

UNITED STATES OF AMERICA  
BEFORE THE  
FEDERAL ENERGY REGULATORY COMMISSION

Implementation of Dynamic Line Ratings

Docket No. RM24-6-000

**COMMENTS OF  
TRANSMISSION ACCESS POLICY STUDY GROUP**

The Transmission Access Policy Study Group (“TAPS”) appreciates the opportunity to comment on the Federal Energy Regulatory Commission’s (“Commission”) June 27, 2024 Advance Notice of Proposed Rulemaking (“ANOPR”) on *Implementation of Dynamic Line Ratings*.<sup>1</sup> The ANOPR presents potential reforms to improve the accuracy of transmission line ratings, by requiring dynamic line ratings (“DLRs”) that reflect solar heating based on the sun’s position and forecastable cloud cover on all transmission lines, and by requiring DLRs that reflect forecasts of wind conditions on certain transmission lines.

TAPS supports the ANOPR’s general approach to implementing DLRs to ensure consumers get the full value of existing transmission assets and enable the potential deferral of some new transmission lines. Specifically, the potential reforms discussed in the ANOPR would impose DLR requirements on transmission providers (“TPs”) as an element of just and reasonable service, and fund implementation through cost-based transmission rates rather than relying on incentives that risk making inexpensive technology expensive for consumers. And we respect the ANOPR’s efforts to tailor DLR requirements by balancing the cost and burden of implementation against anticipated

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<sup>1</sup> *Implementation of Dynamic Line Ratings*, 187 FERC ¶ 61,201 (2024) (“ANOPR”).

benefits. For example, the proposals under consideration in the ANOPR would require implementation on only selected lines for weather elements that cannot be incorporated into ratings without the installation of sensors.<sup>2</sup>

As the Commission determines whether to move forward with a Notice of Proposed Rulemaking, it should consider additional ways to balance costs and benefits in a manner that appropriately reflects regional differences and otherwise ensures the benefits of DLRs significantly exceed their costs, and to reduce opportunities for discrimination. Specifically:<sup>3</sup>

- If the Commission moves forward with the solar position requirement, it should strongly encourage Regional Transmission Organizations (“RTOs”) to adopt, and/or expand upon existing approaches that use “look-up tables” or similar pre-calculated databases. In addition to avoiding unnecessary burden on Transmission Operators (“TOs”) and consumers and facilitating consistency in selection and application of solar position data to determine line ratings, this approach will reduce vulnerability to communications breakdowns and the likelihood of errors or discriminatory implementation. Part II.A.
- As the ANOPR itself recognizes (PP 94-95), the accuracy of cloud cover forecasts varies significantly between regions and seasonally, and “[s]ome overcast conditions will not be forecastable at all.” Before embarking on a forecastable cloud cover DLR requirement, TAPS recommends pilot projects to determine whether, where, and when such a requirement is warranted. Where the confidence level of cloud cover forecasts is likely to be low during much or all of the year, it is appropriate to tailor any such requirement to avoid imposing significant new burdens on TPs and TOs for little or no benefit. Part II.B.
- DLRs can be implemented in an unduly discriminatory manner, to advantage the TP/TO’s generation over that of others. TAPS therefore identifies specific steps the Commission should take to minimize the opportunity for discriminatory application of DLRs. Part II.C.
- In RTO regions, it should be possible to calculate congestion for wind DLR application purposes by using RTO-published data on shadow prices and information on the facility ratings of the lines at issue. While locational marginal prices (“LMPs”) could also be used, shadow prices may be easier as they are

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<sup>2</sup> *Id.* PP 79, 84.

<sup>3</sup> It should be noted that, while TAPS attempts to offer constructive comments on key aspects of the ANOPR’s proposals, we have not attempted a detailed evaluation of the specific capabilities, costs, and benefits of the various technologies identified in the ANOPR.

keyed to each transmission flow constraint, rather than each node. TAPS recommends starting with a DLR requirement on lines that have at least \$2 million in annual congestion, with an opportunity to reassess that threshold at a later date based on experience and/or improved technology. Part II.D.1.

- For non-RTO regions, the five triggering events preliminarily proposed for the ANOPR’s Limiting Element Rate (“LER”) metric are unlikely to yield useful information on transmission congestion. Part II.D.2.a. However, the ANOPR’s possible sixth triggering event based on Available Transfer Capability (“ATC”) *could* provide a proxy for congestion in non-RTO regions. An ATC availability measure, reflecting the percentage of time that ATC is zero or near-zero on a posted path, could also evidence persistent congestion. Part II.D.2.b.
- TAPS is particularly concerned about application of the ANOPR’s self-exception approach in non-RTO regions. Non-RTO TPs should *not* be permitted to self-exception a transmission line that otherwise meets the wind speed and congestion criteria, merely because the TP has not received requests for service over the line that the TP then denied. More generally, given current data limitations (e.g., absent accurate production cost modeling), we question the accuracy and verifiability of a non-RTO TP’s assessment of benefits relative to costs. Part II.E.
- Consistent with Order 881,<sup>4</sup> the Commission should cure the ANOPR’s inconsistent and discriminatory treatment of secondary network service and short-term network resource designations by making clear that to the extent the Commission requires transmission line ratings adjusted by DLRs—whether solar or wind—to be applied to evaluation and granting of new transmission service requests, requests for secondary network service and short-term network resource designations that fall within the relevant window should be included. Part II.F.
- The ANOPR correctly recognizes the importance of transparency to implementing DLRs in a just, reasonable, and not unduly discriminatory manner. TAPS suggests specific enhancements of the ANOPR’s contemplated transparency requirements. Part II.G.

## I. INTEREST OF TAPS

TAPS is an association of transmission-dependent utilities in thirty-five states promoting open and non-discriminatory transmission access.<sup>5</sup> As entities entirely or predominantly dependent on transmission facilities owned and controlled by others,

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<sup>4</sup> *Managing Transmission Line Ratings*, Order No. 881, 177 FERC ¶ 61,179 (2021) (“Order 881”), *on reh’g*, Order No. 881-A, 179 FERC ¶ 61,125 (2022).

<sup>5</sup> See TAPS, *About Us*, <https://www.tapsgroup.org/about-us/> (last visited Oct. 13, 2024). Jane Cirrincione, Northern California Power Agency, is the TAPS Chair; Dave Osburn, Oklahoma Municipal Power Authority, is the Vice Chair. Tom Heller is TAPS’s Executive Director.

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 DLRs to increase the capacity, efficiency, and reliability of transmission facilities.

TAPS has participated in the Commission's prior proceedings on Grid-Enhancing Technologies, and it supported the notice of proposed rulemaking<sup>6</sup> 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,<sup>7</sup> and 2019 GETs Workshop.<sup>8</sup> We filed follow-up comments to both workshops, urging the Commission to examine and promote adoption of advanced technologies where appropriate, while arguing strenuously against use of shared-savings incentives.<sup>9</sup>

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<sup>6</sup> 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.

<sup>7</sup> Second Supplemental Notice of Workshop, *Elec. Transmission Incentives Pol'y Under Section 219 of the Fed. Power Act*, Docket Nos. RM20-10-000, AD19-19-000 (Sept. 9, 2021), eLibrary No. 20210909-3059; 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.

<sup>8</sup> Supplemental Notice of Workshop, *Grid-Enhancing Tech.*, Docket No. AD19-19-000 (Oct. 29, 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. Prepared Statement of Steven Leovy on Behalf of WPPI Energy and TAPS for the November 5-6 Workshop, *Grid-Enhancing Tech.*, Docket No. AD19-19-000 (Nov. 12, 2019), eLibrary No. 20191112-4023.

<sup>9</sup> Post-Workshop Comments of TAPS, *Grid-Enhancing Tech.*, Docket No. AD19-19-000 (Feb. 14, 2020), eLibrary No. 20200214-5154; Post-Workshop Comments of TAPS, *Elec. Transmission Incentives Pol'y Under Section 219 of the Fed. Power Act*, Docket Nos. RM20-10-000, AD19-19-000 (Jan. 14, 2022), eLibrary No. 20220114-5137.

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## II. COMMENTS

### A. *Implementation of DLRs should be structured to minimize burden and assure consistency.*

Particularly in RTO regions, where the TP is independent from the TOs, systems to implement DLRs should be structured to minimize burden and assure consistency. TAPS appreciates Order 881's express accommodation of the "look-up table" approach to ambient-adjusted ratings ("AAR") implementation in RTO regions, under which an RTO sets line ratings by using data on current weather conditions and querying look-up tables or similar databases provided in advance by the TO. While the Commission declined to mandate any specific AAR implementation methodology for RTOs, Order 881 made clear that "hourly (or more frequent) querying of 'look-up tables' or similar pre-calculated AAR databases" by an RTO would satisfy that rule's requirement that "AARs be calculated at least each hour." Order 881, P 142. The Commission also "encourage[d] RTO/ISO transmission owners to coordinate implementation methodologies and promote implementation consistency to the greatest extent possible within an RTO/ISO service territory." *Id.*

Order 881 discussed PJM Interconnection, L.L.C.’s (“PJM”) use of the look-up table approach to implement AARs;<sup>10</sup> and the Commission subsequently accepted that aspect of PJM’s Order 881 compliance.<sup>11</sup> Midcontinent Independent System Operator, Inc. (“MISO”) has also used look-up tables provided in advance by TOs to update at least some line ratings in response to changing weather.<sup>12</sup>

The solar position DLR requirement under consideration in the ANOPR<sup>13</sup> would use publicly available information on the sun’s position, which is known years in advance, to produce a more granular application of Order 881’s AARs. Order 881 already requires that line ratings “reflect[] the absence of solar heating during nighttime periods where the local sunrise/sunset times used to determine daytime and nighttime periods are

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<sup>10</sup> *Id.* P 159.

<sup>11</sup> *PJM Interconnection, L.L.C.*, 183 FERC ¶ 61,117, PP 27, 40 (2023) (stating that it would comply with Order 881 for PJM to set line ratings by querying look-up tables or pre-calculated AAR databases provided by the TO); *PJM Interconnection, L.L.C.*, Letter Order in Docket Nos. ER22-2359-001, ER22-2359-002, and ER23-2964-000 (Nov. 22, 2023), eLibrary No. 20231122-3014 (accepting PJM’s additional compliance filing and PJM Transmission Owners’ revisions to the Consolidated Transmission Owners Agreement to implement look-up table approach).

<sup>12</sup> MISO: *See* Review of MISO’s Rating Process at 9-10 (Jan. 15, 2021), <https://cdn.misoenergy.org/20210115%20Transmission%20Line%20Ratings%20Workshop%20Item%2004%20of%20MISO%20Rating%20Processes%20and%20Statistics%20513174.pdf>; Dynamic Ratings Application User Guide – External at 1, 6, Document No. SO-P-NOP-00-453 Rev: 4 (May 30, 2023), <https://cdn.misoenergy.org/SO-P-NOP-00-453%20Rev%204%20Dynamic%20Ratings%20Application%20User%20Guide%20-%20External539419.pdf> (referring to temperature table). *See also* Reliability Subcommittee, Review FERC Order 881 Progress at 6 (Apr. 18, 2023), <https://cdn.misoenergy.org/SO-P-NOP-00-453%20Rev%204%20Dynamic%20Ratings%20Application%20User%20Guide%20-%20External539419.pdf> (use of temperature look-up table in conjunction with MISO weather source for Forecasted AARs); Modeling Users Group, MISO Model Manager Update for FERC Order 881 at 3 (Mar. 14, 2024), <https://cdn.misoenergy.org/20240314%20MUG%20Item%2004%20MMM%20Order%20881%20Update632184.pdf>.

<sup>13</sup> The ANOPR also identifies potential DLR requirements for forecastable cloud cover and wind. Since it is less clear from the ANOPR how information on such weather elements will be collected and reflected in line ratings, we have not attempted to address them in this Part. In general, however, we urge the Commission to consider the implementation burden on small TOs in crafting any such requirements and acceptable methods for compliance.

updated at least monthly, if not more frequently.”<sup>14</sup> While a look-up table or similar pre-calculated database that incorporates more detailed solar position information would be more complicated than the one needed to implement the existing solar heating AAR requirement, industry-standard formulas can be used to expand the approach to include that additional computation.<sup>15</sup>

However, if an RTO that currently uses look-up tables to implement Order 881 were to refuse to expand that approach to accommodate solar position DLRs, and instead were to require each TO to separately calculate and continuously transmit DLRs to the RTO, the region would need to design and implement new systems and protocols to manage line ratings, generally. This could take significant time, delaying implementation of DLRs. And such a change would require each TO to install and maintain systems satisfying complex RTO communications requirements, so that the TO can send continuous line-rating updates to the RTO. For small TOs that do not currently have such systems (because they are not a transmission operator), the costs to consumers would rise. And such a change would be a step backward in achieving accurate and consistent inclusion of weather data in ratings at a reasonable cost.

Therefore, if the Commission decides to move forward with the ANOPR’s solar position DLR requirement, it should craft the requirement so that RTOs can implement it by building upon their existing look-up table systems for AARs. And the Commission should strongly encourage such RTOs to adopt that approach. In addition to avoiding

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<sup>14</sup> Order 881, P 4 (citing 18 C.F.R. § 35.28(b)(12)).

<sup>15</sup> It may be worth exploring ways the application of an expanded look-up table or pre-calculated database may be simplified formulaically, consistent with TO obligations under FAC-008-5. NERC, Facility Ratings (last accessed Oct. 13, 2024), <https://www.nerc.com/pa/Stand/Reliability%20Standards/FAC-008-5.pdf>.

unnecessary burdens on TOs and consumers and facilitating consistency in selection and application of sun position data to determine line ratings, this approach will reduce vulnerability to communications breakdowns and the likelihood of errors or discriminatory implementation. In light of these benefits, the Commission should also encourage RTOs that are *not* currently allowing the look-up table approach for AARs to reconsider that decision.<sup>16</sup>

***B. The Commission should consider using pilot projects to evaluate the benefits of a DLR requirement for forecastable cloud cover.***

The ANOPR (PP 83, 91, 161) preliminarily proposes to require that TPs incorporate up-to-date forecasts of forecastable cloud cover into all transmission line ratings used for near-term (within 10 days) transmission service. However, the Commission seeks comments on the “costs, non-financial burdens, and financial and non-financial benefits” of such a requirement, and whether a shorter time frame such as 36 or 48 hours forward would be more appropriate. *Id.* P 96.

As the ANOPR itself recognizes (PP 94-95), the accuracy of cloud cover forecasts may well vary significantly between regions and seasonally, and “[s]ome overcast conditions will not be forecastable at all.” In regions where cloud cover forecasts are less reliable or may be reliable (if at all) only during short periods of any given year, the benefits of incorporating them into continuously updated DLRs could be *de minimis*. Once an appropriate confidence level is applied to take forecast uncertainty into account,

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<sup>16</sup> Individual TOs in RTOs that wish to retain sole responsibility for calculating real-time and forecast DLRs could be given the option to do so, and to dynamically transmit those ratings to the RTO. However, allowing TOs to elect not to use the “look-up table” approach heightens the need for enhanced Independent Market Monitor oversight (*see* Part II.C below) and transparency (*see* Part II.G below).

there may be little or no change in the forecast line rating, even if a very short time frame is used.

While the ANOPR (P 91) points generally to “outreach and research” as the basis for its forecastable cloud cover proposal, there would be value in evaluating the results of pilot projects in each region to determine whether and when such a requirement is warranted. Particularly in regions where the confidence level of cloud cover forecasts is likely to be low during much or all of the year, it may be appropriate to tailor any such requirement to avoid imposing significant new burdens on TPs and TOs for little or no benefit.

***C. The Commission should take steps to minimize the opportunity for discriminatory application of DLRs.***

As recognized in Order 888, TPs have both the incentive and opportunity to use their control over transmission to discriminate in their own favor.<sup>17</sup> Order 890 emphasized the importance of consistency and transparency of ATC and its components to avoid undue discrimination in transmission service.<sup>18</sup> *See, e.g.*, Order 890, P 207. Any

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<sup>17</sup> *Promoting Wholesale Competition Through Open Access Non-Discriminatory Transmission Servs. By Pub. Utils.; Recovery of Stranded Costs by Pub. Utils. & Transmitting Utils.*, Order No. 888, 75 FERC ¶ 61,080, FERC Stats. & Regs. at 31,682, *clarified*, 76 FERC ¶ 61,009 (1996) (“Order 888”), *modified*, Order No. 888-A, 78 FERC ¶ 61,220, *order on reh’g*, Order No. 888-B, 81 FERC ¶ 61,248 (1997), *order on reh’g*, Order No. 888-C, 82 FERC ¶ 61,046 (1998), *aff’d in part & remanded in part sub nom. Transmission Access Pol’ Study Grp. v. FERC*, 225 F.3d 667 (D.C. Cir. 2000), *aff’d sub nom. New York v. FERC*, 535 U.S. 1 (2002) (“It is in the economic self-interest of transmission monopolists, particularly those with high-cost generation assets, to deny transmission or to offer transmission on a basis that is inferior to that which they provide themselves. The inherent characteristics of monopolists make it inevitable that they will act in their own self-interest to the detriment of others by refusing transmission and/or providing inferior transmission to competitors in the bulk power markets . . .”).

<sup>18</sup> *Preventing Undue Discrimination & Preference in Transmission Serv.*, Order No. 890, 118 FERC ¶ 61,119 (“Order 890”), *order on reh’g and clarification*, Order No. 890-A, 121 FERC ¶ 61,297 (2007) (“Order 890-A”), *order on reh’g*, Order No. 890-B, 123 FERC ¶ 61,299 (2008), *order on reh’g and clarification*, Order No. 890-C, 126 FERC ¶ 61,228, *order on clarification*, Order No. 890-D, 129 FERC ¶ 61,126 (2009).

DLR requirements resulting from the ANOPR should be designed to continue to advance those objectives.

Panelists at the Commission’s September 10-11, 2019 technical conference on *Managing Transmission Line Ratings*<sup>19</sup> confirmed that TOs have both the incentive and opportunity to use facility ratings to make capacity available on an unjust, unreasonable, and discriminatory basis.<sup>20</sup> New line rating technologies—while beneficially increasing transmission availability—could expand that opportunity by widening the range of potential ratings for a facility, and by giving TOs/TPs greater control and discretion to competitively advantage their own generation and disadvantage the generation of others.

Where DLR requirements would be imposed on only a subset of lines, the process and criteria for selecting those lines provide opportunities for discrimination. TAPS supports the ANOPR’s preliminary proposal to use objective criteria—e.g., average wind speed and annual congestion cost—to identify the lines to which any wind DLR requirement would apply. But if, as contemplated by the ANOPR, deployment of such DLRs will be gradual and take many years to complete, the Commission should put in place mechanisms to assure that roll-out occurs in a nondiscriminatory manner.

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<sup>19</sup> Notice of Technical Conference, *Managing Transmission Line Ratings*, Docket No. AD19-15-000 (June 28, 2019), eLibrary No. 20190628-3060 (proceedings in this docket are referred to as “MTLR Technical Conference”).

<sup>20</sup> See, e.g., MTLR Technical Conference Tr. Day 1, at 67:20–68:16 (Gramlich) (Sept. 10, 2019), eLibrary No. 20191008-4001 (Allowing line rating methodology to be a black box “violates 25 plus years of FERC tradition of trying to determine what the available transmission capacity is and make it available to the market and that was done for . . . just and reasonable rate reasons, but also discrimination reasons”); MTLR Technical Conference Tr. Day 2, at 312:14-20 (Chiasson) (Sept. 11, 2019), eLibrary No.20191008-4002 (if ratings “are unjustifiably overly conservative that pushes them into the physical withholding question from us is [sic] market monitors”); Prepared Statement of Devin Hartman on Behalf of the Electricity Consumers Resource Council at 5, Docket No. AD19-15-000 (Sept. 11, 2019), eLibrary No. 20190917-4035 (“encouraging Tos to actively alter their line ratings without correcting oversight deficiencies may incent new forms of market manipulation”).

For example, clearly requiring that wind DLRs be first deployed on more congested lines would be helpful. In Paragraph 146, the ANOPR states that a TP taking a self-exception for a transmission line “would still be required to implement the wind requirement on its next most congested transmission line.” But a requirement to deploy wind DLRs in order of current congestion costs is not otherwise apparent in the ANOPR. Clarifying that prioritization requirement would be an important first step toward addressing discrimination concerns.

As discussed in Part II.G, below, the annual process for selecting the lines on which DLRs will be deployed next should also be transparent. For example, in RTO regions, the RTO has detailed information on congestion and should be responsible for transparently identifying and posting a list of the wind-DLR-qualified transmission lines, ranked by congestion cost. TOs in the RTO should use that list to determine on which of its lines wind DLRs should be deployed next; and TOs that choose to deviate from the RTO’s posted rank order should be required to explain the reasons.

To provide oversight of TO/TP decisions, DLR implementation should also be treated as a matter of economic regulation under Federal Power Act section 206 and subject to Commission tariff compliance audits.<sup>21</sup> And any rule should also direct independent market monitors to monitor implementation of DLRs to ensure consistency and reasonableness of line ratings and methodology in RTOs.

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<sup>21</sup> See Order 881, P 334 (“we reiterate that the Commission will continue to conduct reviews of transmission line ratings as a component of broader tariff compliance audits and that this final rule does not change the auditing requirements or authorities of any entity”) (footnote omitted).

**D. Congestion metrics to identify lines for which a wind DLR requirement would be applied.**

1. Existing RTO congestion metrics can be used to identify lines for which wind DLRs may be warranted.

As the ANOPR notes (P 48), there are at least two types of congestion metrics that are routinely computed and published in RTO regions: (1) shadow prices (i.e., the marginal production cost savings that would occur if the flow limit on a constraint were relaxed by one MW); and (2) the congestion component of LMPs. Based on the experience of TAPS members, it should be possible to calculate the type of congestion metric discussed in the ANOPR by using RTO-published data on shadow prices and information on the facility ratings of the lines at issue.<sup>22</sup> While LMPs could also be used, shadow prices may be easier as they are keyed to each transmission flow constraint, rather than each node.

If implementing wind DLRs on a line could cost \$100,000-\$200,000 (as the ANOPR suggests, based on comments filed in April 2022 by WATT),<sup>23</sup> starting with a DLR requirement on lines that have at least \$2 million in annual congestion (as proposed by PJM) is more reasonable than the \$500,000 annual congestion threshold urged by WATT.<sup>24</sup> The marginal change in line ratings resulting from the implementation of wind DLRs might be relatively small and eliminate only a fraction of the total congestion on a given line. And in any event, it makes sense to install DLR equipment first on the lines

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<sup>22</sup> While RTOs currently do not always make facility ratings information available to market participants, this issue should be addressed by the RTOs' implementation of Order 881, which requires that TPs "maintain a database of their transmission owners' transmission line ratings and methodologies on the transmission provider's [Open Access Same-Time Information System ("OASIS")] site or another password-protected website," and "post on OASIS or another password-protected website any uses of exceptions or temporary alternate ratings." Order 881, P 39.

<sup>23</sup> ANOPR P 123.

<sup>24</sup> *Id.* P 125.

where it is likely to yield the biggest consumer savings to get the biggest benefit, and to minimize the opportunity for discrimination (as noted above).

As technology evolves and the industry gains real-world experience with DLRs, it may well become appropriate for the Commission to revisit this threshold and adjust it, either up or down. As discussed below in Part II.G, TAPS urges the Commission to require periodic studies of the cost of, and benefits from, the DLR deployments required by any rule. Those assessments should provide the Commission with the information it needs to identify and support changes to any DLR requirements it adopts.

2. Establishing congestion metrics for non-RTO regions presents challenges.

The ANOPR rightly recognizes the congestion metrics available in RTO regions are not currently available in non-RTO regions. Unfortunately, most of the alternative metrics it suggests will not capture congestion in non-RTO regions accurately, if at all. However, one of the possible metrics identified in the ANOPR—one based on ATC<sup>25</sup>—has the potential to be developed into a useful congestion measure.

a) Most of the proposed metrics will not capture congestion in non-RTO regions.

The ANOPR contemplates use of a new congestion metric, Limiting Element Rate (“LER”), that would express, as an average rate in MWh/year, the adverse impacts on transmission service due to a transmission line rating serving as a limiting element,” based on five types of “triggering events”:<sup>26</sup>

- (1) denials of requested firm point-to-point transmission service;
- (2) denials of requests to designate network resources or load;
- (3) curtailment of firm point-to-point

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<sup>25</sup> *Id.* P 132.

<sup>26</sup> *Id.* P 130.

transmission service under section 13.6 of the *pro forma* [Open Access Transmission Tariff (“OATT”)]; (4) curtailment of network integration transmission service or secondary network integration transmission service under section 33 of the *pro forma* OATT; and/or (5) redispach of network integration transmission service or secondary network integration transmission service under sections 30.5 and 33 of the *pro forma* OATT.

The identified LER triggering events will not provide an accurate or reliable measure of congestion, however. The first two LER triggers—denials of firm point-to-point service or network resource and load designations—are unlikely to reveal much, if anything. The *pro forma* OATT does not allow TPs to simply deny long-term point-to-point service or long-term network resource (or load) designations. The TP must study the request; and if transmission capacity is not available, it must identify the needed upgrades and the associated timing and costs.<sup>27</sup> While the time horizon and other information may make a particular long-term service request unworkable for a transmission customer, there should be no flat-out TP “denials” reported for these types of service requests—regardless of the level of existing transmission congestion.

There also are not likely to be a lot of denials of short-term point-to-point service or short-term network resource designations. (The same is true for denials of secondary network service and non-firm point-to-point service, which are not included in the first two LER triggers.) As the ANOPR itself recognizes,<sup>28</sup> “low ATC could dissuade potential transmission customers from making a transmission service request in the first place.” Based on the experience of TAPS members, that is exactly the case.

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<sup>27</sup> See *pro forma* OATT sections 15.2, 15.4, 19.1-19.8 and 27 (point-to-point); *id.* sections 30.2, 31, 32.1-32.4 (network). Network customer cost responsibility depends on whether the required upgrades are direct assignment facilities or network upgrades. See *id.* section 32.4. Cf. Order 890, PP 883-85 (reaffirming “or pricing” for network upgrades).

<sup>28</sup> ANOPR P 132.

Nor are the third and fourth LER metric triggering events likely to provide useful congestion information. According to TAPS members in non-RTO regions, curtailments of firm point-to-point service and network service occur only very rarely, if at all. Their experience makes sense given the requirements imposed prior to granting long-term transmission service. Section 28.2 of the *pro forma* OATT requires TPs to plan and construct their systems to enable network customers to use their network resources to serve their network loads on a basis comparable to the TP's delivery of its own generating and purchased resources to serve its native load. TPs are expressly required to designate network resources for themselves in the same manner as any network customer.<sup>29</sup> As discussed above, requests for both long-term firm transmission service and network resource and load designations can require studies and upgrades. Both forms of firm transmission service may be curtailed only when required to maintain system reliability.<sup>30</sup>

Curtailments of secondary network service are also infrequent, which is consistent with the priority of such service as second only to firm point-to-point and firm network service.<sup>31</sup> Non-firm point-to-point service may be curtailed for reliability and economic reasons,<sup>32</sup> but any such curtailments are unlikely to tell anything close to the full congestion story.

The final triggering event encompassed within the LER metric—redispatch—is likewise not a reliable indicator of congestion. TAPS members with loads on a number of

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<sup>29</sup> *Pro forma* OATT section 28.2.

<sup>30</sup> *Id.* sections 13.6 (for firm point-to-point) and 33.4 (allowing curtailment of network service only when redispatch required pursuant to section 33.2 to maintain reliability is insufficient to resolve the constraint).

<sup>31</sup> *Id.* section 28.4. *See also id.* section 14.7.

<sup>32</sup> *Id.* section 14.7.

different non-RTO TP systems report that the *pro forma* OATT section 33.2 provisions for redispatch of network resources are rarely, if ever, used to redispatch network customer resources. Nor do they recall having been charged for redispatch of the TP's resources pursuant to *pro forma* OATT section 34.4. Indeed, some TPs post that fact on their Open Access Same-Time Information Systems ("OASIS").<sup>33</sup> We seriously doubt that TPs are redispatching their own designated resources for such reliability purposes and then voluntarily choosing not to recover the costs from customers under a provision expressly enabling them to do so.

The limited use of the OATT's redispatch provisions is not surprising, as section 33.2 expressly restricts the TP's right to redispatch a network customer's network resources to only what is necessary to maintain Transmission System reliability—i.e., near-curtailment conditions. For the reasons discussed above with regard to TP obligations to study new network resources and to plan the transmission system for them in a manner comparable to native load, section 33.2 covering redispatch of network resources and section 34.4 covering redispatch charges should not be significant factors. Thus, information on occurrences of redispatch is unlikely to be useful in identifying congestion warranting use of wind DLRs.

However, neither the lack of section 33.2 redispatch, nor the rarity of the other LER metric triggering events discussed above, means that congestion is not a problem in

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<sup>33</sup> See, e.g., Southern Company OASIS (last accessed Oct. 14, 2024), [http://www.oasis.oati.com/woa/docs/SOCO/SOCOdocs/Monthly\\_Average\\_Cost\\_Redispatch.pdf](http://www.oasis.oati.com/woa/docs/SOCO/SOCOdocs/Monthly_Average_Cost_Redispatch.pdf) ("To date, no customer has been invoiced by Southern Companies for any redispatch costs and as such there are no postings at this time"); Duke Energy Carolina OASIS (last accessed Oct. 14, 2024), [http://www.oasis.oati.com/woa/docs/DUK/DUKdocs/Redispatch\\_Cost.htm](http://www.oasis.oati.com/woa/docs/DUK/DUKdocs/Redispatch_Cost.htm) ("Duke Energy Carolinas has not needed to redispatch their system for reliability, however, if in the future Duke does, then this information will be posted here").

non-RTO regions. For example, ATC restrictions seem to bite when a network customer seeks to enhance its economics by going beyond just using its network resources to serve its designated network load. As discussed below, lack of ATC can impede network customer attempts to make economic sales from its network resources or economy purchases to serve network load (using point-to-point or secondary network service, respectively).

- b) ATC holds promise as a measure of congestion in non-RTO regions.

The ANOPR seeks comment on whether a possible sixth triggering event based on ATC could provide a proxy for congestion in non-RTO regions and should be included in the LER metric. Specifically, the ANOPR suggests:<sup>34</sup>

This event would account for times when ATC in the operating hour is less than or equal to 25% of [total transfer capability (“TTC”)]. Such “low ATC events” would be limited to events on paths that meet the definition of a “posted path” under § 37.6(b)(1)(i) of the Commission’s regulations.

The ANOPR explains that “[t]his approach reflects that the Commission’s regulations already consider posted paths that have an ATC that is less than or equal to 25% of TTC to be ‘constrained.’”<sup>35</sup> And importantly, the ANOPR recognizes why such an approach is needed:<sup>36</sup>

Accounting for low ATC events would be intended to capture instances when such low ATC could dissuade

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<sup>34</sup> ANOPR P 132 (footnotes omitted).

<sup>35</sup> *Id.* P 132 n.161 (citing 18 C.F.R. § 37.6(b)(1)(ii) (defining “constrained posted path” as “any posted path having an ATC less than or equal to 25 percent of TTC at any time during the preceding 168 hours or for which ATC has been calculated to be less than or equal to 25 percent of TTC for any period during the current hour or the next 168 hours.”)).

<sup>36</sup> *Id.* P 132.

potential transmission customers from making a transmission service request in the first place.

TAPS agrees that a congestion metric based on posted ATC could be useful in non-RTO regions. TAPS members in non-RTO regions report that the presence of ATC is critical to their decisions to request short-term point-to-point transmission service to make third-party sales or, where the member has network loads and resources dispersed over multiple TP systems, to use their own resource on one TP's system to serve network load located on a second TP system where that resource has not been designated as a network resource. They will also check ATC before they consider making a short-term purchase from a non-network resource (using secondary network service, and if it is a resource on a different TP, short-term point-to-point service on that second TP). They have learned from experience that there is no point in lining up a transaction and moving forward to request short-term point-to-point or secondary network service (or request a short-term network resource designation) if there is no ATC.

While a lack of ATC does not prove that service *would* be requested if ATC were available, there is no reason to assume that it reflects a perfectly sized transmission path that would not benefit from additional capacity that could support granting additional customer transmission service requests. First, ATC is calculated for Point-of-Receipt/Point-of-Delivery paths, not necessarily for a single transmission line,<sup>37</sup> and the constrained element(s) may change over time. Persistent zero or near-zero ATC thus indicates the existence of significant constraints and the inability to flexibly accommodate changing needs.

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<sup>37</sup> See 18 C.F.R. § 37.6(b)(1)(i) (defining posted path) and (iv) (defining interconnection).

Second, as TPs in non-RTO regions are non-independent, they have an incentive to claim that zero-ATC paths are perfectly sized, so long as the TP's own loads and resources are not adversely affected. Those TPs have ample opportunity and incentive to address through upgrades (which are then rolled into ratebase, on which they can earn a return) any lack of ATC on paths that impair their *own* economics. But they have no similar incentive to increase ATC on paths that might benefit network customers (even assuming they had insight into their customers' opportunities and economics<sup>38</sup>), who are their competitors.<sup>39</sup> The Commission thus cannot assume low ATC reflects optimal planning for the needs of all transmission customers.

For these reasons, use of an ATC-based metric to identify lines for DLR deployment is a reasonable approach in non-RTO regions that have not yet implemented a method to calculate the production cost benefits from DLR deployment,<sup>40</sup> or another methodology to reliably quantify congestion costs. And in those circumstances, it is a reasonable option to use such an ATC-based screen, without seeking to estimate the congestion in dollars.

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<sup>38</sup> In some cases, however, the impact of lack of ATC is obvious. TAPS member Florida Municipal Power Agency ("FMPA") reports that while its Cane Island generating facility located on the Kissimmee Utility Authority system is partially designated as a network resource for its designated network load on the Duke Energy Florida transmission system, persistent zero ATC out of that facility otherwise prevents FMPA from making third-party sales or increasing its network designation from one of its largest, cheapest, efficient gas units.

<sup>39</sup> See, e.g., *Southern Cal. Edison Co.*, 34 FERC ¶ 63,086, 65,296 (1986) (finding that competition between Southern California Edison and its customers ". . . includes rivalry for the business of industrial customers, yardstick competition, franchise competition and the potential competitive generation and transmission by the Cities of bulk power"), *affirmed in relevant part*, 40 FERC ¶ 61,371 (1987), *on reh'g*, 50 FERC ¶ 61,275 (1990), *affirmed in part, reversed in part, and remanded, sub nom. Cities of Anaheim, et al. v. FERC* (D.C. Cir. 1991) .

<sup>40</sup> Order 1920 requires that non-RTO regions measure and use production cost savings in Long-Term Regional Transmission Planning. See, e.g., *Bldg. for the Future Through Elec. Reg'l Transmission Plan. & Cost Allocation*, Order No. 1920, 187 FERC ¶ 61,068, P 767 (2024) ("Order 1920"), *reh'g denied*, 188 FERC ¶ 62,025 (2024).

For example, the ANOPR's suggestion of a metric based on the existing definition of "constrained posted path," or something similar, could be used to identify lines that satisfy the congestion criterion for the wind DLR requirement.<sup>41</sup> An ATC availability measure reflecting the percentage of time that ATC is zero or near-zero on a posted path could be another potentially useful ATC-based approach that could reveal persistent congestion.

Significantly, such ATC-based approaches are transparent and updated frequently via an ATC engine that considers contingencies and the like. Their application can be scrutinized by customers, tracked over time, and analyzed.

***E. Self-exception should be restricted in non-RTO regions.***

The ANOPR solicits comments on its proposal to allow TPs, in certain circumstances, to self-except transmission lines that meet the established general screening criteria for application of the wind DLR requirement (*i.e.*, to avoid the wind DLR requirement for particular facilities with ratings not affected by wind, or where wind DLR benefits would not exceed cost).<sup>42</sup> TAPS is particularly concerned with permitting self-exception based on relative benefits and costs in non-RTO regions.

Specifically, in non-RTO regions, TPs should *not* be permitted to self-except a transmission line that otherwise meets the wind speed and congestion criteria, merely because the TP has not received requests for service over the line that the TP then denied. As demonstrated in Part II.D.2.a above, transmission customers tend not to submit futile requests for transmission service—*i.e.*, when little or no ATC is available. More

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<sup>41</sup> See ANOPR P 132 & n.161, discussed above.

<sup>42</sup> *Id.* PP 140-142.

generally, given data limitations (e.g., absent accurate production cost modeling), we question the accuracy and verifiability of a non-RTO TP's assessment of benefits relative to costs.

***F. DLR-based ratings should be applied to secondary network service and short-term network resource designations.***

The ANOPR preliminarily contemplates that wind DLRs would be applied only to new requests for *point-to-point service* within a 48-hour interval.<sup>43</sup> In contrast, when discussing the contemplated application of *solar* DLRs, the ANOPR questions whether Order 881's 10-day horizon is too long,<sup>44</sup> but does not otherwise address the types of transmission service requests to which the solar DLR-adjusted rates apply, implicitly carrying over the scope of services covered by Order 881's application requirement. By narrowly expressing the intended scope of the transmission service to which wind DLR-adjusted ratings apply, the ANOPR is not only internally inconsistent and confusing, but improperly ignores the important correction Order 881 made to the scope of the AAR application. The ANOPR's failure to ensure comparable treatment of point-to-point and network service should be corrected in any future action the Commission takes in this rulemaking proceeding.

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<sup>43</sup> *Id.* P 101 (“For those transmission lines, this approach would require transmission providers to use transmission line ratings that reflect up-to-date forecasts of wind speed and direction to evaluate requests for hourly and daily point-to-point transmission services under the *pro forma* OATT that fall within the 48-hour time horizon. All longer-term (weekly, monthly, yearly) point-to-point services would not be affected by this requirement. For those transmission lines, transmission providers would also use transmission line ratings that incorporate the proposed wind requirement in determining whether to curtail, interrupt, or redispatch transmission service on transmission lines subject to a wind requirement, if such curtailment or redispatch is necessary because of issues related to flow limits on transmission lines and anticipated to occur within the next 48 hours of such determination.”).

<sup>44</sup> *See id.* P 96.

Specifically, in the Notice of Proposed Rulemaking leading up to Order 881,<sup>45</sup> the Commission proposed to apply the AAR-adjusted ratings to requests for “near-term” short-term point-to-point service, but not secondary network service or short-term network resource designations, within the ten-day horizon.<sup>46</sup> At the same time, the Order 881 NOPR proposed that AARs would be used when making curtailment and redispatch decisions involving network and secondary network service within the ten-day window.<sup>47</sup>

TAPS objected to the exclusion of requests for near-term secondary network service and short-term network resource designations from the application of AAR-adjusted ratings.<sup>48</sup> The TAPS Order 881 NOPR Comments argued that the Commission had provided no explanation for its discriminatory treatment of near-term secondary network service and short-term network resource designations that network customers rely on to reliably and economically serve their loads—i.e., the core objective of network transmission service under the OATT.<sup>49</sup>

Order 881 addressed TAPS’s comments<sup>50</sup> by changing course. In Paragraph 86, the Commission redefined “requests for near-term transmission service” to expressly

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<sup>45</sup> *Managing Transmission Line Ratings*, Notice of Proposed Rulemaking, 173 FERC 61,165 (2020) (“Order 881 NOPR”) (subsequent history omitted).

<sup>46</sup> AARs must be considered when TPs are: (1) evaluating the availability of, and requests for, “near-term” point-to-point transmission service requests; (2) posting available near-term transmission capacity or other related information to an OASIS; and (3) making curtailment, interruption, or redispatch decisions. Order 881 NOPR PP 87-89. The Order 881 NOPR proposed to define “near-term” as “point-to-point transmission service ending within 10 days of the date of the request.” *Id.* P 87. Secondary network service and short-term network resource designations were excluded from the service coverage. *Id.* P 90.

<sup>47</sup> *Id.* P 90.

<sup>48</sup> See Comments of Transmission Access Policy Study Group, *Managing Transmission Line Ratings*, Docket No. RM20-16 at 2, 18-22, eLibrary No. 20210322-5190 (“TAPS Order 881 NOPR Comments”).

<sup>49</sup> See, e.g., *pro forma* OATT, Preamble to Part III and sections 28.1, 28.2, 28.3 and 28.4.

<sup>50</sup> Order 881 summarizes the TAPS Order 881 NOPR Comments. Order 881, P 81.

include “network resource designations and secondary service where the start and end date of the designation/request is within the next 10 days.”<sup>51</sup> It went on to revise the description of the applicability of AAR-adjusted ratings by removing the references to point-to-point service and instead referring to the new definition of “near-term transmission service”:<sup>52</sup>

Specifically, we require transmission providers to use AARs as the relevant transmission line ratings when: (1) evaluating requests for near-term transmission service, defined as transmission service ending within 10 days of the date of the request; (2) responding to requests for information on the availability of potential near-term transmission service (including requests for ATC or other information related to potential service); and (3) posting ATC or other information related to near-term transmission service to their OASIS site.

Order 881 also explained the reasons it was appropriate to reverse the Order 881 NOPR’s exclusion of short-term network resource designations within the ten-day period.<sup>53</sup>

The ANOPR provides no explanation of why, when delineating the contemplated application of wind DLRs, it is reverting to the Order 881 NOPR’s rejected, discriminatory treatment of secondary network service and short-term network resource designations within the relevant window. Nor could such preferential treatment of firm and non-firm point-to-point service hold up to scrutiny, for the reasons explained in Order 881 itself<sup>54</sup> and the TAPS Order 881 NOPR Comments.<sup>55</sup>

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<sup>51</sup> *Id.* P 86.

<sup>52</sup> *Id.*

<sup>53</sup> *Id.* P 86 n.209.

<sup>54</sup> *Id.*.

<sup>55</sup> TAPS Order 881 NOPR Comments at 2,18-22 (As the Commission has recognized, Order 890-A, P 956, secondary service is provided to enable network customers (and TPs) to serve network (and native) load reliably and economically. It is made available subject to timing restrictions set forth in *pro forma* OATT section 18.3 for reserving non-firm point-to-point service. Because network and native load customers are

Therefore, consistent with Order 881, in any further issuance in this rulemaking, the Commission should cure this inconsistent and discriminatory treatment by making clear that to the extent, and for whatever period, it requires transmission line ratings adjusted by DLRs—whether solar or wind—to be applied to evaluating and granting new transmission service requests, such requests should include secondary network service and short-term network resource designations that fall within the relevant window.

***G. Transparency is an essential ingredient to any DLR reforms.***

TAPS appreciates the Commission’s recognition of the importance of transparency in the implementation of DLRs, and it proposes additional reforms in three areas to supplement those discussed in the ANOPR.

*Transparency necessary to evaluate the effectiveness of DLR requirements.* The ANOPR (PP 158-59) preliminarily proposes to require the posting of transmission line ratings for each period calculated both with *and without* the consideration of forecasted wind conditions. According to the ANOPR, this information is “necessary to evaluate the effectiveness of implementing the wind [DLR] requirement.” *Id.* P 159. TAPS supports this requirement and urges the Commission to broaden and strengthen it. For example, the Commission should:

- Require TPs to submit an annual informational report on DLR deployment costs broken down by solar position DLRs, forecastable cloud cover DLRs, and wind DLRs.
- Require periodic study of the benefits associated with deployment of each DLR requirement imposed (e.g., solar position, forecastable cloud cover, and wind).

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responsible for the residual cost of the grid, secondary network service comes *ahead* of non-firm point-to-point service in curtailment priority under the *pro forma* OATT. See Order 888 at 31,750; *pro forma* OATT sections 14.2, 28.4. The ANOPR offers no justification for flipping that priority by giving firm and non-firm point-to-point customers preferential and exclusive access to the increased capacity associated with wind DLR-based evaluations of the availability of, and requests for, service within 48 hours.).

*Transparency on the congestion evaluations used to identify the specific transmission lines on which wind DLR will be required.* The ANOPR (PP 156-57) appropriately proposes to require TPs to post the congestion databases or other information used to identify transmission lines required to satisfy the ANOPR's wind DLR requirement. To assure that DLRs are being rolled-out on a nondiscriminatory basis, the criteria and analyses used each year by TOs/TPs to select lines for the phased-in, gradual roll out of wind DLRs should be transparent. As discussed above in Part II.C, the Commission should expressly require that wind DLRs be deployed on the most congested lines first. In RTO regions, the RTO should be responsible for transparently identifying and posting a list of the transmission lines, ranked by congestion cost. TOs in that RTO should use that list to determine on which of its lines wind DLRs should be deployed next; and TOs that choose to deviate from the RTO's posted rank order should be required to explain why. In non-RTO regions, the sequence should be based on whatever congestion metric is used to identify the lines to which the wind DLR requirement would apply, unless there is a clear, disclosed basis for selecting a different sequence.

*Transparency on the two self-exceptions (i.e., ratings not affected by wind; benefits not exceed cost).* TAPS supports the ANOPR's preliminary proposals to provide transparency of TP self-exceptions with respect to any wind DLR requirement.<sup>56</sup> As noted in Part II.E above, however, the availability of benefit-cost-based exceptions should be restricted in non-RTO regions.

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<sup>56</sup> *Id.* PP 145, 147.

**CONCLUSION**

The Commission should consider TAPS's comments as it moves forward with this important inquiry.

Respectfully submitted,

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