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PROJECT NO. 55718

**RELIABILITY PLAN FOR THE PERMIAN § PUBLIC UTILITY COMMISSION
BASIN UNDER PURA § 39.167 § OF TEXAS**

**CROSS TEXAS TRANSMISSION, LLC’S COMMENTS ON
STAFF QUESTIONS CONCERNING DETERMINATION OF
EXTRA HIGH VOLTAGE (EVH) IN THE ERCOT REGION**

Cross Texas Transmission, LLC (“Cross Texas”) respectfully submits the enclosed comments on the Public Utility Commission of Texas (“Commission” or “PUCT”) Staff January 31, 2025 memorandum issued in Project No. 55718 (“Memo”). The Memo raised questions for stakeholder comment concerning the Electric Reliability Council of Texas, Inc.’s (“ERCOT”) comparison document filed on January 24, 2025 in the above referenced proceeding to assist the Commission in making the best policy determinations for the ERCOT region.¹

In these comments, Cross Texas provides (1) responses to each of the questions posed in the Memo, and (2) an executive summary of these comments.²

I. Introduction

Cross Texas appreciates the opportunity to provide comments on this important decision that may determine the future efficiency and reliability of the ERCOT grid. Cross Texas and its affiliates and/or partners operate and maintain approximately 975 circuit miles of transmission, with over 678 circuit miles of 345 kilovolt (“kV”) transmission and 291 circuit miles of 500 kV transmission and associated air and gas insulated substations across North America in several

¹ See Electric Reliability Council of Texas, Inc., 2024 Regional Transmission Plan 345-kV Plan and Texas 765-kV Strategic Transmission Expansion Plan Comparison, AIS Item No. 54 (filed Jan. 24, 2025) (“Comparison Document”).

² For a more detailed description of Cross Texas and its transmission operating affiliates in the United States, see Cross Texas Transmission, LLC, CTT’s Comments to Questions on EHV Applications in ERCOT, Project No. 55249, AIS Item No. 15 (filed July 29, 2024).

states and independent system operators (“ISOs”)/regional transmission organizations (“RTOs”). Cross Texas has an affiliate, Great Basin Transmission, LLC, that is in the late stages of development of several hundred more miles of 500 kV that will cross two states in the western United States and has another affiliate, LS Power Grid California, LLC that is in the process of energizing a large 500 kV static synchronous compensator (STATCOM) device in California. Cross Texas’ affiliates also are actively involved in proposed 765 kV transmission projects in other ISOs/RTOs across the United States. Southwest Power Pool, Inc. (“SPP”), Midwest Independent System Operator, Inc. (“MISO”), and PJM Interconnection, L.L.C. (“PJM”) have all approved 765 kV projects recently in their respective regions that will be designed, permitted, and constructed over the next several years. This includes a 765 kV transmission line in the Texas panhandle that will be in the SPP region. Cross Texas has been performing system studies the last couple of years evaluating the best approach to upgrading and expanding the ERCOT system, including an evaluation of 765 kV, 500 kV, and 345 kV transmission options and concluded a new 765 kV transmission overlay would provide the best performance per dollar of investment. The 765 kV transmission option proposed by ERCOT in the Comparison Document is similar in many aspects to Cross Texas’ study results.³

II. Comments

1. In ERCOT's 345 kV-765 kV comparison document, the total capital cost estimates for each voltage's 2024 Regional Transmission Plan are comparatively close. a. What other ongoing cost impacts should be given significant weight in this decision? b. What economic and reliability benefits in the report should be given significant weight?

Response:

As total load has and continues to rapidly grow throughout the ERCOT region, it only makes sense to construct transmission facilities that allow for higher transfer capacity similar to how transportation departments build larger highways and interstates to accommodate increased

³ See Comparison Document at 3-23.

traffic flow demands on the transportation system. A key measure to consider is the cost per megawatt of transfer capacity. As ERCOT has clearly shown, a 765 kV transmission system provides far superior performance versus a 345 kV transmission system.⁴ Additionally, the total transmission line losses are significantly lower with a 765 kV system, totally 560 gigawatt hours per year.⁵ This reduction in transmission line loss will result in economic savings to rate payers. For the Permian Basin Plan, a 765 kV transmission system will impact fewer landowners and acreage relative to a 345 kV transmission system with a similar capacity. In particular, ERCOT expects the 765 kV solution will have a reduction of more than 400 miles of rights-of-way relative to the 345 kV solution.⁶ Finally, a 765 kV system, if properly planned, provides more flexibility and is more resilient to changes in the location of generation and load as the system needs change over time due in large part to the enhanced capacity that 765 kV transmission systems offer planners.

2. On September 18, 2024, ERCOT hosted a 765 kV Vendor Workshop which provided information on many aspects of design, construction, and equipment sourcing of 765 kV infrastructure. a. Regarding supply chain delays or disruptions, are there any impacts specific to either 765 kV or 345 kV, or are both impacted equally? b. Are there any critical 765 kV considerations that were not addressed during that workshop?

Response:

As noted by others, 765 kV systems are being planned and approved in other ISO/RTO regions across the country. Cross Texas sees no obstacles in sourcing the necessary equipment for these projects. Supply chain issues are prevalent in the industry and change over time. However, the manufacturers in the industry are planning for the increase in need for 765 kV equipment as SPP, MISO, and PJM have all recently approved 765 kV additions to their grids.⁷ While there may be less capacity for manufacturing 765 kV transmission equipment as compared to 345 kV transmission equipment today, the industry is already making changes to be able to meet the growing needs of 765 kV transmission systems in the United States. Lower voltage transmission equipment (*i.e.*, 345 kV and lower) has similar supply issues today as higher voltage transmission equipment (*i.e.*, 500 kV and higher). Accordingly, it is difficult to quantify if 345 kV transmission equipment will have less supply chain delays or disruptions than 765 kV transmission equipment.

⁴ *Id.*

⁵ *Id.* at pg. vii, Table E2.

⁶ See Electric Reliability Council of Texas, Inc., Reliability Plan for the Permian Basin under PURA § 39.167, AIS Item No. 17, at pg. x, Table E.1 (filed July 25, 2024).

⁷ Press Release, Xcel Energy Inc., Xcel Energy to Build First 765kV Line in Southwest Power Pool, Enhancing Regional Reliability (Feb. 5, 2025) *available at* <https://tx.my.xcelenergy.com/s/about/newsroom/press-release/xcel-energy-to-build-first-765kv-line-in-southwest-power-pool-enhancing-regional-MC3D3PZH4F7RCHNKUZX767RH4VCU>; Press Release, Midcontinent Independent System Operator, Inc., MISO Board Approves Historic Transmission Plan to Strengthen Grid Reliability (Dec. 12, 2024) *available at* <https://www.misocenergy.org/meet-miso/media-center/2024/miso-board-approves-historic-transmission-plan-to-strengthen-grid-reliability/>; PJM Interconnection, L.L.C., PJM 2023 Regional Transmission Expansion Plan (Mar. 7, 2024) *available at* <https://www.pjm.com/-/media/DotCom/library/reports-noticees/2023-rtep/2023-rtep-report.pdf>.

3. Regarding the already-approved Permian Basin import paths, please compare the timing of construction buildout-to-energization for the 345 kV and 765 kV imports. Will one take significantly longer than the other? Please explain why.

Response:

There is not expected to be a material difference in the time of construction of 345 kV transmission infrastructure as compared to 765 kV transmission infrastructure. As shown in the ERCOT Permian Basin Plan, the 765 kV transmission system plan will have 421 less miles of transmission line construction than the 345 kV transmission system plan.⁸ This fact should allow the 765 kV transmission system to be completed faster than it would take to construct the needed transmission system using 345 kV transmission infrastructure given the same number of available resources.

4. Given that there are uncertainties in long-term load forecasts as well as load and generation types and siting, which plan would provide the most flexibility for ERCOT region?

Response:

As mentioned above, Cross Texas has spent a substantial effort in studying the full ERCOT transmission system. These studies included reviewing the performance of 345 kV, 500 kV, and 765 kV transmission backbone solutions. It is Cross Texas' conclusion that only the 765 kV transmission backbone was of sufficient flexibility and robustness to resolve numerous system constraints from a wide range of scenarios. Without knowing with specificity, the exact location of all new generation or large loads, only a transmission system built with a 765 kV transmission backbone provides the necessary flexibility to solve all foreseeable scenarios. Further, transmission systems will always "out live" most, if not all, electric generation and storage facilities. Therefore, having a flexible transmission system is extremely valuable and worth the incremental up-front costs as it will be a lower cost solution in the long-term for Texans. Simply put, a transmission system that has a sufficient 765 kV transmission backbone is more future proof than the lower voltage alternatives.

5. What are the pros and cons of deciding to utilize 765 kV infrastructure in the ERCOT region now versus waiting to implement it in the future?

Response:

Texas continues to have a pro-business posture—businesses want to operate here. This has led to Texas becoming the fastest growing state in terms of population in the past few years.⁹ This growth is driving the need to supply more electric power and other critical infrastructure across the State. Further, as shown in record of this proceeding, the oil and gas industry is moving rapidly to electrify their operations in the Permian Basin.¹⁰ Texas needs more power and needs the electric transmission to move power from generation to the load. In the past few years, ERCOT has attempted to resolve regional load problems with regional solutions. To name a few, this has

⁸ See *supra* note 6.

⁹ See Sean Hemmersmeier, *Texas Comes in No. 1 for New Residents in Latest Census Data*, DALLAS BUSINESS JOURNAL, Dec. 31, 2024.

¹⁰ See Comparison Document at pgs. ii-iii.

included: the Houston Import Project, the Rio Grande Valley Projects, and the Far West Texas Projects. While addressing regional transmission needs is necessary, it is a lot less efficient and potentially more expensive to only have a regional, short-term focus in transmission planning versus taking a longer-term view.

By selecting 765 kV transmission as part of the Permian Basin Plan, it establishes the first three legs of a Statewide plan that can serve as a true backbone for the greater ERCOT grid. A 765 kV transmission backbone plan would resolve many of the issues we are facing today—generator and load location uncertainty, congestion, generic transmission constraints (GTCs), etc. Moreover, a 765 kV transmission backbone plan can address longer-term needs as part of the planning process. Today, ERCOT is limited to 6-year forward plans. A more expansive transmission backbone plan that contemplates potential 765 kV transmission infrastructure would allow the planners to anticipate and resolve issues more effectively, efficiently, and economically. This will result in a more holistic, robust, and long-lived solution for the ERCOT system.

6. Are there any other benefits or drawbacks that have not been brought up and addressed which are critically important for Commission to consider? Please describe in detail.

Response:

ERCOT's vision of a 765 kV transmission system is progressive. Following CREZ, there were other major projects that were briefly considered, such as CREZ II, PREZ, and the West Texas Export Plan. Each of these plans were dismissed as unnecessary and too costly. Yet now we find ourselves trying to resolve the same or similar problems these projects could have resolved or at least minimized or deferred further into the future. If there is a lessons-learned mantra, then we should be fully cognizant of the reality of load growth, the changing generation mix, and the unmistakable need to plan now (and build now) a robust 765 kV transmission backbone in the State with the Permian Basin Plan as its first projects.

As mentioned above, Cross Texas believes the right course of action is to plan and build out a 765 kV transmission backbone system that extends to all regions of Texas, including the lower Rio Grande Valley and the Panhandle. The idea of an extra-high voltage ("EHV") transmission backbone, such as 765 kV transmission infrastructure, is not new to the electric industry and is being considered in many other ISO/RTO regions across the country. The need for such an EHV transmission backbone in ERCOT is becoming more evident and urgent. As ERCOT has demonstrated in their most recent regional transmission plan, Texas will need to build more transmission to meet the growing demand.¹¹ Building this needed transmission infrastructure will require substantial investment. The economics of EHV transmission systems will not improve by delaying the investment into the future. Rather, it will only become more expensive and will cause our system to operate evermore inefficiently with the passage of time.

¹¹ See Electric Reliability Council of Texas, Inc., 2024 Regional Transmission Plan Report (Dec. 2024) available at <https://www.ercot.com/mp/data-products/data-product-details?id=pg7-048-m>.

III. Conclusion

Cross Texas appreciates the opportunity to share our experience and expertise, and we look forward to working with other stakeholders as ERCOT and the PUCT continue to evaluate the best approach to meeting the growing needs in Texas. Please feel free to contact the undersigned if you have any questions.

Respectfully submitted,

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PROJECT NO. 55718

CROSS TEXAS TRANSMISSION, LLC COMMENTS
EXECUTIVE SUMMARY

Cross Texas has substantial experience in EHV transmission systems and has evaluated the needs of the ERCOT grid. Cross Texas supports the proposed 765 kV transmission projects as part of the Permian Basin Plan.

Q1. As ERCOT has clearly shown, a 765 kV transmission system provides far superior performance versus lower voltage systems. A 765 kV transmission system, if properly planned, provides more flexibility and is more resilient to changes in the location of generation and load as the system needs change over time.

Q2. Manufacturers in the industry are planning for the increased demand of 765 kV transmission equipment due to planned transmission projects across the United States.

Q3. There is not expected to be a material difference in the time of construction of 345 kV transmission infrastructure as compared to 765 kV transmission infrastructure.

Q4. Cross Texas has studied numerous potential transmission solutions. A 765 kV transmission system provides the necessary flexibility to solve all foreseeable scenarios, which is extremely valuable and will result in a lower cost long-term solution for Texans.

Q5. Texas has the fastest growing state population in the country and needs more power and electric transmission to move power from generation to the load. Short-term regional solutions are a lot less efficient and potentially more expensive. Growth demands should be addressed with a long-term view, seeking more holistic and robust solutions.

Q6. If there is a lessons-learned mantra, then we should be fully cognizant of the reality of load growth, the changing generation mix, and the unmistakable need to plan now (and build now) a robust 765 kV transmission backbone with the Permian Basin Plan as its first projects. Cross Texas believes the right course of action is to plan and build out a 765 kV transmission backbone system that extends to all regions of Texas, including the lower Rio Grande Valley and the Panhandle.