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PROJECT NO. 55718

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

QUANTA SERVICES' RESPONSE TO STAFF'S QUESTIONS FOR STAKEHOLDER COMMENT RELATED TO PUCT'S DETERMINATION OF EXTRA HIGH VOLTAGE IN THE ERCOT REGION

Quanta Services ("Quanta") respectfully submits the following responses to Staff's questions for stakeholder comment related to the Public Utility Commission of Texas ("Commission") determination of extra high voltage ("EHV") in the ERCOT Region. These comments are timely filed by February 14, 2025.

INTRODUCTION

Based in Houston, Texas, Quanta is a leading specialized contracting services company that delivers comprehensive infrastructure solutions for the utility, renewable energy, communications, pipeline, and energy industries in Texas and across the United States, with a workforce of approximately 60,000 employees. Quanta's comprehensive services include designing, installing, constructing, repairing, and maintaining transmission infrastructure of all voltage sizes, including 765-kilovolt ("kV") transmission infrastructure.

Quanta has built over 2,000 miles of 750-kV and 765-kV transmission infrastructure across North America. While Quanta stands ready to work with transmission companies in ERCOT to build transmission infrastructure at the voltage level that the Commission ultimately choses for the import paths

to serve the Permian Basin region and to meet higher electricity demand across the state, Quanta believes that the increased power transfer capacity provided by 765-kV transmission infrastructure will provide the state with significant and long-lasting reliability, resilience, and efficiency benefits. Given our direct unique experience with building 765-kV transmission infrastructure in the U.S., Quanta provides the following responses to Staff's questions.

QUANTA'S RESPONSE TO SELECT STAFF QUESTIONS

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?**

Quanta has extensive experience building transmission lines of all voltage sizes in Texas and across the United States. We have first-hand direct experience with the market for long-lead time, critical equipment (e.g., autotransformers and breakers) for 765-kV transmission infrastructure through our own domestic manufacturing of high voltage autotransformers and breakers. Given the broad demand for high voltage transmission of all sizes (345-kV, 500-kV, and 765-kV) across the country, Quanta anticipates that any supply chain constraints for equipment would likely be experienced across all high voltage classes, not just for 765-kV transmission infrastructure.

    b) **Are there any critical 765-kV considerations that were not addressed during that workshop?**

See answer to Question No. 6 below.

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.**

Given our extensive experience in building transmission lines in Texas, Quanta understands the urgency of delivering power to high-demand areas like the Permian Basin region as quickly as possible. Notably, to achieve the same power transfer capacity as the 765-kV option in ERCOT's 2024 Regional Transmission Plan ("RTP"), the 345-kV option would require more than double the amount of new ROW compared to the 765-kV option. Based on our construction experience, the additional new ROW needed for the 345-kV transmission lines would likely result in longer negotiations with landowners and increased environmental and permitting work, potentially delaying the start date of construction or altering construction methods that could require longer construction timelines, leading to higher costs due to construction-related inefficiencies and/or delayed in-service date(s).

Moreover, the 345-kV option in ERCOT's 2024 RTP would necessitate the procurement and installation of more equipment (e.g., structures and conductor) to match the power transfer capacity of the 765-kV option, resulting in greater procurement risk and higher construction costs. When comparing the mile-to-mile installation of 345-kV to 765-kV (not accounting for carrying capacity), the labor and equipment costs for 765-kV are estimated to be approximately 20-25% higher, but the total circuit miles would require 25% less new ROW miles. The installation schedule would be similar for both the 345-kV and 765-kV options. However, since the 345-kV option requires significantly more new circuit miles and more towers to achieve the same power carrying capacity of the 765-kV option, the 765-kV option provides additional cost-efficiencies that should be taken into consideration and construction efficiencies that provide for a faster installation than the equivalent 345-kV option. Given these important considerations, a

765-kV transmission buildout will likely be constructed faster and more cost-effectively than an equivalent 345-kV buildout to power high-demand areas like the Permian Basin region.

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 the ERCOT region?**

Based on our experience with 765-kV transmission infrastructure, Quanta believes that the 765-kV option provides ERCOT with more flexibility to manage uncertainties in long-term load forecasting, load siting, and generation siting than the 345-kV option. The higher power transfer capability of 765-kV transmission will allow the ERCOT system to better accommodate growing future electricity demand across the state by providing more options for new generation and load siting across the ERCOT region.

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?**

Quanta believes that moving forward with 765-kV transmission infrastructure now would allow the ERCOT transmission system to start benefiting from increased reliability, resilience, flexibility, and higher power transfer capability sooner to meet the state's rapidly increasing electricity demand. Although the 345-kV option would also help ERCOT meet increasing electricity demand across the state, the 345-kV option would not provide the ERCOT transmission system with the additional, long-lasting incremental reliability, resilience, flexibility, and power transfer capability benefits provided by the 765-kV option.

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

Quanta notes that the ability of 765-kV transmission to maintain power transfer capability during a fault and quickly recover from a fault are significant benefits that have not been raised for the Commission's consideration. Most transmission line faults are single-phase momentary faults, which are caused by a temporary abnormal condition, such as a falling tree branch or a bird collision. These types of momentary faults can interrupt power transmission on a 345-kV transmission line. A 345-kV transmission line typically does not have installed equipment to allow continued power transmission during a momentary fault or assist with the removal of a momentary fault. In contrast, 765-kV transmission lines are typically equipped with mechanisms to automatically adjust for single-phase momentary faults, including "single pole trip and reclose" and "neutral compensation," which allow continued power transmission during a momentary fault and assist with the isolation and removal of a momentary fault.

CONCLUSION

As stated above, while Quanta stands ready to help build transmission infrastructure at the voltage level that the Commission choses for the import paths to serve the Permian Basin region and to meet higher electricity demand across the state, we fully support a statewide plan to upgrade and bolster the ERCOT transmission system with 765-kV transmission infrastructure. Quanta believes that an investment in 765-kV transmission infrastructure today will help ensure that our state's power grid remains robust, reliable, and resilient to meet the higher electricity demand of the future.

Respectfully submitted,

By: 

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EXECUTIVE SUMMARY: QUANTA SERVICES' RESPONSE TO STAFF'S QUESTIONS FOR STAKEHOLDER COMMENT RELATED TO PUCT'S DETERMINATION OF EXTRA HIGH VOLTAGE IN THE ERCOT REGION

- Based in Houston, Texas, Quanta is a leading specialized contracting services company that delivers comprehensive infrastructure solutions for the utility, renewable energy, communications, pipeline, and energy industries in Texas and across the United States, with a workforce of approximately 60,000 employees.

- Quanta's comprehensive services include designing, installing, constructing, repairing, and maintaining transmission infrastructure of all voltage sizes, including 765-kV transmission infrastructure.

- Quanta has direct unique experience with building 765-kV transmission infrastructure. We have built over 2,000 miles of 750-kV and 765-kV transmission infrastructure across North America.

- While Quanta stands ready to work with transmission companies in ERCOT to build transmission infrastructure at the voltage level that the Commission choses for the import paths to serve the Permian Basin region and to meet higher electricity demand across the state, we believe that the increased power transfer capacity provided by 765-kV transmission infrastructure will provide the state with significant and long-lasting reliability, resilience, and efficiency benefits.

- Quanta has first-hand direct experience with the market for long-lead time, critical equipment (e.g., autotransformers and breakers) for 765-kV transmission infrastructure through its own domestic manufacturing of high voltage autotransformers and breakers. Given the broad demand for high voltage transmission of all sizes (345-kV, 500-kV, and 765-kV) across the country, we anticipate that any supply chain constraints for equipment would likely be experienced across all high voltage classes, not just for 765-kV transmission infrastructure.

- Quanta understands the urgency of delivering power to high-demand areas like the Permian Basin region as quickly as possible. Notably, to achieve the same power transfer capacity as the 765-kV option in ERCOT's 2024 RTP, the 345-kV option would require more than double the amount of new ROW compared to the 765-kV option. The additional new ROW needed for the 345-kV transmission lines would likely result in longer negotiations with landowners and increased environmental and permitting work, potentially delaying the start date of construction or altering construction methods that could require longer construction timelines, leading to higher costs due to construction-related inefficiencies and/or delayed in-service date(s).

- The 345-kV option in ERCOT's 2024 RTP will necessitate the procurement and installation of more equipment (e.g., structures and conductor) to match the power transfer capacity of the 765-kV option, resulting in greater procurement risk and higher construction costs.

- When comparing the mile-to-mile installation of 345-kV to 765-kV (not accounting for carrying capacity), the labor and equipment costs for 765-kV are estimated to be approximately 20-25% higher, but the total circuit miles for 765-kV would require 25% less new ROW.

- However, since the 345-kV option requires more than double the amount of new circuit miles and significantly more towers to achieve the same power carrying capacity of the 765-kV option, the 765-kV option provides additional cost-efficiencies that should be considered and construction efficiencies that provide for a faster installation than the equivalent 345-kV option. Given these important considerations, a 765-kV transmission buildout will likely be constructed faster and more cost-effectively than an equivalent 345-kV buildout to power high-demand areas like the Permian Basin region.

- Based on our experience with 765-kV transmission infrastructure, Quanta believes that the 765-kV option provides ERCOT with more flexibility to manage uncertainties in long-term load forecasting, load siting, and generation siting, than the 345-kV option. The higher power transfer capability of 765-kV transmission will allow the ERCOT system to better accommodate growing future electricity demand across the state by providing more options for new generation and load siting across the ERCOT region.

- Quanta believes that moving forward with 765-kV transmission infrastructure now would allow the ERCOT transmission system to start benefiting from increased reliability, resilience, flexibility, and higher power transfer capability sooner to meet the state's rapidly increasing electricity demand. Although the 345-kV option would also help meet growing electricity demand, the 345-kV option would not provide the ERCOT transmission system with the additional, long-lasting incremental reliability, resilience, flexibility, and power transfer capability benefits provided by the 765-kV option.

- Quanta notes that the ability of 765-kV transmission to maintain power transfer capability during a fault and quickly recover from a fault are significant benefits that have not been raised for consideration. These types of momentary faults, which are temporary abnormal conditions caused by incidents like fallen tree branches and bird collisions, can interrupt power transmission on a 345-kV transmission line. 345-kV transmission lines typically do not have installed equipment to allow continued power transmission during a momentary fault or assist with the removal of a fault. In contrast, 765-kV transmission lines are typically equipped with mechanisms to automatically adjust for single-phase momentary faults, including "single pole trip and reclose" and "neutral compensation," which allow continued power transmission during a momentary fault and assist with the isolation and removal of a fault.