



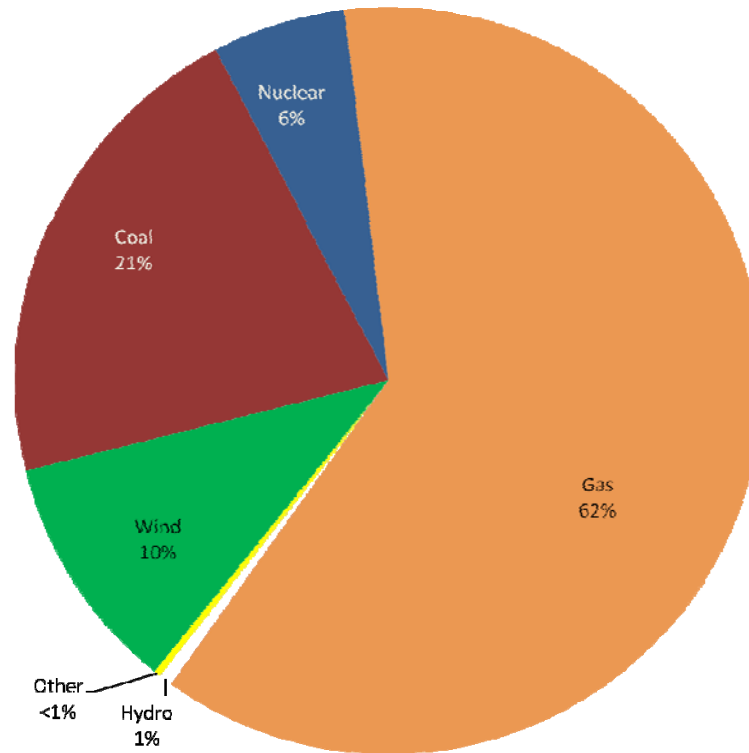
**ERCOT Testimony to Senate Business
& Commerce Committee,
Chairman John Carona**

August 24, 2010

**Trip Doggett
President & CEO**

Reliability and Generation Adequacy

Installed Capacity – by Fuel



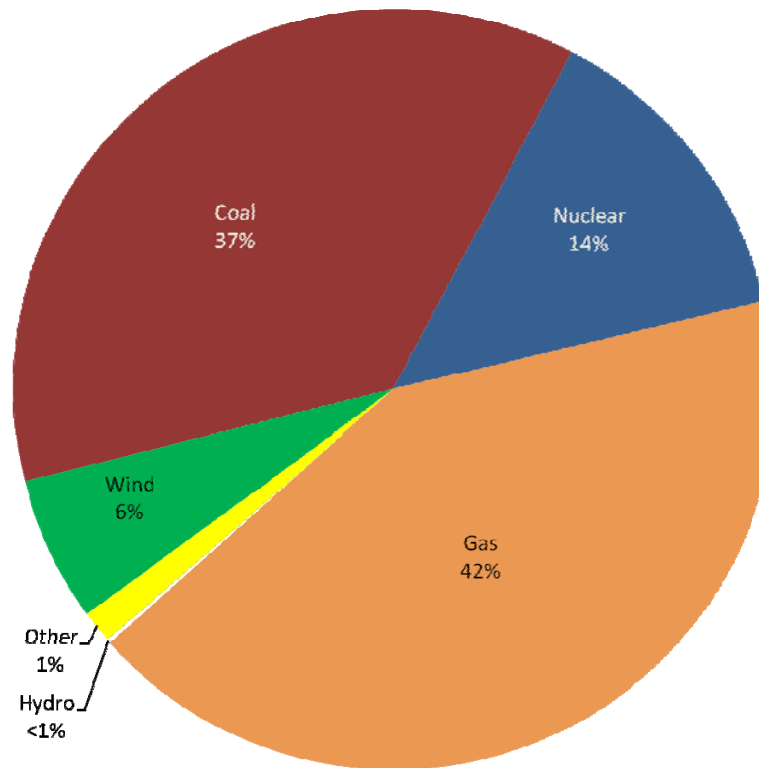
Example – Nuclear:

Installed Nuclear capacity = 5,091 MW

Total capacity = 81,626 MW

$$5,091/81,626 = 6\%$$

2009 Energy Actually Produced - by Fuel



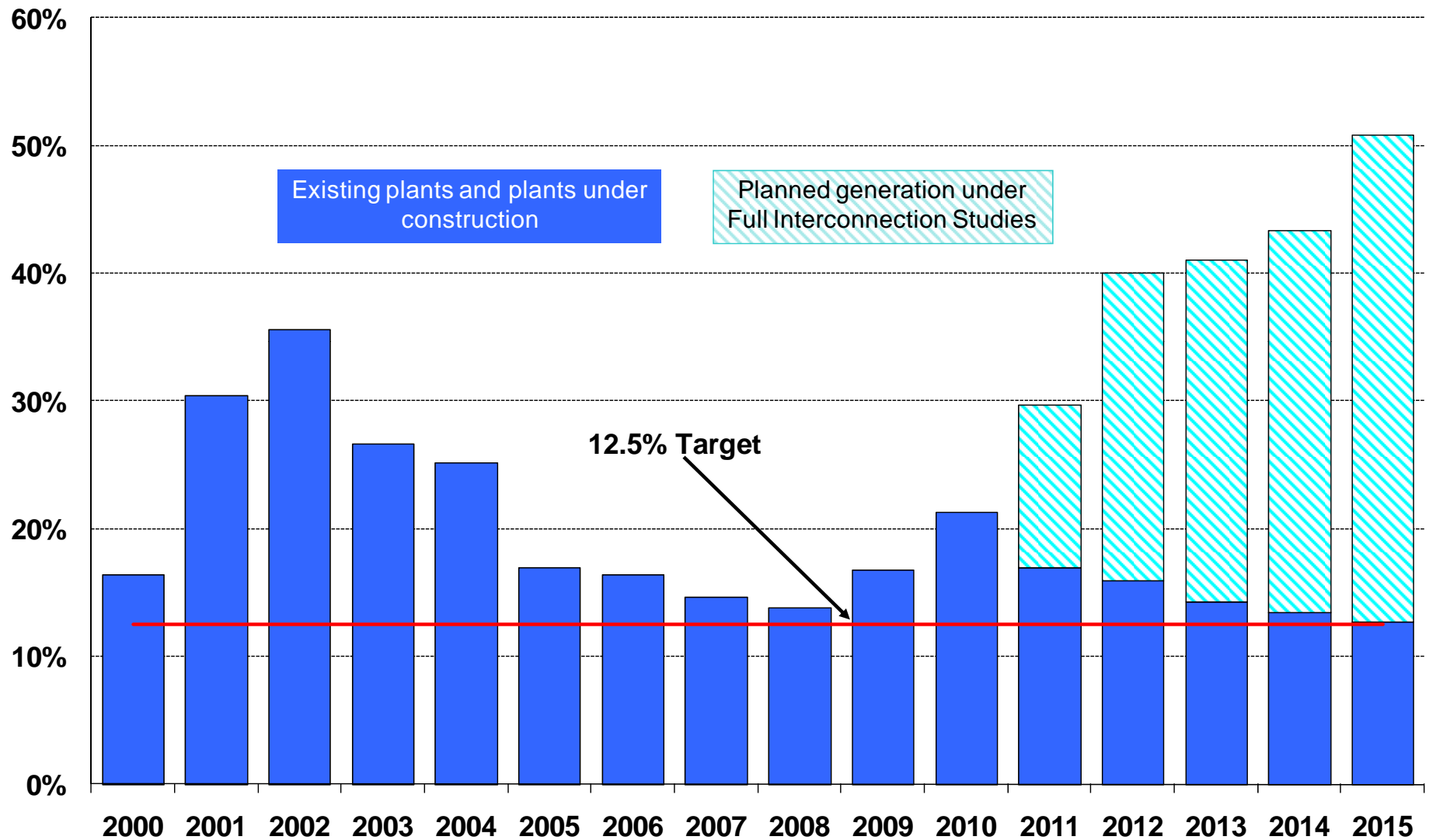
Example – Nuclear:

Nuclear energy produced in 2009 = 41,559,723 MWH

Total energy produced in 2009 = 305,432,222 MWH

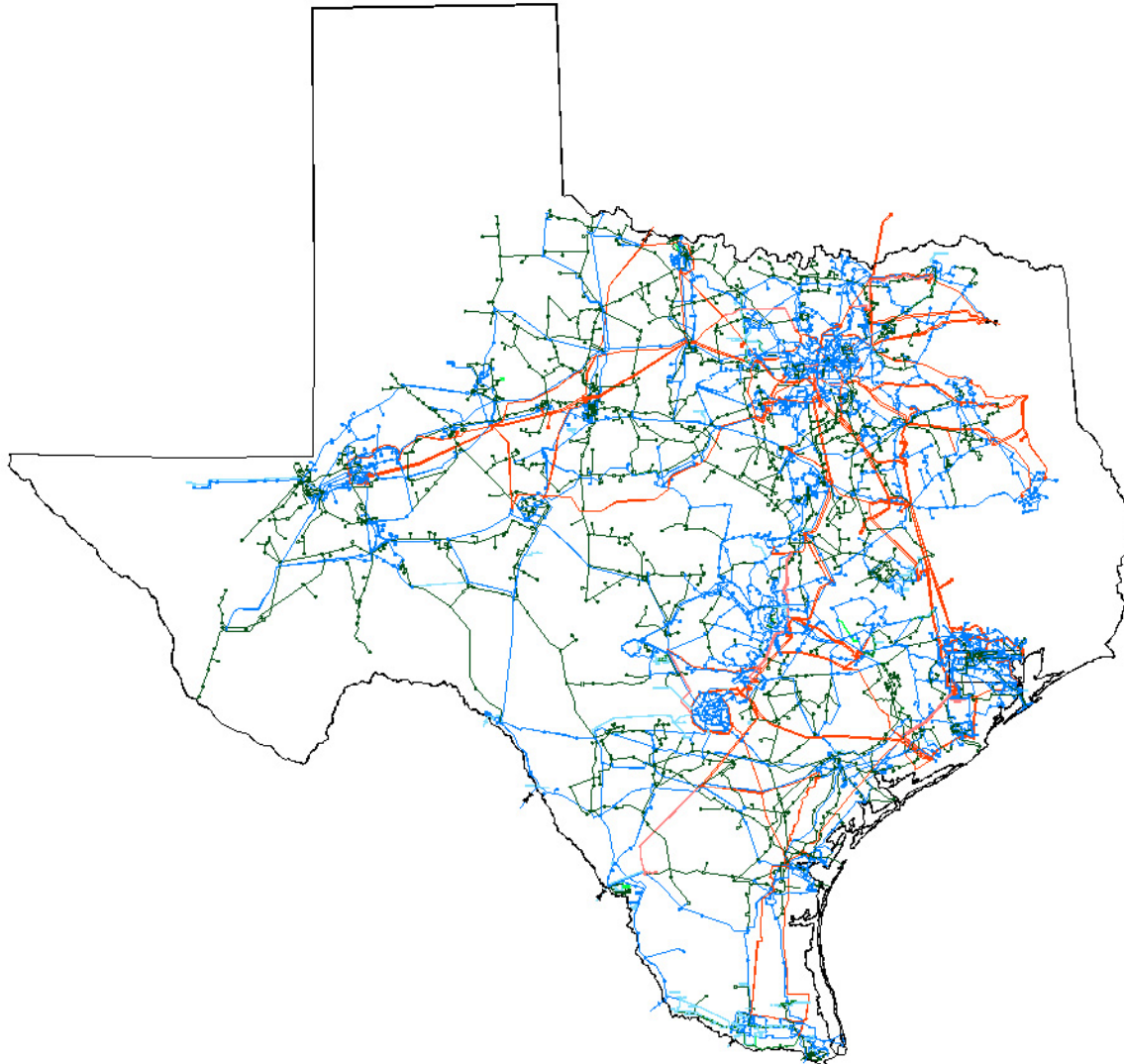
$$41,559,723/305,432,222 = 13.6\%$$

Reserve Margins for Years 2000 through 2015



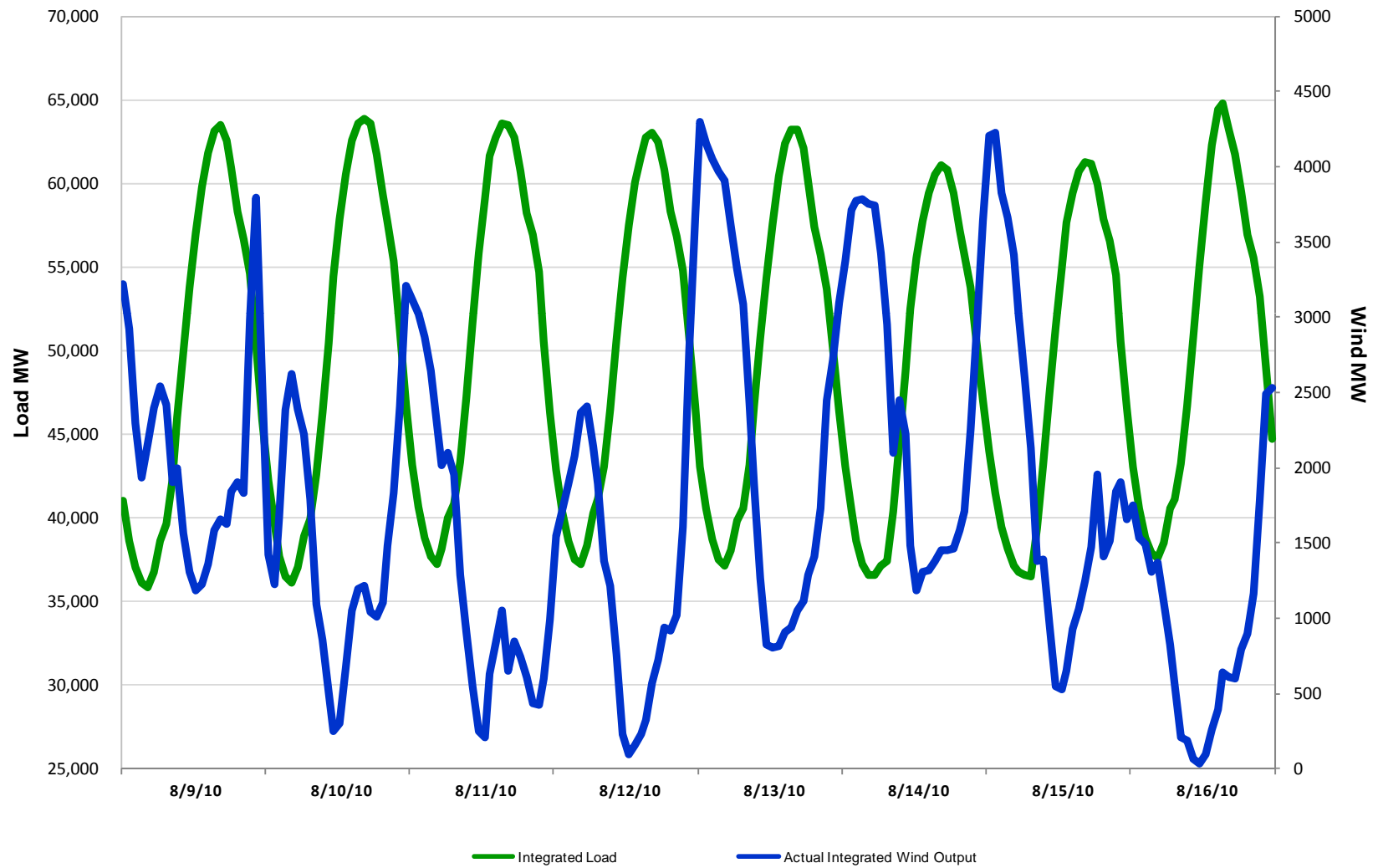
The ERCOT Transmission Grid

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



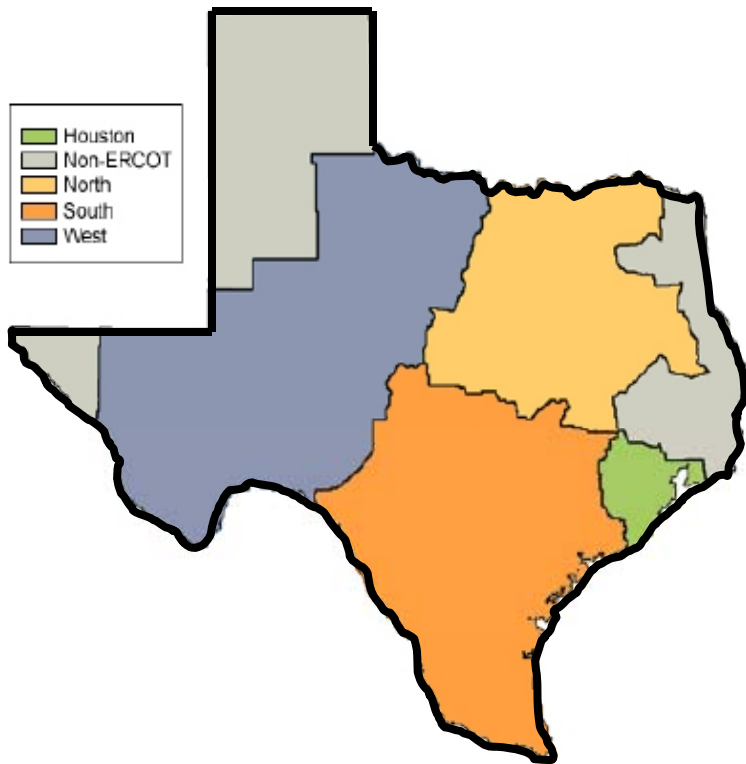
- 8,917 Miles of 345kV Lines
- 19,748 Miles of 138kV Lines
- 6,593 circuit miles of transmission built since 1999
- 5,729 circuit miles of transmission under study
- \$4.4 b investment in transmission placed in service since 1999
- \$8.2 b under development (including CREZ transmission)

Challenge of Following Wind Variability

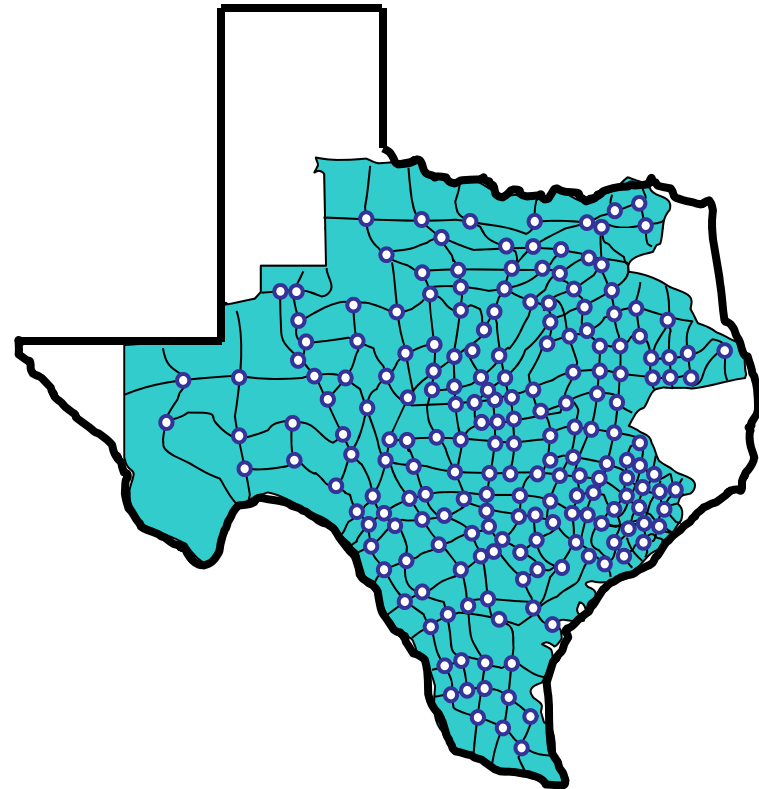


Transition to Nodal Market

ERCOT Zonal



ERCOT Nodal



Benefits of a Nodal market

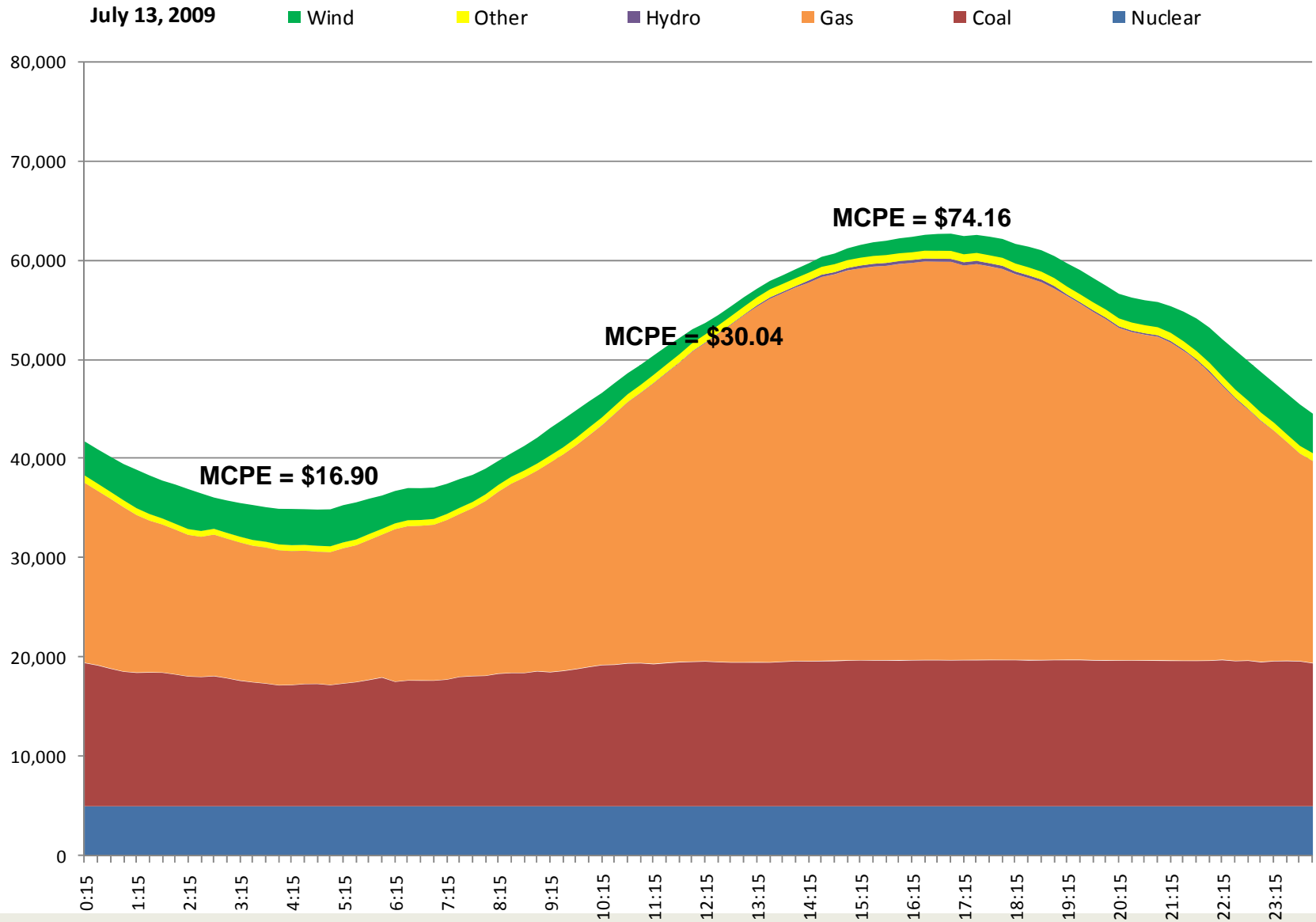
- **Precise market-based pricing of generation**
- **More granular price signals**
- **Encourage resource competition**
 - *Nodal prices send proper price signals to encourage additional generation and/or transmission investment in proper locations.*
- **More accurate management of congestion**
 - *More accurate unit information. Market model and operations model are more consistent than current structure.*

Smart Grid, Plug-in Electric Vehicles and Energy Efficiency

Smart Grid from the ISO perspective

- **Smart Grid generally represents:**
 - An array of modern, primarily digital upgrades to the electric system
 - Goals:
 - Saving energy – “shaving the peak”
 - Reducing cost
 - Improving reliability, efficiency and transparency.
- **Smart Grid upgrades may be driven by policy initiatives or implemented by utilities, market participants and ISOs as part of their natural course of business**

Generation Output by Fuel – Summer Peak Day



Load Participation in ERCOT

Today



Resource Type	Service	Requirements
Voluntary Load Response (VLR)	Curtailment or reduction in response to Market Price or other factors	<ul style="list-style-type: none"> • Metering • Curtailment technology • Retail contract with price response incentives
Load Acting as a Resource (Laar)	Responsive Reserves	<ul style="list-style-type: none"> • Interval metering • Telemetry • Curtailment technology • ERCOT Qualification
Emergency Interruptible Load Service (EILS)	Curtailment in response to ERCOT Verbal Dispatch (10 minutes)	<ul style="list-style-type: none"> • Interval metering • Curtailment technology • ERCOT Qualification

Nodal Market



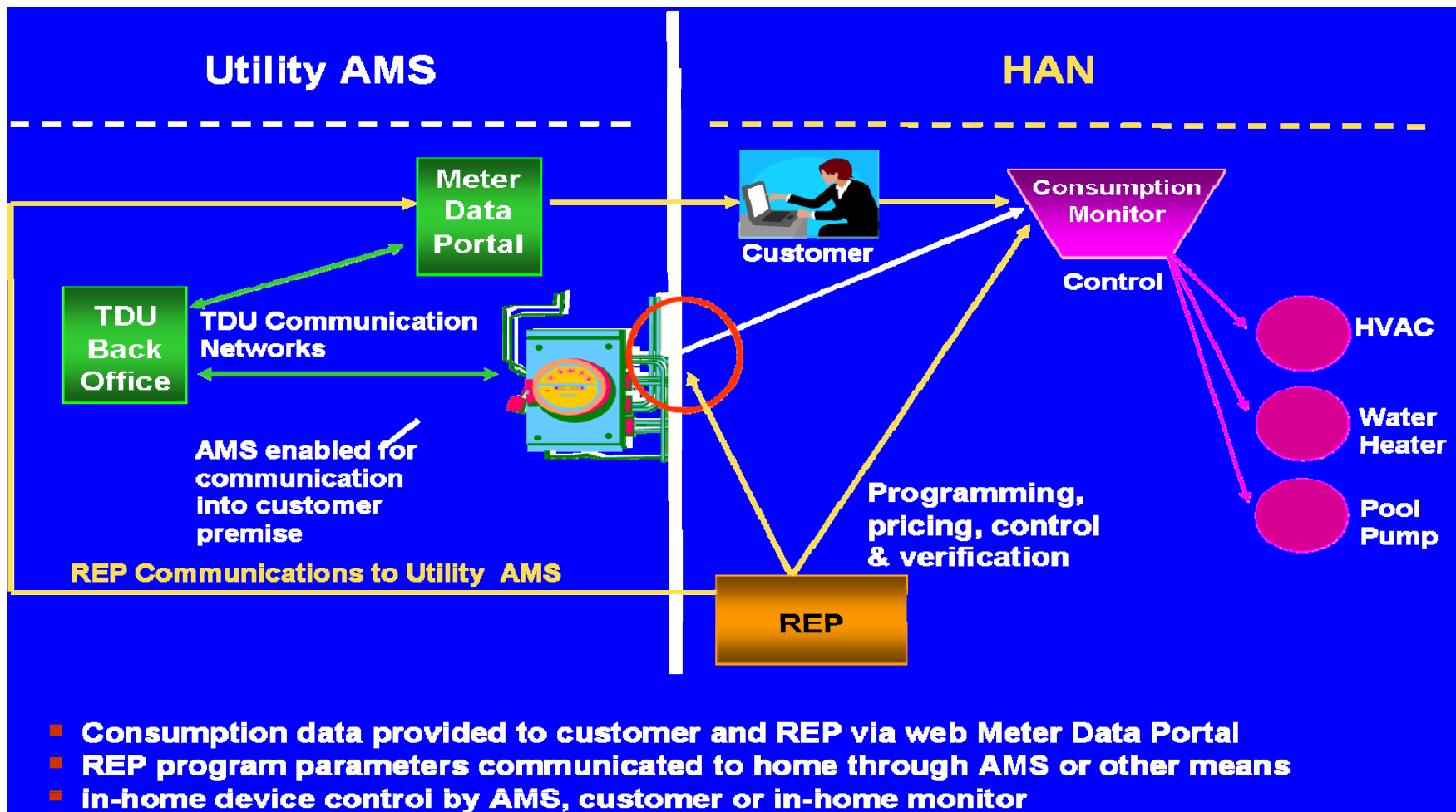
All of the above PLUS additional opportunities for:		
Controllable Load Resources (CLRs)	Regulation Service Responsive Reserves	<ul style="list-style-type: none"> • Interval metering • Telemetry • Ability to receive AGC-type signals • Governor-type response • ERCOT Qualification

Future?



All of the above PLUS :		
Load Participation in Security-Constrained Economic Dispatch	Real-Time Energy Market and all Ancillary Services	<ul style="list-style-type: none"> • To be determined • Loads would submit DR energy offer curves to compete with generation in the energy market

Future Potential Envisioned with Advanced Meters



Plug-in Electric Vehicles



- **ERCOT and the other ISOs are actively preparing for a migration of a significant segment of the transportation sector from liquid fuels to electric power**
- **Many opportunities but also challenges**
- **Goals of study**
 - Work with policymakers and market participants to encourage “smart charging” incentives for PEV owners
 - Dynamic pricing to encourage smart charging
 - Emergency demand response
 - Enhanced aggregation – working with PEV aggregators to ensure efficient scheduling of charging load during off-peak hours
 - Evaluate possibility of PEV participation in ISO-RTO markets (ancillary services, etc.)
 - Project early adoption rates by region -- which areas of the country will be most likely impacted by early adopters?



- **Huge investments in energy efficiency are underway across the country**
- **ERCOT Planning dept. is integrating new tools into long-term load forecasting to account for this influx of EE**
 - Confidence of financial community in ERCOT forecasts is crucial for ensuring long-term resource adequacy