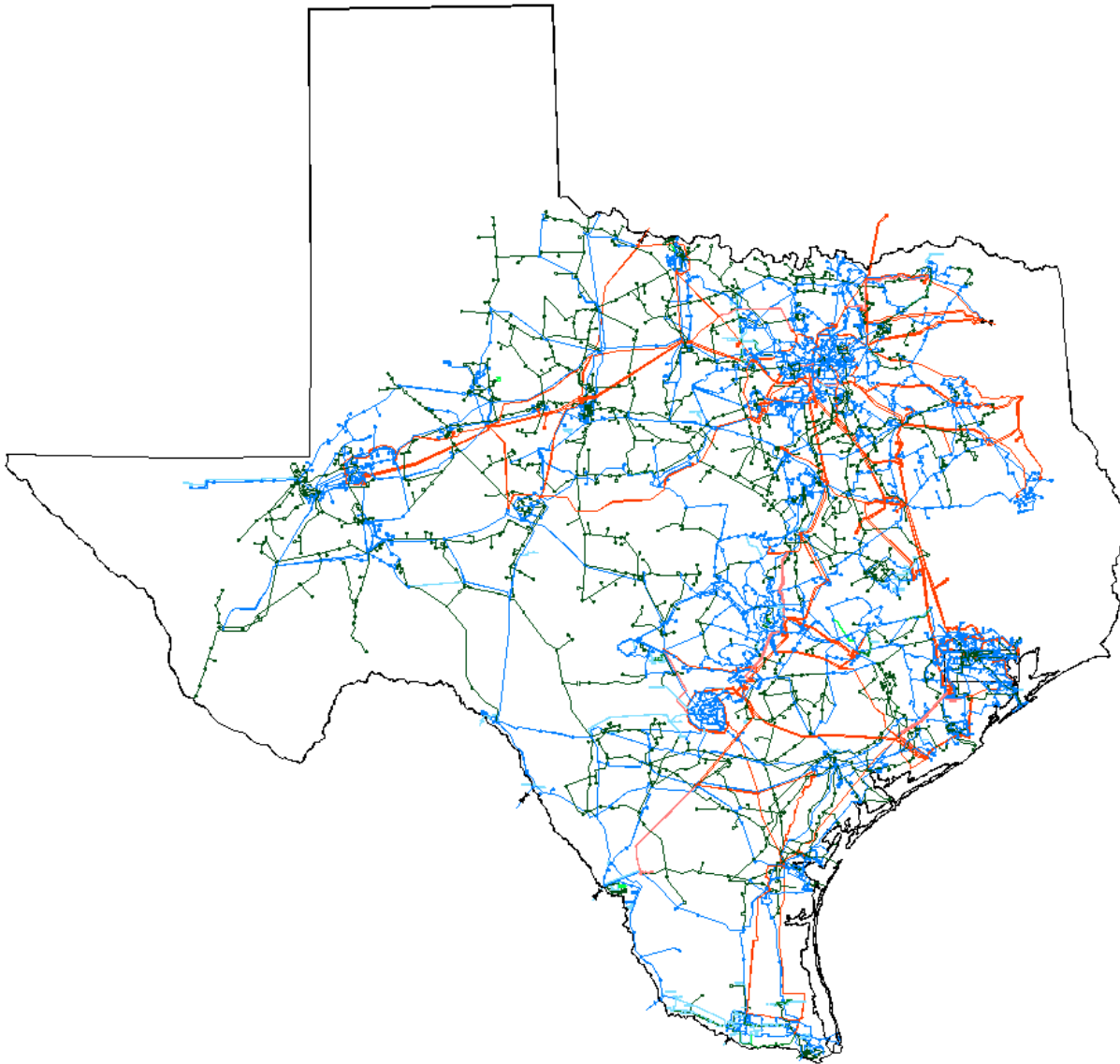




# Electric Reliability and Resource Adequacy Update

Senate Committee on Natural Resources  
Dallas, July 13, 2006

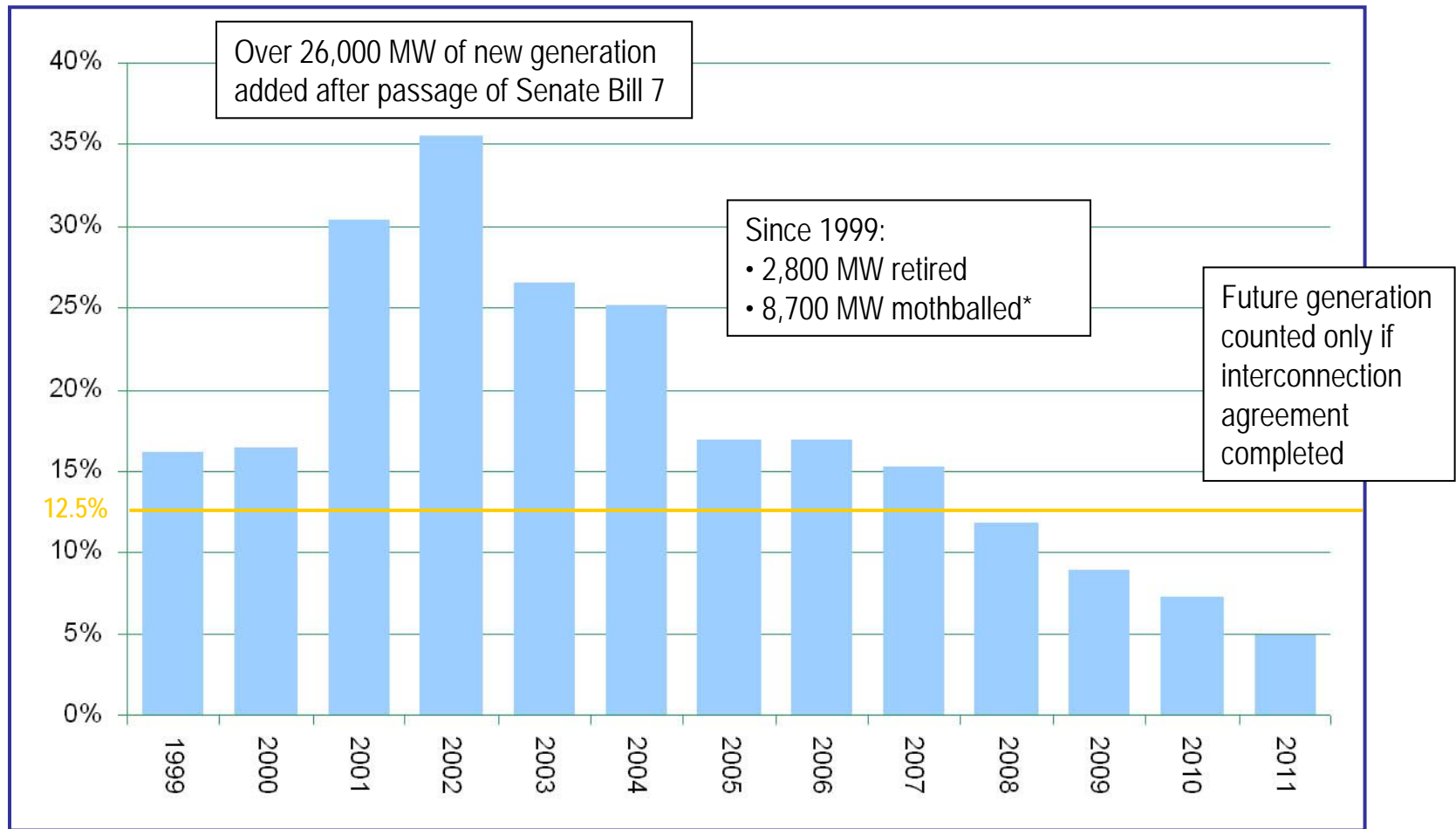
Sam Jones, Interim CEO  
Electric Reliability Council of Texas



- **ERCOT grid covers 75% of Texas land area and serves 85% of Texas load**
  - Assets are owned by transmission providers and generators, including municipal utilities and cooperatives
- **One of three interconnected grids in the U.S./Canada**
- **38,000 miles of transmission lines**
- **60,274 MW peak demand (set Aug. 23, 2005)**

- **Reserve margin is a forecast, revised annually**
- **Minimum reserve margin target for the ERCOT Region is 12.5%**
- **Defined as:**
  - Percentage difference between available generating capacity and forecasted peak system load
- **Ensures adequate electric supply will be available in case of contingency need**
  - Unexpected weather extremes or loss of major generation units
- **Available capacity includes:**
  - Available generation (wind is adjusted for availability during peaks)
  - Interruptible loads (typically large customers under contract to curtail if needed)
- **Load forecasting is based on an econometric model**
  - Long-term economic trends for Texas (income and population)
  - Highly weather-sensitive

# Reserve Margins



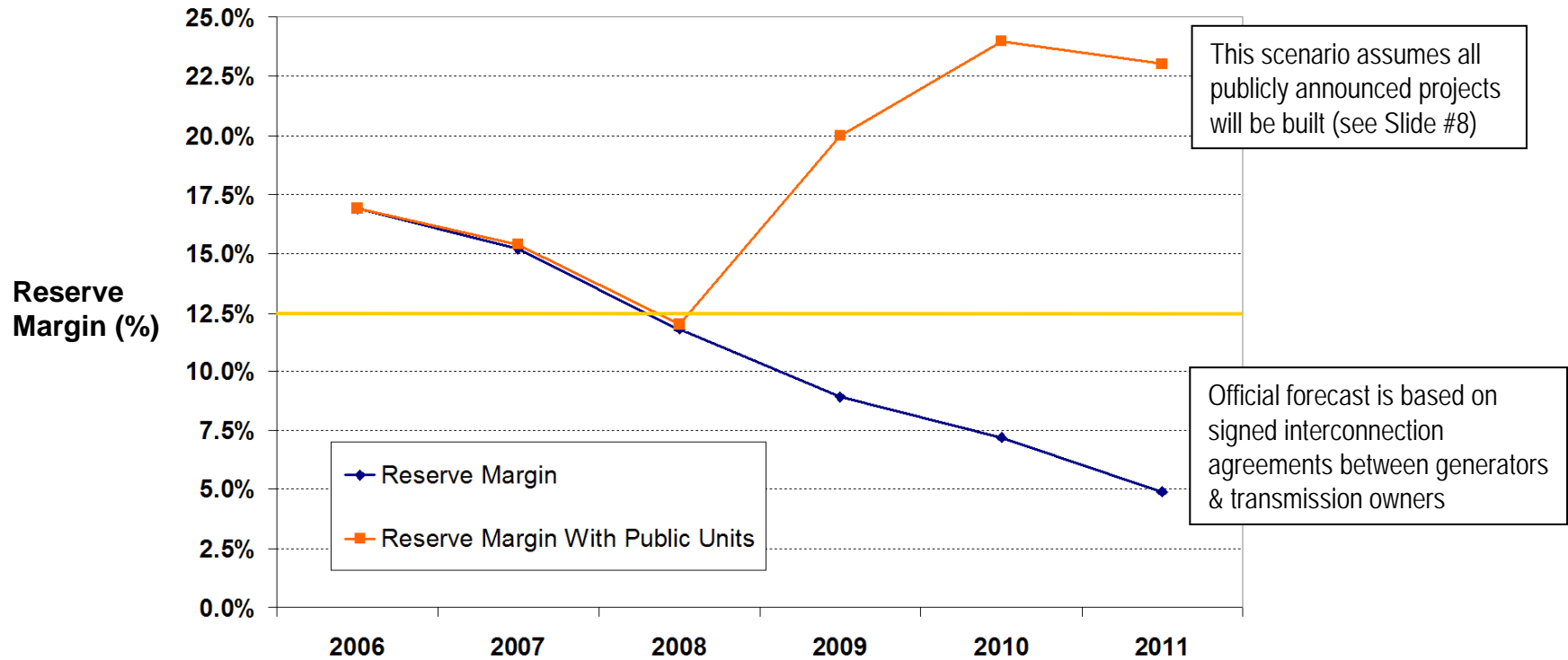
## Reserve Margins 1999-2011

Percentage difference between projections for peak demand and available generation/resources

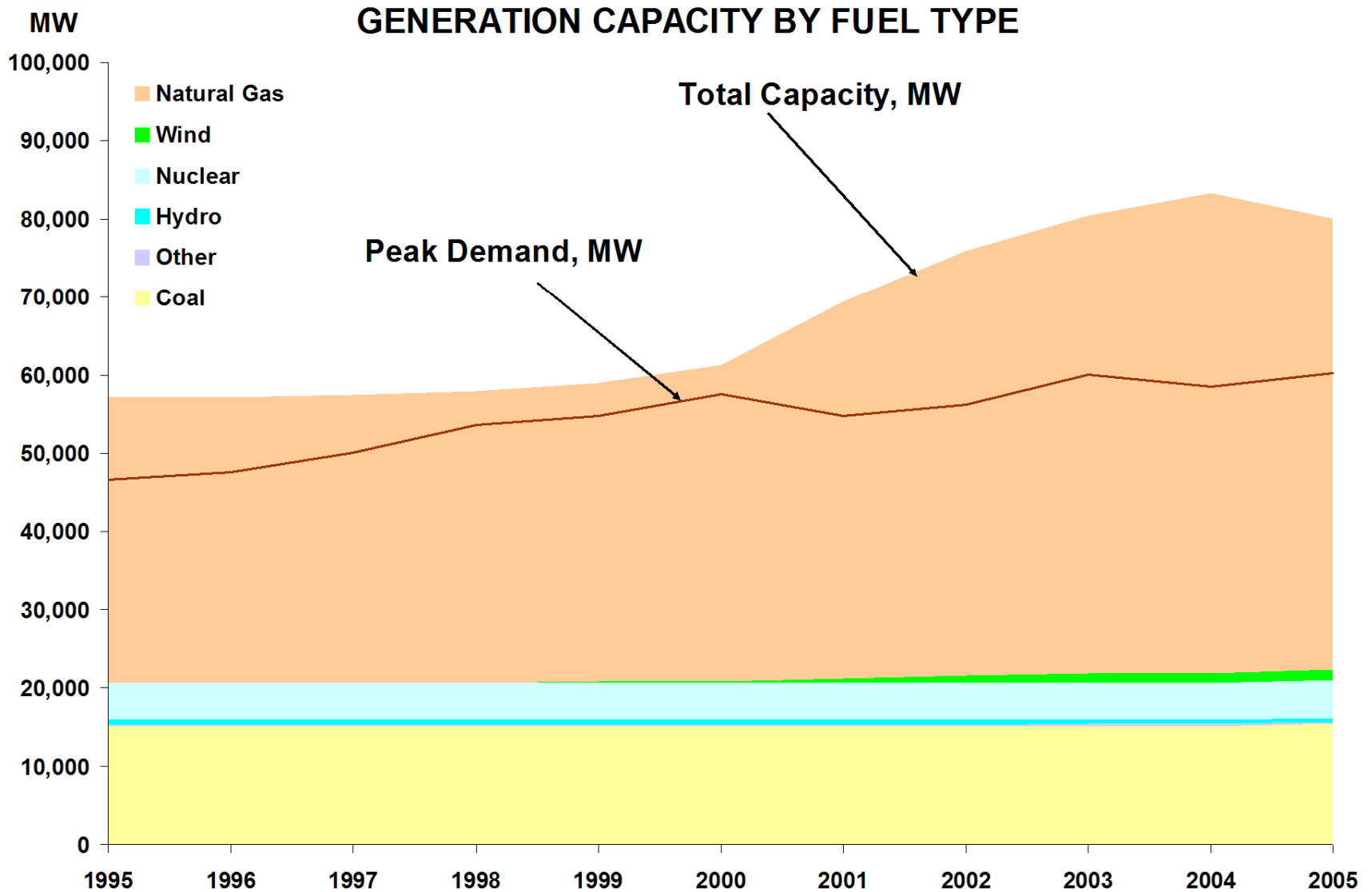
*\*1,100 MW of mothballed units have been returned to service*

# Reserve Margin with Publicly Announced Units Added

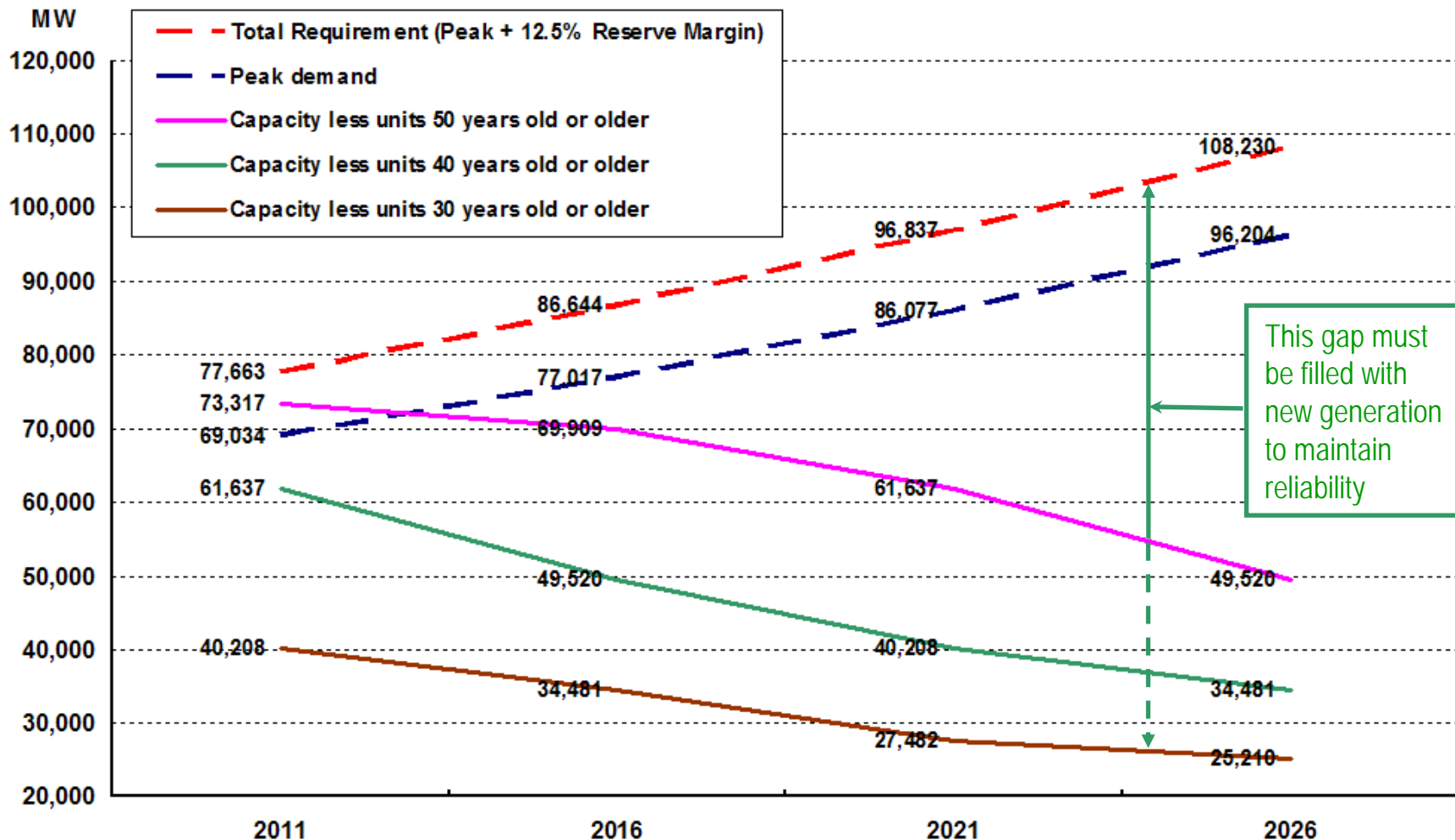
	2006	2007	2008	2009	2010	2011
Firm Load Forecast (MW):	60,544	62,110	63,206	64,838	66,436	67,922
Total Resources (MW):	70,756	71,573	70,690	70,628	71,205	71,242
<b>RESERVE MARGIN:</b>	<b>16.9%</b>	<b>15.2%</b>	<b>11.8%</b>	<b>8.9%</b>	<b>7.2%</b>	<b>4.9%</b>
Reserve Margin w/ Publicly Announced Thermal Units	16.9%	15.4%	12.0%	20.0%	24.0%	23.0%



# Fuel Mix and Peak Demand in the ERCOT Region



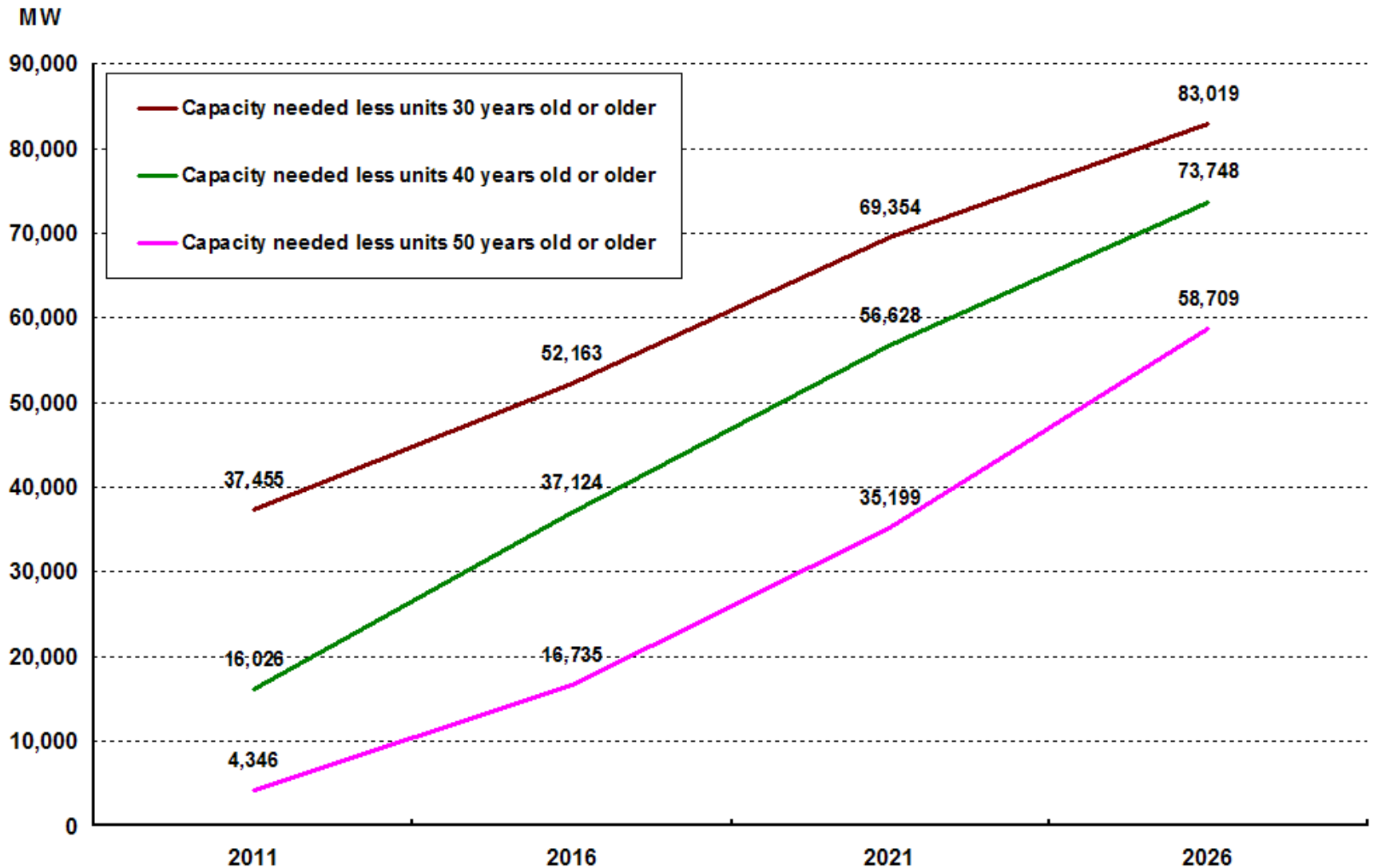
## ERCOT GENERATION CAPACITY AND DEMAND PROJECTIONS



This gap must be filled with new generation to maintain reliability

Generation units are typically retired after 30-50 years of service

## POSSIBLE ERCOT GENERATION CAPACITY NEEDED





# NEW Planned Generation in the ERCOT Region

Capacity in MW

Data as of June 14, 2006

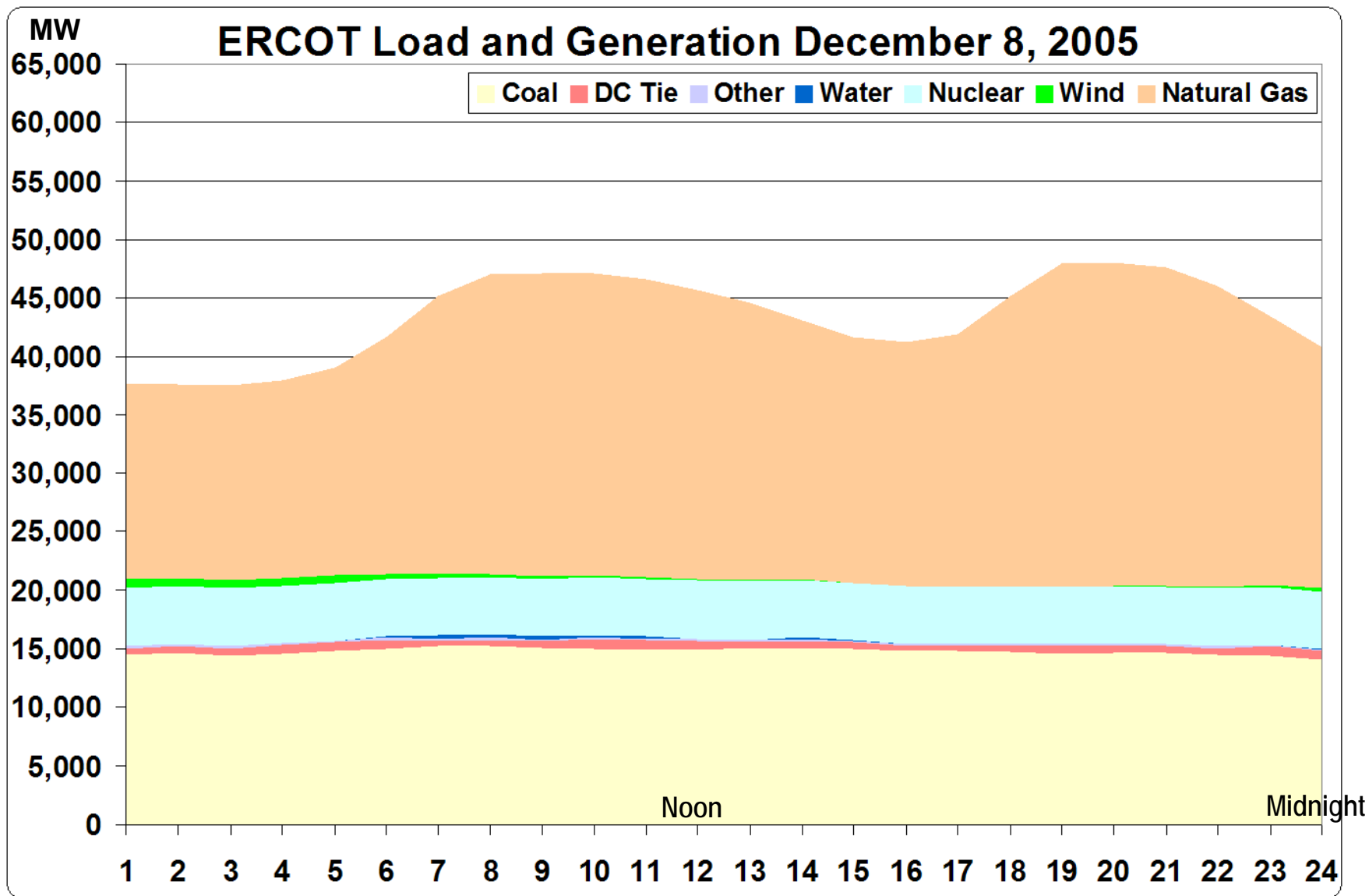
Includes projects under consideration or in planning that may or may not be built.

Fuel Source	Publicly Announced*	Non-Public*	Total*
<b>Natural Gas</b>	<b>2,300</b>	<b>3,900</b>	<b>6,200</b>
<b>Coal</b>	<b>11,245</b>	<b>3,992</b>	<b>15,237</b>
<b>Wind</b>	<b>3,175</b>	<b>10,608</b>	<b>13,783</b>
<b>Other</b>	<b>12</b>	<b>975</b>	<b>987</b>
<b>TOTALS</b>	<b>16,732</b>	<b>19,475</b>	<b>36,207</b>

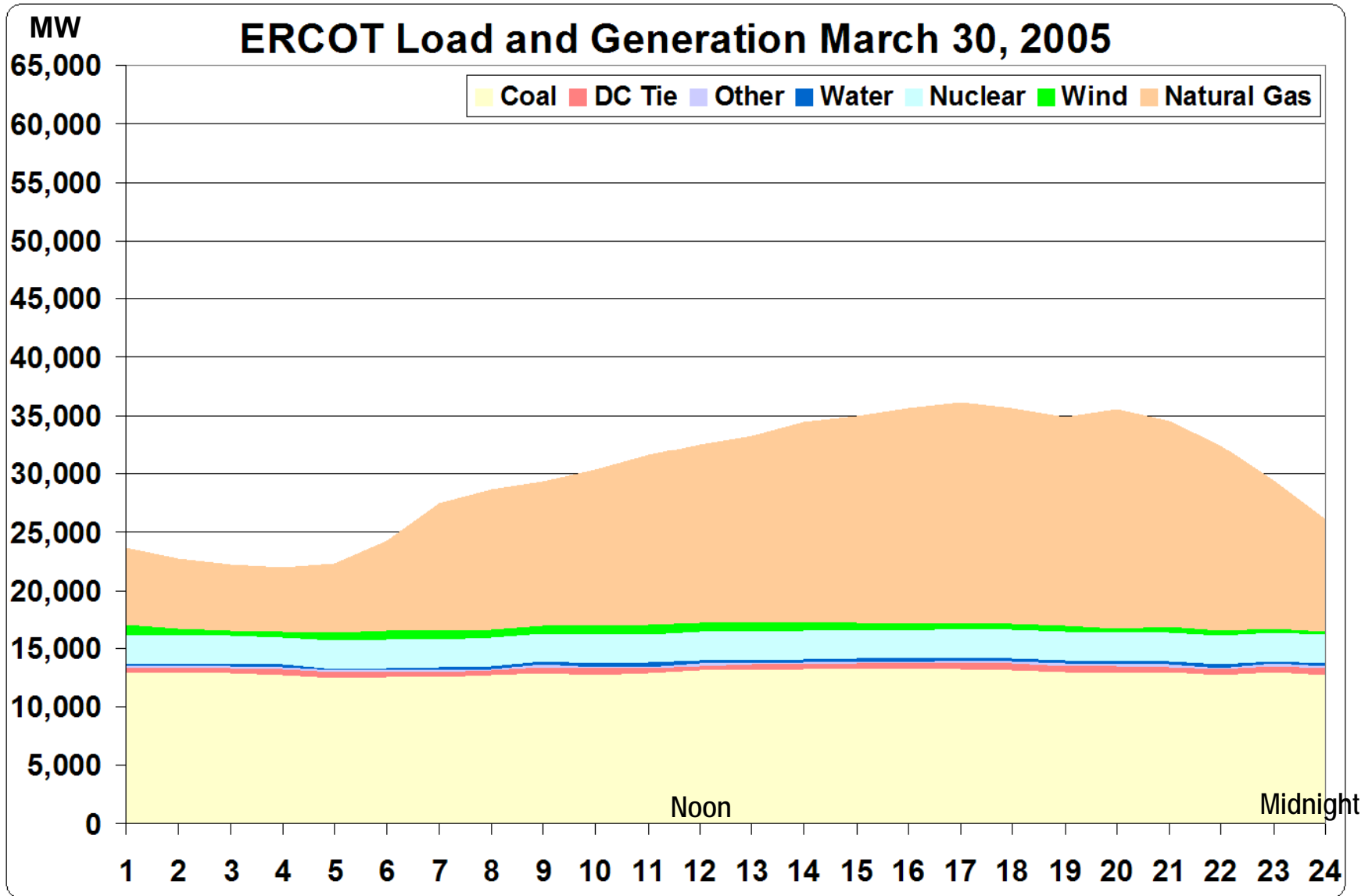
\* *Projects for which ERCOT has received a transmission interconnection request (excludes some announced projects such as nuclear and offshore wind which do not yet have interconnection requests on file).*

*Current resource availability in the ERCOT Region: 70,756 MW.*

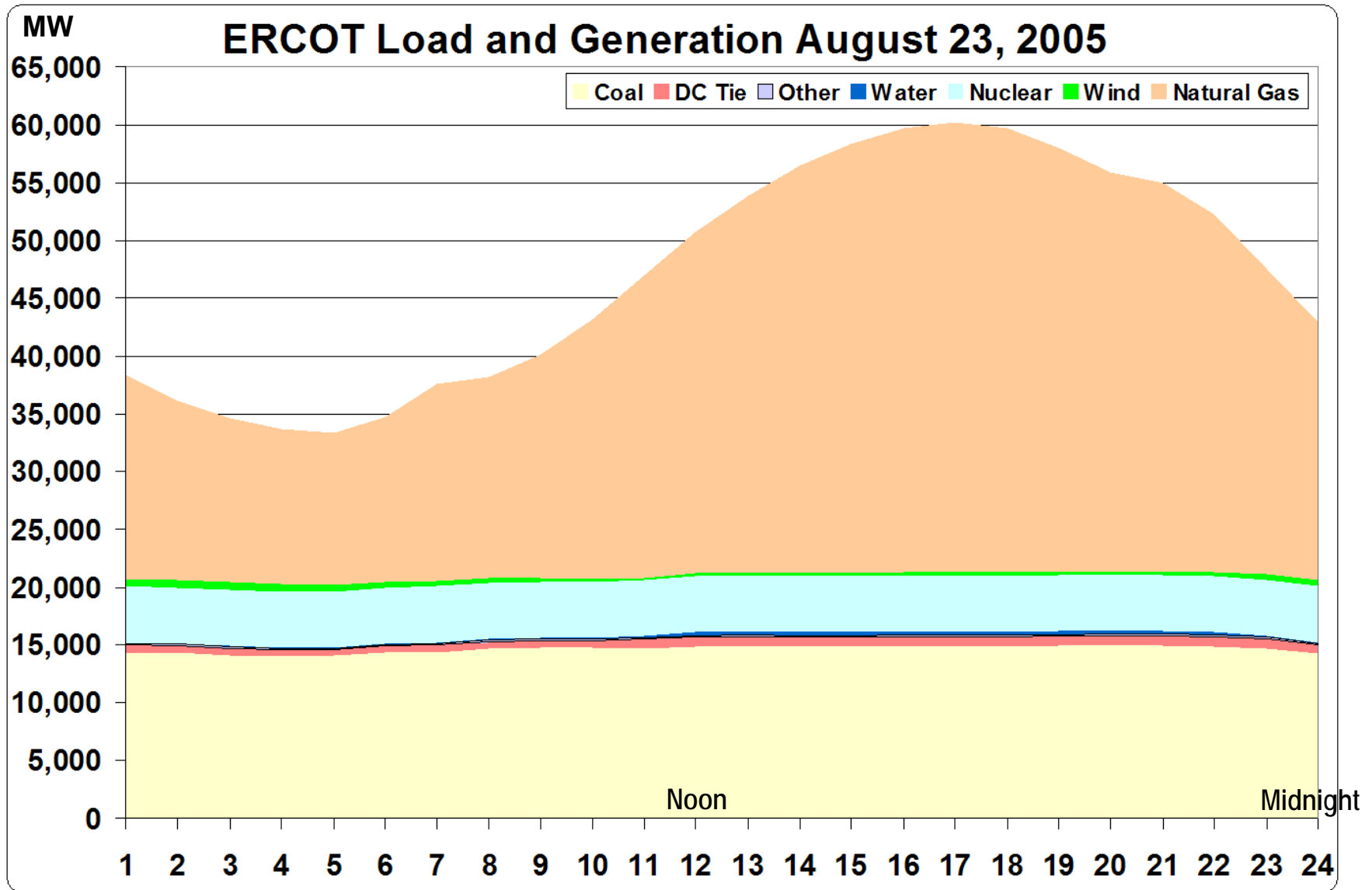
# Winter Day Load Shape with Fuel Mix



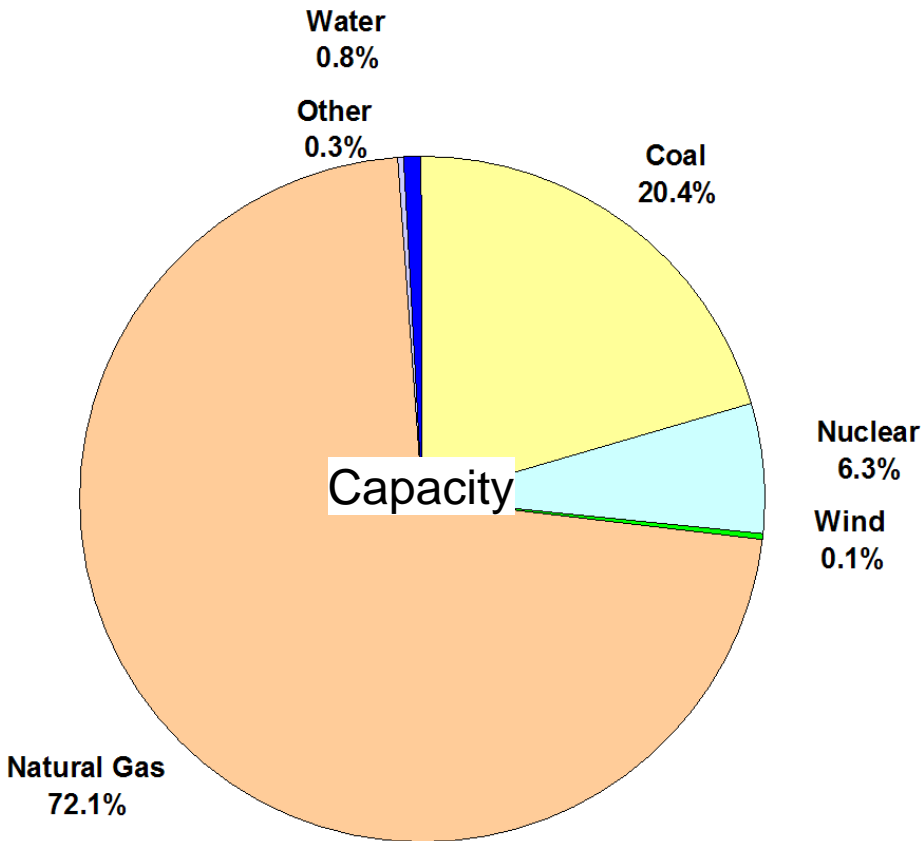
# Spring Day Load Shape with Fuel Mix



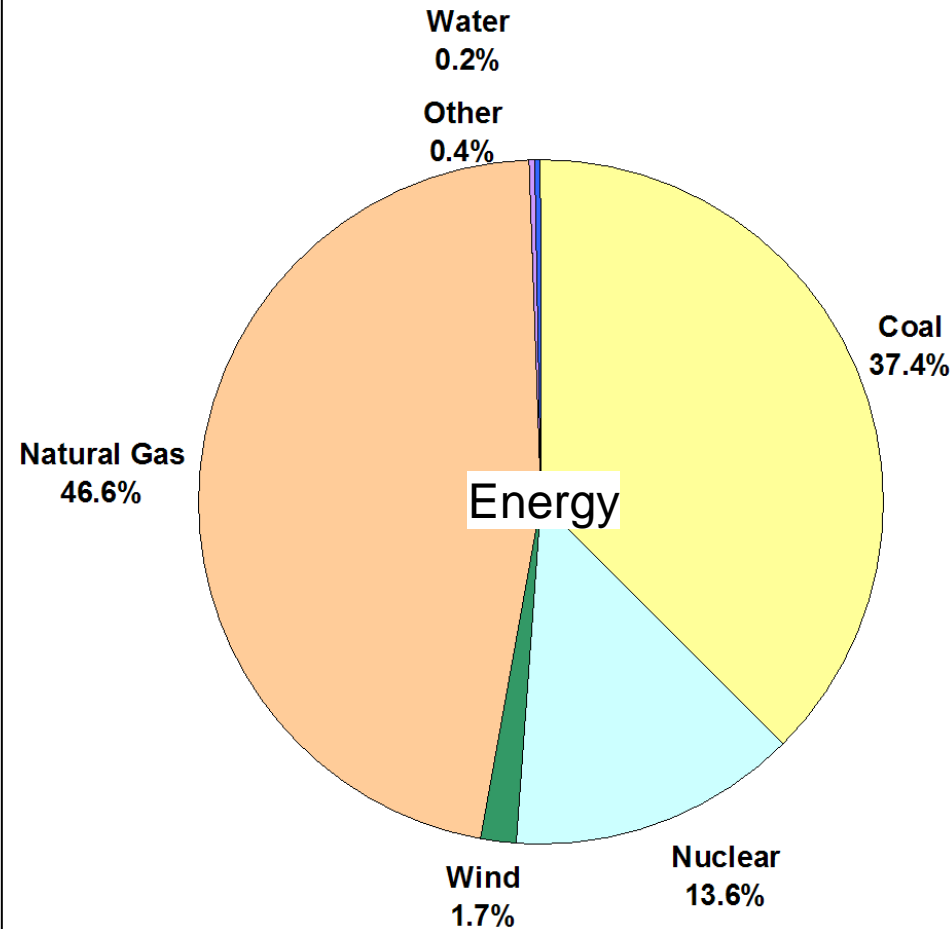
# Summer Day Load Shape with Fuel Mix



# Fuel Diversity: System Capacity vs. Energy Production



**Current ERCOT System  
Generation Capacity by Fuel Type**



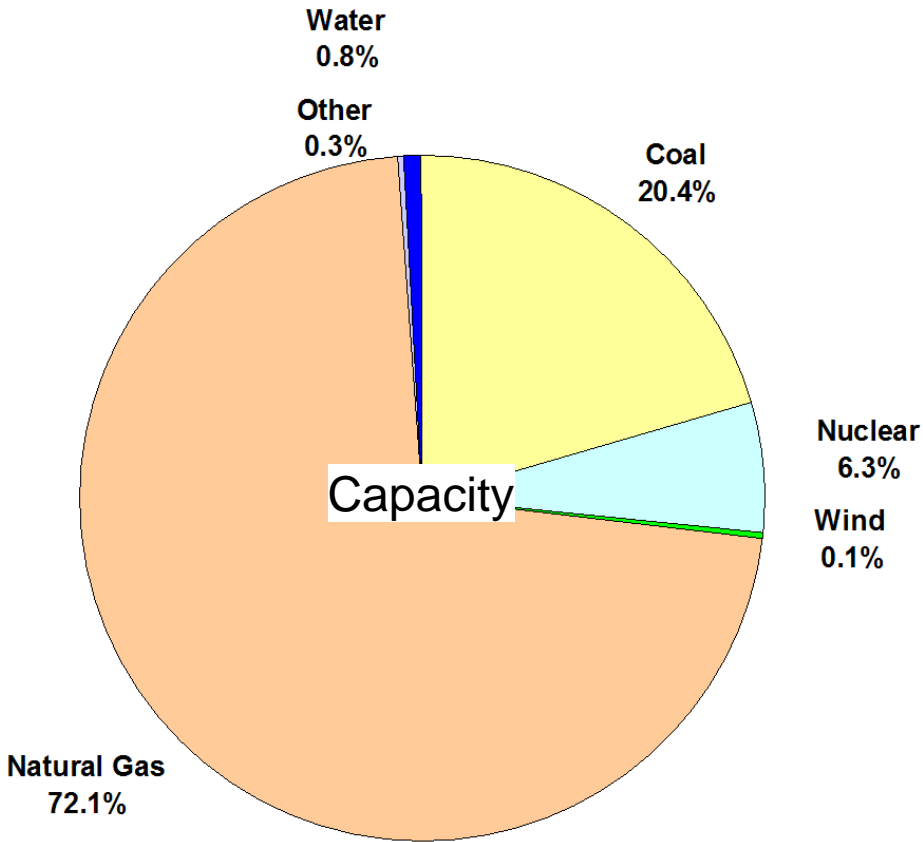
**Actual Electric Energy Production  
June 2005-May 2006**

# Fuel Diversity in the ERCOT Region

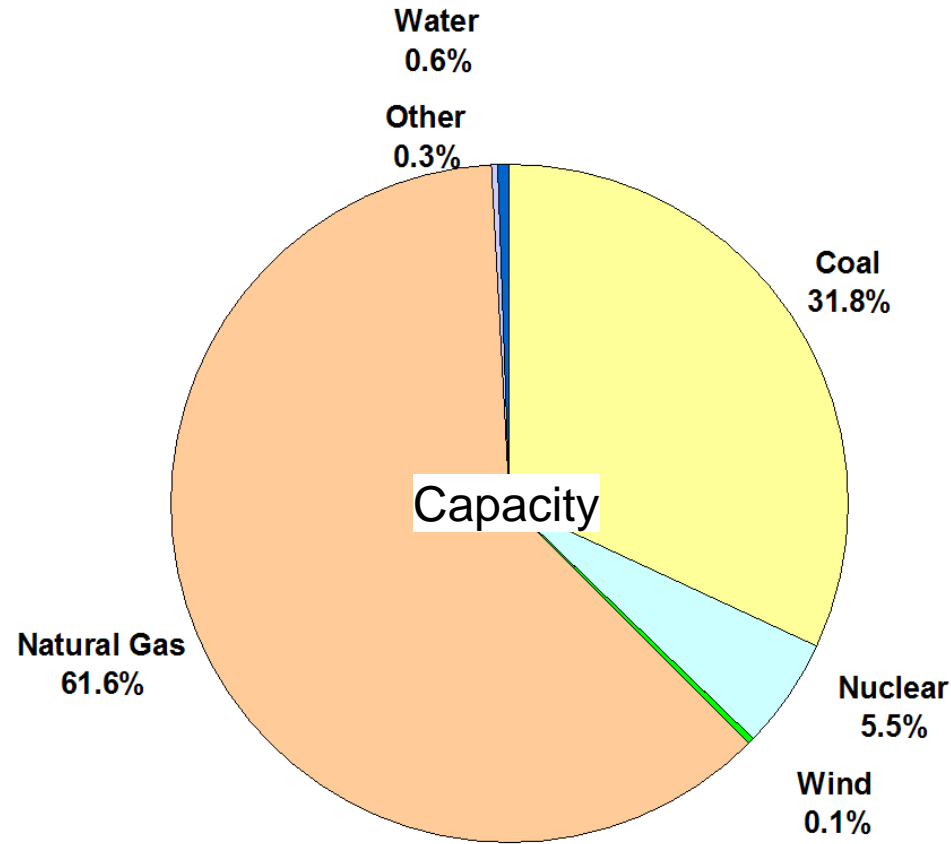
## Electric generation fuel sources

Fuel Source	% of total capacity (Current '06)	% of actual energy production (June '05 thru May '06)
<b>Natural Gas</b>	<b>72.1%</b>	<b>46.6%</b>
<b>Coal</b>	<b>20.4%</b>	<b>37.4%</b>
<b>Nuclear</b>	<b>6.3%</b>	<b>13.6%</b>
<b>Renewables</b>	<b>0.9%</b>	<b>1.9%</b>
<b>Other</b>	<b>0.3%</b>	<b>0.4%</b>

# System Capacity Today and in 2010

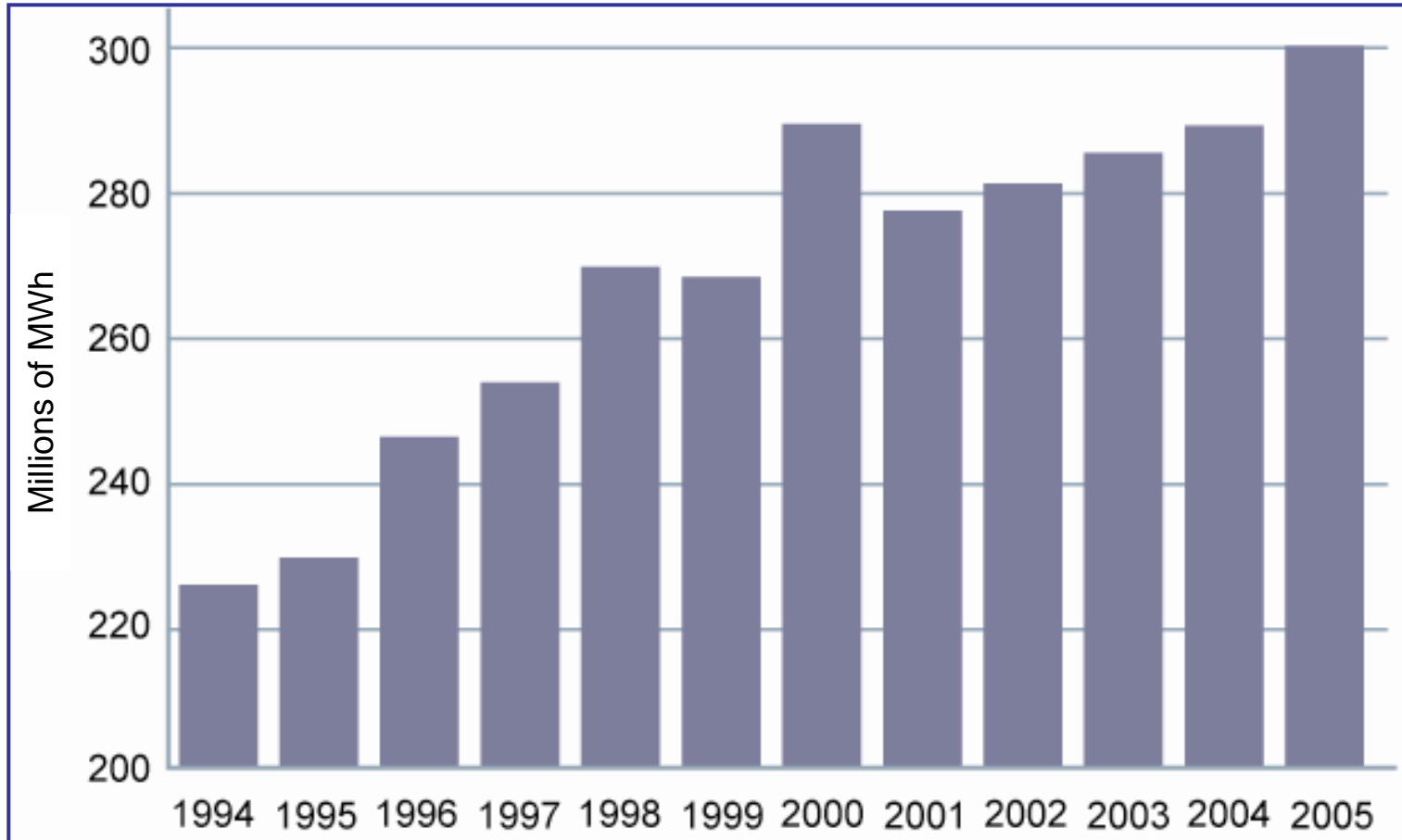


**Current ERCOT System  
Generation Capacity by Fuel Type**



**Projected Capacity in 2010 Based on  
Current Commitments of New Plants**

# Regional Growth: Electric Energy Consumption



Electric Energy Consumption in the ERCOT Region  
1994-2005 (Actual)



- **ERCOT projects a comfortable reserve margin through 2007**
- **Additional generation has been publicly announced but not yet confirmed with interconnection agreements**
- **New generation is essential to system reliability after 2007**
  - To accommodate load growth and offset probable retirements of older units
- **Region also needs additional fuel diversity**
  - To mitigate high dependence on natural gas
    - Currently vulnerable to supply disruption
    - Currently experiencing volatile pricing
- **Also valuable: additional load response (customers with ability and incentives to reduce load during peaks)**
  - ERCOT especially supports having additional load response tools available for emergency conditions



Electric Reliability Council of Texas

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