



# Grid Operations and Planning Report

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Board of Directors Meeting  
August 16, 2011

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# Summary

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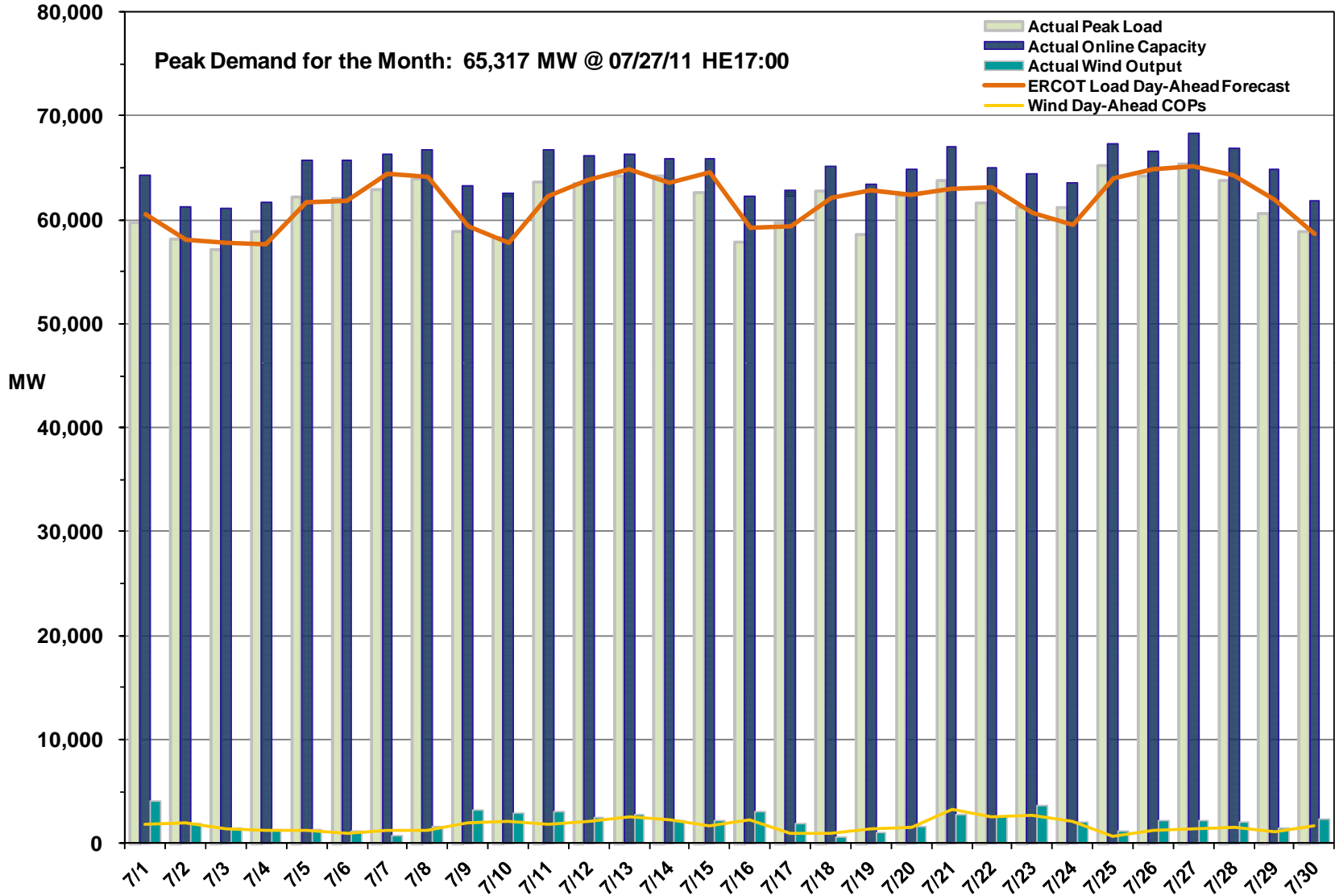
- **July 2011 Operations**

- The peak demand of 65,317 MW on July 27 was more than the mid-term forecast peak of 65,126 MW and more than the July 2010 actual peak demand of 60,674 MW.
- Day-ahead load forecast error for July was 1.63%
- Advisory for Physical Responsive Capability (PRC) below 3000 MW issued 16 days
- No Watch for PRC under 2500 MW
- No Energy Emergency Alert (EEA) event

- **206 active generation interconnect requests totaling over 63,000 MW as of July 31, 2011. One more request than June 30, 2011.**

- **9,400 MW wind capacity on line July 31, 2011. No change from June 30, 2011**

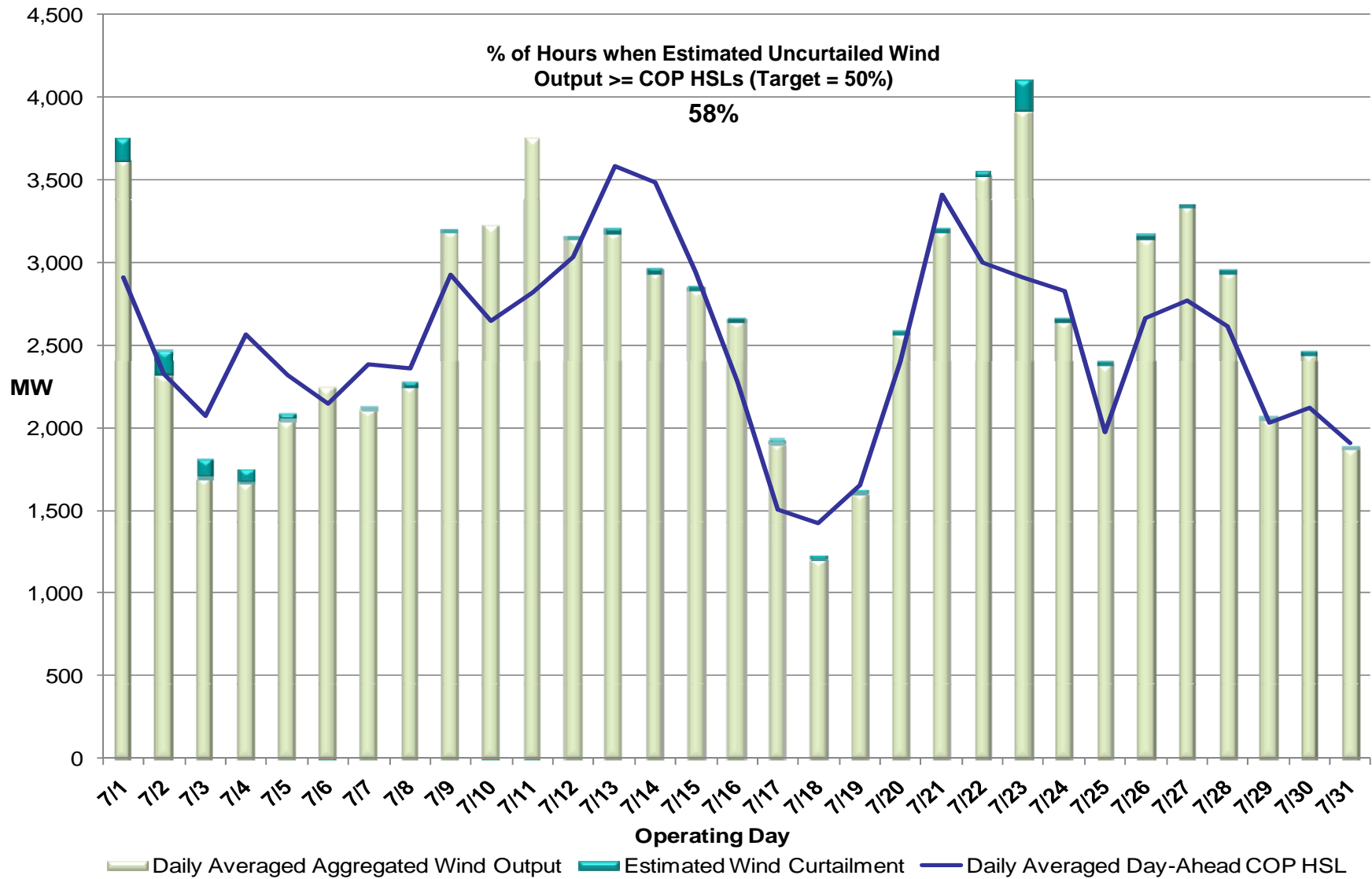
# July 2011 Daily Peak Demand: Hourly Average Actual vs. Forecast, Wind Day-Ahead COPs & On-line Capacity at Peak



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



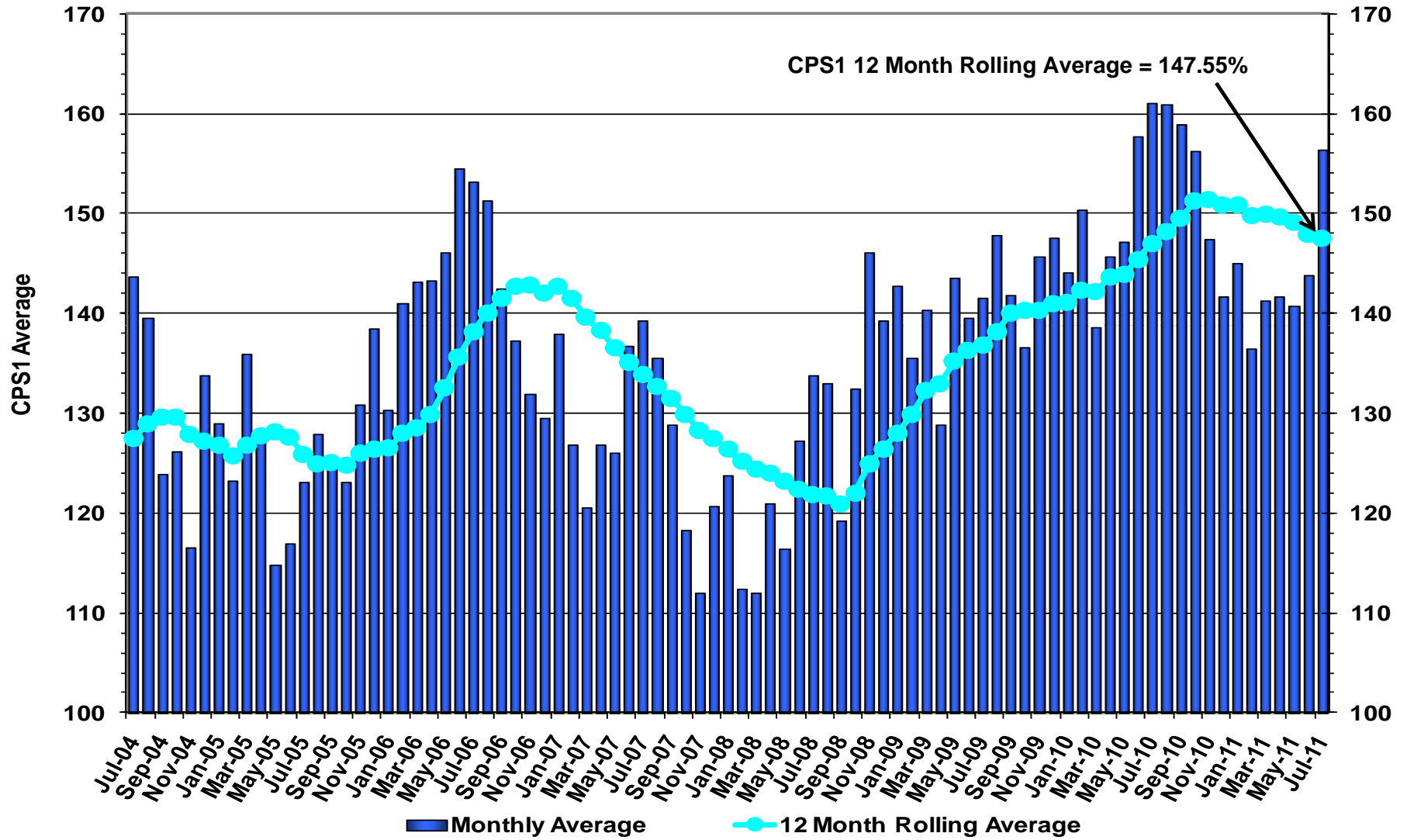
# July 2011: Actual Wind Output plus Curtailments vs. Wind Day-Ahead COPs for All Hours



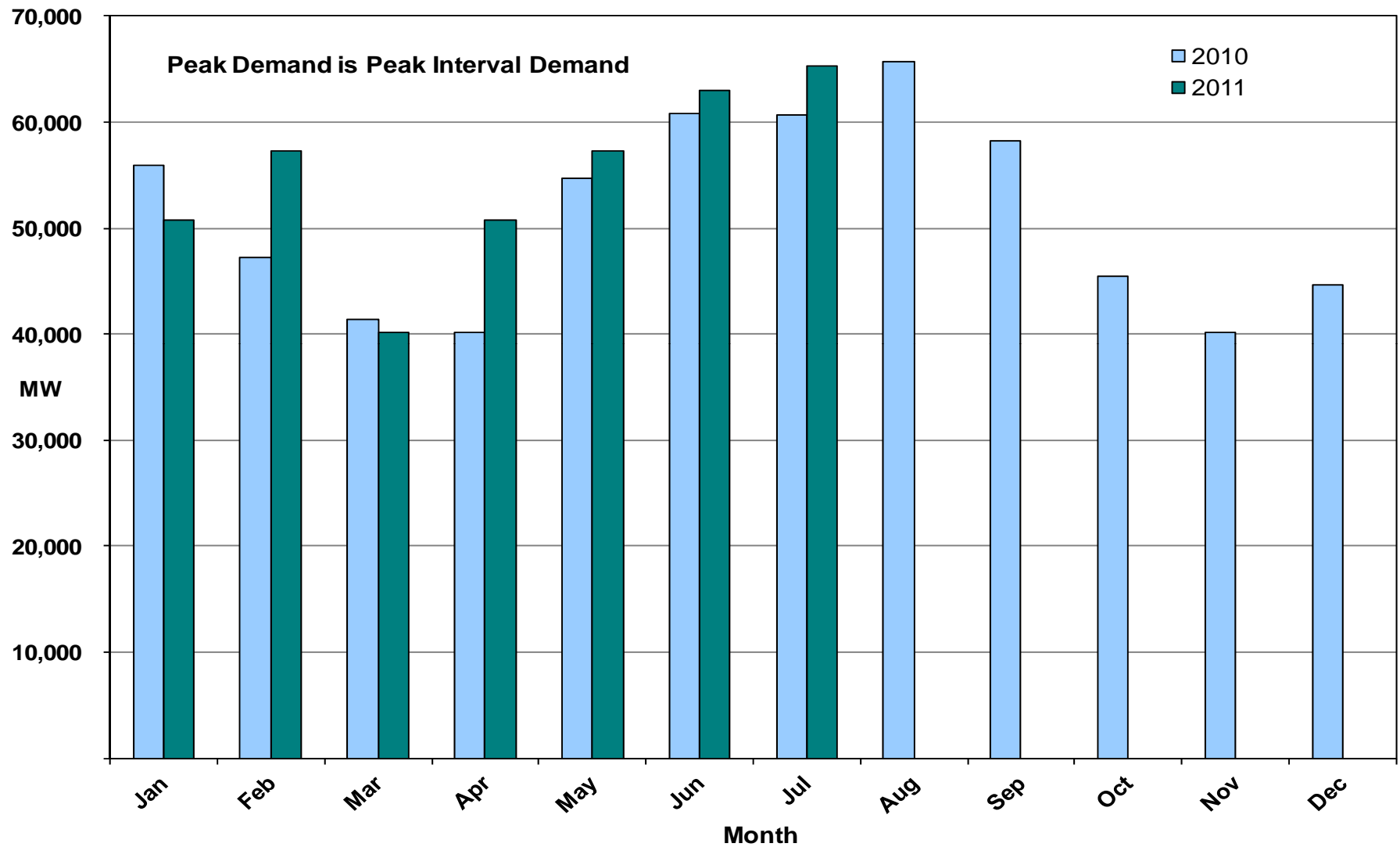
Note: QSEs must use the AWST 50% probability of exceedance forecast as the HSL in their COPs



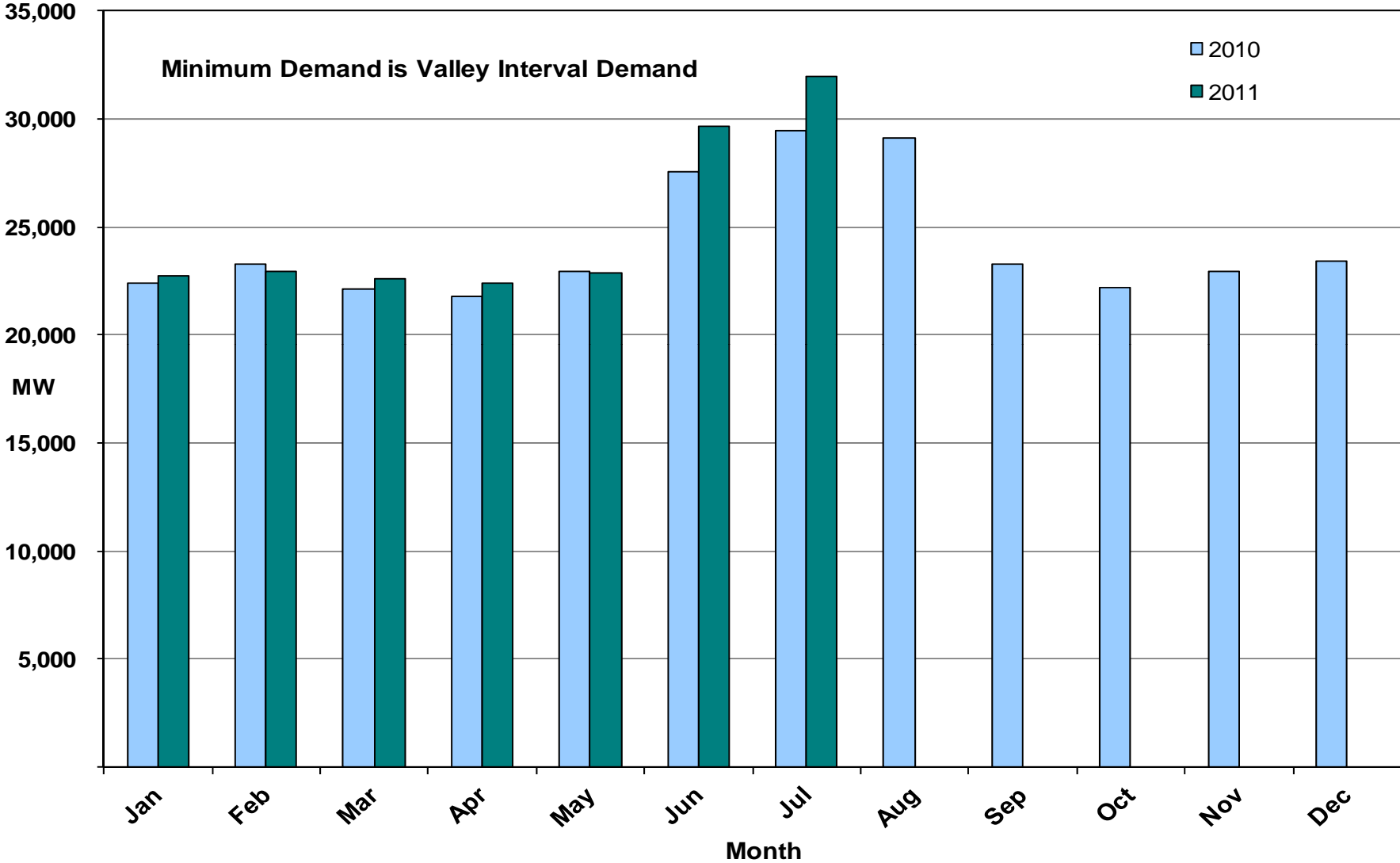
# July 2011 ERCOT's CPS1 Monthly Performance



# July 2011: Monthly Peak Actual Demand



# July 2011: Monthly Minimum Actual Demand





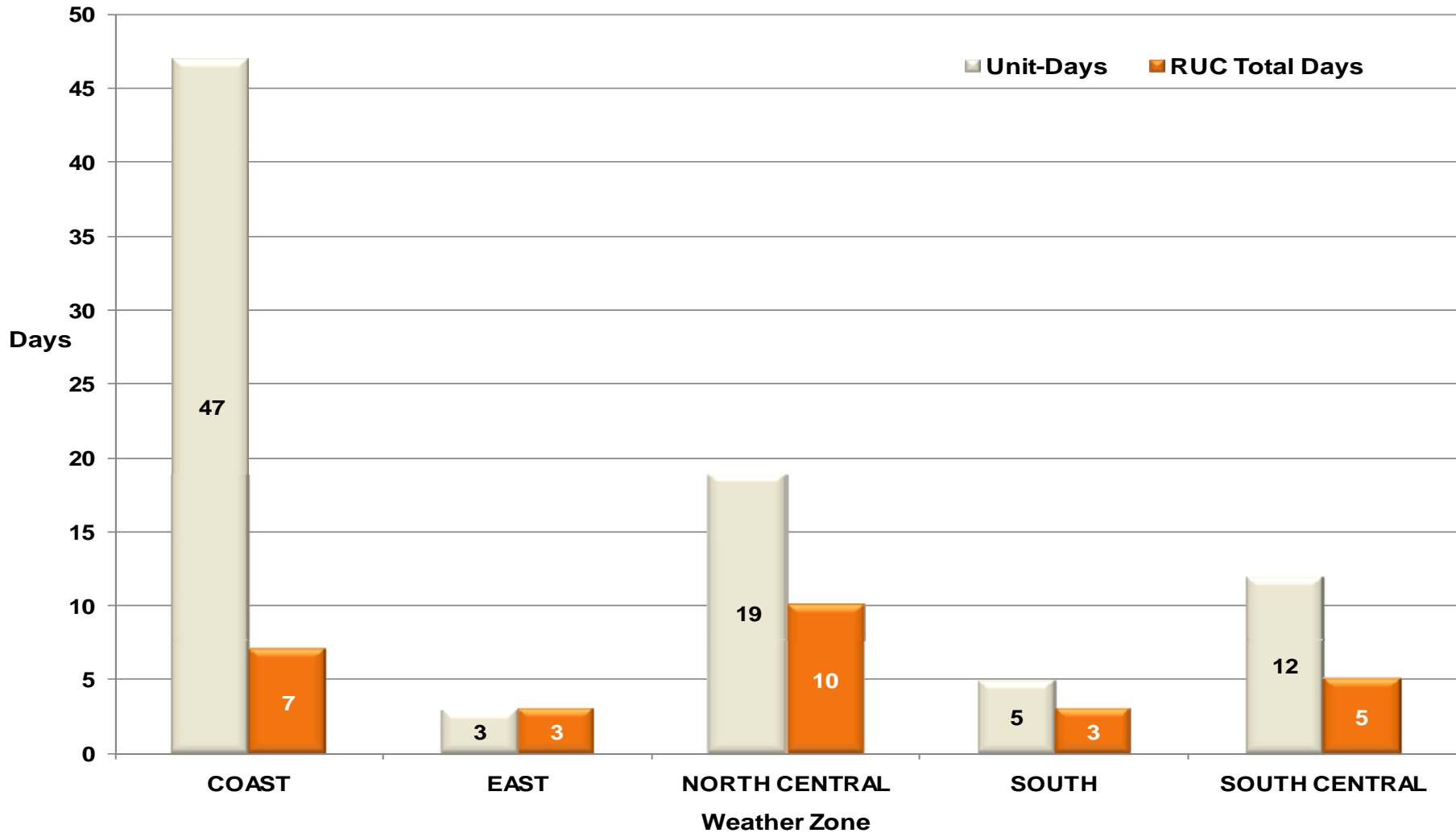
# Day-Ahead Load Forecast Performance in July 2011

**Mean Absolute Percent Error (MAPE) for ERCOT Mid-Term Load Forecast (MTLF)  
Run at 14:00 Day Ahead**

	<b>2008 MAPE</b>	<b>2009 MAPE</b>	<b>2010 MAPE</b>	<b>2011 MAPE</b>	<b>July 2011 MAPE</b>	
<b>Average Annual MAPE</b>	3.30	3.11	2.83	<b>2.73</b>	<b>1.63</b>	
<b>Lowest Monthly MAPE</b>	2.45	1.93	2.24	1.63	<b>Lowest Daily MAPE</b>	0.77 July- 17
<b>Highest Monthly MAPE</b>	4.99	4.11	3.79	3.55	<b>Highest Daily MAPE</b>	3.32 July- 3

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

## RUC Commitments by Weather Zone



## July 2011: Generic Transmission Limits (GTLs)

GTLs	Jul 10 Days CSC	May 11 Days GTLs	Jun 11 Days GTLs	Jul 11 Days GTLs	Last 12 Months Total Days (Jul 10 – Jul 11)
North – Houston	6	1	0	0	38
West – North	11	28	29	4 Jul-(1, 11, 23, 26)	268
Valley Import		0	0	0	15

**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 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 July 2011

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- **Advisories issued for Physical Responsive Capability (PRC) below 3000 MW.**
  - Issued 16 Days
- **Watches issued for Physical Responsive Capability (PRC) below 2500 MW.**
  - None
- **Transmission Watches**
  - None
- **Energy Emergency Alerts**
  - None

# Significant System Incidents in July 2011

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- **July 12<sup>th</sup>**
  - At 20:40, ERCOT experienced the simultaneous loss of three 345 KV lines as a result of the large fire burning directly beneath the energized 345 KV lines, each circuit flashed causing phase to phase faults. At the same time, two wind generators tripped with approximately 15 MW each.
- **July 24<sup>th</sup>**
  - At 03:16, ERCOT experienced the simultaneous loss of one 345 KV line and three generating units (resulting in the loss of approximately 131 MW within the first minute of the event) due to issue with the overvoltage settings on the differential relay scheme for the 345 KV line.
- **July 30<sup>th</sup>**
  - At 08:31, ERCOT experienced the simultaneous loss of one 138 KV bus and two 138 KV lines. Preliminary investigation reported the cause was a snake getting into the bus. Investigation is ongoing.

## Other Items

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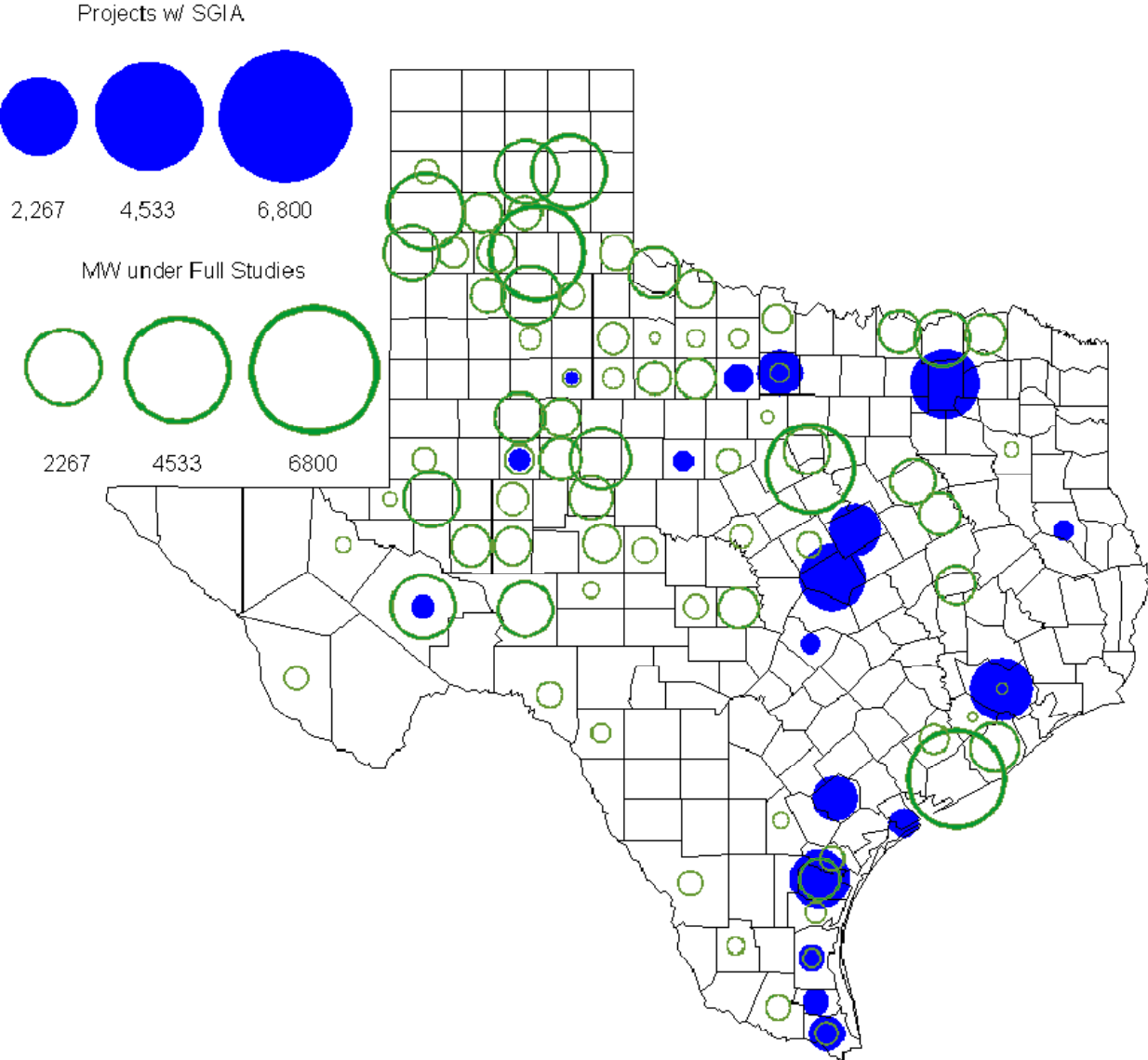
- **July 29<sup>th</sup>**
  - At 09:00 ERCOT issued a Watch due for Tropical Storm Don.
    - Tropical Storm Don weakened to a tropical depression with sustained winds of about 35 miles per hour as it made landfall south of Corpus Christi.
    - No reliability issues were observed nor reported due to the tropical storm. The Watch issued by ERCOT was recalled as per 05:00 on 07/30/2011.
    - No customer outages were reported by AEP, STEC or BPUB.
    - A Valley export was observed during the time the tropical storm made landfall showing enough generation was available to support Valley load in case any of the Valley 345 KV lines tripped.

# Planning Summary

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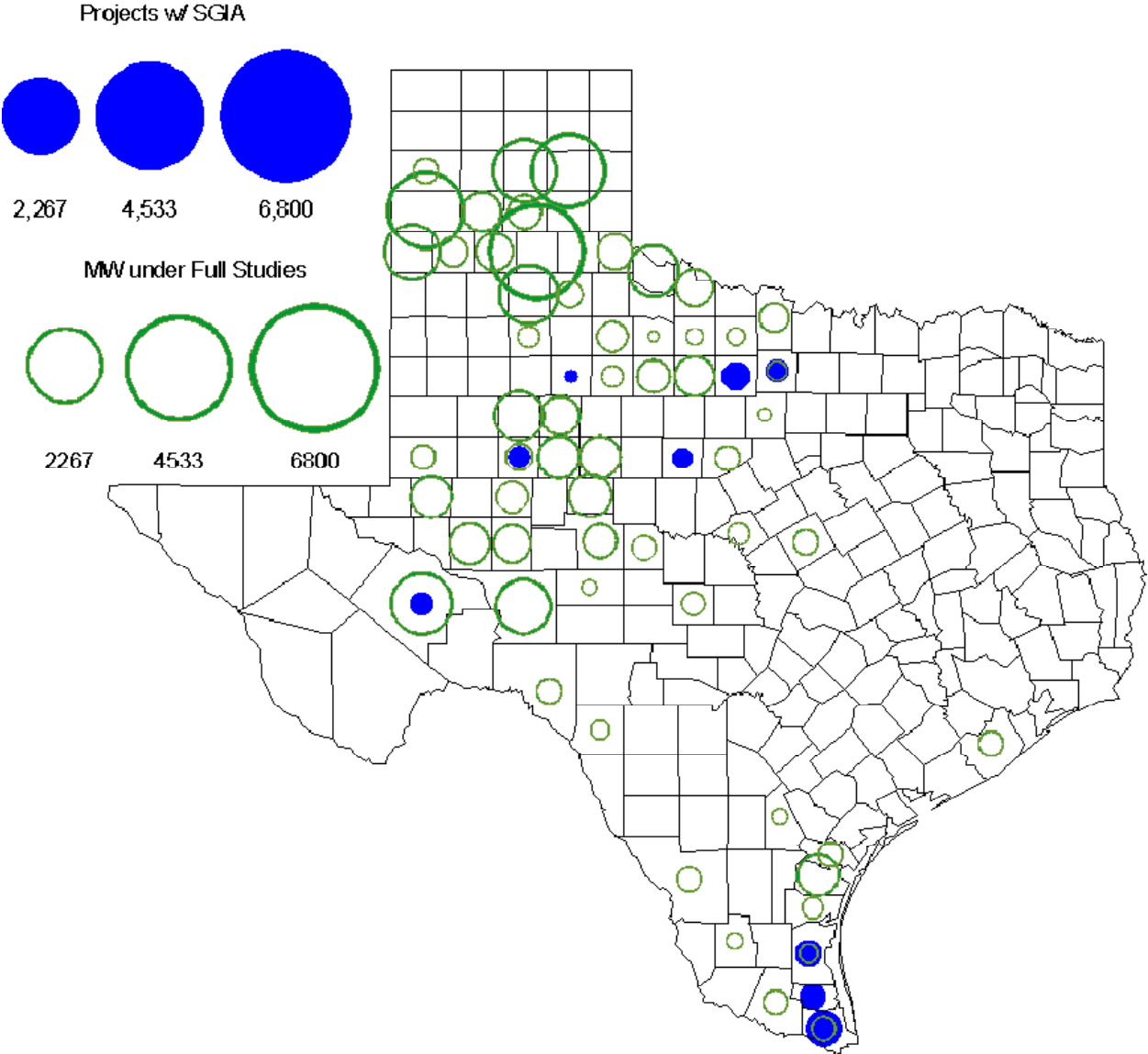
- **ERCOT is currently tracking 206 active generation interconnection requests totaling over 63,000 MW. This includes over 37,000 MW of wind generation.**
- **ERCOT is currently reviewing proposed transmission improvements with a total cost of \$642.7 Million**
- **Transmission Projects endorsed in 2011 total \$23.6 Million**
- **All projects (in engineering, routing, licensing and construction) total approximately \$10.0 Billion**
- **Transmission Projects energized in 2011 total about \$401.8 million**

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

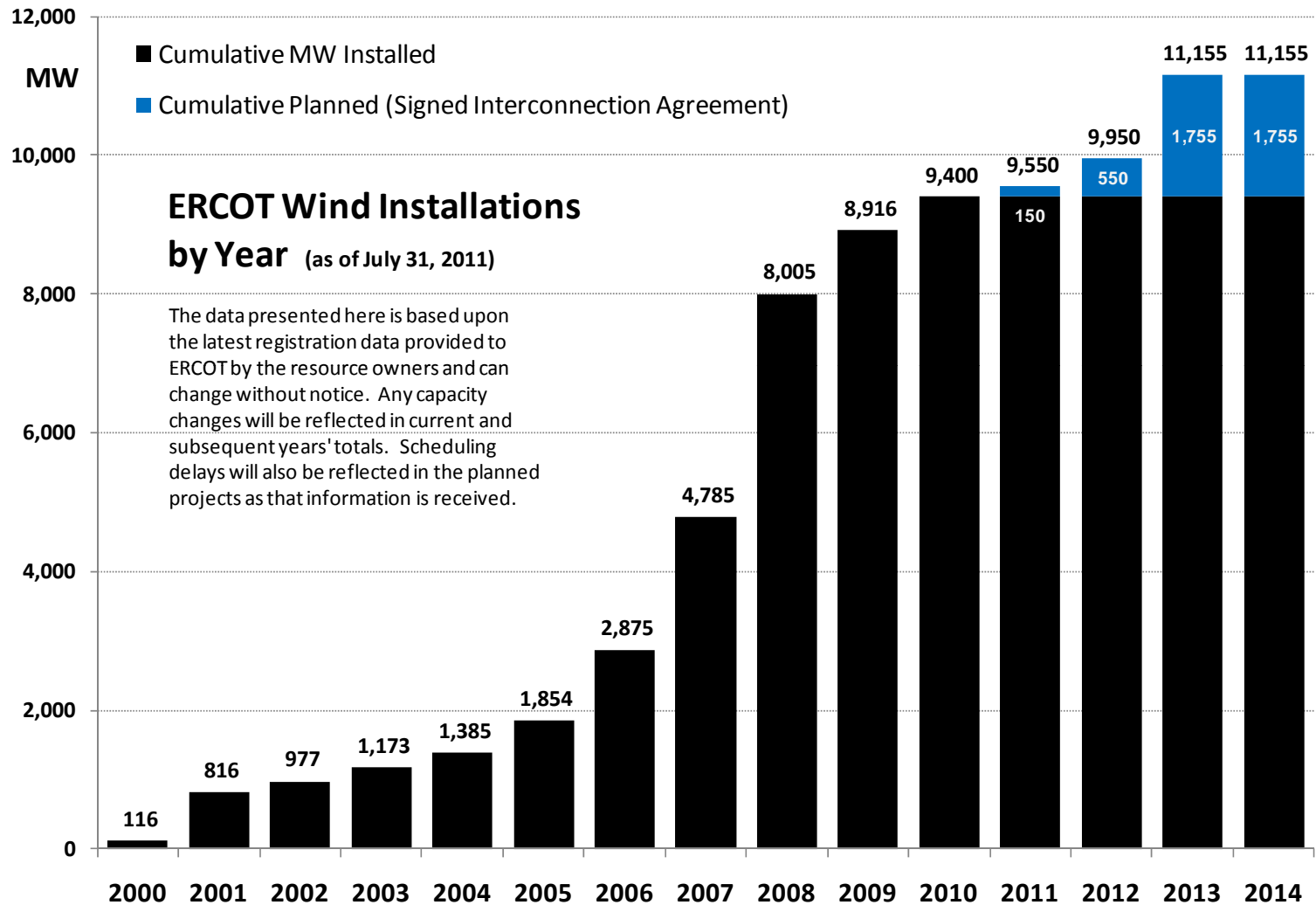




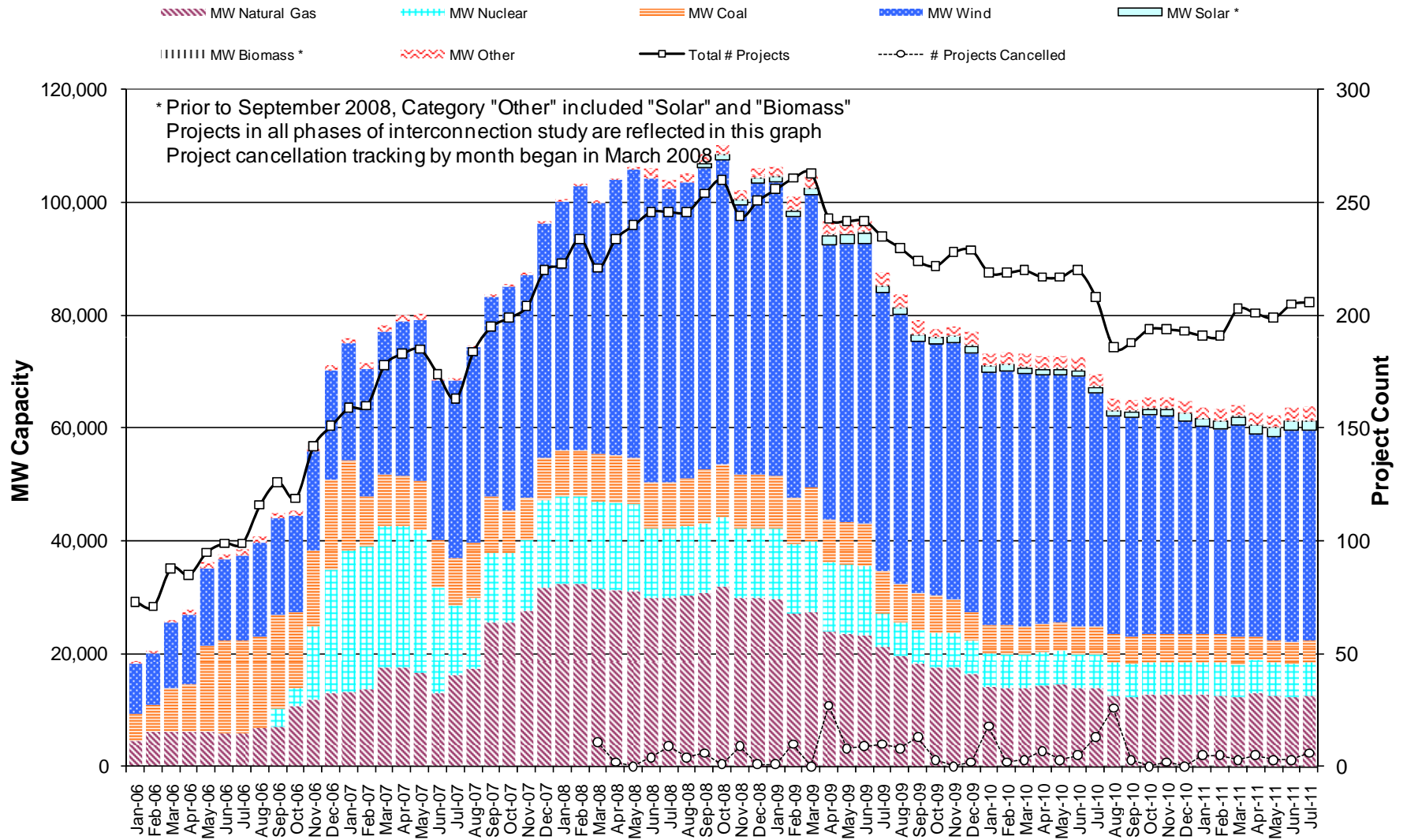
# County Location of Planned Generation with Interconnection Requests (Wind) July 2011



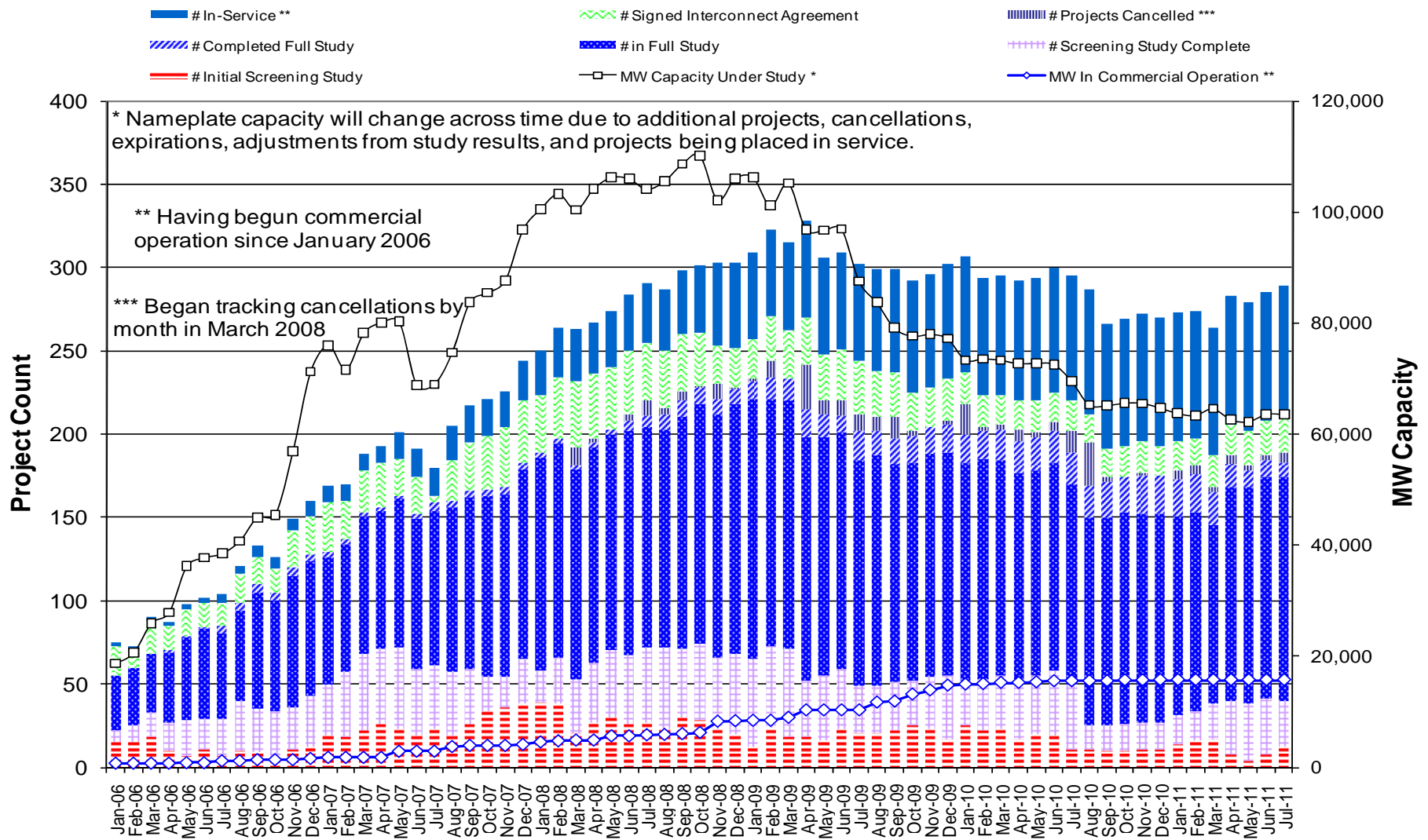
# Wind Generation



# Generation Interconnection Activity by Fuel



# Generation Interconnection Activity by Project Phase



# Investigation into Risk of Natural Gas supply disruption

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- **ERCOT has historically encountered local and limited natural gas supply curtailments, most frequently under high winter demand conditions.**
- **The last widespread gas supply curtailments that affected generation availability was February of 2003.**
- **NERC, market participants, and ERCOT Directors have suggested that the future risk of widespread supply interruptions impact upon the dependable supply of electricity within ERCOT should be evaluated.**
- **ERCOT has issued a Request for Proposal (RFP) soliciting a study to quantify these risks.**

# Investigation into Risk of Natural Gas supply disruption

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- **Risks to natural gas supply fall into multiple categories:**
  - Physical
    - Supply risk
    - Transportation risk
  - Market Risk
    - Liquidity
- **Detailed examination of physical risks could require extensive modeling of natural gas extraction and transportation facilities.**
- **ERCOT has requested a higher level examination as a phase 1 study to quantify the probability of different scenarios and help determine if further detailed study is indicated.**
- **Deliverables include:**
  - Analysis of historic gas interruptions
  - Risk model of ERCOT natural gas systems
  - Quantification of Risks under multiple scenarios

# Timeline - Investigation into Risk of Natural Gas supply disruption

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- **Review of historic gas curtailments** **September 30, 2011**
- **Gas model for ERCOT** **November 15, 2011**
- **Calculate risk of curtailment** **December 15, 2011**
- **Report on Phase 1 Results** **January 2, 2012**