



Introduction to ERCOT and Overview of Funding Opportunity

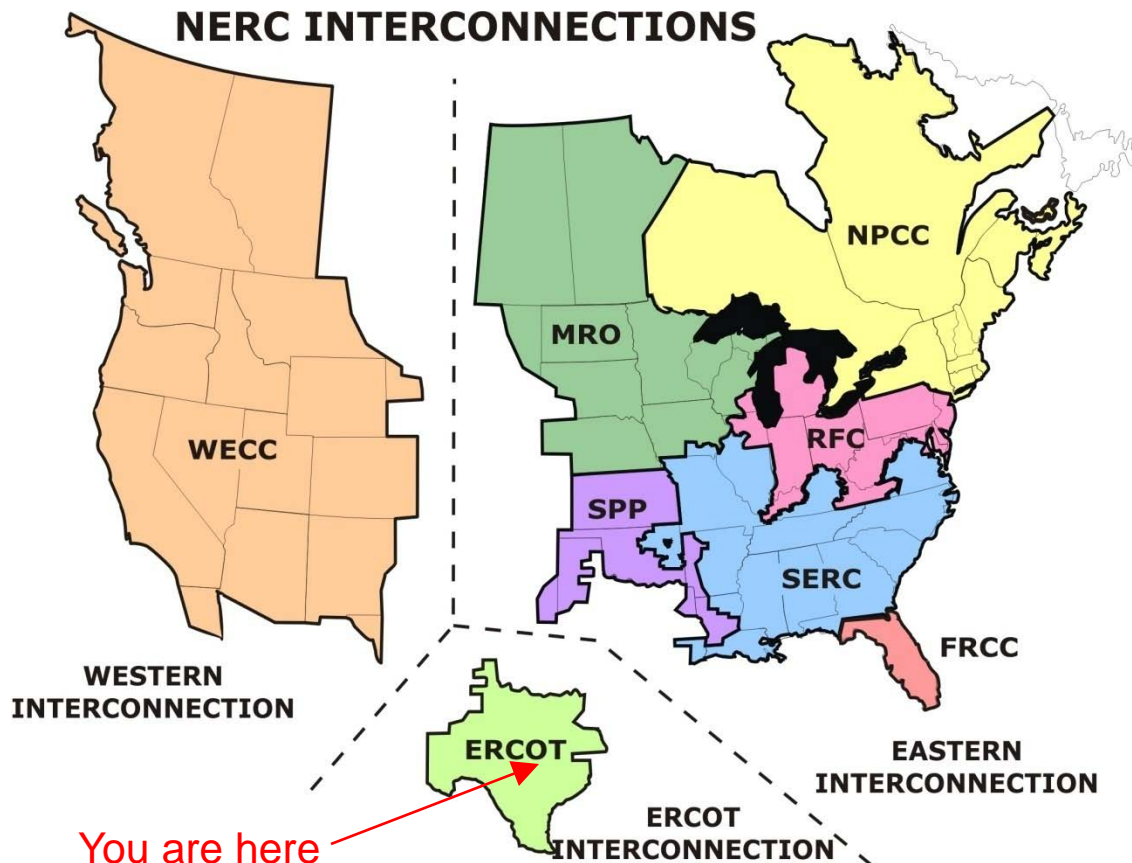
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The Four ERCOTs

- **ERCOT Region** – Approximately 75% of Texas land area and 85% of Texas load that is served by a grid that is electrically separate from the Western and Eastern Interconnects that serve the rest of the US.
- **ERCOT Board** – The governing body of ERCOT is a 16-member “hybrid” group that includes six representatives from each of the industry segments (investor-owned utilities, municipal-owned utilities, cooperatives, generators, power marketers and retail electric providers), three consumer segment representatives (industrial, commercial and residential), five independent (unaffiliated) directors, the ERCOT CEO, and Texas PUC Chair (non-voting).
- **ERCOT Stakeholders** – Representatives of the industry segments described above who write the rules of the ERCOT market (subject to Board approval and possible PUC appeal). Each market segment elects representatives to serve on the Board of Directors and stakeholder committees, subcommittees, working groups and task forces. Stakeholder meetings are called and chaired by stakeholders.
- **ERCOT, Inc.** – ERCOT, Inc. was designated the Independent Organization (IO) under PURA in 1996 to be the unbiased entity ensuring fair access and opportunity to ERCOT-region market participants. ERCOT, Inc. is a 501(c)(4) nonprofit that performs statutorily designated duties pursuant to PUC order.

What Is the ERCOT (Texas) Interconnection?



ERCOT has limited direct current (DC) ties to other interconnections.

The ERCOT Region is one of three North American grid interconnections.

The ERCOT grid:

- 75% of Texas land
- 85% of Texas load
- More than 40,000 miles of transmission lines
- 550+ generation units
- Physical assets are owned by transmission providers and generators
- 63,400 MW peak demand (set summer '09)

- **ERCOT's primary mandates from PURA 39.151**
 - Ensure the reliability and adequacy of the regional electric network
 - Ensure access to the transmission and distribution systems for all buyers and sellers
 - Ensure that information relating to a customer's choice of retail electric providers is conveyed in a timely manner to the persons who need the information
 - Ensure that electricity production and delivery are accounted for among the generators and wholesale buyers and sellers in the region

What Does ERCOT Do?

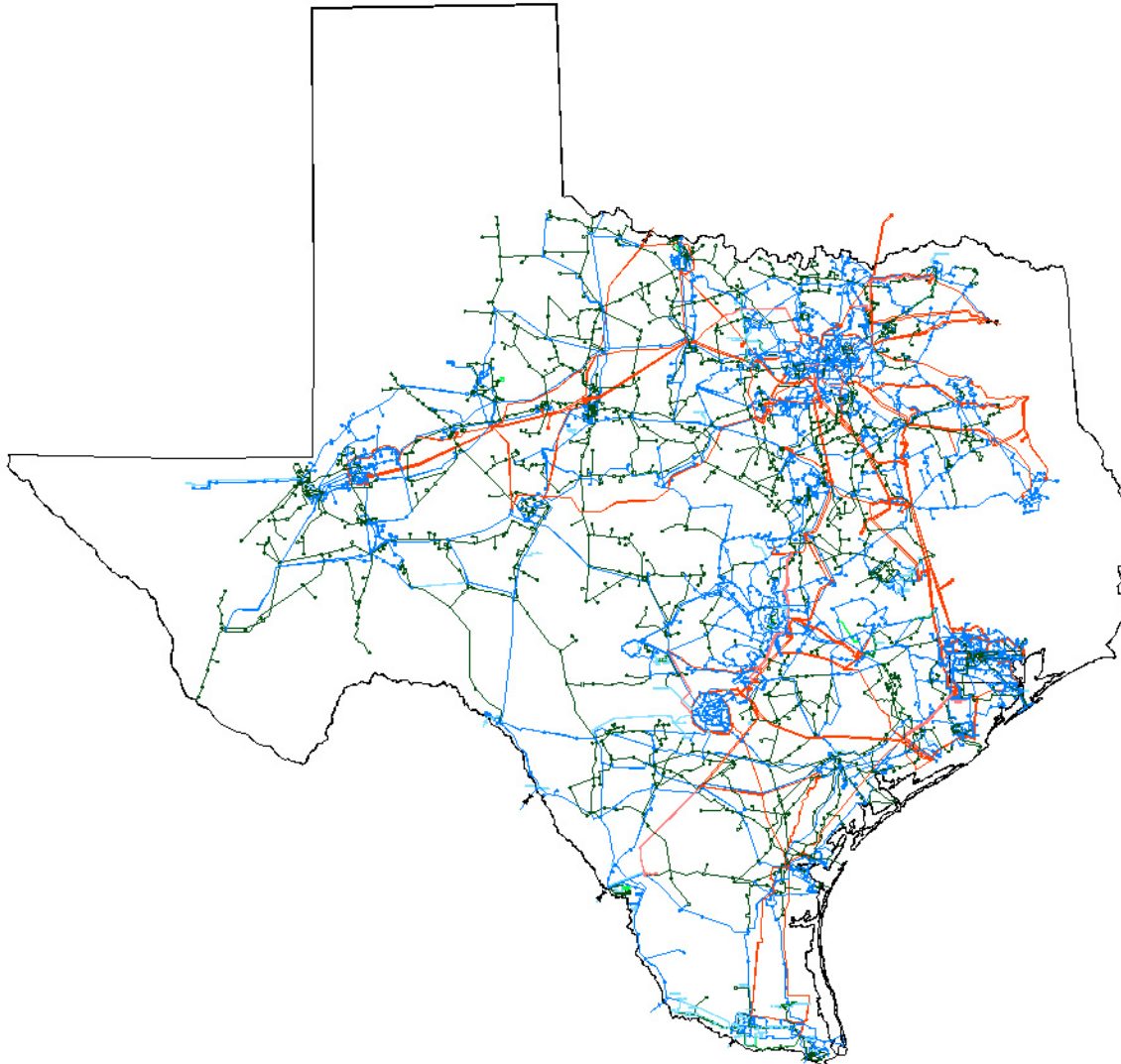
- **ERCOT 'directs traffic' on the grid to maintain reliability and ensure supply of electricity:**
 - Coordinates scheduling of power by market participants
 - Analyzes grid conditions continuously in real-time
 - Dispatches generation to ensure power production matches load at all times
 - Secures available generation capacity to meet reliability requirements
 - Coordinates planned outages of generators and transmission lines
 - Relieves transmission system congestion
 - Coordinates emergency actions & recovery
 - Operates markets to meet regional energy & capacity requirements not met through bilateral arrangements
 - Forecasts and coordinates improvements to the transmission grid

Why Is ERCOT Unique?

- **Because of the separateness of the ERCOT grid, the bulk electric system in the ERCOT market is primarily regulated by the Texas Legislature and the Public Utility Commission of Texas (PUC) as opposed to the Congress and the Federal Energy Regulatory Commission (FERC).**
- **Because of the separateness of the ERCOT grid, ERCOT is, in essence, an electrical island. We cannot rely on instantaneous support from other regions.**

The ERCOT Transmission Grid

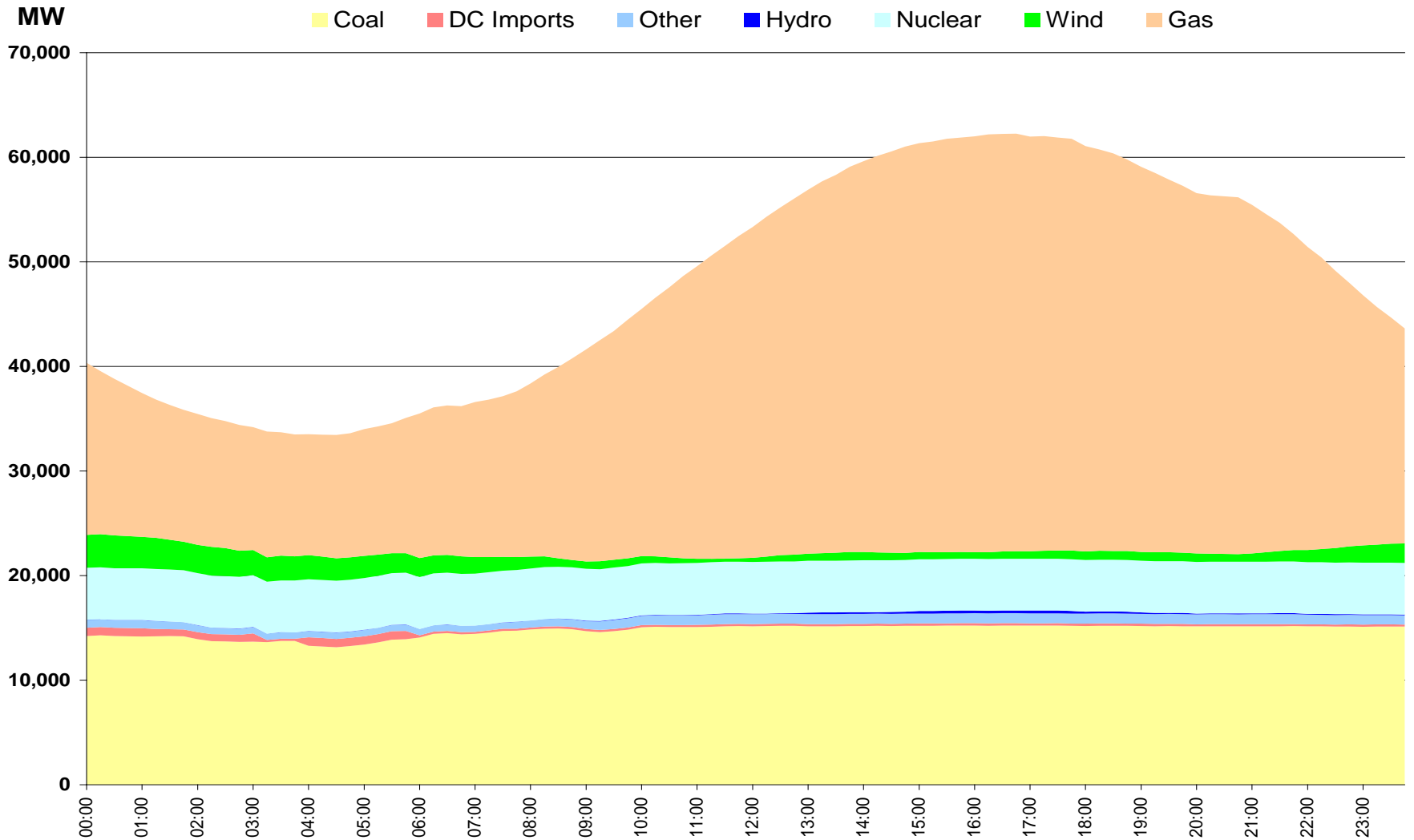
There are 40,327 Miles of Transmission Lines in Texas...



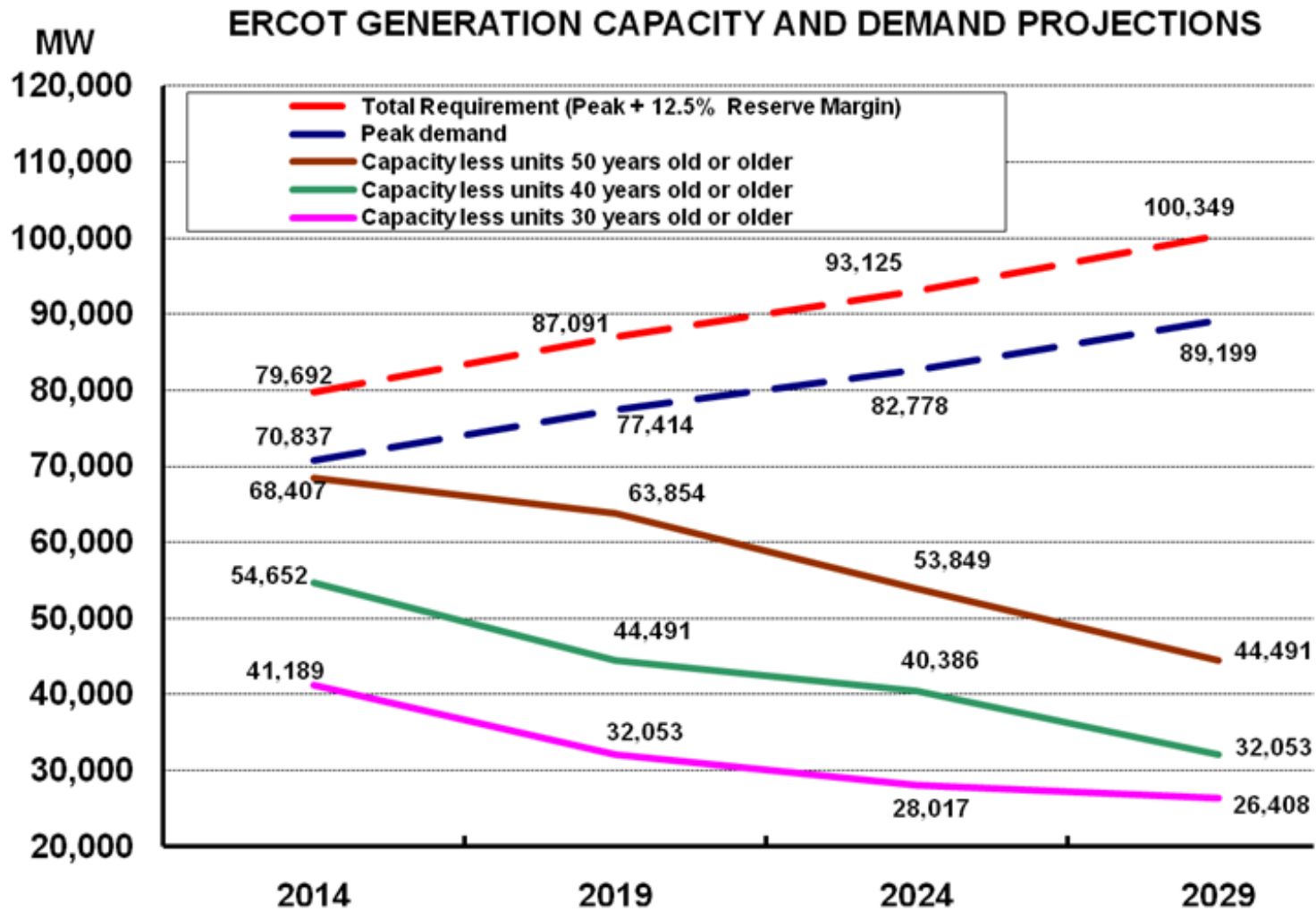
- 8,917 Miles of 345kV Lines
- 19,748 Miles of 138kV Lines
- 6,593 circuit miles of transmission built since 1999
- 2,888 circuit miles of transmission under study
- \$4.4 b investment in transmission placed in service since 1999
- \$3 b under development (independent of CREZ transmission)

Summer Day Load Shape with Fuel Mix

Generation by Fuel - August 4, 2008



Capacity and Demand Projections



- **Wind integration continues to be a challenge for ERCOT grid operators. How will the continuing growth of wind generation and other renewable or alternative generation affect reliability?**
 - Storage
 - Solar
 - Fuel cells
 - Demand management
 - Alternative fuel / distributed generation
 - Electric vehicles
 - Many others
- **More than 20,000 MW of new generation may need to be added over the next fifteen years. Where will this be and will we have the infrastructure to support it?**
- **Do we have the right ancillary service products to support the changing generation environment?**

- **Transmission Planning is a core ERCOT responsibility as stated in Senate Bill 7, as it is fundamental to maintaining system reliability and providing non-discriminatory access**
- **ERCOT is the sole Planning Authority registered with NERC for the Texas Interconnection**



DOE Funding Opportunity
DE-FOA-0000068

Overview of DOE Funding Opportunity

- **Objective**

- To prepare analyses of transmission requirements under a broad range of alternative futures and develop long-term interconnection-wide transmission expansion plans.

- **Benefits**

- Improve regional, inter-regional, and interconnection-level coordination among electric industry organizations and states with respect to long-term electricity policy and planning.
- Improve the quality of the information available to industry planners and state and federal policymakers and regulators. For each interconnection, a balanced portfolio of electricity supply futures will be produced and maintained, and the transmission requirements associated with each future will be determined.

Overview of Funding Opportunity

- **ERCOT was awarded two separate grants:**
 - **Topic A, Interconnection-Level Analysis and Planning**
 - **Topic B, Cooperation Among States on Electric Resource Planning and Priorities**

- **DOE Grant Requirements**

- The analyses and planning must be developed and performed in a transparent and collaborative manner
- The study processes must be open to participation by state and federal officials, representatives from independent system operators (ISOs) and regional transmission organizations (RTOs), utilities, and relevant stakeholder bodies or non-government organizations (NGOs), including appropriate entities in Canada and Mexico.
- The results should provide guidance to the affected governments and electric utilities and related organizations as to alternative configurations of major interest and their implications.

- **DOE Grant Requirements (cont'd)**

- The studies should accomplish the following:

- Consider all available technologies (to the extent that they may become economic) for electricity generation, energy storage, transmission, end-use energy efficiency, demand resources, and management of transmission- and distribution-level facilities.
- Satisfy all current state and federal requirements for renewable energy goals, energy efficiency goals, and goals for reducing greenhouse gas emissions.
- Minimize the long-term costs of producing and delivering electricity to consumers.
- Minimize the overall long-term impacts of electricity supply activities on the environment.
- Provide a path for efficient grid development

Topic B, Cooperation Among States on Electric Resource Planning and Priorities

- **Highlights**

- The fundamental purpose of the award under Topic B is to facilitate dialogue and collaboration among state agencies, policy-makers, NGOs, and other stakeholders in the Texas Interconnection and thus enable them to develop more consistent and coordinated input and guidance for the regional and interconnection-level analyses and planning that will be done under Topic A.
- Provide insight into the economic and environmental implications of the alternative electricity supply futures and their associated transmission requirements developed for the Texas Interconnection under Topic A.

- **The purpose of the Long-Term Study Task Force (LTS Task Force or LTSTF) is the following:**
 - To provide a public forum for State Agencies, ERCOT Market Participants, NGOs, and other interested parties to provide information, inputs, and desired results for the Long-Term Study effort.
- **The LTS Task Force is a non-voting, consensus-based group open to all stakeholders similar to the ERCOT Regional Planning Group.**
- **Email**
 - longtermstudy@ercot.com
- **Web**
 - <http://www.ercot.com/committees/other/lts/>



Questions?