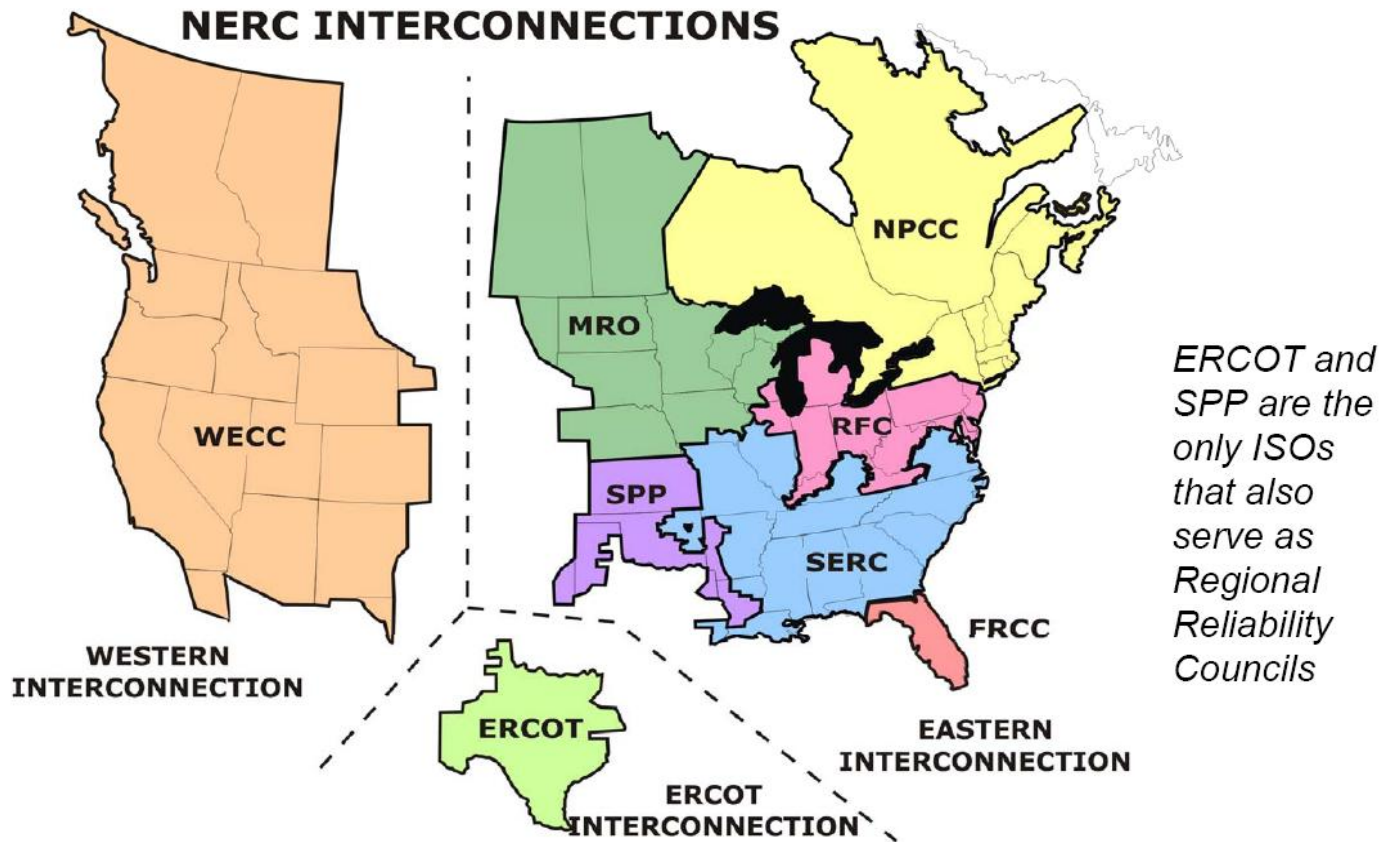


# Senate Business and Commerce Committee

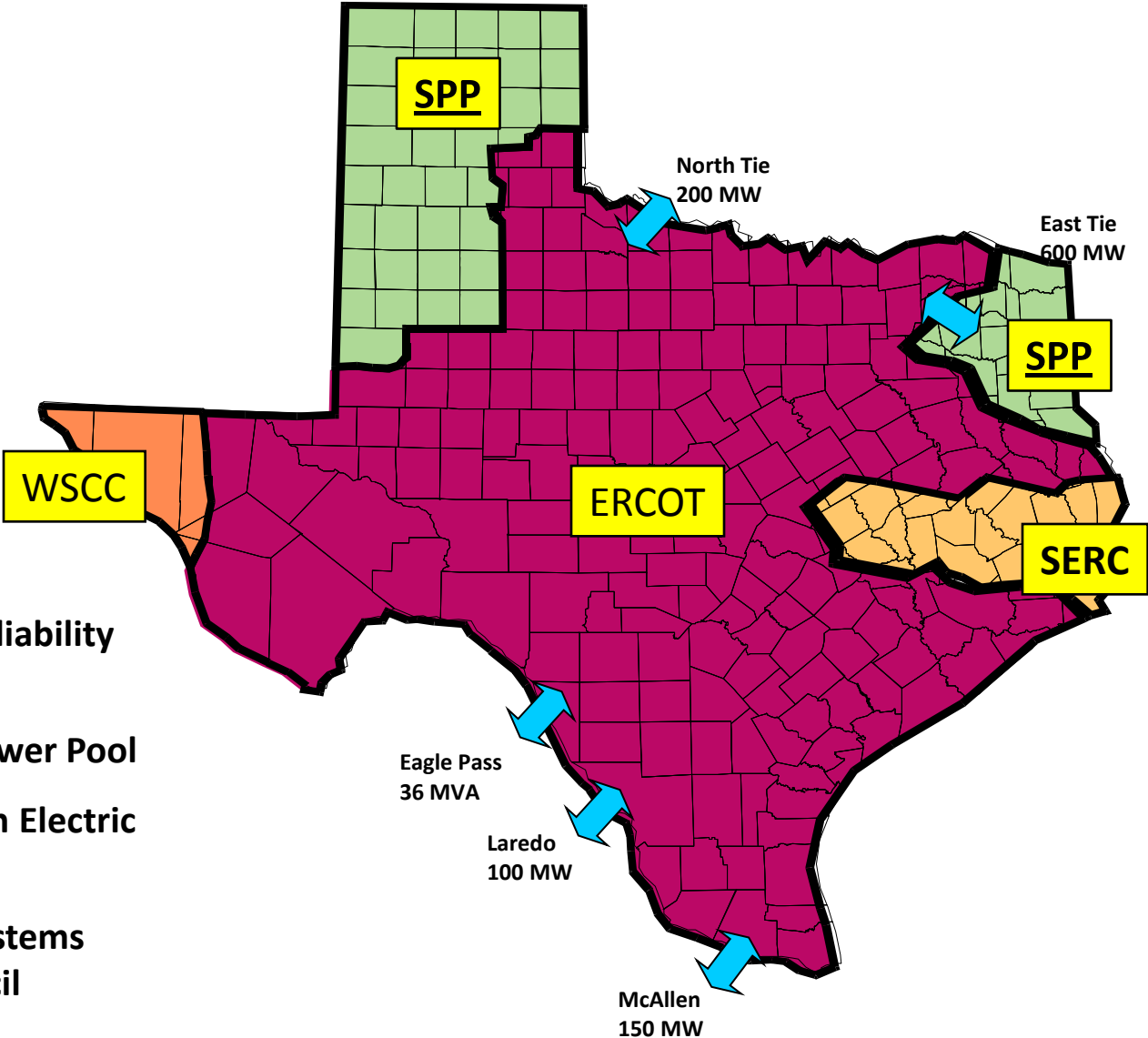
Chairman Barry Smitherman  
Public Utility Commission of Texas  
August 24, 2010

# There are three electric grids in the U.S. - the Eastern Interconnection, the Western Interconnection, and the Electric Reliability Council of Texas (ERCOT)



# Texas Electric Market

## A Puzzle with Four Pieces



ERCOT – Electric Reliability Council of Texas

SPP - Southwest Power Pool

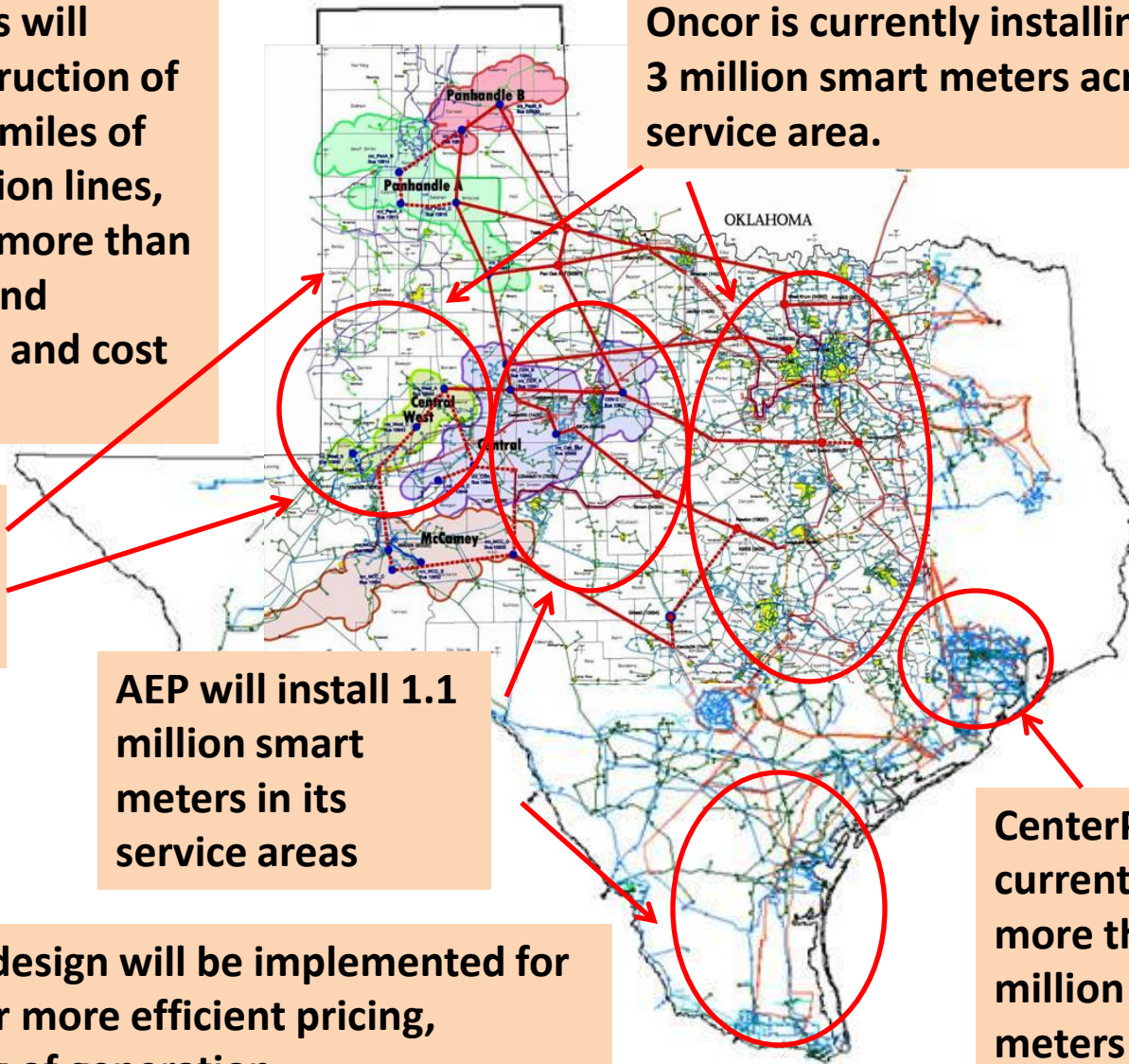
SERC - Southeastern Electric Reliability Council

WSCC - Western Systems Coordinating Council

# Building the Grid of the Future in ERCOT

The CREZ projects will involve the construction of more than 2,300 miles of 345 kV transmission lines, enable a total of more than 18,000 MW of wind capacity in Texas, and cost nearly \$5 billion

Oncor is currently installing more than 3 million smart meters across its service area.



Area of best wind generation in Texas

AEP will install 1.1 million smart meters in its service areas

CenterPoint is currently installing more than 2 million smart meters in its service area.

The nodal market design will be implemented for ERCOT, allowing for more efficient pricing, dispatch, and siting of generation

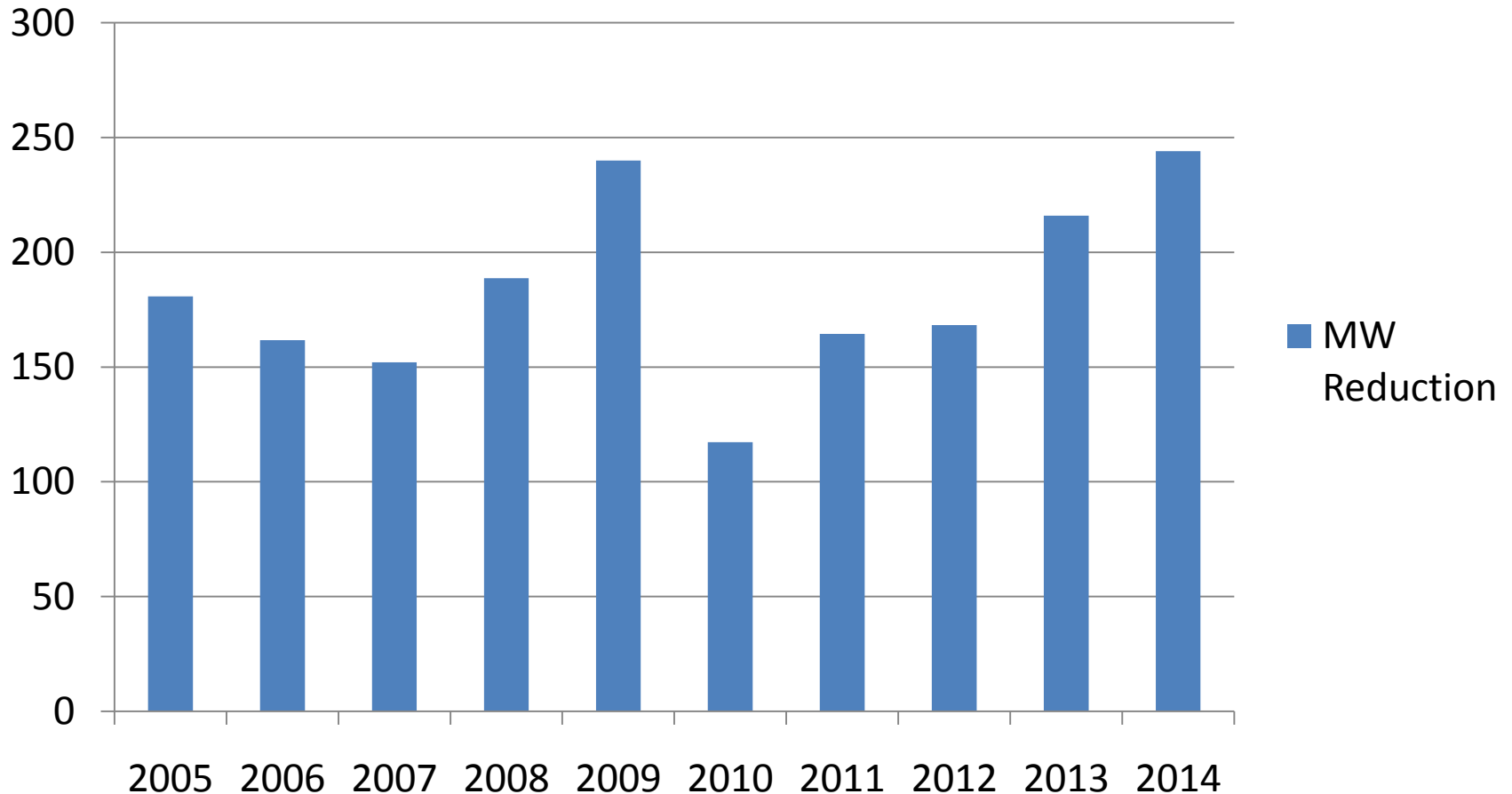
# Smart Grid Implementation

- As of July 31, 2010, over 1,700,000 smart meters have been deployed in ERCOT. Over 6 million smart meters will be deployed by the end of 2013.
- The joint web portal, [www.smartmetertexas.com](http://www.smartmetertexas.com), is used by consumers, REPs, and TDUs to track and manage energy use.
- Smart meters help to increase reliability of the grid by allowing utilities to know exactly where and when outages occur.
- Consumers can use the information provided by smart meters to help reduce their energy use and take part in new pricing or demand response programs.
- Several REPs are offering products and services that utilize smart meter functionality, such as energy monitoring, time-of-use pricing, or pre-paid service.
- Smart grid concepts also include technologies such as energy storage, which would help smooth the variability of renewable resources and provide increased capacity utilization.
  - Electric Transmission Texas operates a 4 MW battery in Presidio, which is at the end of a radial line and often sees outages.
  - A Power Storage Working Group was developed at ERCOT and is looking at issues involved with operating storage in the Texas market.

# Energy Efficiency

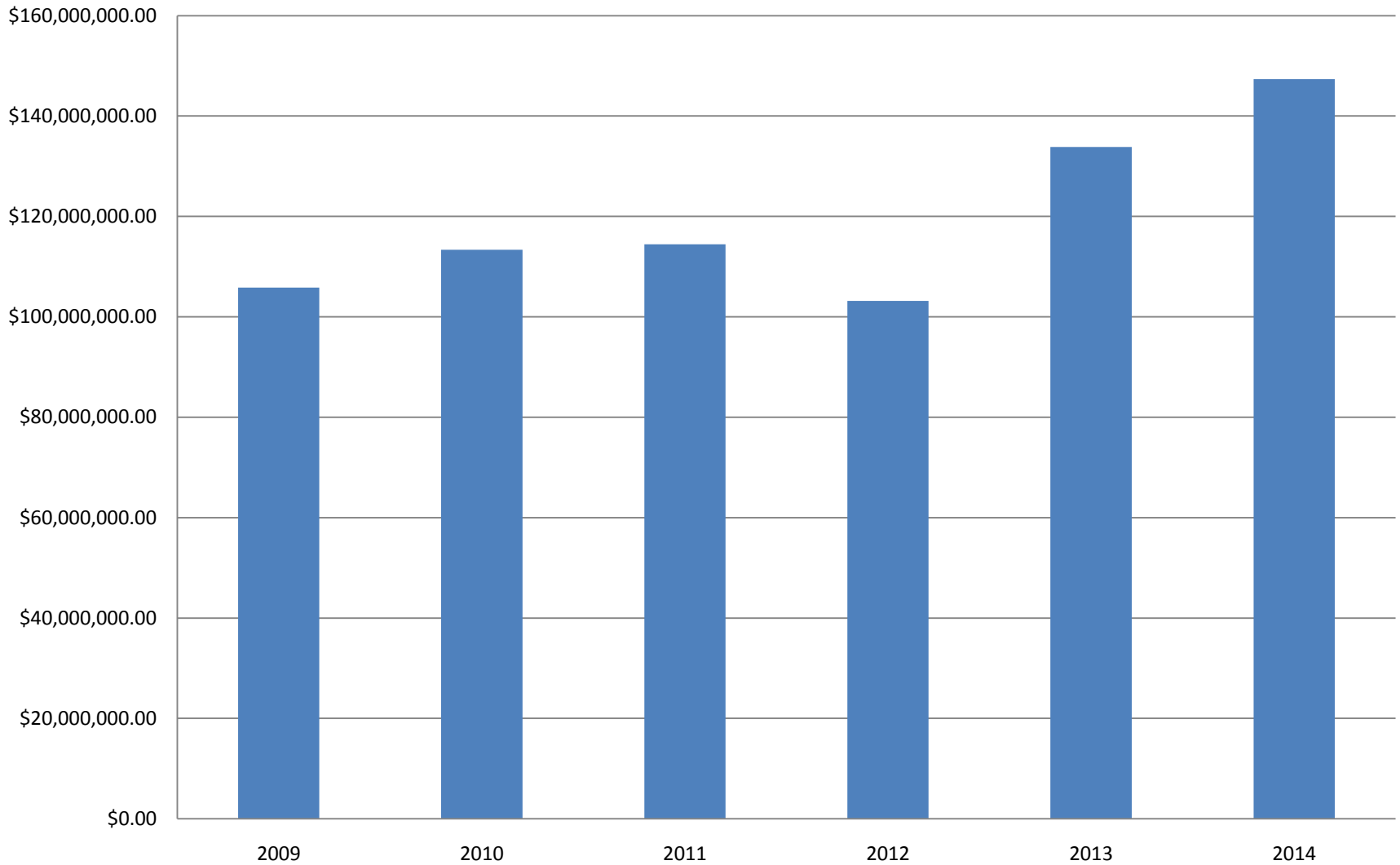
- The Commission recently strengthened energy efficiency requirements in Texas.
- The approved rule:
  - Requires utilities to acquire cost effective energy efficiency for residential and commercial customers equal to 25% (up from 20%) of the electric utility's annual growth in demand by program year 2012,
  - Requires 30% of the utility's annual growth in demand by program year 2013 to be met through energy efficiency,
  - Updates the cost effectiveness standard by adjusting the avoided cost of capacity and the avoided cost of energy, and
  - Implements a cost cap to limit the impact to ratepayers. The cap for residential customers is \$1.30 per month in 2011 and 2012, and \$1.60 in 2013 and later.
- In 2009, the energy efficiency programs offered by the electric utilities in Texas cost \$105 million and resulted in 240 MW of demand reduction and 560 gigawatt hours of energy savings.
- Implementation of these increases in 2012 gives the Legislature time to make any statutory changes to the program.

# Reductions Achieved Through Energy Efficiency



10% reduction in annual growth in demand for 2005-2007, 15% in 2008, 20% in 2009-2011, 25% in 2012, and 30% in 2013-2014. Actual for 2005-2009, estimated for 2010-2014. The estimate for 2010 does not include a bonus amount. Estimates for 2011-2014 include bonus amounts.

# Total Energy Efficiency Program Cost

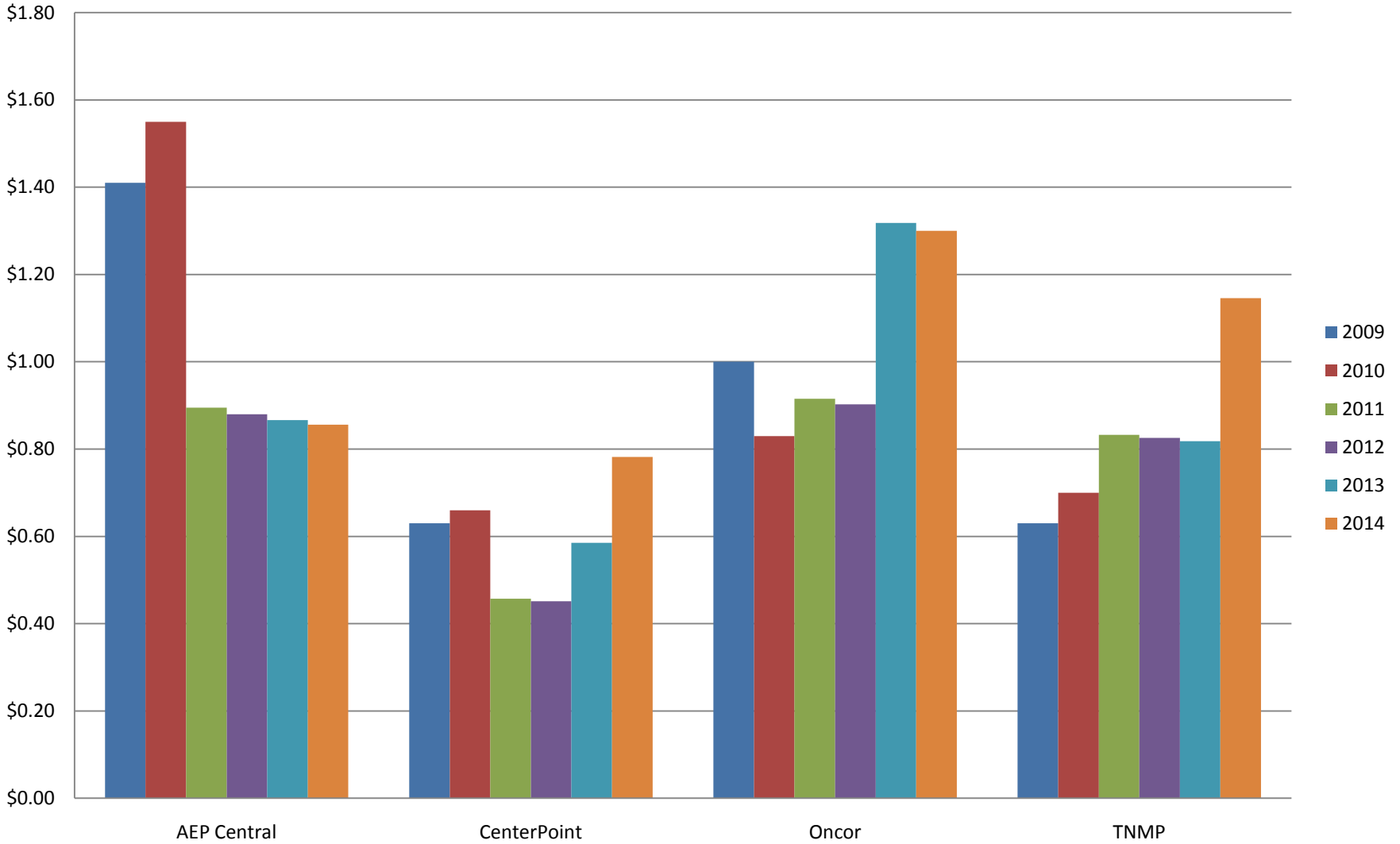


Actual costs for 2009-2010, estimated costs for 2011-2014. Estimates include bonus amounts collected.



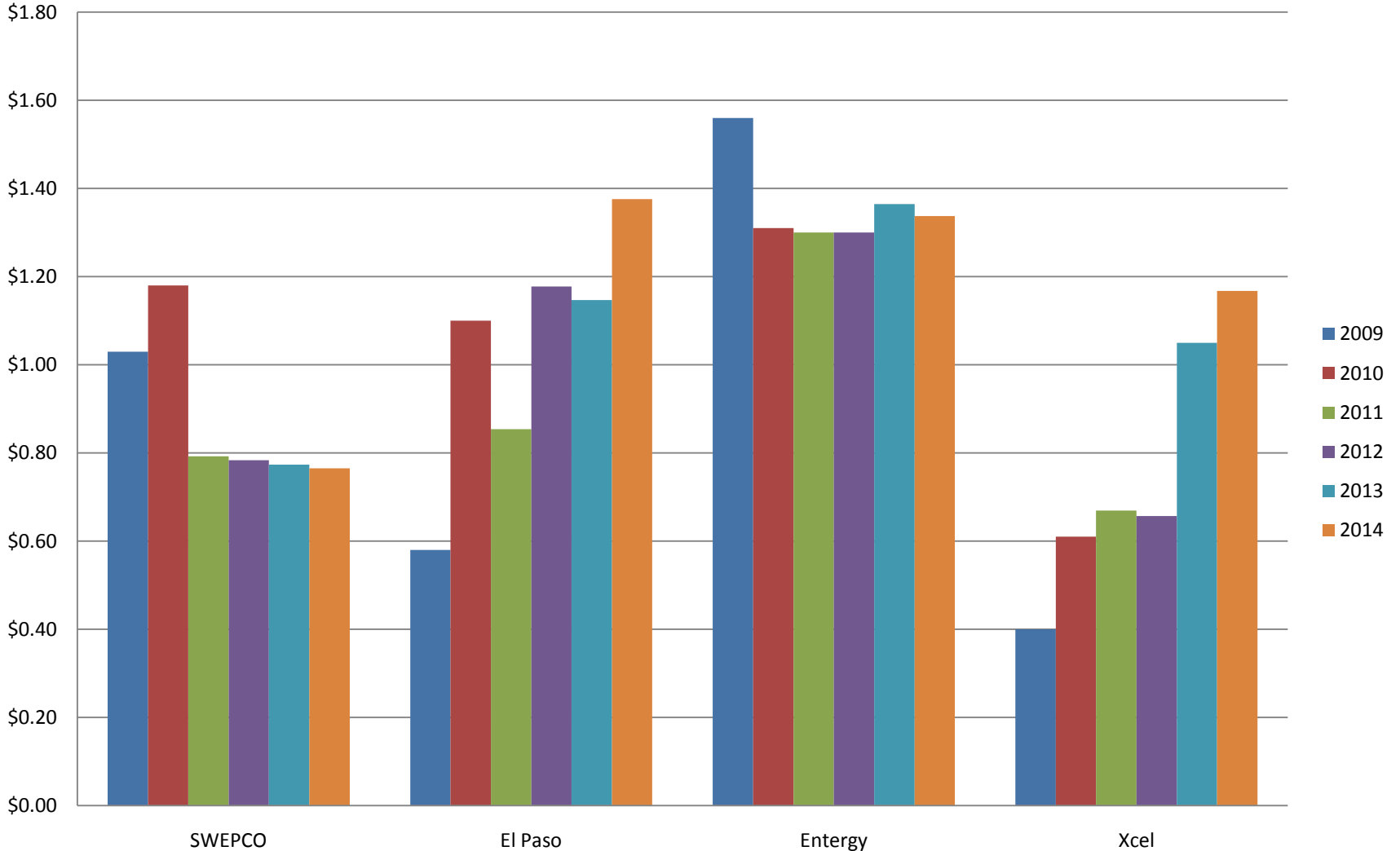
# ERCOT Utilities

Energy Efficiency Program, Residential Rate Impact  
1000 kWh per month



# Non-ERCOT Utilities

Energy Efficiency Program, Residential Rate Impact  
1000 kWh per month (580 kWh for El Paso)



SWEPCO  
Entergy does not agree with Frontier's estimates for 2009 and 2010 program costs.

# Renewable Energy

- Wind energy is growing: currently 9300 MW in ERCOT.
  - CREZ will facilitate up to 18,500 MW
  - 11 CCN cases completed (one denied), 11 cases pending, 11 still to be filed.
- The Commission is proceeding with a rulemaking to establish a target of at least 500 MW of non-wind renewable generation, as required in PURA 39.904(a). A proposed rule should be issued in September, 2010.
  - For an earlier “strawman” proposal, estimated program costs to develop 125 MW of non-wind renewable generation were approximately \$53 million.
- Levelized costs for non-wind renewable generation range between \$100-\$200 for solar, \$80-\$136 for biomass, and \$75-\$138 for geothermal, compared to \$67-\$96 for natural gas combined cycle, \$69-\$152 for coal, and \$77-\$124 for nuclear. The costs for renewable generation include tax credits and accelerated depreciation. (From Lazard’s Levelized Cost of Energy Analysis, July 2010)

# Preparing for Electric Vehicles

- The Commission opened Project No. 37953 to examine EV/PHEV issues and conducted a workshop on May 12, 2010.
- Use of EV/PHEVs can help lower emission of pollutants, utilize less fossil fuels as the amount of wind generation in Texas grows, and help address energy security issues by reducing the amount of imported oil.
- Powering a car on electricity would result in 93 percent less smog-forming volatile organic compounds and 31 percent less nitrogen oxide emissions than powering a car on gasoline.
- Operating costs of plug-in cars are likely to be significantly lower than those of gasoline-powered cars. Electricity costs three to five cents per mile with average electric rates, or the equivalent of \$0.75 to \$1.25 per gallon of gasoline.



Questions?