling Working Group which builds cases looking ahead one, two, five, and ten years pursuant to NERC TPL-001); and

- a congestion hours per year threshold.[7]

Expanding upon its prior proposal, at least for the PJM region, PJM would be amenable if so directed in this docket to annually offer the Commission and stakeholders historical and projected congestion levels. This would be a more frequent publication cadence than the current two-year market efficiency planning cycle provides. More frequent publication of this congestion data will enhance PJM's congestion mitigation efforts and supplements PJM's economic planning regime. The more frequent posting of this information would continue to allow the proposal of DLR deployment as a proposed solution to a posted economic planning driver as part of the Regional Transmission Expansion Plan ("RTEP") process, while also equipping Transmission Owners with information to assist them in determining for themselves (independent of the RTEP process) whether site-specific conditions (*e.g.*, sufficient wind patterns) support cost-effective DLR implementation on their lines. PJM is not suggesting a "one size fits all" approach across the nation as to the periodic posting of this data. However, PJM's proposal would at the very least form a potential incubator for DLR "best practices" that could facilitate DLR deployment nationally.

[7] For this potential DLR requirement criteria, it is not possible to quantify the potential annual gross market benefits that would be expected to result from such a requirement. For one, the benefits of the implementation of Order No. 881, as well as the next few years of transmission upgrades, will need to be realized before the accuracy of the criteria proposed above could be tested and any congestion mitigation benefits reliably quantified.

Third, the Commission could, in this docket, encourage its jurisdictional transmission providers to develop methodologies to perform evaluations of both historical and future congestion on the transmission system and determine where these devices could have the most benefit for the grid. Such analyses could also include an examination of high wind areas to maximize the benefits of the installation locations. For example, a registered transmission provider could perform an annual congestion study with a future planning case and run the forward congestion study five years out and combine those results with the last 2 years of historical congestion, examine the high congestion circuits on both a historic and forward basis, and review high wind areas in their respective geography to determine where to locate DLR based on the criteria described above.

This methodology could then be included in published application guides, specific to each region, to inform the principled deployment of DLR and other grid-enhancing technologies. RTOs/ISOs and key stakeholders in non-RTO regions[8] could be charged with leading the development of these guides with input from the Transmission Owners, other key industry leaders, and vendors. These application guides could set forth the basis for the DLR deployment congestion criteria outlined above and any other Transmission Owner-provided location-specific criteria needed for effective DLR deployment. Transmission Owners appear best positioned to evaluate the technical requirements and specifications for deployment of DLR and other technologies on their systems. Transmission Owner contributions on these topics, with input from RTOs/ISOs and other jurisdictional transmission providers, could also comprise part of the

[8] As noted in PJM's Initial Comments, it is critical that these requirements apply equally to RTO and non-RTO regions. This is especially important in this case as Congress has already stated that it is in the *national interest* to benefit 'consumers by ensuring reliability and reducing the cost of delivered power by reducing transmission congestion." *See* 16 U.S.C. § 824s(a) *see also* 18 C.F.R. §35.34(k)(2); Order No. 2000, *Regional Transmission Organizations*, 89 FERC ¶61,285, 65 Fed. Reg. 810, 887-88 (2000).

proposed application guide. Further, these application guides would be updated periodically to reflect additional innovations and operational experiences with DLR and other technologies. These application guides would offer enhanced transparency as to what different regions and planners regard as potentially appropriate circumstances for the deployment of DLR and other technologies, and they will allow the Commission and the industry to compare regional practices and showcase best practices in the deployment of DLR and other technologies.

II. CONCLUSION

PJM's Initial and Supplemental Comments support the transparent, cost effective, efficient and reliable deployment of DLR. PJM appreciate the opportunity to submit supplemental comments in this matter to provide a potential path forward for the Commission in resolving the issues in this docket and optimizing the operational benefits of DLR without overstating DLR's ability to supplant necessary long term regional transmission planning.

Respectfully submitted,

/s/ Mark J. Stanisz

Craig Glazer
Vice President, Federal Government Policy
PJM Interconnection, L.L.C.
1200 G Street, NW, Suite 600
Washington, DC 20005
(202) 423-4743 (phone)
Craig.Glazer@pjm.com

Mark J. Stanisz
Associate General Counsel
PJM Interconnection, L.L.C.
2750 Monroe Boulevard
Audubon, PA 19403
(610) 666-4707 (phone)
Mark.Stanisz@pjm.com

Counsel for PJM Interconnection, L.L.C

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