

PRR Comments

PRR Number	830	PRR Title	Reactive Power Capability Requirement
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Market Segment	Investor Owned Utility (IOU)

Comments

AEP supports the TAC Approved language of PRR830, Reactive Power Capability Requirement and requests the Board deny the appeal. Similar to MW (real power) concerns created with large wind generation shifts, large wind generation shifts within a short period of time can create significant MVAR (Reactive Power) concerns. While the Transmission Owners have installed a large amount of dynamic reactive devices in recent years, the large swings on the system can quickly exhaust dynamic reactive capability. The proper amount of reactive capability, including capability from Generation Resources, is necessary to maintain the reliability of the grid. Unlike thermal limits that can be exceeded for short periods of time, violating the reactive needs of the system can have immediate and severe consequences.

While AEP is supportive of the development of the vast wind Resources in the region, those Resources must provide the reactive capabilities necessary to support their power injections on the grid. There is clear evidence that the ERCOT System has significant Reactive Power deficiency that is directly correlated to wind generation including:

1. AEP can get large voltage swings because of significant changes in wind in a short period of time and we do not have time to adjust. We are also taking a large number of circuits out because of overloads to maximize wind output. We believe lack of dynamic Reactive Power support from wind

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farms is a primary root cause for large voltage swings for large wind changes. This problem will be exacerbated with events such as a “carbon tax” where base load coal plants are likely to reduce their output during these high wind periods. There is a growing, significant possibility of voltage collapse that AEP believes is beyond the risk tolerance for ERCOT’s reliable operations.

2. The primary purpose of the Transmission System is to reliably deliver power and energy to Load. Historically, transmission maintenance is scheduled in spring and fall to prepare for the summer Load. Maintenance in these periods coincides with periods of high wind production. Transmission Service Providers (TSPs) continue to see ERCOT move planned Maintenance Outages and lines taken out of service for upgrades which over time will have significant reliability impact on the transmission system and the ability of the transmission system to meet its primary purpose. AEP believes that PRR 830 as written will improve this condition by having a better dispersion of Reactive Power in the network around wind.
3. Operating Guides and local controls are being used more frequently and to less effect than in years past during high wind conditions. AEP operates transmission in Southwest Power Pool (SPP), PJM and ERCOT. Operating issues during high wind events take place significantly more in ERCOT than the rest of the AEP system nationwide. AEP believes that PRR 830 as written will improve this condition.
4. Just as MW reserves are made available to protect for more than just an N-1 event, reactive reserves are needed for such large generation swings across multiple wind units and farms. The dynamic language is specifically important since numerous events over the last few years can show large voltage swings when dynamic reserves were exhausted with the larger wind generation swings, which happen frequently.

The ROS subcommittee, tasked with reliability matters, took a significant amount of time to address the dynamic VAR requirement issues and endorsed PRR 830. These issues have been debated and reviewed among the stakeholders since February 2004. In 2004, a compromise was reached among the stakeholders that “grandfathered” wind generators installed before February 2004. It was understood that future wind farms would meet the reactive and static requirements of all generators in compliance with ERCOT requirements as we moved forward. AEP does commend those wind farms that are meeting their obligation under this compromise and request the ERCOT Board approve the TAC recommendation in order to continue to honor this compromise. Even prior to this proposed change, the requirements are clear. Providing any further exemption to wind farms outside

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the current grandfathered language would amount to a retroactive relaxation/change in the protocol requirements. While a waiver of such provisions of the Protocols might be considered reasonable in a situation where the reactive needs of the system are stable, it should not be considered in this case given the reactive needs in the area.

The consequences if the Board grants the language proposed by Nextera would be for TSP's to submit reactive element upgrades for the transmission system such as Static VAR Compensators (SVCs), static compensators (STATCOMs), other Flexible AC Transmission Systems (FACTS) and synchronous condensers which provide dynamic Reactive Power with various time responses to quickly changing system conditions. The costs of these upgrades should be borne by those that are charged with meeting the requirements outlined in the Protocols and their choice is clear. Install the equipment to meet the standards outlined in the Protocols or make contributions in aid of construction in lieu of meeting the standard as outlined in paragraph (7) of Section 6.5.7.1, Generation Resources Required to Provide VSS Installed Reactive Capability.

Revised Proposed Protocol Language

None proposed.