



Grid Operations and Planning Report

Kent Saathoff

ERCOT Board of Directors
March 22, 2011

Content

- Summary
- February 2011 Operations
 - Peak Demand: Actual vs. Forecast
 - On-line Resources: Total at Peak and Wind
 - CPS1 Monthly Performance
 - Historical Peak and Minimum Loads
 - Day-Ahead Load Forecast Performance
 - Reliability Unit Commitment Capacity (RUC) by weather zone
 - Generic Transmission Limits (GTLs)
 - Significant System Incidents
 - Advisories, Watches and EEAs
- Planning Activities
 - Summary
 - Generation Interconnection Requests
 - Wind Capacity

Summary

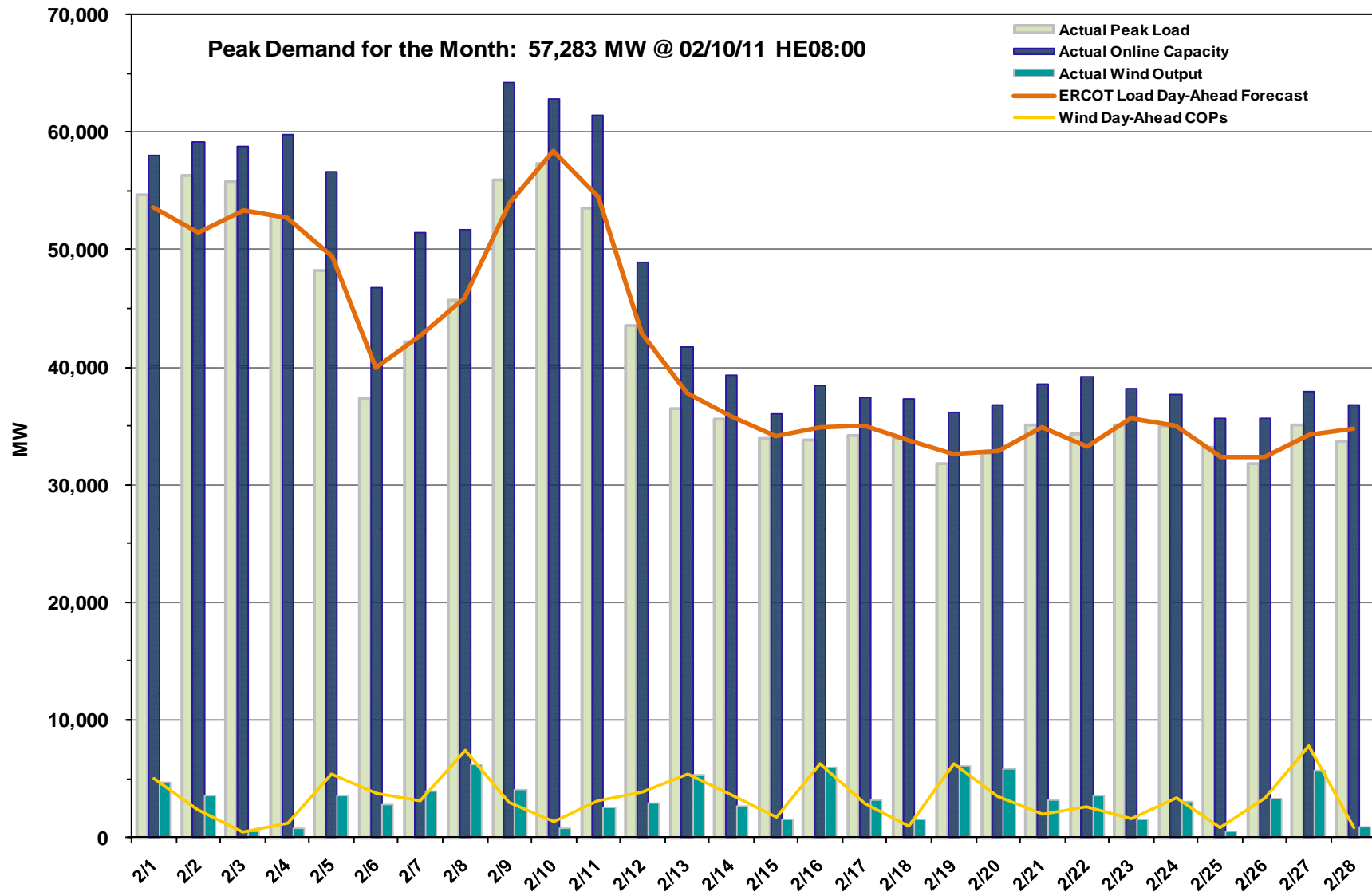
- **February 2011 Operations**

- The peak demand of 57,283 MW on February 10 was less than the mid-term forecast peak of 58,427 MW and more than the February 2010 actual peak demand of 47,990 MW.
- Day-ahead load forecast error for February was 3.46%.
- Advisory for Physical Responsive Capability (PRC) below 3000 MW issued 11 days
- A Watch for PRC under 2500 MW issued one day, February 2
- Energy Emergency Alert (EEA) event Level 3 occurred February 2
- Transmission Watches issued 3 days

- **192 active generation interconnect requests totaling over 63,000 MW as of February 28, 2011. One more request but 1,000 less MW than January 31, 2011.**

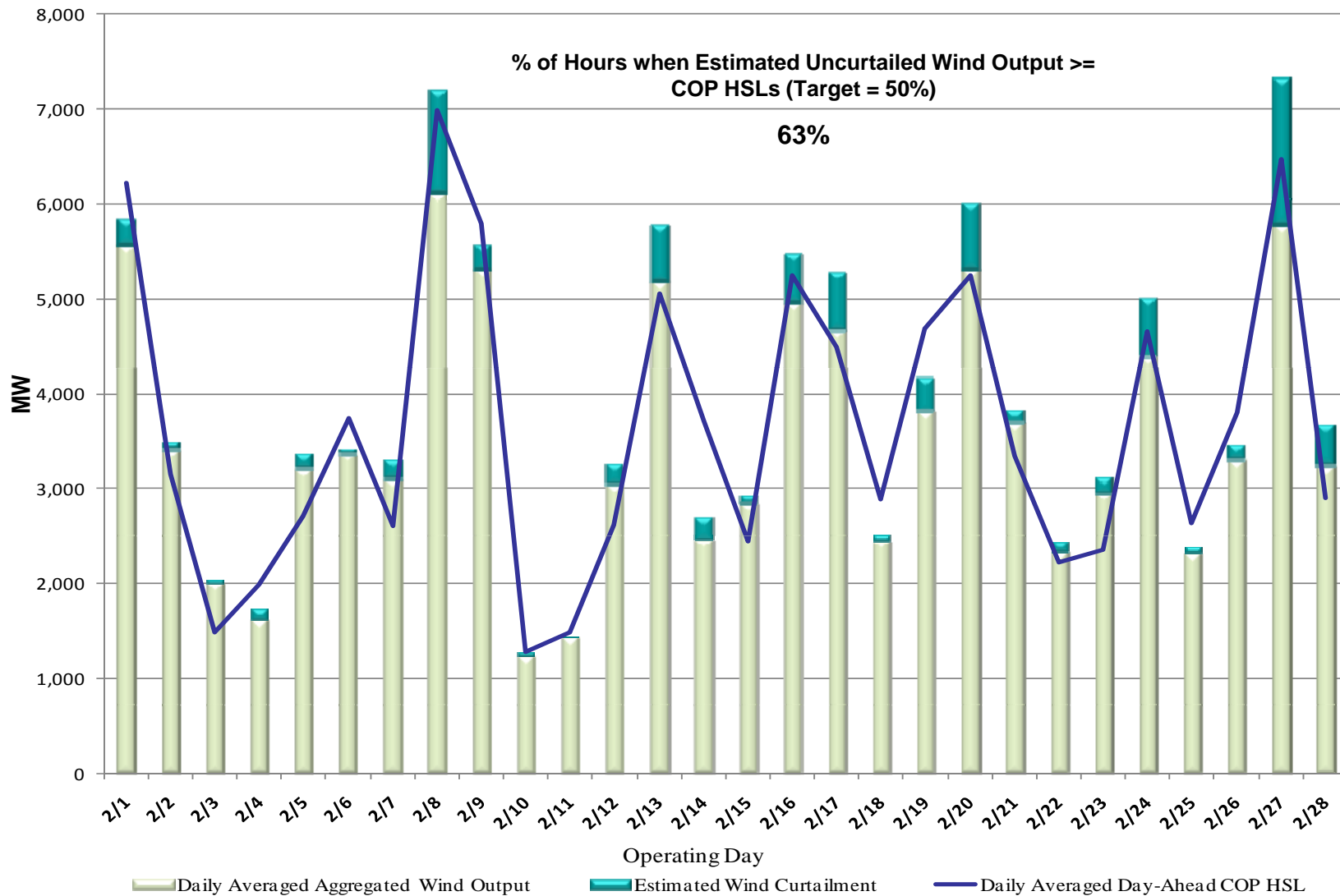
- **9,400 MW wind capacity on line February 28, 2011. No change from January 31, 2011.**

February 2011 Daily Peak Demand: Hourly Average Actual vs. Forecast, Wind Day-Ahead COPs & On-line Capacity at Peak



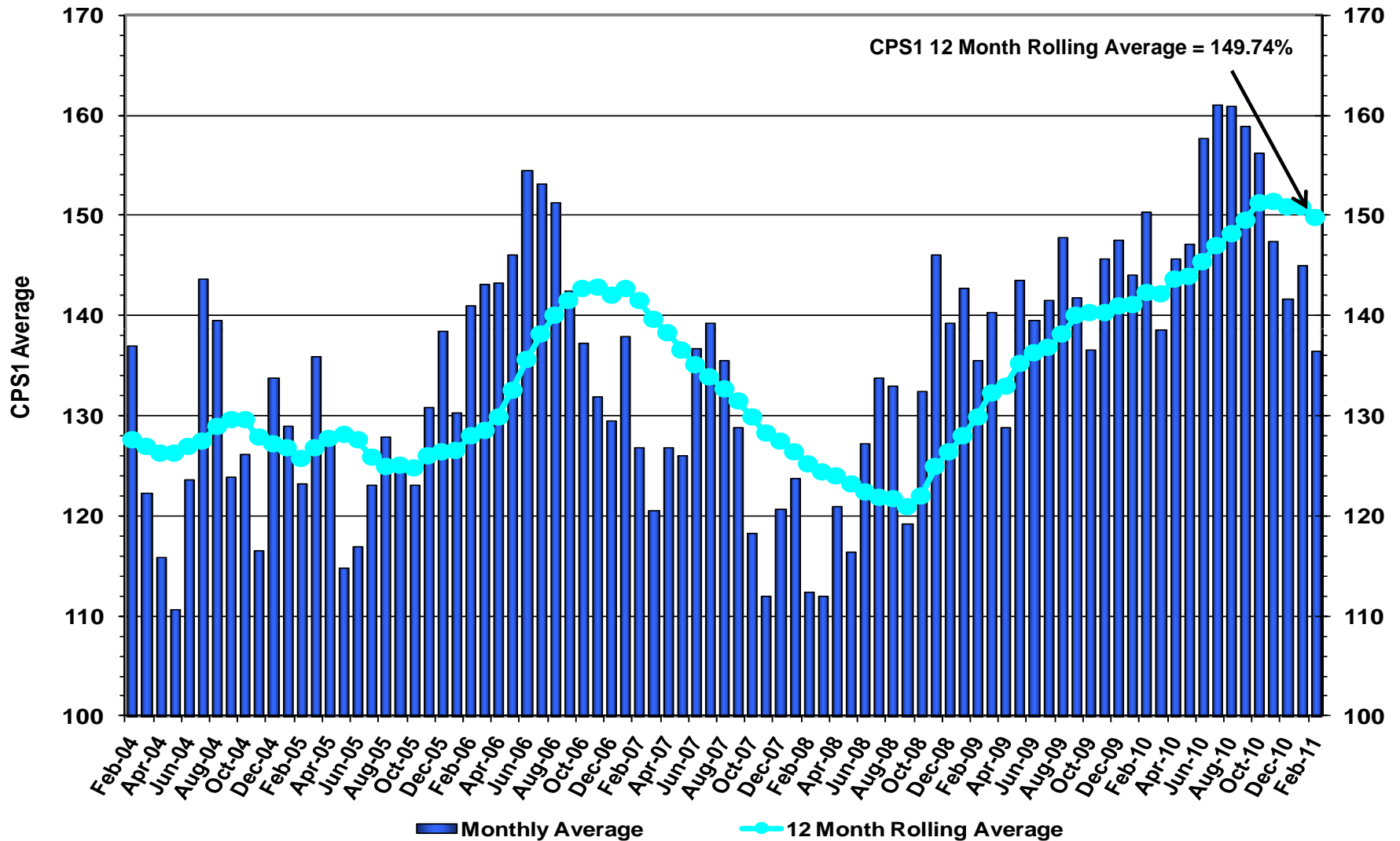
Note: All data are hourly averages during the peak load hour obtained from COPs, and EMMS.

February 2011: Actual Wind Output plus Curtailments vs. Wind Day-Ahead COPs for All Hours

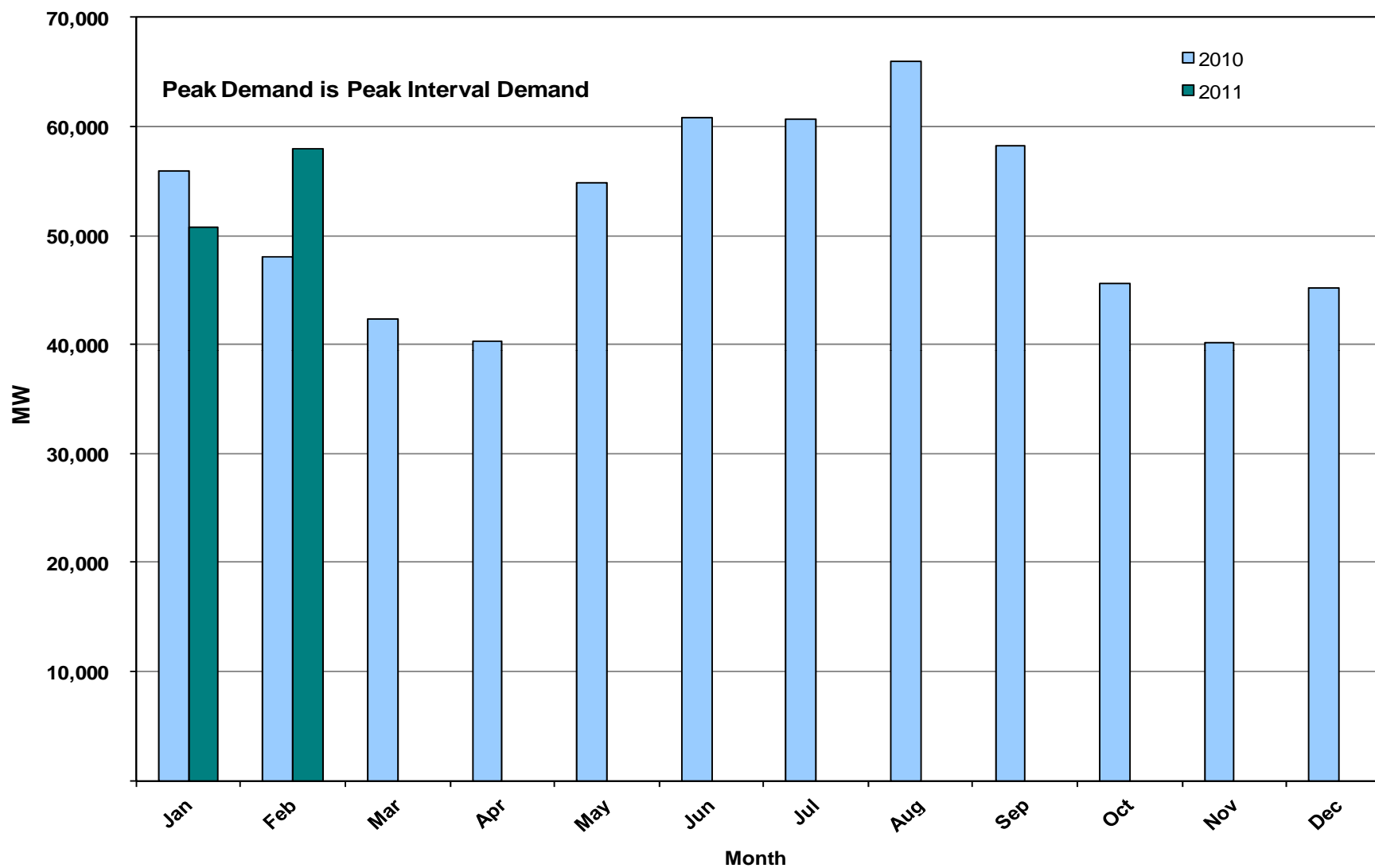


Note: QSEs must use the AWST 50% probability of exceedance forecast as the HSL in their COPs

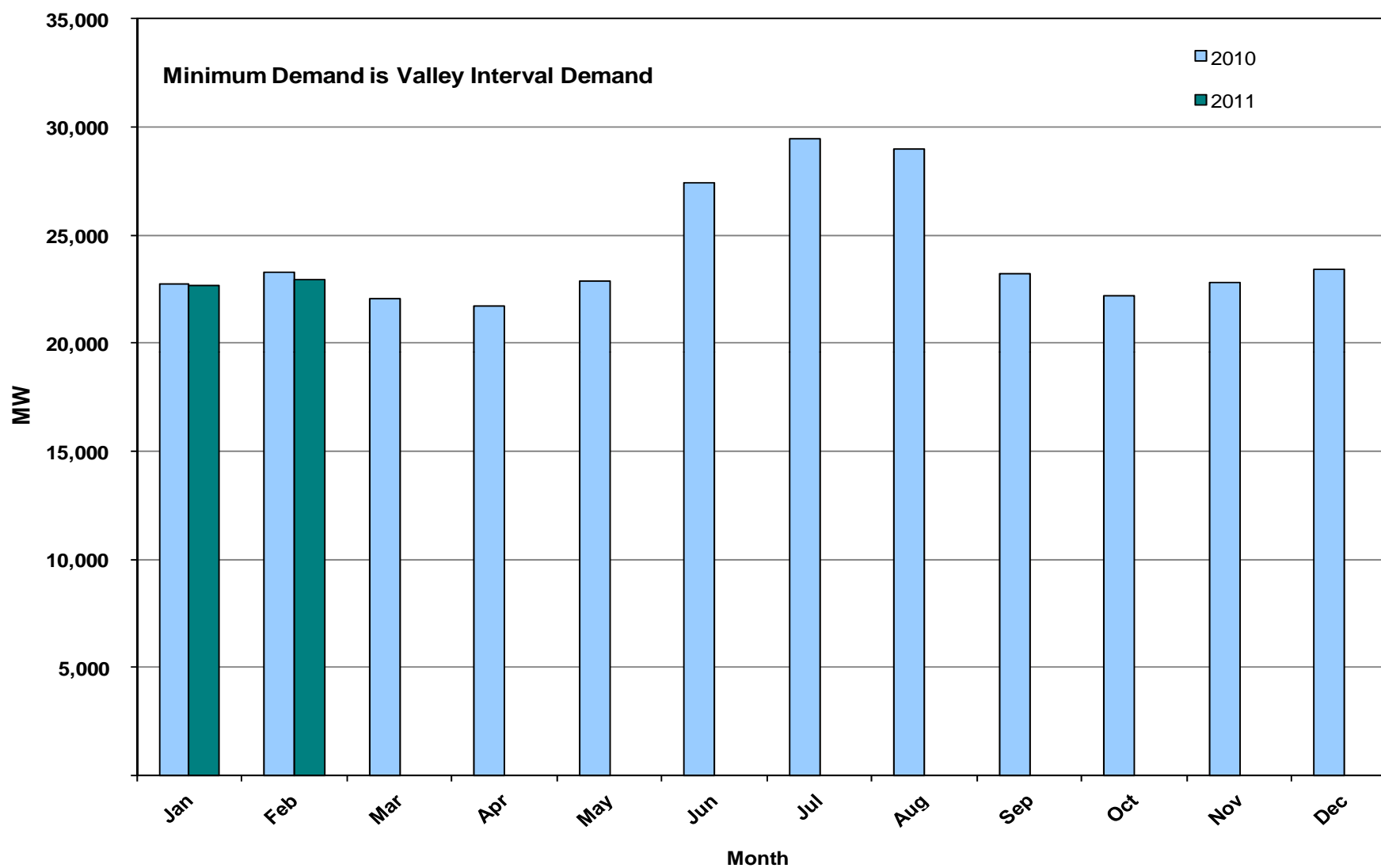
February 2011 ERCOT's CPS1 Monthly Performance



February 2011: Monthly Peak Demand: Actual



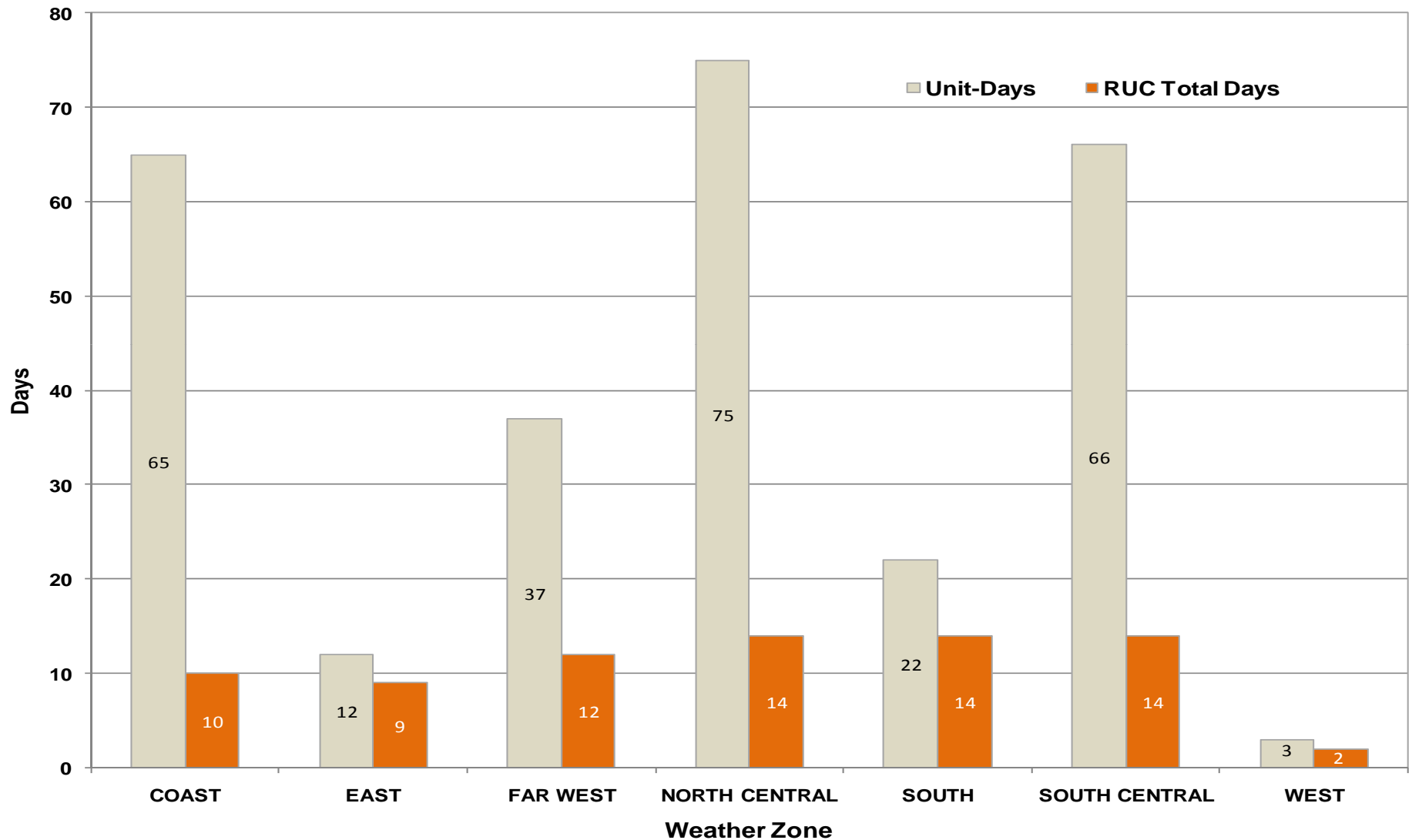
February 2011: Monthly Minimum Demand: Actual



Day-Ahead Load Forecast Performance in February 2011

Mean Absolute Percent Error (MAPE) for ERCOT Mid-Term Load Forecast (MTLF) Run at 16:00 Day Ahead						
	2008 MAPE	2009 MAPE	2010 MAPE	2011 MAPE	February 2011 MAPE	
Average Annual MAPE	3.30	3.11	2.83	3.19	3.46	
Lowest Monthly MAPE	2.45	1.93	2.24	2.91	Lowest Daily MAPE	0.86 Feb – 24
Highest Monthly MAPE	4.99	4.11	3.79	3.46	Highest Daily MAPE	10.96 Feb – 6

Reliability Unit Commitment (RUC) Capacity by weather zone in February 2011



February 2011: Generic Transmission Limits (GTLs)

GTLs	Nov 10 Days CSC	Dec 10 Days GTLs	Jan 11 Days GTLs	Feb 11 Days GTLs	Last 12 Months Total Days (Feb 10 – Feb 11)
North – Houston	6	0	0	0	60
West – North	27	25	18	25 Feb–(1, 2, 4, 5, 7-28)	245
Valley Import		1	3	8 Feb–(2-5, 9-11, 14)	12

GTL: A transmission flow limit more constraining than a Transmission Element's normal limit established to constrain flow between geographic areas of the ERCOT Transmission System that is used to enforce stability and voltage constraints that cannot be modeled directly in ERCOT's transmission security analysis applications.

Note: This table lists out how many times a constraint has been activated to avoid exceeding a GTL limit, it does not imply an exceedance of the GTL occurred.

Advisories and Watches in February 2011

- **Advisories issued for Physical Responsive Capability (PRC) below 3000 MW.**
 - Issued 11 Days.
- **Watches issued for Physical Responsive Capability (PRC) below 2500 MW.**
 - Issued 1 Day.
- **Transmission Watches**
 - 02/03 17:35 ERCOT issued transmission watch for the Rio Grande Valley due to current and forecasted weather conditions.
 - 02/08 10:26 ERCOT issued transmission watch effective 10:30 due to cold weather approaching with below freezing temperatures anticipated across most of state.
 - 02/10 06:10 ERCOT issued a Transmission Watch for the Rio Grande Valley due to current weather conditions and Valley import levels.
- **Transmission Emergency Notice**
 - 02/03 22:29 ERCOT issued a Transmission Emergency Notice for the Rio Grande Valley area due to current and forecasted weather.
- **Energy Emergency Alerts**
 - 02/02 05:20 ERCOT issued an EEA Level 2A (Reserves below 1,750 MW Load Resources deployed).
 - 02/02 05:43 ERCOT issued an EEA Level 3 (Firm Load Shed 1,000 MW. At 5:44 EILS deployed).
 - 02/02 14:01 ERCOT moved to EEA Level 2B from EEA Level 3.
 - 02/02 15:14 ERCOT moved to EEA Level 2A from EEA Level 2B.
 - 02/03 10:00 EEA 2A ends and EILS recalled.

Significant System Incidents in February 2011

- **February 2nd**

- At 05:20 ERCOT declared Energy Emergency Alert (EEA) Level 2A for Physical Responsive Capability (PRC) dropped below 1,750 MW. At 05:43 ERCOT declared EEA Level 3 and issued a Verbal Dispatch Instructions (VDI) to drop 1,000 MW of firm load. At 06:04 additional 1,000 MW was curtailed. At 06:23 additional 2,000 MW was curtailed, total of 4,000 MW. All of which was restored by 13:07. At 10:00 on February 3rd, 2011 EEA 2A ends and EILS recalled.

- **February 3rd**

- Approximately 21:47 on February 03, 2011, approximately 486 MW of generation was forced out due to extreme cold weather in the Rio Grande Valley. In conjunction with planned generation outages and high loads due to the weather, this caused voltage in the area to deteriorate to approximately 0.91 p.u. by 22:01. A Mitigation Plan was implemented in which up to 442.2 MW of firm load was shed by ERCOT Transmission Operators; American Electric Power (AEP), Public Utility Board of Brownsville (BPUB), and South Texas Electric Cooperative (STEC) to recover the voltage to acceptable levels. All shed load was restored by 23:28 on February 04, 2011.

- **February 1st**

Block Load Transfer issued one day (Roans Prairie carrying up to 3 MW load at Mount Zion substation for Mid South Cooperative).

- **February 8th**

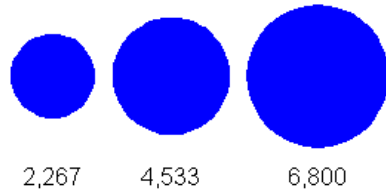
- ERCOT issued an Emergency Notice due to EMS and SCED failure.

Planning Summary

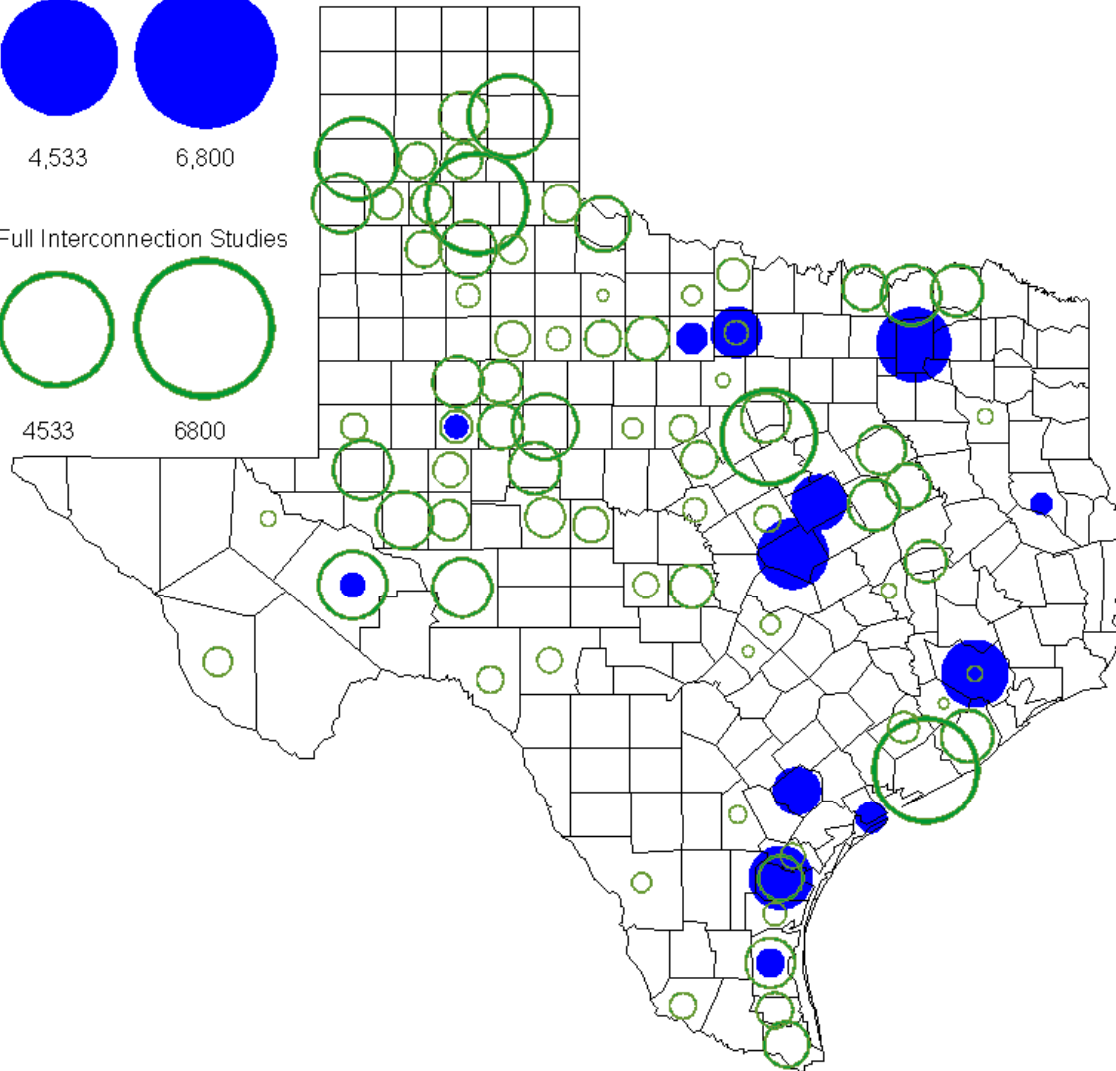
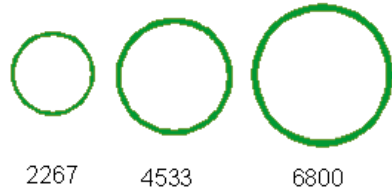
- **ERCOT is currently tracking 192 active generation interconnection requests totaling over 63,000 MW. This includes over 36,000 MW of wind generation.**
- **ERCOT is currently reviewing proposed transmission improvements with a total cost of \$176.1 Million**
- **Transmission Projects endorsed in 2011 total \$23.6 Million**
- **All projects (in engineering, routing, licensing and construction) total approximately \$9.3 Billion**
- **Transmission Projects energized in 2010 total about \$857.1 million**

County Location of Planned Generation with Interconnection Requests (all fuels) February 2011

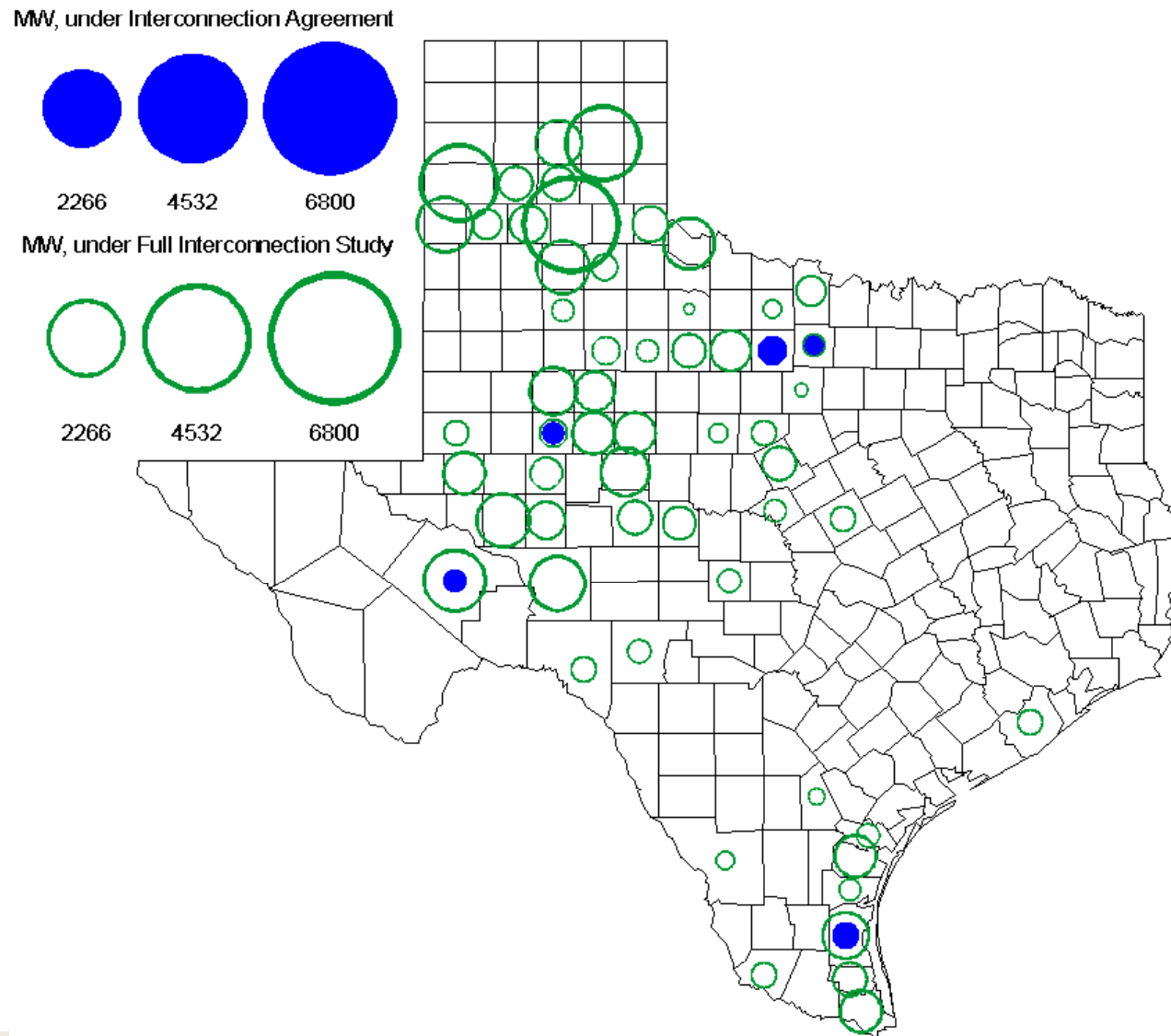
MW under Interconnection Agreements



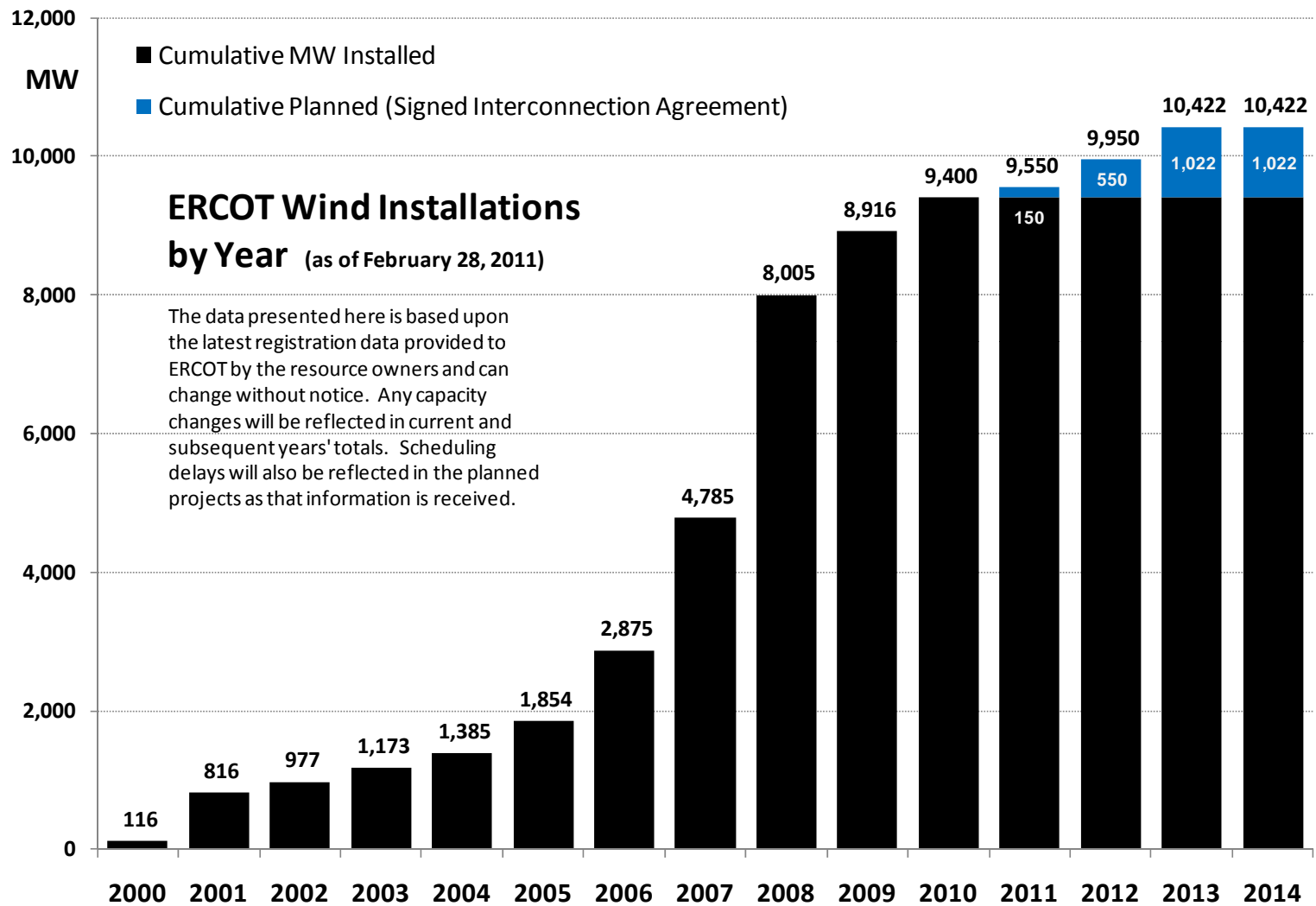
MW under Full Interconnection Studies



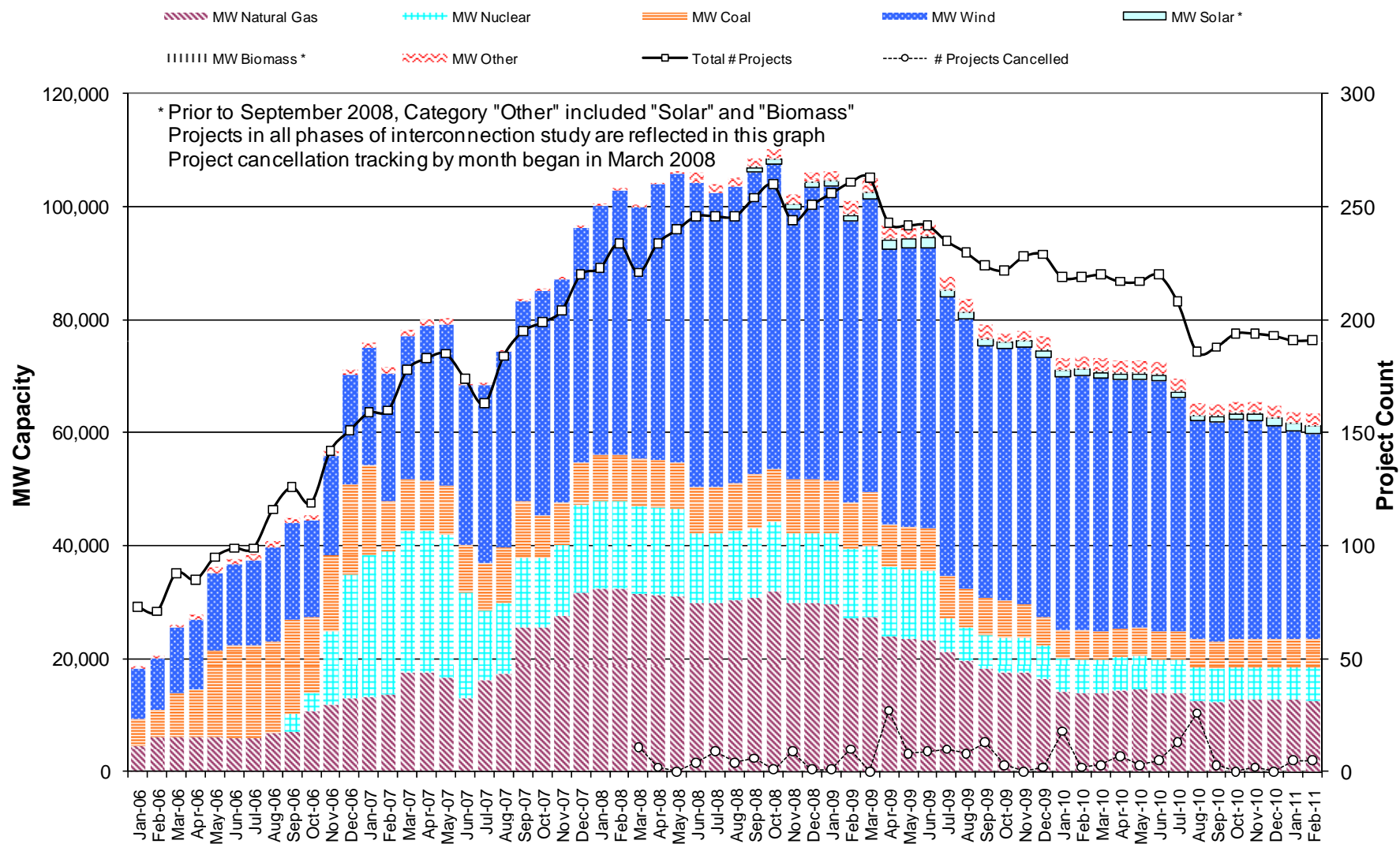
County Location of Planned Generation with Interconnection Requests (Wind) February 2011



Wind Generation



Generation Interconnection Activity by Fuel



Generation Interconnection Activity by Project Phase

