

ERCOT Transmission Planning Assessments

Assessing long-term transmission system needs

ERCOT recently released two transmission planning reports as part of its responsibility, mandated by the Texas Legislature, to continually study the electric transmission system and identify improvements needed to support future reliability and efficiency. The ERCOT system serves about 75 percent of Texas geographically and about 90 percent of the energy used in the state.

- The [Long-Term System Assessment \(LTSA\)](#), released in December of even-numbered years, evaluates the potential needs of the ERCOT high-voltage (345 kilovolt) system 10-15 years into the future, providing a scenario-based view of long-term needs. The LTSA identifies upgrades that provide benefits across a range of possible future scenarios and provides a longer-term view that can inform and improve the shorter-term Regional Transmission Plan.
- The [Report on Existing and Potential Constraints and Needs](#), released annually, identifies existing and potential constraints that present reliability concerns or may lead to increased costs for consumers. Transmission constraints lead to congestion, which can prevent the most efficient dispatch of generation. This report includes a summary of the [ERCOT Regional Transmission Plan](#), which focuses on meeting system needs within a six-year planning horizon.

Looking at long-term scenarios and models

The 2016 LTSA examined eight scenarios, developed by stakeholders in the Regional Planning Group, to assess possible future transmission system needs. One scenario was based on continuing low natural gas prices, while another assumed extended hot, dry conditions. Scenarios also explored the potential impact of strong and weak economic conditions, environmental regulations with significant impacts on power generation resources, and possible trends associated with energy efficiency, distributed generation (DG), electric vehicles and storage.

Key findings of the assessment included the following:

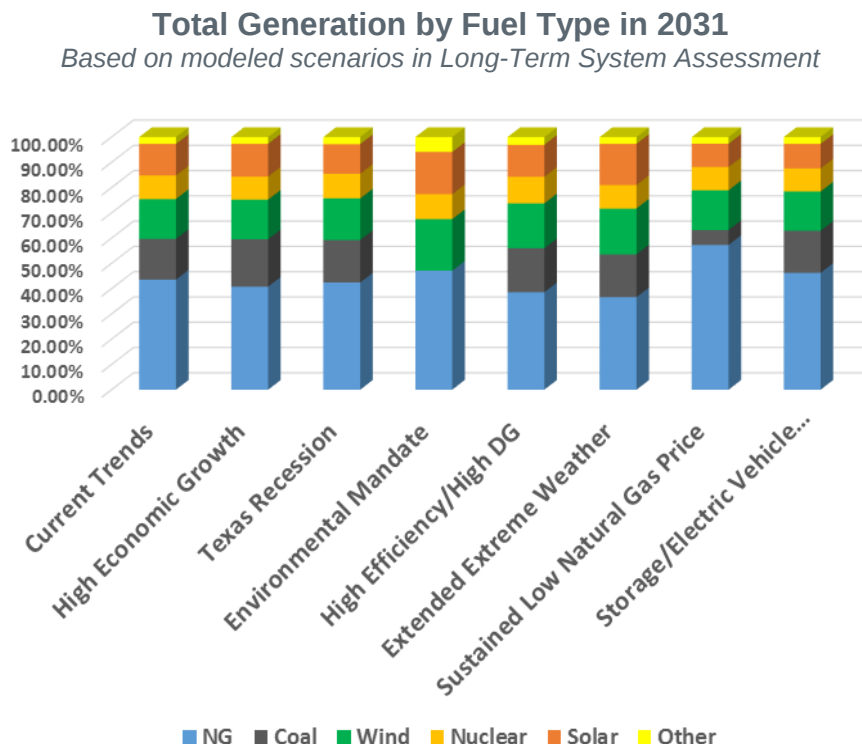
- Customer demand for electricity continued to grow in seven of the eight scenarios.
- All scenarios showed a significant amount of solar generation additions and the retirement of older coal and natural gas generation.
- Continued growth in variable generation (wind and solar) could shift generation scarcity periods from typical peak demand hours to hours when net load is high (i.e., high demand coincides with low availability of variable generation, such as right after sunset on hot summer days).
- High amounts of solar generation additions in the west, combined with generation retirement in the east, will result in increased west-to-east power flows, even in the one scenario (Energy Efficiency and DG) that resulted in decreased customer demand over time.
- Expected continued generation additions in the Panhandle will necessitate transmission improvements in the area.

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ERCOT developed a demand forecast and generation expansion and retirement model for each of the eight scenarios, and then worked with stakeholders to select three scenarios (Current Trends, High Energy Efficiency/DG, and Environmental Mandate) for more in-depth transmission planning analysis.

In all eight scenarios studied, utility-scale solar represented the largest amount of new generation development. Economic factors over time will affect future generation resource development and retirement decisions in the ERCOT region. In addition, all scenario models in the LTSA assumed that the Regional Haze (or a similarly restrictive) rule would be implemented within the study timeframe.

ERCOT will continue to monitor ongoing regulatory developments in the coming years and adjust future assessments as needed to reflect changing conditions.



Regional Planning Group and stakeholder role

ERCOT staff works closely with stakeholders to understand trends and future expectations, and stakeholders work within the Regional Planning Group (RPG) to identify the long-term planning scenarios.

Transmission improvement projects estimated to cost more than \$15 million or requiring a Certificate of Convenience and Necessity from the Public Utility Commission of Texas are reviewed by the RPG prior to implementation. For the largest projects, RPG consideration is followed by consideration and endorsement by the ERCOT Board of Directors. The RPG is a non-voting forum comprising ERCOT, Transmission Service Providers, various Market Participants, other stakeholders, and PUC staff.

In 2016, \$489.1 million of transmission improvement projects were reviewed and endorsed through the RPG process.