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PUC PROJECT NO. 55718

**RELIABILITY PLAN FOR THE
PERMIAN BASIN UNDER
PURA § 39.167**

§ **PUBLIC UTILITY COMMISSION**
§
§ **OF TEXAS**
§

**SOUTH TEXAS ELECTRIC COOPERATIVE INC.'S RESPONSES TO QUESTIONS
FOR COMMENT RELATED TO PUCT'S DETERMINATION OF EXTRA HIGH
VOLTAGE IN THE ERCOT REGION**

COMES NOW, South Texas Electric Cooperative, Inc. ("STEC") and files the below responses to the Commission's Questions for Comment Related to the PUCT's Determination of Extra High Voltage in the Electric Reliability Council of Texas, Inc. ("ERCOT") Region with the attached Executive Summary.

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.

It is important to note that both the 345-kV plan and the Texas 765-kV Strategic Transmission Expansion Plan Comparison ("765-kV STEP") plan are estimated to require approximately \$5 billion per year of transmission project investment over a six-year planning horizon. However, based on feedback from the 765kV ERCOT workshop, it does not appear that the time horizon for 765kV implementation within a 6-year period is actually feasible which will be further described below.

Moreover, ERCOT performed a sensitivity analysis with a reduced load level (~ 20 GW less overall load) to assess the impact on the need for the 345-kV plan and the TX 765-kV STEP plan in the event that less than the forecasted load materializes. As a result, the ERCOT analysis has not fully captured the forecasted load, and if the load growth is substantially lower, which is to be expected for uncommitted loads that may be duplicated in more than one service territory, the analysis is not likely to be precise, or even in the ballpark of the magnitude of the load that actually materializes, where the loads site, and how either plan supports the buildout for that load.

Significantly, under low load conditions, whether the full STEP is considered, or a moderated STEP is considered, the cost ranges in absolute dollars approach nearly \$1 billion under

the full STEP, and \$2.56 billion with the lower load condition scenario. If the 765kV option is selected, these represent a 4% and 12% increase over the 345kV option. Given ERCOT's conservative operating posture and recent experience, it is not reasonable to conclude that energized reconductoring would not be needed due to the inability of TSPs to take the necessary outages to complete reconductoring work, therefore it is necessary to assume that the higher costs estimated by ERCOT will be much more accurate.

Additionally, the original TX 765-kV STEP plan contemplated 765kV facilities that were not looped facilities, and would need to be looped to take advantage of the full capacity of the buildout. Those costs were not included in the original buildout and will have to be included in the later ERCOT-wide plan, such that the cost estimates associated with the 345kV plan and the TX 765-kV STEP are not "apples to apples" comparisons. As discussed further below, there are much better opportunities with respect to timing, cost, and reliability, to deploy 765kV transmission in the ERCOT market that would be beneficial to the entire system.

a. What other ongoing cost impacts should be given significant weight in this decision?

The future cost of cancelled outages will be higher for the 765 kV option. These costs are incurred in different ways. For example, much higher costs are incurred now for 345 kV projects because of delays in obtaining permission from ERCOT to take lines and station equipment out of service in order to connect new circuits and equipment. Transmission lines in ERCOT, even at the 345kV level can be, and have been, fully constructed and ready to be placed into service, and yet have waited for nearly one year to be interconnected due to the lack of outage approval from ERCOT. During this time there are costs to consumers other than transmission rates because the lines are built but not in service and unable to reduce congestion costs or provide the service for which they were constructed. With double circuit 345 kV lines, it will cost much less to have one circuit out of service for maintenance and there will be a lower likelihood that scheduled outages will be denied or cancelled than for the single circuit 765 kV lines because of the difference in transfer capacity reduction. It will be very challenging to find a time when a 765kV line can be taken out of service for maintenance. The number of problematic contingencies will also be much greater for 765 kV line outages.

Another ongoing cost will be the amount ratepayers are responsible for that is invested in unused capacity if the load levels assumed in the planning studies are not reached. The ERCOT planning studies may have been sized to reduce by 20 GW for that reason, however that reduction in load alone indicates that the planning studies lack specificity. That is not a criticism of ERCOT's work. Without the "used and useful" standard and contribution by the benefitting loads, there is no way for ERCOT or anyone to determine how much of the load that has indicated it will site will actually site. In addition to the cost savings realized by deferring investment, when the forecasted loads do not materialize, the stated lower load loss advantage of the 765 kV is likely to turn into higher system losses compared to the 345 kV option because the higher voltages will have higher no-load losses.

b. What economic and reliability benefits in the report should be given significant weight?

An analysis of the economic and reliability benefits must first begin with the 345 kV option as the most viable, reliable mechanism to support these speculative loads in the Permian Basin. The higher cost 765 kV option should not be pursued when the capacity needed is so speculative that ERCOT's studies were performed with only an assumption of 50% of the total load interconnections incorporated in the TDSP Officer Letters. An arbitrary reduction of 50% is indicative of an underlying problem with the load interconnection process that should be addressed before taking on such known, non-trivial investment that will be borne by ratepayers. There can be no argument that a higher voltage transmission line lowers system losses at the same loading compared to lower voltage line options, but that higher investment in 765 kV transmission capacity should be made where there are existing loads, congestion, and generic transmission constraints that ensure the capacity invested in is used and useful. STEC supports the use of 765kV transmission, but only when these criteria are satisfied.

ERCOT's *2024 Regional Transmission Plan (RTP) 345-kV Plan and Texas 765-kV Strategic Transmission Expansion Plan Comparison* report (the "Comparison") included evaluation of a lower load level to emulate the likelihood of the load not increasing as predicted and indicated that the savings of the 345 kV when compared with the 765 kV option grows significantly as a result. In the event the load does not materialize, costs will be increased by tens of billions of dollars and spread over what is a much-reduced customer base than was anticipated

at the time the Comparison was performed. If those loads do not materialize, the existing ERCOT consumers, through the postage stamp rate, will be paying much higher costs for 765kV than the cost estimates indicate. If the quantity of billing units does not increase with the rate increase required for this substantial transmission buildout, which will far and away exceed the cost of the Competitive Energy Renewable Zone transmission buildout, consumer bills for those subject to the 4 Coincident Peak transmission pricing mechanism, will increase significantly, without a corresponding benefit. Construction of the 345 kV system option will provide opportunities to “right size” the transmission system as confidence in load interconnections and corresponding forecasts develops.

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?

Only one of the four Extra High Voltage equipment providers that presented at the ERCOT-hosted workshop was comfortable providing an estimated lead time for 765 kV equipment. That equipment provider stated that transparency was important and stated that supply chain gating item would delay certain necessary equipment by 8 years. No other presenters at the workshop mentioned lead times and no other presenter objected to the 8-year timeline that was put forward. The types of equipment subject to the supply chain delays were not identified. 345 kV equipment lead times max out at around 3 to 4 years. That means the 345 kV option capacity increases would be reducing congestion and reducing losses on the existing system, and providing capacity for loads to connect years before the 765 kV option could be completed.

b. Are there any critical 765 kV considerations that were not addressed during that workshop?

The equipment lead time differences between 765 kV and 345 kV should have been further explored because of the much greater impact that longer lead times will have on ratepayer costs.

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.

The shorter lead times for 345 kV equipment indicate that the 345 kV option can be completed 3 to 4 years sooner than the 765 kV option. Before committing to the TX 765-kV STEP plan, the Commission should further deliberate the lead times and costs of the 765kV option. The load that the Permian Buildout was designed to support were to be served on an expedited basis. That is unlikely to happen using the TX 765-kV STEP plan.

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?

The 345 kV option provides the most flexibility. If the Commission wants to deploy 765 kV, it should be deployed between established load centers and generation resources, on a looped basis, as proposed in the ERCOT region-wide plan between San Antonio, Austin, Dallas, Corpus Christi and Houston. Use of 765 kV should be between existing load and resource centers and not built because of speculative load growth as radial lines to the Permian Basin.

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?

The pros and cons of use of 765 kV to the Permian Basin compared to the 345 kV option are as follows.

Pros:

- Lower system losses; and
- Comparatively, a small reduction in total line length needed.

Cons:

- It will be extremely challenging to take a 765 kV line out of service for maintenance because the underlying ERCOT system is required to support the system flows during the outage of such a high capacity line;

- Significantly increased cost of interconnecting new generation facilities and loads along the length of a 765 kV line; and
- The bulk of ERCOT's estimated congestion cost savings are identified in the Report as being realized not by building the 765 kV paths to the Permian Basin, but instead more from mitigating the Generic Transmission Constraints further to the East and South.

Neutral:

- ERCOT's Report touts the 765 kV option as having a higher transfer capacity to the Permian Basin before stability limits are reached, but the difference is only 400 MW out of the total of 16,000 MW, which is only roughly 2.5%.

STEC believes that there are opportunities for 765 kV transmission lines to be deployed in a manner beneficial to ratepayers, as set forth above, between major load centers and generation, but the costs of 765 kV as used in the TX 765-kV STEP plan far outweigh the costs of the 345 kV plan, and the benefits do not justify the increased costs.

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.

Please see above responses.

Conclusion

STEC appreciates the opportunity to provide comments in response to Staff's Questions and looks forward to working with Staff and the other stakeholders on this project.

Respectfully submitted,

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**EXECUTIVE SUMMARY STEC COMMENTS RELATED TO PUCT'S
DETERMINATION OF EXTRA HIGH VOLTAGE IN THE ERCOT REGION**

- Higher investment in 765 kV transmission capacity should be made where there are existing loads, congestion, and generic transmission constraints that ensure the capacity invested in is used and useful. STEC supports the use of 765kV transmission, but only when these criteria are satisfied, and they have not been satisfied in this plan.
- The 765-kV STEP plan is estimated to be \$5 billion per year over a six-year planning horizon, however based on the ERCOT workshop, supply chain gating items will delay necessary equipment for 8 years.
- Under low load conditions, whether the full STEP is considered, or a moderated STEP is considered, the cost ranges in absolute dollars approach nearly \$1 billion under the full STEP, and \$2.56 billion with the lower load condition scenario.
- Transmission lines in ERCOT, even at the 345kV level can be, and have been, fully constructed and ready to be placed into service, and yet have waited for nearly one year to be interconnected due to the lack of outage approval from ERCOT. During this time there are costs to consumers other than transmission rates because the lines are built but not in service, and unable to reduce congestion costs or provide the service for which they were constructed.
- With double circuit 345 kV lines, it will cost much less to have one circuit out of service for maintenance and there will be a lower likelihood that scheduled outages will be denied or cancelled than for the single circuit 765 kV lines because of the difference in transfer capacity reduction. It will be very challenging to find a time when a 765kV line can be taken out of service for maintenance. The number of problematic contingencies will also be much greater for 765 kV line outages.
- The shorter lead times for 345 kV equipment indicate that the 345 kV option can be completed 3 to 4 years sooner than the 765 kV option. Before committing to the 765-kV STEP plan, the Commission should further deliberate on the lead times and costs of the 765kV option.
- The load that the Permian Buildout was designed to support was to be served on an expedited basis--that is unlikely to happen using the TX 765-kV STEP plan.
- The ERCOT planning studies may have been sized to reduce by 20 GW for that reason, however that reduction in load alone indicates that the planning studies lack specificity. That is not a criticism of ERCOT's work. Without the "used and useful" standard and contribution by the benefitting loads, there is no way for ER COT or anyone to determine how much of the load that has indicated it will site will actually site, but the ratepayer will be responsible for paying for this investment.