

UNITED STATES OF AMERICA  
BEFORE THE  
FEDERAL ENERGY REGULATORY COMMISSION

Managing Transmission Line Ratings  
Technical Conference

Docket No. AD19-15-000

Prepared Statement of Devin Hartman on behalf of the Electricity Consumers  
Resource Council ("ELCON")

September 11, 2019

**I. Introduction**

My name is Devin Hartman. I am the President and CEO of the Electricity Consumers Resource Council ("ELCON").<sup>1</sup> ELCON is the national association representing large industrial consumers of electricity, who own and operate major manufacturing facilities throughout the United States.

Energy-intensive industry must have access to reliable, low-cost electricity to maintain a global fuel cost advantage. Transmission policy is a growing concern in this regard. Transmission charges are rising rapidly, oversight is lacking, and best practices and use of advanced low-cost technologies are foregone. We applaud the Federal Energy Regulatory Commission ("Commission") for looking into one critical aspect of this: transparency and best practices in transmission line ratings.

---

<sup>1</sup> I also serve on the Member Representatives Committee of the North American Electric Reliability Corporation ("NERC") and on the Advisory Council of the North American Energy Standards Board ("NAESB").

## II. Pervasive Deficiencies in Transmission Line Rating Practices

There are several interrelated categories of best practices in transmission line ratings: technical, reporting, and oversight. All three appear severely deficient across transmission operating systems, both within and outside regional transmission organizations and independent system operators (“RTO/ISOs”).

No singular best practice exists for technical line rating methodology, as various qualified means exist to measure and project the ratings effect of meteorological conditions.<sup>2</sup> However, temperature effects are the most impactful on ratings and have a relatively low error rate, and expectations for ambient-adjusted ratings (“AARs”) constitute a *minimum* best practice. Dynamic line ratings (“DLRs”) often constitute best practices in chronically congested areas, but the added cost and uncertainty in variables that increase greater line rating error may not justify the benefits in all applications.<sup>3</sup> Thus, the Commission may look into establishing a floor for generalizable best practices, where benefits uniformly outweigh costs, with expectations that best practices in DLRs may fall more on a case-by-case basis. Generally, best practices should at least incorporate duration-differentiated temperature and wind speed conditions, unless the transmission owner (“TO”) can demonstrate otherwise under an economically robust and transparent review process.

---

<sup>2</sup> These include air temperature, wind speed and direction, humidity levels, solar irradiance and other ambient conditions.

<sup>3</sup> DLRs would yield limited benefit in some applications but introduce much complexity and potential costs to provide real time dynamic numbers. A sharp increase in dynamic ratings errors may increase the risk on TOs substantially. However, if there were a limited number of applications, it could reduce risk of error through effective tools and reduce system operating costs as a result of relieving inefficient constraints.

Seasonal line ratings appear to be standard practice, whereas AARs and DLRs are clearly the exception. Such chronic understating of line ratings has major economic ramifications. A stark monetization of this gap between actual and best practices was provided by the independent market monitor (“IMM”) for MISO, which found AARs would have reduced congestion costs by over \$100 million annually in recent years.<sup>4</sup> This excludes many other cost savings and reliability benefits.<sup>5</sup> This magnitude of benefit is likely not unique to MISO. Rather, this is the only IMM to quantify these potential benefits, which brought much-needed attention to the issue.

Assessing the extent of the gap between best and actual technical practices is highly constrained by shortcomings in reporting and oversight practices. Deficiencies stem from poor incentives for TOs and an opaque and outdated reliability-only oversight process.

The predominant oversight perspective is that the transmission system has a fixed capacity and topology and that altering reliability parameters to incorporate unconventional methods is a reliability risk not worth undertaking. NERC Reliability Standard FAC-008-3 requires TOs to document line rating methodology, much of which is non-public.<sup>6</sup> NERC audits of this methodology only examine reliability impacts,

---

<sup>4</sup> Potomac Economics. 2017 State of the Market Report for the MISO Electricity Markets. June 2018. p. 83-84.

<sup>5</sup> These include improved operational visibility, improved inputs to transmission expansion planning, reduced redundancies, optimizing new resource siting, and better outage coordination.

<sup>6</sup> It is only available to reliability coordinators, planning coordinators, and transmission planners, owners, and operators.

which generally reflect worst-case temperature assumptions.<sup>7</sup> As such, this process permits excessively conservative and economically inefficient line rating practices to continue.

RTO/ISOs do not provide economic oversight either. RTOs typically play a passive role of accepting TOs' rating proposals without providing much or any scrutiny.<sup>8</sup> Sometimes an RTO will initiate a request to change line ratings for reliability purposes like managing a contingency.<sup>9</sup> Some IMMJs may be able to obtain the methodology on a case-by-case request basis but do not have access to a comprehensive database of rating methodology nor the limiting elements behind the ratings required for a routinized review process. As such, there is not a robust process to document and review transmission line ratings for economic performance anywhere in the country.

Robust documentation and oversight is imperative, given the problematic incentive structure of some TOs. At best, TOs are indifferent to economically adjusting line ratings because they receive no financial return for improved operational efficiency. At worst, TOs sometimes have a perverse financial incentive as understated line ratings justify unnecessary transmission rate base expansion.

### **III. Corrective Actions**

---

<sup>7</sup> NERC and FERC reliability staff generally accept low ratings based on static assumptions of worst-case temperatures that rarely occur.

<sup>8</sup> For example, RTOs usually do not provide advanced verification of ratings, but occasionally check in real time.

<sup>9</sup> For example, ad hoc increase in the rating on a line as part of an effort to manage a planned facility outage or increase power imports during a cold weather event.

These problems will not fix themselves without Commission action. To address the oversight void, ELCON encourages the Commission to lead a dedicated effort to institutionalize an independent, economically robust, and transparent review process for transmission line ratings that is auditable and enforceable.<sup>10</sup> A standardized review process does not and should not require a standardized methodology, but should set minimum parameters for AARs, if not DLRs in chronically congested areas, unless demonstrated to be infeasible or uneconomic by the TO.<sup>11</sup> Methodologies, assumptions, and line ratings should be available for review and challenge by market participants, to the extent possible with Critical Energy Infrastructure Information (“CEII”) compliance.

The Commission should be mindful of unintended consequences of a piecemeal approach. Specifically, encouraging TOs to actively alter their line ratings without correcting oversight deficiencies may incent new forms of market manipulation.<sup>12</sup> Potential cross-product manipulation in this regard would be difficult to detect under current market monitoring practices, given incomplete information on physical transmission withholding parameters.<sup>13</sup>

---

<sup>10</sup> In RTO/ISO regions, this could be implemented by RTO/ISOs, IMMs, or a third party. One concern with some RTO/ISOs in this role is that because TO participation in RTOs is voluntary, RTOs are chronically reluctant to hold TOs accountable if they perceive a risk to membership retention or attraction. In bilateral-only markets, TOs could include their line rating methods, data, and assumptions into their available transfer capability calculations on a more temporally granular basis (i.e., daily or hourly instead of seasonal). This would still warrant third-party review for verification.

<sup>11</sup> Balancing flexibility and clarity in parameter definition would be critical for managing audit expectations.

<sup>12</sup> Altering line ratings changes congestion patterns and, with it, locational marginal prices and the value of financial transmission rights and other products. TOs hold an information advantage that could be leveraged to benefit other market positions.

<sup>13</sup> For example, some IMMs have access to the rating values but have no way of determining if they are reasonable.

The Commission could also look to expand ISO/RTO reporting metrics to include transmission system utilization rates and line ratings methodologies. This would add tremendous clarity on the gap between best and actual practices, while its aggregate format avoids any concerns over CEII or confidentiality.<sup>14</sup> While this approach would take considerable time, at least an aggregate survey of ratings methods<sup>15</sup> in practice would provide valuable insight on an expedited timeframe, which could inform next steps for the Commission.

This concludes my remarks. Thank you.

---

<sup>14</sup> This would require development of a robust counterfactual using a baseline approach, perhaps with additional sensitivities or a range that accounts for variances in best technical practices.

<sup>15</sup> For example, a metric for percent of TOs or transmission mileage using ambient methods.