

Clean Carbon Policy Summit

Commissioner Kenneth W. Anderson, Jr.
Public Utility Commission of Texas
October 5, 2010

Outline

- Importance of a balanced generation portfolio
- Importance of renewables
- New investment in coal

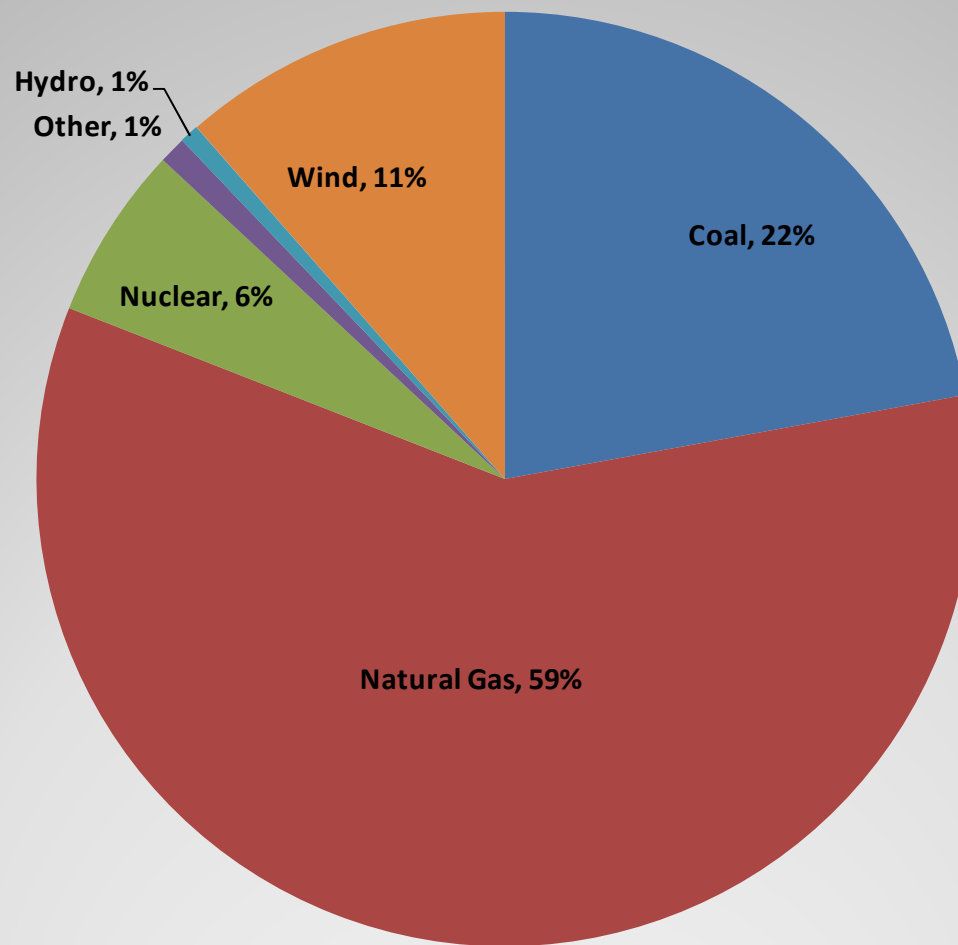


Importance of Balanced Portfolio

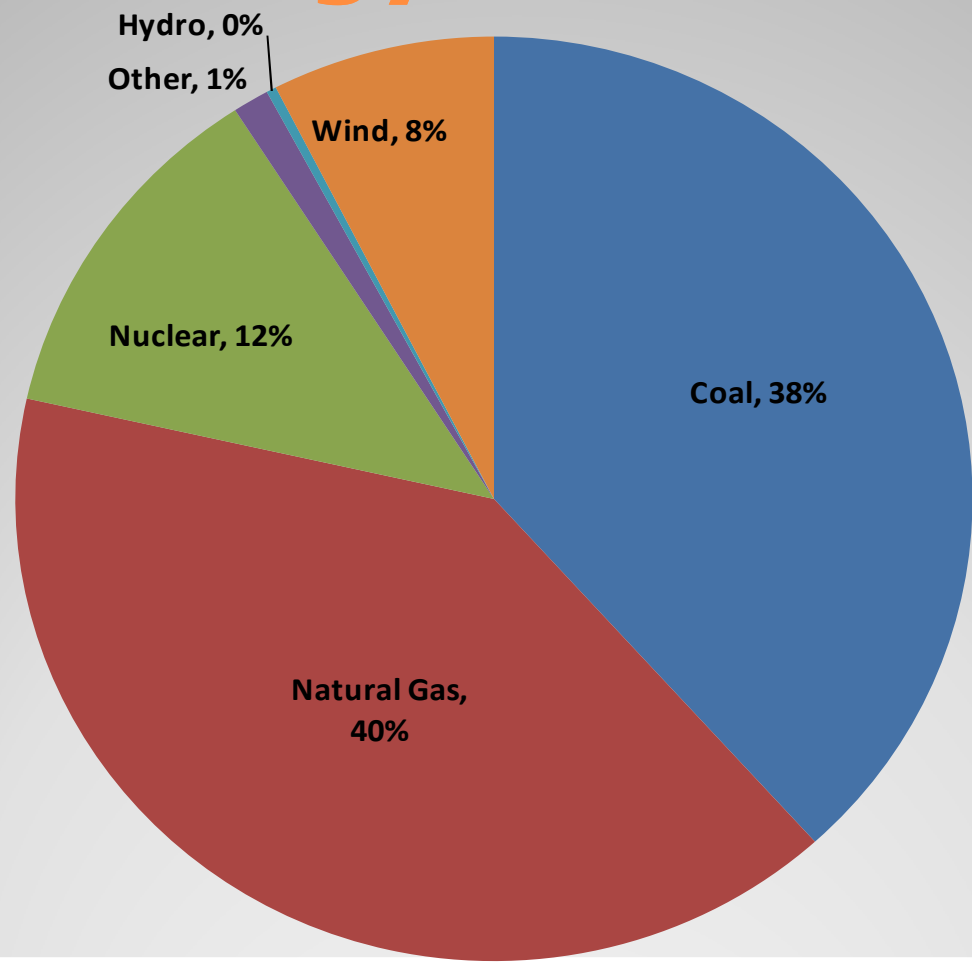
- ERCOT needs to maintain an adequate supply of all generation
- The following chart shows the diverse mix of resources:



ERCOT Capacity by Fuel



ERCOT Energy Consumed



As of August 2010

New Capacity

- Approximately 37,000 MW of capacity has been installed since 1999 (excluding wind)
- Natural gas accounts for 60% of installed capacity and 60% of this capacity was installed within the last 10 years
- Approximately 12,500 MW of generation has been retired and mothballed since 2002

Reduced Emissions

- Replacing old generation helped to reduce carbon emissions
- Texas saw the second highest total decline in CO₂ emissions between 2004 and 2007
- Texas has reduced NO_x emissions by 46% since 2000
- Texas is the number 1 producer of wind in the U.S.

Problem with Over-Reliance on Any Fuel Source

- Gas
- Historically, natural gas has been a highly volatile commodity
 - In 2008, the natural gas electric power price rose to \$12.41 in June and then fell to \$6.74 within a four month period



Source: EIA
<http://www.eia.doe.gov/dnav/ng/hist/n3045us3m.htm>

Problem with Over-Reliance on Any Fuel Source

- Coal
 - EPA greenhouse gas regulation and associated costs
 - Transport rule will require reductions in SO₂ and No_x emissions
 - Coal ash rule to classify coal combustion residuals as either a hazardous waste under Subtitle C or as non-hazardous waste under Subtitle D

Reliance on Coal

- There is 22,600 MW of coal and nuclear generation in ERCOT, representing almost half of the generation during non-peak periods
- Due to the increase in wind, coal will become the marginal unit more frequently

Problem with Over-Reliance on Any Fuel Source

- Wind and Solar
 - Renewables are intermittent energy sources
 - Baseload generation and resources offered in the ancillary service market are needed to back-up these variable resources



Importance of Increased Renewables

- Reductions in CO₂ emissions
- No variable fuel costs
- Wind provides cheap, clean power for consumers (primarily due to federal tax credits)
- Non-wind renewables such as biomass and landfill gas have high capacity factors (around 90%)

Renewable Capacity

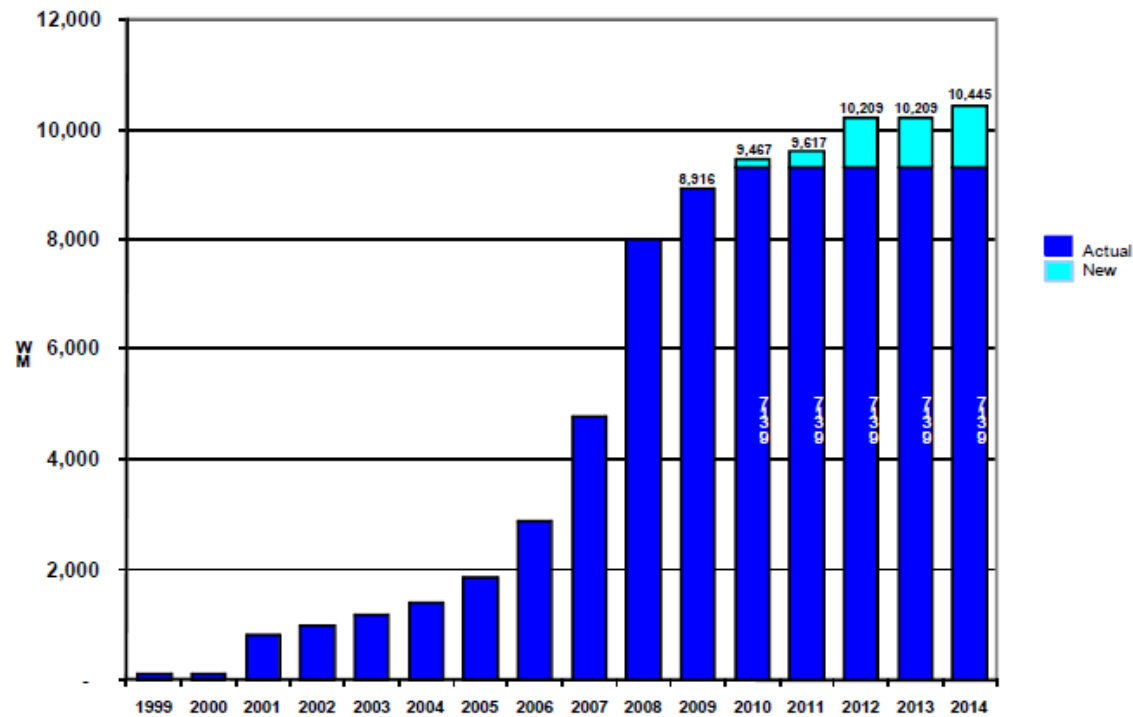


Figure 5 – ERCOT Installed Wind Generating Capacity (End of Year)

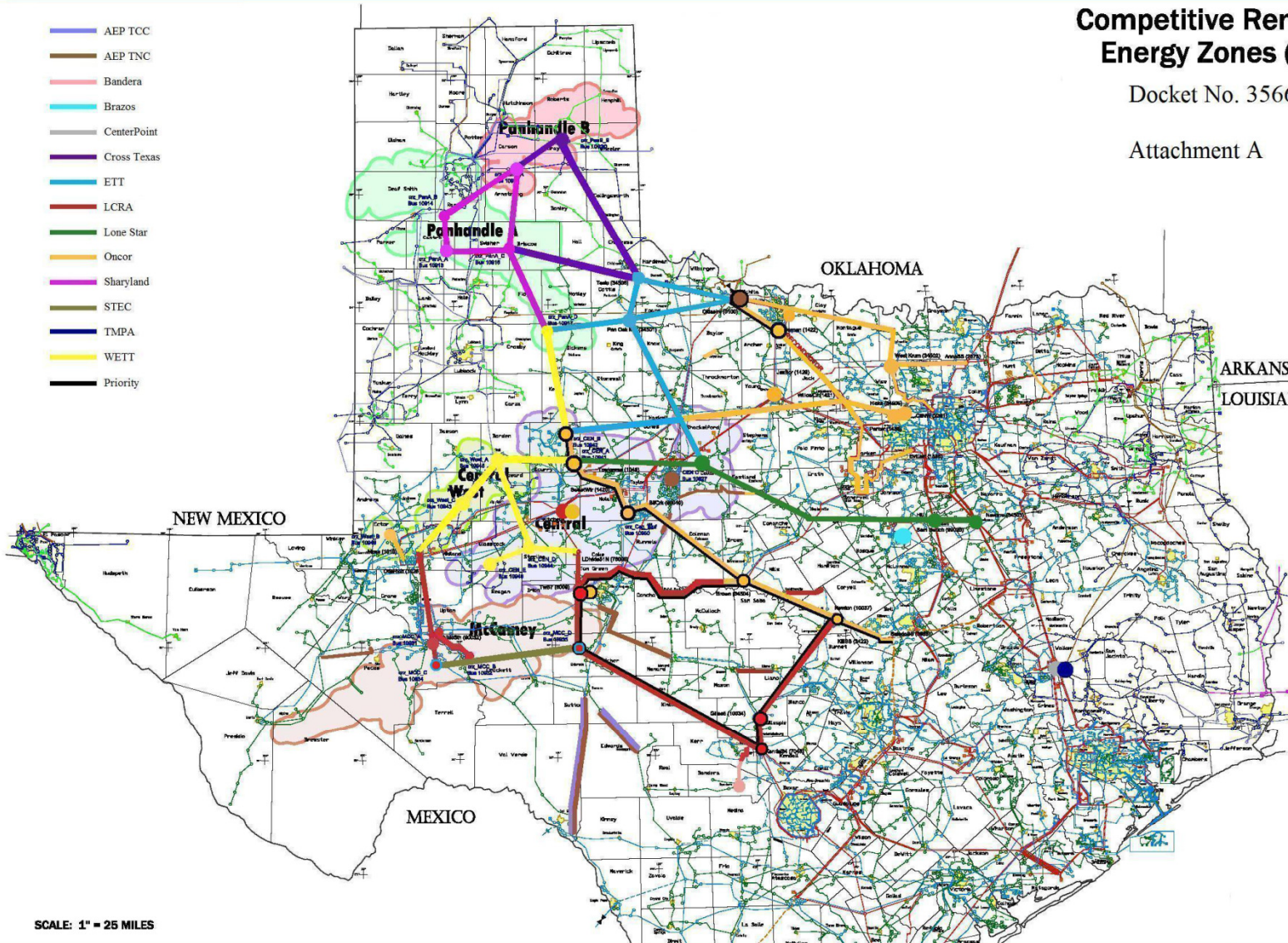
Source: TRIP Report, July 30, 2010

Competitive Renewable Energy Zones (CREZ)

Docket No. 35665

Attachment A

- AEP TCC
- AEP TNC
- Bandera
- Brazos
- CenterPoint
- Cross Texas
- ETT
- LCRA
- Lone Star
- Oncor
- Sharyland
- STEC
- TMPA
- WETT
- Priority



Encouraging Investment in Renewables

- CREZ
 - The Commission approved a transmission plan that would allow 18,000 MW of wind to be delivered to ERCOT load
 - The Commission has approved three default projects and 8 priority projects
 - In the coming months, the Commission will need to approve 22 subsequent projects and one delayed priority project (McCamey D – Kendall - Gillespie)

Non-Wind Renewables

- The Commission is studying a 500 MW non-wind RPS (Project No. 35792)
- Two tiers would be established
 - 100 MW of solar
 - 400 MW of other non-wind resources such as biomass, landfill gas, and geothermal
- Alternative compliance payments
 - \$120 MWh for solar
 - \$60 MWh for non-wind

Need for New Investment

- As ERCOT's reserve margin starts to decrease over the next few years, investment in baseload resources such as coal will become increasingly more critical
- Currently, there are 4,953 MWs of coal in the interconnection queue

Market Signals

- Are the wholesale prices high enough to incent investment in new generation?
 - For example, estimated net revenue needed for a new coal plant is between \$190 to \$245 per kW-year
 - However, the estimated net revenue was between \$70 to \$93 per kW-year
 - Increases in natural gas prices and implementation of the nodal market may change the economics

Contact Information

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