UNITED STATES OF AMERICA
BEFORE THE
FEDERAL ENERGY REGULATORY COMMISSION

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

**COMMENTS OF**
**TRANSMISSION ACCESS POLICY STUDY GROUP**

The Transmission Access Policy Study Group ("TAPS") appreciates the opportunity to comment on the February 17, 2022 Notice of Inquiry ("NOI") [1] regarding Implementation of Dynamic Line Ratings ("DLRs"). TAPS has been actively engaged in the Commission's previous efforts to increase the accuracy of transmission line ratings because of their impact on the availability of open access transmission service and congestion charges borne by consumers. It applauds the issuance of this NOI to better understand the benefits, costs, and risks of DLRs and issues pertaining to whether and how the Commission should mandate DLRs.

As discussed below, the questions raised in the NOI highlight the need for a cautious and scalpel-like approach to DLR implementation at this time. While across-the-board implementation of DLRs does not appear justified, TAPS urges further evaluation of whether and where the incremental benefits of DLRs—i.e., benefits above and beyond those achievable by implementing the ambient-adjusted line ratings

[1] *Implementation of Dynamic Line Ratings*, 178 FERC ¶ 61,110 (2022).

("AARs") mandated by Order 881[2]—justify the additional costs and risks posed by DLRs.

## INTERESTS OF TAPS

TAPS is an association of transmission-dependent utilities ("TDUs") in thirty-five states promoting open and non-discriminatory transmission access.[3] As entities entirely or predominantly dependent on transmission facilities owned and controlled by others, TAPS has long recognized the need for a robust and efficiently utilized transmission infrastructure to provide non-discriminatory transmission access and foster competition. We therefore appreciate the Commission's efforts to examine the potential for advanced technologies to increase the capacity, efficiency, and reliability of transmission facilities.

TAPS participated in the preceding process, and it supported the Commission's notice of proposed rulemaking[4] that resulted in issuance of Order 881, the Managing Transmission Line Ratings Rule. TAPS sponsored a witness, Steve Leovy (WPPI Energy), at the Commission's 2021 Grid-Enhancing Technologies ("GETs") Workshop,[5] and 2019 GETs Workshop.[6] We filed follow-up comments to both workshops, urging

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[2] *Managing Transmission Line Ratings*, 177 FERC ¶ 61,179 (2021) ("Order 881" or "MTLR Rule").

[3] *See* TAPS, https://www.tapsgroup.org (last accessed Apr. 8, 2022). Jane Cirrincione, Northern California Power Agency, is TAPS Chair. Dave Osburn, Oklahoma Municipal Power Authority, is Vice Chair. Terry Huval is TAPS Executive Director.

[4] *See* Post-Technical Conference Comments of TAPS, *Managing Transmission Line Ratings*, Docket No. AD19-15-000 (Nov. 1, 2019), eLibrary No. 20191101-5189, and comments supporting (with suggested modifications) the November 19, 2020 Notice of Proposed Rulemaking, Comments of TAPS, *Managing Transmission Line Ratings,* Docket No. RM20-16-000 (Mar. 22, 2021), eLibrary No. 20210322-5190 ("TAPS MTLR Comments").

[5] Second Supplemental Notice of Workshop, *Elec. Transmission Incentives Pol'y Under Section 219 of the Federal Power Act*, Docket Nos. RM20-10-000, AD19-19-000 (Sept. 9, 2021), eLibrary No. 20210909-3059 ("2021 GETs Workshop"); Transcript of the Workshop to Discuss Certain Performance-based Ratemaking Approaches, Docket Nos. RM20-10-000, AD19-19-000 (Sept. 10, 2021), eLibrary No. 20211013-4001 ("2021 GETs Workshop Tr.").

[6] Supplemental Notice of Workshop, *Grid-Enhancing Technologies*, Docket No. AD19-19-000 (Oct. 29,

the Commission to examine and promote adoption of advanced technologies where appropriate, while arguing strenuously against use of shared-savings incentives.[7] We also addressed technology (including GETs) incentives in comments submitted in the Commission's transmission incentive rulemaking process.[8] And in response to the Commission's Advance Notice of Proposed Rulemaking on *Building for the Future Through Electric Regional Transmission Planning and Cost Allocation and Generator Interconnection*, TAPS advocated changes to the planning process to ensure timely consideration, in an open and transparent regional process, of "quick fix" conventional solutions and GETs to reduce costs to consumers.[9]

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2019), eLibrary No. 20191029-3061 ("2019 GETs Workshop"); Transcript of Day 2 November 2019 Grid Enhancing Technologies Workshop, Docket No. AD19-19-000 (Nov. 6, 2019), eLibrary No. 20200106-4005 ("2019 Workshop Tr. Day 2"). Prepared Statement of Steven Leovy on Behalf of WPPI Energy and TAPS for the November 5-6 Workshop, *Grid-Enhancing Technologies*, Docket No. AD19-19-000 (Nov. 12, 2019), eLibrary No. 20191112-4023 ("Leovy Statement").

[7] Post-Workshop Comments of TAPS, *Grid-Enhancing Technologies*, Docket No. AD19-19-000 (Feb. 14, 2020), eLibrary No. 20200214-5154 ("TAPS Post 2019 GETs Workshop Comments"); Post-Workshop Comments of TAPS, *Elec. Transmission Incentives Pol'y Under Section 219 of the Federal Power Act*, Docket Nos. RM20-10-000, AD19-19-000 (Jan. 14, 2022), eLibrary No. 20220114-5137 ("TAPS Post 2021 GETs Workshop Comments").

[8] Comments of TAPS 101, *Inquiry Regarding the Commission's Elec. Transmission Incentives Pol'y,* Docket No. PL19-3-000 (June 26, 2019), eLibrary No. 20190626-5264 ("TAPS 2019 NOI Comments"); Reply Comments of TAPS 23-30, *Inquiry Regarding the Commission's Elec. Transmission Incentive Pol'y,* Docket No. PL19-3-000 (Aug. 26, 2019), eLibrary No. 20190826-5116 ("TAPS 2019 NOI Reply Comments"); Comments of TAPS 112-127, *Elec. Transmission Incentives Pol'y Under Section 219 of the Federal Power Act*, Docket No. RM20-10-000 (July 1, 2020), eLibrary No. 20200701-5410 ("TAPS 2020 NOPR Comments").

[9] Comments of TAPS 19-22, *Bldg. for the Future Through Elec. Reg'l Transmission Plan. and Cost Allocation and Generator Interconnection,* Docket No. RM21-17 (Oct. 12, 2021), eLibrary No. 20211012-5388 ("TAPS ANOPR Comments").

Communications regarding these proceedings should be directed to:

Terry J. Huval
Executive Director
TRANSMISSION ACCESS POLICY STUDY GROUP
P.O. Box 60551
Lafayette, LA 70596
(337) 278-0306
Email: thuval@tapsgroup.org

Cynthia S. Bogorad
William S. Huang
Amanda C. Drennen
SPIEGEL & MCDIARMID LLP
1875 Eye Street, NW, Suite 700
Washington, DC 20006
(202) 879-4000
Email: cynthia.bogorad@spiegelmcd.com
william.huang@spiegelmcd.com
amanda.drennen@spiegelmcd.com

## COMMENTS

As noted, TAPS has consistently endorsed the goal of adopting new technologies that can cost-effectively improve the ability of the existing system to transfer power.[10] TAPS strongly supports deployment of GETs that are shown to deliver significant benefits to consumers relative to costs and risks in comparison to other alternatives. We thus applaud Order 881, which includes:

- A nearly across-the-board mandate to enhance line ratings via adoption of AARs, which can be implemented through a "Look-Up Table" approach that accommodates the needs of small transmission owners ("TOs"),[11] plus rules as to when these ratings should be applied;
- Mandates with regard to Seasonal and Emergency Ratings;
- A requirement that RTOs develop the systems necessary to accommodate at least hourly DLRs from members; and

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[10] TAPS Comments focus on NOI questions 1-3, 11, 14, and 15. As instructed in the NOI P 7, TAPS has kept these comments short by relying on the extensive material TAPS has previously filed in other GETs-related proceedings. We therefore ask that all such references be incorporated into the record of this proceeding.

[11] *See* Order 881, P 142. *See also* DLR NOI P 14, n.31. *See* TAPS MTLR Comments at 7-10. The Commission caveated the application of these ratings by: (1) excluding lines where the transmission provider determines, consistent with good utility practice, that the line's rating is not affected by ambient air temperatures, and (2) by adopting a reliability "safety valve" in which a transmission provider can temporarily use a rating other than the one required by Order 881 if it determines that doing so is "necessary to ensure the safety and reliability of the transmission system." Order 881, PP 227-228.

- Mandates with regard to transparency of line ratings and methodologies.

At the same time, while appropriately requiring RTOs to develop the systems necessary to accommodate at least hourly DLRs from member TOs that elect to implement them,[12] Order 881 rightly declined to require the use of DLRs at that time, and instead opened the instant proceeding.

The many critical questions posed in this NOI attest to the appropriateness of the course the Commission has taken, and the need for a cautious and focused approach to DLR implementation to ensure that incremental benefits of DLR implementation (as compared with AAR implementation) outweigh the additional costs, complexity, and risks. Additional experience will be required to assess how to identify and define that "sweet spot." Thus, while DLRs may well deliver benefits beyond those obtainable through AARs in particular circumstances, an across-the-board mandate seems unwise and unreasonable at this time.

In particular, AAR implementation is proven, straight-forward, and cost-effective, as demonstrated by the use of AARs for decades by major utilities and their wide adoption in several regions of the country.[13] In contrast, DLRs have no such track record in this country[14] Indeed, the GETs Workshops highlighted the limited experience with

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[12] Order 881 P 255.

[13] AARs have long been in use by AEP and a number of other utilities and have been adopted on a widespread basis in PJM and ERCOT. MTLR Rule, PP 51, 97, 99. The MTLR Rule also points to Dominion, Entergy, and Exelon. *Id*. P 51.

[14] *See* NOI, Questions 14 and 15.

DLRs.[15] And as the Commission and its Staff have recognized,[16] implementation of DLRs creates significant additional physical and cyber risks due to placement and reliance on sensors. Successful implementation is also complex, requiring alignment of internal systems (such as energy management systems), as well as a significant investment in training of personnel.[17]

Importantly, as NOI Question 2 rightly recognizes, any decision to incur the costs and risks associated with DLR implementation must be assessed against the backdrop of the benefits that will accrue from the mandated, across-the-board implementation of AARs within the next few years. At the 2019 GETs Workshop, David Patton (Potomac Economics) noted that some 90% of the benefits of DLRs could be achieved via AARs, and took the position that any shared-savings incentive for DLRs should be based on only the incremental benefit realized from DLRs, above and beyond the benefits that could be achieved from AARs.[18] The degree to which further experience and analyses confirm

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[15] For example, PPL installed DLRs on two of its lines in December 2020. 2021 GETs Workshop Tr., 228: 20-23 (Quier, PPL Corp.). AEP installed dynamic line ratings on one of its lines between MISO and PJM a few years ago. *Id*. at 241:24-242:2 (Ali, AEP). SPP has been examining these technologies over the last four or five years and has undertaken a pilot study, without any actual implementation of DLR. *Id.* at 66:15-17, 85:1-13 (Bowman, SPP).

[16] *Managing Transmission Line Ratings,* Staff Paper 21-22, Docket No. AD19-15-000 (Aug. 23, 2019), eLibrary No. 20190823-4002 ("Challenges unique to DLR implementation relate to . . . physical and cyber risks."); NOI P 6; Order 881, P 240.

[17] For example, Terron Hill of National Grid said that installing DLRs required "completely new processes . . . We had to train our employees on how to pull in to our energy management systems so you can actually gain benefits of these technologies. And that all requires more resources . . . We actually have to do a lot of prep work, a lot of analysis in order to make sure that we're [] putting these in the best places so we can get the best benefit." 2021 GETs Workshop Tr. 160:2-8, 161:23-25.

[18] 2019 GETs Workshop Tr. Day 2, 321:25. *See also id.* Tr. Day 2, 322:1-5 (Patton, Potomac Economics) ("[I]f I'm a DLR and I'm looking at the WATT proposal, I wouldn't want you to assume AARs, because there goes 90 percent of my benefit . . . . I don't buy the argument that AARs are somehow unreliable, so we should start with . . . the ratings we have today"); *see also* 2019 Workshop Tr. Day 1, 76:18-24, Docket No. AD19-19-000 (Nov. 5, 2019), eLibrary No. 20200106-4004 ("2019 Workshop Tr. Day 1"), (Bradish, AEP) ("[O]ur operators do use something called ambient adjusted ratings that I believe Lindsey wasn't pleased with, but we do use them. We've been using them for many years, apparently at our own peril, but

that a significant portion of the DLR benefits can be achieved through AAR implementation[19] should be a key consideration in assessing whether, and in what circumstances, implementation of DLRs is warranted.

That being said, TAPS recognizes that there may well be situations where the ability of DLRs to take into account factors other than ambient temperature and local sunrise/sunset timing could make a significant difference in the resulting ratings, warranting DLR implementation. For example, the ratings of some facilities could be significantly affected by wind speeds, a factor not considered in AARs. Therefore, continued evaluation and study is in order. The required, nearly across-the-board implementation of AARs within three years should provide opportunities to better refine the factors that make DLRs worthwhile in particular locations or circumstances, notwithstanding their higher risks and costs. And given proactive efforts to implement AARs even before the MTLR Rule issued,[20] as well as transmission owner efforts likely already initiated as they look toward achieving full and timely compliance with that rule, there should be ample opportunity for the Commission to make informed assessments of when DLR is called for.

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we can apply them though to 40,000 miles of lines at fairly relative low cost, and so they do add additional capability").

[19] MTLR Rule P 85 ("[A]s the record demonstrates, despite differences across transmission systems, simply accounting for ambient air temperatures in transmission line ratings can reliably increase power transfer capability, resulting in significant reliability, operational, and economic benefits. Numerous commenters describe these benefits. For example, Potomac Economics estimates that the benefits to AAR implementation in MISO alone would have produced approximately $67 million and $49 million in reduced congestion costs in 2019 and in 2020, respectively." (footnotes omitted)). *See also id.* P 68 (noting comments from Potomac Economics, the MISO IMM, stating "that it conservatively estimates that the benefits of using AARs and emergency ratings in 2019 and 2020 would have been between 9% and 13% of the real-time congestion value, or $98 million and $114 million per year." (footnote omitted)).

[20] 2021 GETs Workshop Tr. 286:5-16 (Leovy, WPPI Energy).

In addition, planning processes could provide another source of information to assess the incremental benefits of DLRs as compared with AARs in particular circumstances. As noted, in the *Building for the Future* ANOPR proceeding, TAPS has advocated for improvements to the planning process to better integrate timely consideration of GETs, including DLRs.[21]

And to address barriers to DLR implementation,[22] TAPS has identified a number of other steps the Commission can and should take to promote use of DLRs, including pilots.[23] Incentives (and particularly, shared-savings incentives) are *not* the answer.[24]

Finally,[25] any action the Commission undertakes to promote implementation of DLRs should be accompanied by the same transparency requirements as adopted in Order 881. And as TAPS has consistently advocated, the Commission should adopt additional protections against DLR implementation that favors the TO/TP's generation and load over that of competitors.[26]

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[21] *See* TAPS ANOPR Comments at 19-22.

[22] *See* NOI, Question 2.

[23] *See* TAPS Post-2021 GETs Workshop Comments at 21-24.

[24] *See id.*

[25] *See* NOI, Question 14.

[26] *See* Leovy Statement at 4-6; TAPS Post 2019 GETs Workshop Comments at 9, 16-17; See TAPS Post 2021 GETs Workshop Comments at 20-21, 23, 36. *Cf* TAPS MTLR Comments at 10-12 (re AARs).

**CONCLUSION**

For the reasons set forth above, the Commission should consider TAPS comments as it pursues this important effort.

Respectfully submitted,

*/s/ Cynthia S. Bogorad*

Cynthia S. Bogorad
William S. Huang
Amanda C. Drennen

Attorneys for
Transmission Access Policy Study Group

Law Offices of:
Spiegel & McDiarmid LLP
1875 Eye Street, NW
Suite 700
Washington, DC 20006
(202) 879-4000

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