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PUC PROJECT NO. 52771

INVESTIGATION INTO USE OF DYNAMIC LINE RATINGS FOR TRANSMISSION LINES IN TEXAS	**§ § §**	**PUBLIC UTILITY COMMISSION OF TEXAS**

TEXAS-NEW MEXICO POWER COMPANY'S RESPONSE TO STAFF'S REQUEST FOR COMMENT ON WHOLESALE ELECTRIC MARKET DESIGN

TEXAS-NEW MEXICO POWER COMPANY ("TNMP") submits the following response to the request for comments on questions issued by the Staff of the Public Utility Commission of Texas for investigation into the use of dynamic line ratings for transmission lines. These responses are timely filed on or before December 30, 2021.

I. General Comments

TNMP appreciates the opportunity to respond to the questions and inquires in this Project No. 52771. Per Staff's instructions, attached as Exhibit A is TNMP's Executive Summary.

II. Response to Staff's Questions

1. **Are you currently using Dynamic Line Rating (DLR) technology or a similar technology on any circuits? If so, how many? What is your experience on the cost, use and value of these investments?**

Response: While it previously deployed DLR, TNMP is not currently using DLR technology or similar technology on any circuits. TNMP expects that the per-circuit cost to be affordable, but installation cost on most or all transmission circuits would be substantial. TNMP's experience with DLR indicates that the use and value of these investments is limited.

2. **Does ERCOT have the appropriate system to take advantage of this real-time technology and is it utilizing this data to expand the use of the power system in a reliable manner?**

Response: TNMP is not in a position to comment on the suitability of ERCOT's systems for integrating DLR technology nor on whether ERCOT utilizes DLR data to expand the use of the power system in a reliable manner.

3. **Where on your system could additional DLR systems be deployed and at what cost and value to the system and market?**

Response: TNMP believes employing DLR technology on TNMP's system would be most beneficial in reducing congestion costs (i.e., costs associated with the suboptimal commitment and dispatch of generators). The challenge with this application is that it will often not suitably eliminate congestion costs over the long-term. DLR technology, although providing improved transmission circuit ratings, will not provide enough capacity to clear the congestion. Therefore, it typically would serve only as an interim measure to reduce congestion costs before longer lead transmission improvements are implemented. Furthermore, its effectiveness at reducing congestion cost during the interim period is normally going to be diminished due to the time required to deploy the technology on the congested transmission circuit. As a TDU, TNMP does not have the visibility into the ERCOT market to predict where on its transmission system congestion might occur such that DLR technology could be deployed in time for the first instance it is needed.

4. **What are the challenges that a transmission distribution utility (TDU) may encounter when trying to install or implement this technology on a widespread basis?**

Response: Based on its prior experience with DLR technology, TNMP believes the most significant challenge to implementing DLR technology is keeping it running on a 24/7 basis (maximizing up-time). There are several subsystem components used in a typical DLR design such as ambient temperature sensors, wind speed gauges, conductor tension monitors, etc., that are typically located in remote spots away from stations/substations. Many locations would not be accessible by road. Just like anything mechanical/electrical, these subsystem components are prone to breaking down over time, with troubleshooting and repair taking days or even weeks to complete.

5. **Are there drawbacks or benefits to utilizing this technology in the ERCOT market?**

Response: Outside of TNMP's response to question #3, TNMP is not in a position to comment on drawbacks and benefits of the technology for the ERCOT market.

6. **Does the current rate structures in ERCOT reward/encourage grid investments such as DLR?**

Response: TNMP believes the current rate structures in ERCOT reward investments such as DLR. The mechanism for recovery of DLR investment should be through Transmission Cost of Service (TCOS) filings. TNMP is not aware of any barriers to recovering DLR investment through TCOS.

7. Is there an unwarranted cybersecurity risk associated with this technology?

Response: TNMP sees no cybersecurity risk associated with DLR technology above and beyond the cybersecurity risk that exists with technologies currently used within substations such as that associated with remote monitoring of substation equipment and remote access to IEDs/protection and control relays. However, evaluation of the exact systems and any associated software and/or firmware would need to be conducted prior to deployment.

8. Will widespread utilization of this technology exacerbate other constraints on the system?

Response: System-wide utilization of DLR technology certainly could, and likely would, exacerbate other constraints on the system. The extent of the exacerbation can be predicted only through power system studies taking production economics into account.

9. Should this technology be included in all new high voltage lines within ERCOT?

Response: TNMP believes there needs to be a specific purpose (specific problem or set of problems we are trying to solve) for each installation of DLR technology on a transmission circuit. It is very likely DLR technology will not be needed on many or most new high voltage lines. Therefore, TNMP does not believe this technology should be included on all new high voltage lines within ERCOT. TNMP believes the costs associated a policy of including DLR technology on all new high voltage lines would far outweigh the benefits.

10. Is there system reliability, situational awareness benefits to utilizing this technology?

Response: TNMP sees limited reliability and situational awareness benefits for utilizing DLR technology above and beyond benefits from the conventional approach of establishing circuit ratings pursuant to TNMP's facility rating methodology and thereafter planning TNMP's transmission systems accordingly. Additionally, applying ambient temperature-based ratings (ambient adjusted ratings), which is probably not considered DLR technology, has been largely effective for TNMP in eliminating or reducing load shed in plans TNMP jointly develops with ERCOT for maintaining reliability during planned transmission outages.

11. Please provide an overall cost-benefits analysis to addition of this technology.

Response: TNMP believes the cost/benefit ratio of employing DLR technology for specific problems such as reducing congestion at specific locations on the system and associated production costs can be low (benefits outweigh the cost). However, TNMP believes the cost/benefit ratio of employing DLR technology on a more system-wide basis without identifying a specific need for the technology in each circumstance will likely be a high ratio (benefits may not outweigh the cost).

CONCLUSION

TNMP appreciates the opportunity to respond to Commission Staff's Questions for comment in this project.

Respectfully submitted,

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EXHIBIT A

TEXAS-NEW MEXICO POWER COMPANY'S EXECUTIVE SUMMARY FOR PROJECT NO. 52771

TNMP appreciates the opportunity to submit these comments, and provides the following summary of its responses:

- TNMP is not currently using DLR technology or similar technology on any circuits. TNMP's prior experience with of DLR indicates that the use and value of these investments is limited. TNMP is not in a position to comment on the suitability of ERCOT's systems for integrating DLR technology nor on whether ERCOT utilizes DLR data to expand the use of the power system in a reliable manner

- TNMP believes employing DLR technology on TNMP's system would not suitably eliminate congestion costs over the long-term. DLR technology, although providing improved transmission circuit ratings, will not provide enough capacity to clear the congestion. Therefore, it typically would serve only as an interim measure to reduce congestion costs before longer lead transmission improvements are implemented. Furthermore, its effectiveness at reducing congestion cost during the interim period is normally going to be diminished due to the time required to deploy the technology on the congested transmission circuit.

- Based on its prior experience with DLR technology, TNMP believes the most significant challenge with to implementing DLR technology is keeping it running on a 24/7 basis (maximizing up-time).

- TNMP believes the current rate structures in ERCOT reward investments such as DLR.

- TNMP sees no particular cybersecurity risk associated with DLR technology not currently posed toward existing technologies currently used within substations.

- System-wide utilization of DLR technology certainly could, and likely would, exacerbate other constraints on the system. The extent of the exacerbation can be predicted only through power system studies taking production economics into account.

- TNMP does not believe this technology should be included on all new high voltage lines within ERCOT.

- TNMP sees limited reliability and situational awareness benefits for utilizing DLR technology above and beyond benefits from the conventional approach of establishing circuit ratings pursuant to TNMP's facility rating methodology.

- TNMP believes the cost/benefit ratio of employing DLR technology will be low when reducing congestion at specific locations but the cost ratio will be higher when deployed on a system-wide basis without identifying a specific need for the technology in each circumstance.