

GE Energy
Executive Summary

Analysis of Wind Generation Impact on ERCOT Ancillary Services Requirements

During afternoon to early evening (peak) hours during summer and fall, there are incrementally larger net load under-forecast errors with wind generation. **The sizes of these errors, relative to load errors, are such that they may potentially lead to under-commitment of resources during peak load times when they are most needed.**

Wind generation tends to have a greater overall impact on variability in the summer, late spring and early fall, but variations in winter and early spring tend to be more operationally significant due to the low net load levels. The instantaneous wind generation penetration reaches 57% of served load during low-load periods with high wind, when the wind generation capacity reaches 15,000 MW. The minimum net load, served by the non-wind generation, is reduced by 56% during this period.

The results reported here assume that the amount and mix of conventional thermal generation, relative to load growth, will remain constant. **It is important that the amount and character of generation capable of delivering ancillary services be tracked. Exit from the market of significant participants could have adverse impacts on the availability and price of ancillary services.**