



Transmission Planning in the ERCOT Interconnection

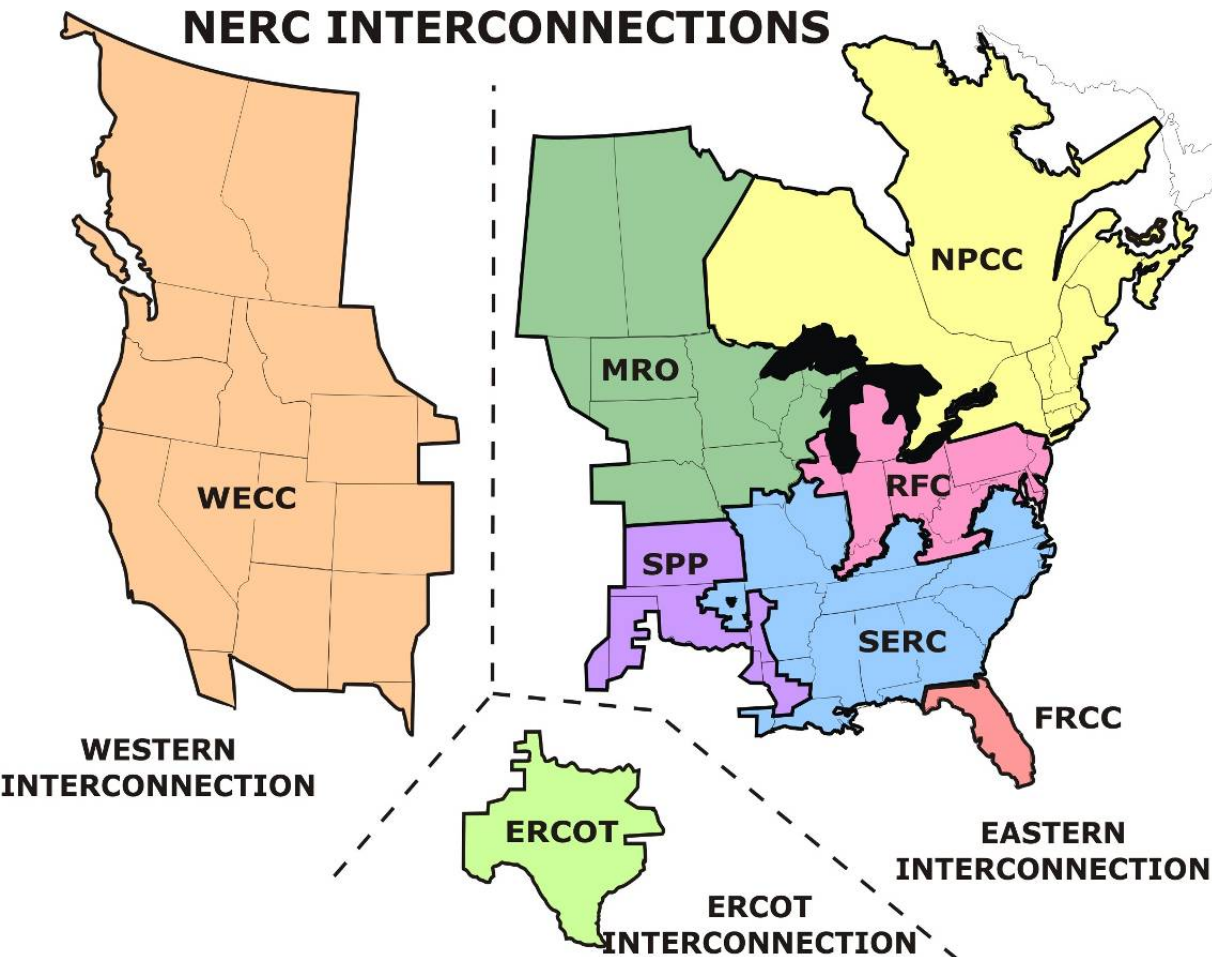
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Department of Energy Electricity Advisory Committee

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The ERCOT Interconnection



The ERCOT Region is one of 3 NERC grid interconnections.

The ERCOT grid has:

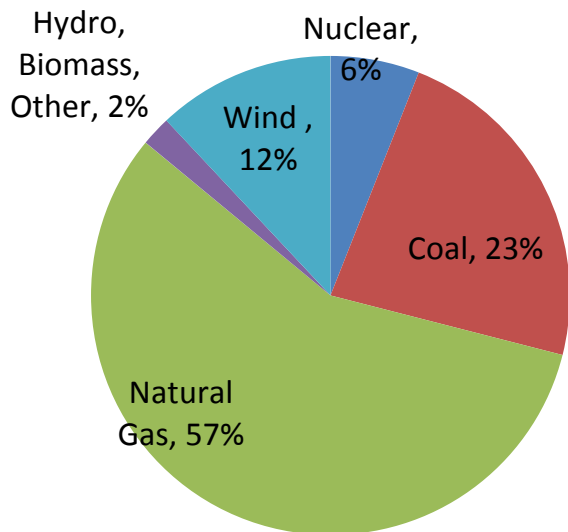
- 75% of Texas land
- 85% of Texas load
- 40,500 miles of transmission lines
- 550+ generation units
- 68,294 MW peak demand (set 8/3/2011)

1,106 MW of Asynchronous Tie Capacity (820 MW with Eastern Interconnection)

2,877 MW of generation can switch between ERCOT and the Eastern interconnection

ERCOT Generation Resources

Installed Capacity - 2010

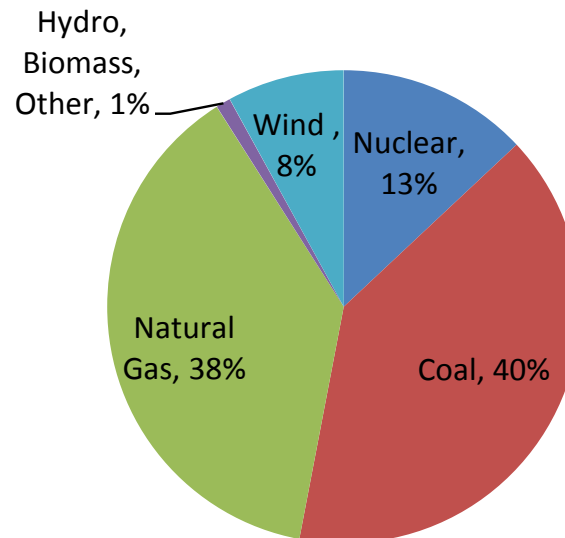


The ERCOT wholesale generation market is an “energy-only” market

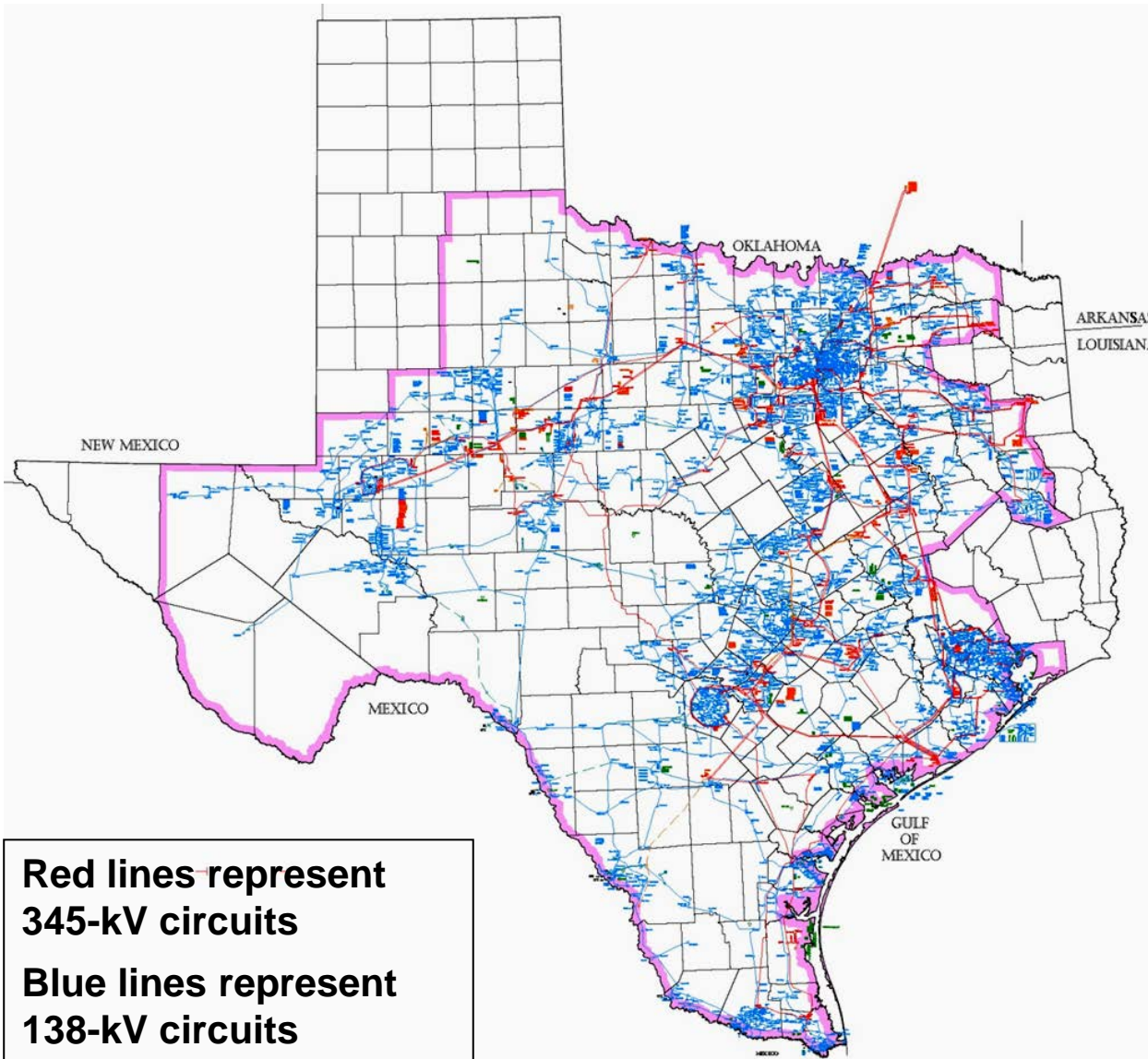
ERCOT administers day-ahead and real-time markets for energy and ancillary services

Generation is redispatched in the real-time market every 5 minutes by a centralized security-constrained economic dispatch (SCED) process

Energy Produced - 2010



The Current ERCOT Transmission System



Transmission and distribution companies are regulated by the PUCT.

All transmission improvements (including generation interconnection projects) are paid for by loads based on their pro-rata share of peak loads

ERCOT Regional Planning Framework

Coordinated 5-Yr. Transmission Plan

- Annual study of transmission needs of ERCOT system over next five years
- Projects identified by ERCOT in coordination with TOs with comment from stakeholders
- Projects included to meet all identified reliability requirements and congestion reduction projects that meet economic criteria
- Local and endorsed projects are included without review

Long-Term System Assessment

- Study of long-term transmission needs of ERCOT system
- Includes scenario-based analysis of future resource investment by market participants and resulting transmission system needs
- Produced in even years and re-evaluated annually
- Provides directional vision to near-term decisions with goal of long-term efficiency in transmission plans

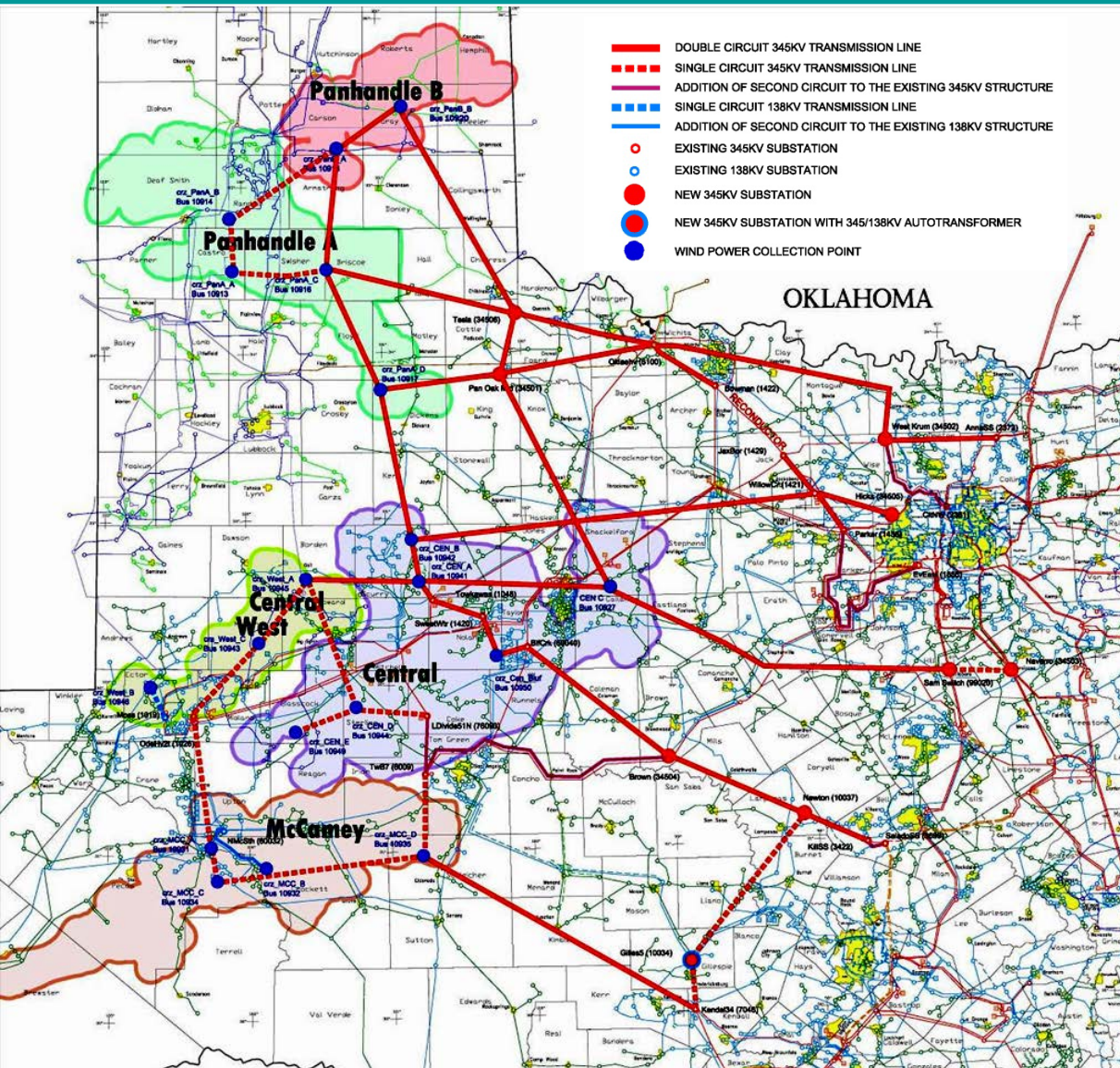
Transmission Owner Plans

- Projects developed by each transmission owner
- Generally include projects that are “Local” (<\$15M) or “Neutral”
- Included in base powerflow cases

Individual Project Reviews

- Additional projects or studies can be proposed by any Market Participant, Transmission Owner or ERCOT Staff
- Individual projects included in 5-Yr. Transmission Plan also reviewed at appropriate time

New Transmission for Renewable Energy



Following statute, the Public Utility Commission of Texas designated 5 Competitive Renewable Energy Zones (CREZs) and ordered construction of 2,376 circuit miles of new 345-kV transmission (to be completed by 12/31/2013)

ERCOT currently has 9,452 MW of wind generation

Peak instantaneous wind generation: 7,400 MW (June 19, 2011)

Peak instantaneous wind generation as a percentage of load: 25.8% (7,227 MW; December 11, 2010)

33,921 MW of wind and 1,494 MW of solar projects are currently being evaluated for interconnection

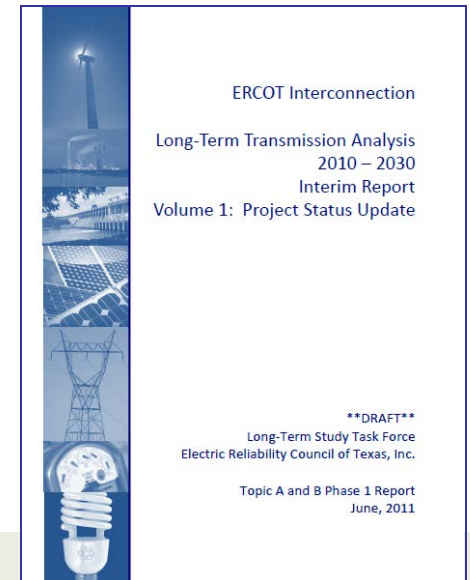
ERCOT received a grant in April, 2010 from the Department of Energy to improve our Long-Term Study process.

- **Three primary study goals:**

- To provide relevant and timely information on the long-term system needs in the ERCOT Region to inform nearer-term planning and policy decisions
- To expand ERCOT long-term planning capabilities by developing new tools and processes that can be used in this and future studies
- To enhance stakeholder involvement and input into the ERCOT long-range planning process in a manner that is consensus-seeking, sustainable and consistent with the established ERCOT stakeholder framework.

Current Status

- **ERCOT has developed the base tools to evaluate resource expansion and transmission needs for future scenarios**
- **Stakeholders have defined a Business as Usual scenario – continuation of current market conditions**
- **ERCOT has provided an initial analysis of resource expansion for BAU scenario and several sensitivities**
- **The characteristics of other potential future scenarios to be analyzed have not been finalized**
- **Work to-date is summarized in an Interim Project Report**
(<http://www.ercot.com/committees/other/lts/>)



Progress / Timeline

Milestone	Kick-off Meetings	Draft Interim Report due to DOE	Interim Report due to DOE	LTSA for State Legislature	Draft Final Report	Final Report due to DOE
Timeline	April, 2010	June, 2011	August, 2011	December, 2012	April, 2013	June, 2013
Work Product	Initial Development Business as Usual Case (BAU) & Modeling		Alternative Scenario Development & Modeling		Final work product	
Stakeholder Process	Monthly introductory meetings		Quarterly LTS meetings with interim workgroup meetings			

Near-Term Project Activities

The Long-Term Study Task Force (LTSTF) is currently working with other existing ERCOT stakeholder committees on the incorporation of emerging technologies:

- Demand-side resources
- Solar Resources
- Storage technologies
- Geothermal
- Electric Vehicles

LTSTF is finalizing an RFP for development of tools to evaluate the reliability needs of system operations independent of existing A/S products

LTSTF is finalizing the scenarios for analysis of future transmission needs in ERCOT

ERCOT is developing transmission solutions for the Business as Usual scenario

Summary

ERCOT has an established interconnection-wide transmission planning process.

ERCOT is using the DOE funding to enhance its toolset for conducting long-range transmission planning, and to increase stakeholder involvement in the long-range planning process.

These enhanced tools and processes will be used in future biennial long-range planning studies (required by state law).

Questions?

