



# Grid Operations and Planning Report

ERCOT Board of Directors  
July 21, 2009

**Kent Saathoff**

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# Summary

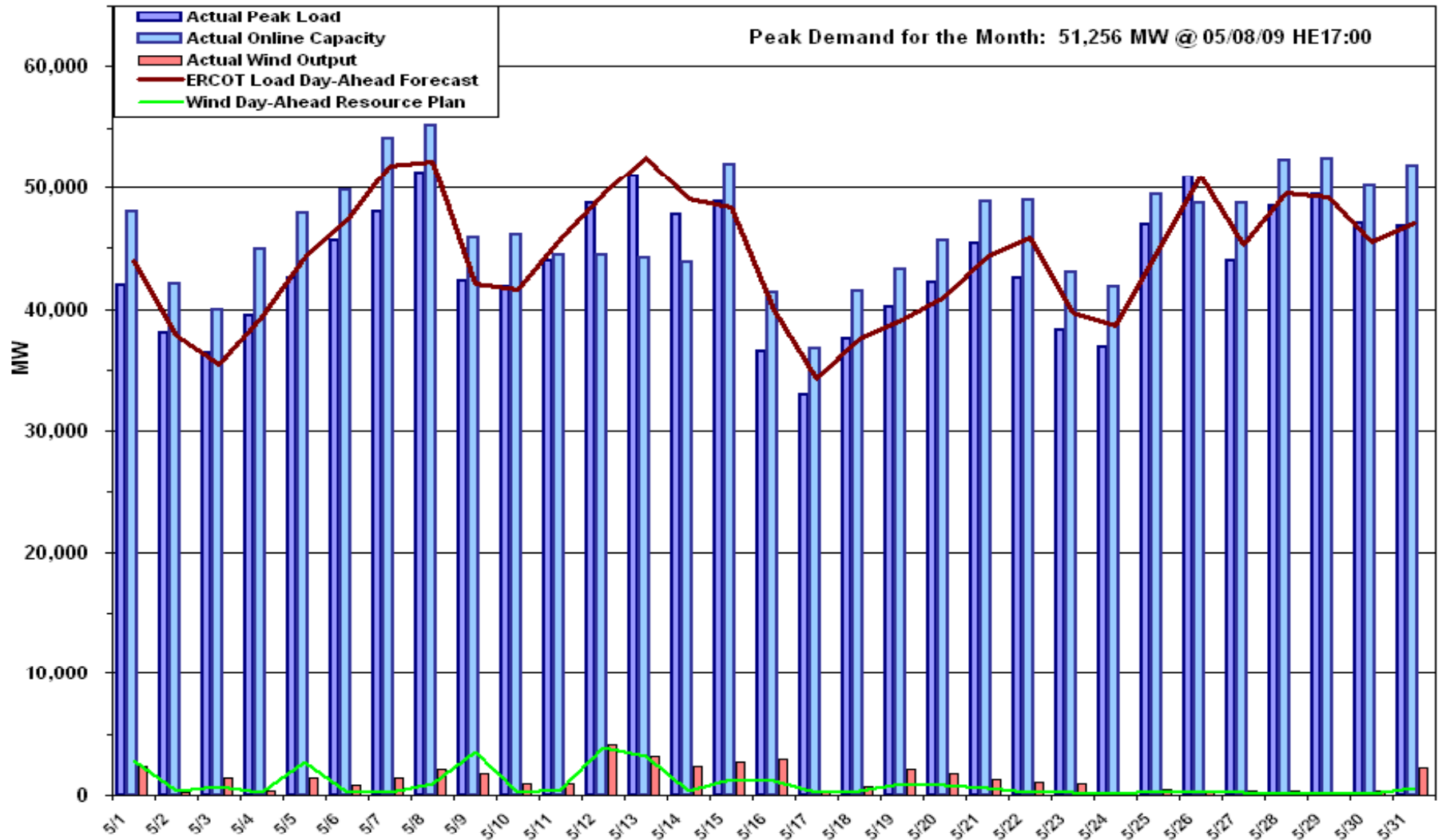
- **May 2009 Operations**

- The monthly peak demand of 51,246 MW on May 8<sup>th</sup> was lower than the most current long term demand forecast of 52,607 MW.
- Day-ahead load forecast error for May was 2.90%.
- Two Advisories for Adjusted Responsive Reserve (ARR) below 3000 MW. No Watches for ARR under 2500 MW or Energy Emergency Alert (EEA) events.
- Eleven transmission watches\*

\* Effective May 1<sup>st</sup> 2009, OGRR213, – Synchronization with PRR775, Changed the defined term “Alert” to “Watch” and Emergency Electric Curtailment Plan (EECP) to Energy Emergency Alert (EEA).

- **June 2009 peak demand on June 25<sup>th</sup> of 62,297 MW was just 42 MW lower than all time peak demand of 62,339 MW set in August 2006.**
- **242 active generation interconnect requests totaling over 97,000 MW as of June 30, 2009. No change from May.**
- **8,135 MW wind capacity on line June 30, 2009. No change from May.**

# Daily Peak Demand: Hourly Average Actual vs Forecast, Resource Plan & On-line Capacity at Peak

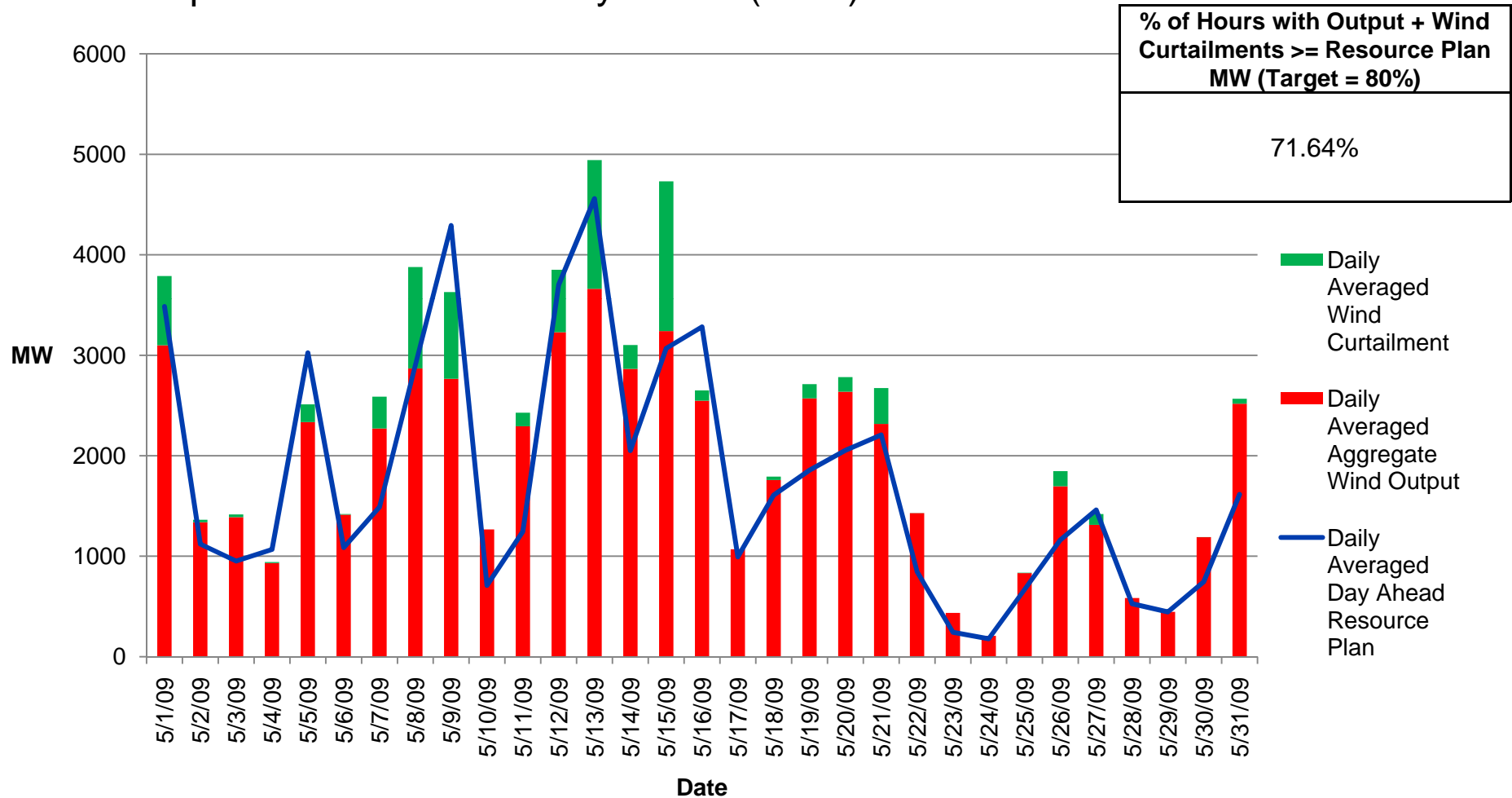


Note: All data are hourly averages during the peak load hour obtained from Resource Plans, and EMMS.



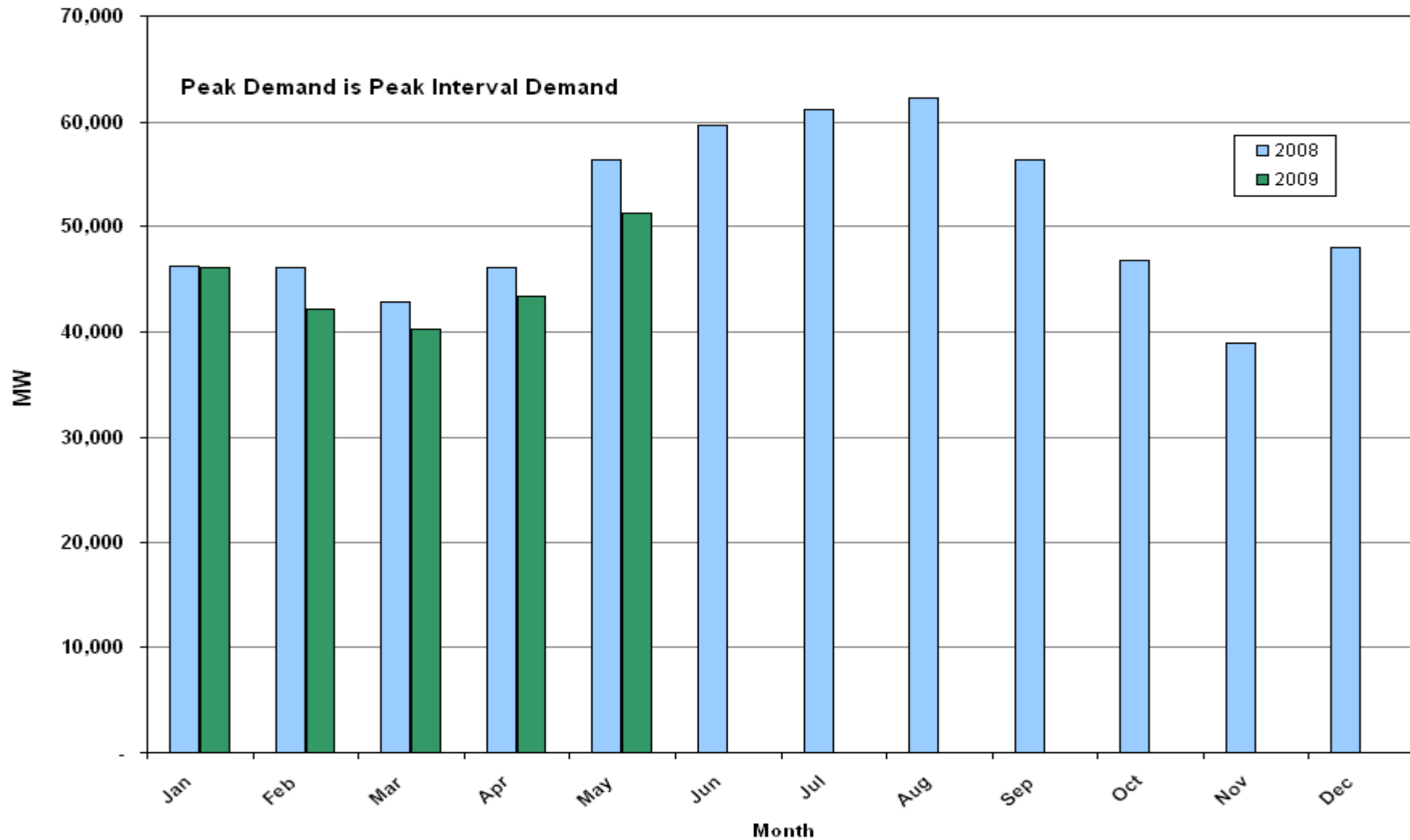
# Wind Forecast Error Analysis – All Hours

## Wind Output/Curtailments vs. Day Ahead (1600) Resource Plans

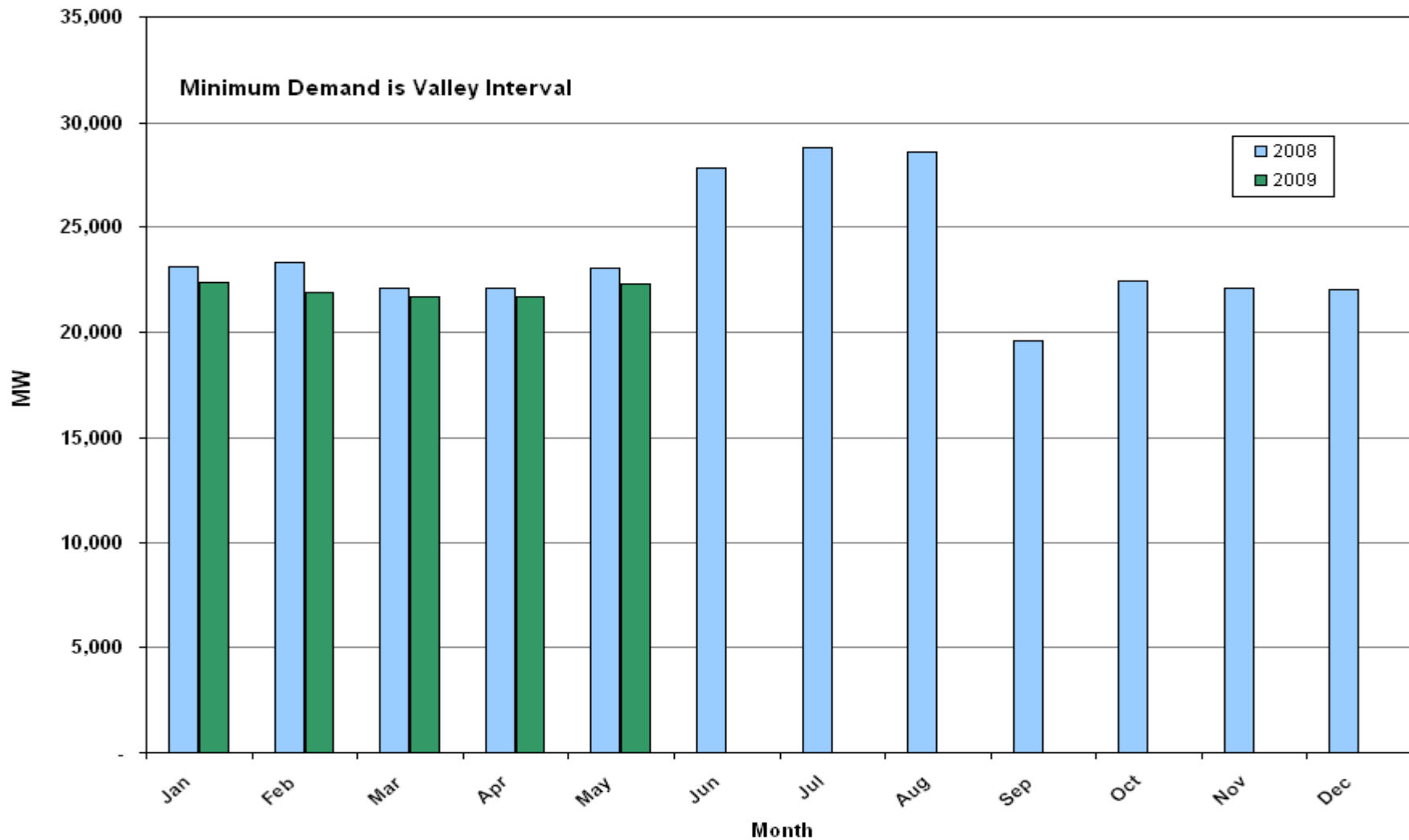


Note: QSEs must use AWST 80% probability of exceedance forecast for Day-Ahead Resource Plans

# Monthly Peak Demand: Actual



# Monthly Minimum Demand: Actual

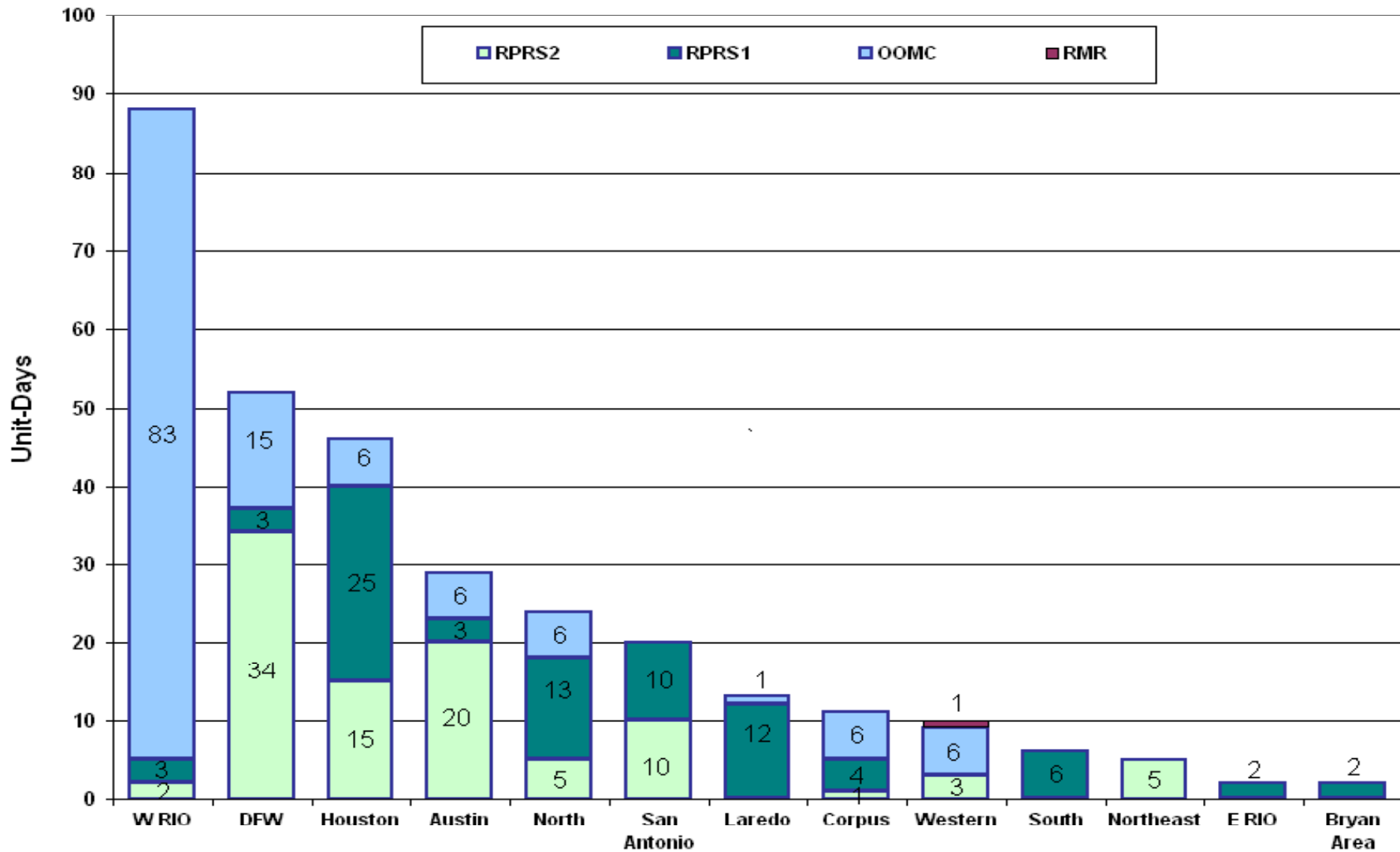


# Day-Ahead Load Forecast Performance in May 2009

	<b>Mean Absolute Percent Error (MAPE) for ERCOT Mid-Term Load Forecast (MTLF) Run at 16:00 Day Ahead</b>				
	<b>2006 MAPE</b>	<b>2007 MAPE</b>	<b>2008 MAPE</b>	<b>2009 MAPE (YTD)</b>	<b>May 2009 MAPE</b>
<b>Average Annual MAPE</b>	3.79	3.55	3.30	3.28	2.90



# Capacity Purchases of RMR, OOMC & RPRS to Manage Local Congestion in May 2009



# Zonal Congestion

<b>CSC</b>	<b>May 08 Days</b>	<b>Mar 09 Days</b>	<b>April 09 Days</b>	<b>May 09 Days</b>	<b>Last 12 Months Total Days (May 08 – May 09)</b>
<b>North – Houston</b>	17	9	6	<b>2</b> May – 11, 14	58
<b>North – West</b>	1	2	0	<b>0</b>	8
<b>West – North</b>	20	13	20	<b>16</b> May – 1, 7-16, 18-20, 26, 27	179
<b>South – North</b>	8	3	2	<b>0</b>	15
<b>North - South</b>	28	7	4	<b>4</b> May – 9, 11-13	86

## Significant System Incidents in May 2009

- **May 08<sup>th</sup> at 23:40**
  - Capacitor bank failed at Airline CSW. Approximately 137 MW of load lost for 2<sup>1/2</sup> hours in Corpus Christi area due to relay misoperation.
- **May 15<sup>th</sup> at 15:35**
  - Transmission Emergency Notice issued for the Laredo Area. Laredo Import limit was approached and Emergency Energy (50 MW) from CFE to ERCOT was brought in across the Laredo VFT starting at 1600.
- **May 15<sup>th</sup> at 19:22**
  - Simultaneous loss of two 138/69 kV transformers and two 138 kV lines due to lightning strike in Lamesa substation. Approximately 4 MW load lost.

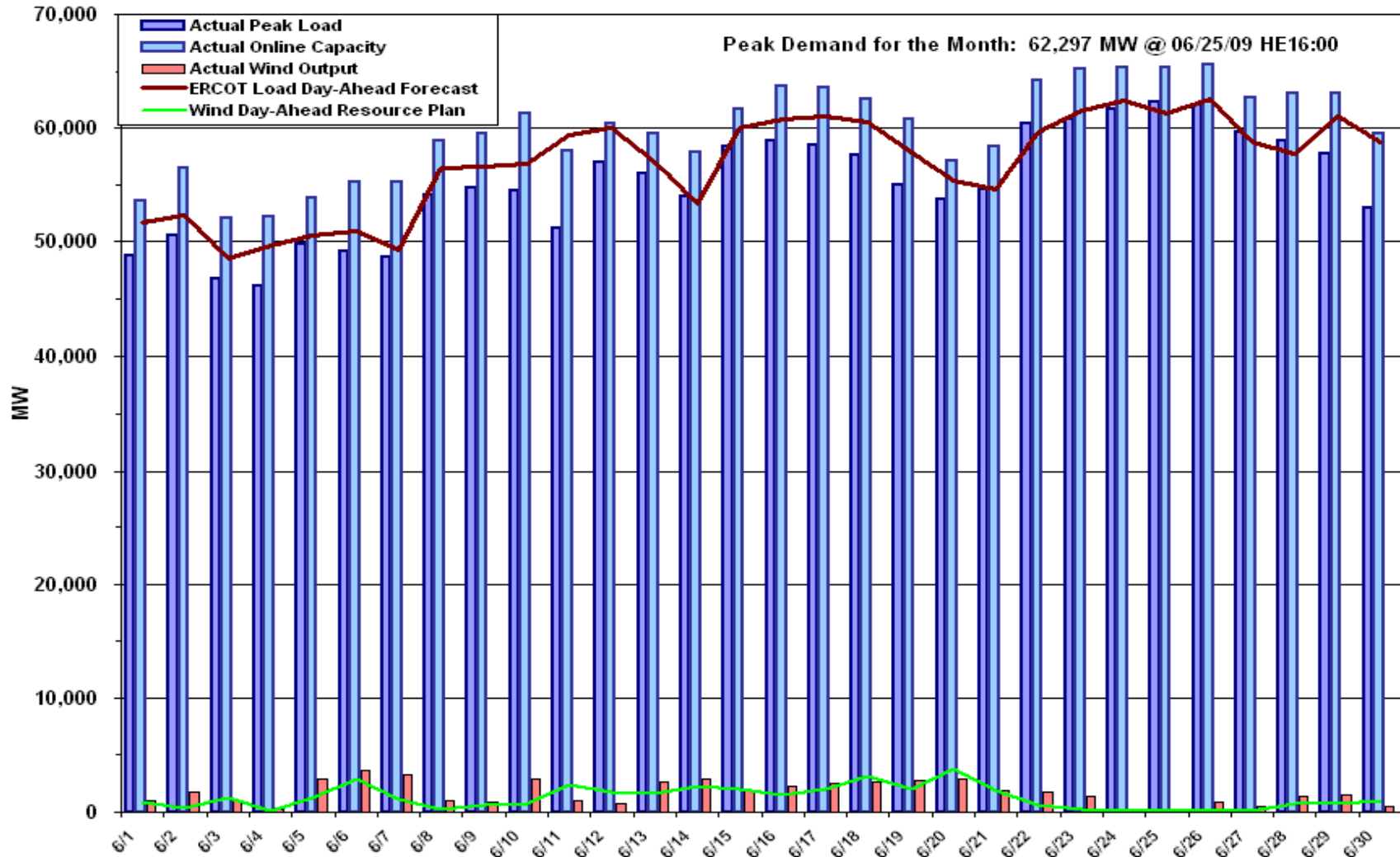
# Advisories and Watches in May 2009

- **Advisories issued for Adjusted Responsive Reserve (ARR) below 3000 MW.**
  - Issued 2 Days.
- **No Watches issued for ARR below 2500 MW .**
- **Transmission Watches (operation beyond n-1 criteria)**
  - May 2<sup>nd</sup> ERCOT issued a Transmission Watch for the West Texas area due to numerous transmission outages caused by weather conditions.
  - May 2<sup>nd</sup> ERCOT issued a Transmission Watch due to the forced outage of a 345KV bus in the North Zone. The loss of Comanche Peak SES - Johnson Switch 345KV or Concord 345/138KV autotransformer or Johnson Switch - Venus Switch 345KV overloads Rocky Creek - Wolf Hollow 345KV and Wolf Hollow - Comanche Peak SES 345KV.
  - May 20<sup>th</sup> ERCOT issued a Transmission Watch for the loss of Falfurrias - North Edinburg 138KV overloads Alice - Falfurrias 69KV. ERCOT received emergency energy from CFE across the Laredo VFT.
  - May 23<sup>rd</sup>, 24<sup>th</sup>, 26<sup>th</sup>, 27<sup>th</sup>, 28<sup>th</sup>, 29<sup>th</sup> ERCOT issued Transmission Watches due to outages. The loss of Dilley Switch- San Miguel Switch 138KV overloads Pearsall Switch - Derby Sub 69KV. ERCOT received emergency energy from CFE across the Laredo VFT.
  - May 25<sup>th</sup> at 13:03 ERCOT issued a Transmission Watch due to outages. Loss of San Miguel autotransformer #1 overloads San Miguel autotransformer #2. ERCOT received emergency energy from CFE across the Laredo VFT and South DC tie.
  - May 27<sup>th</sup> at 11:30 ERCOT issued a Transmission Watch due to outages. Loss of Nelson Sharpe -Rio Hondo 345KV overloads Lon Hill - North Edinburg 345KV.
- **No Energy Emergency Alerts (EEAs) .**
- Note : Effective May 1<sup>st</sup> 2009, OGRR213, – Synchronization with PRR775, Changed the defined term “Alert” to “Watch” and Emergency Electric Curtailment Plan (EECP) to Energy Emergency Alert (EEA).

## Other Items

- **May 13<sup>th</sup> at 23:10**
  - Held the 23:15 Real-time Balancing Energy deployments for interval 23:30 due to deployments not sent to QSE's. Resumed with the 23:45 interval.
- **May 28<sup>th</sup> at 09:13**
  - Loss of communications at ERCOT Taylor site for approximately 5 minutes due to electrical fault in data center.

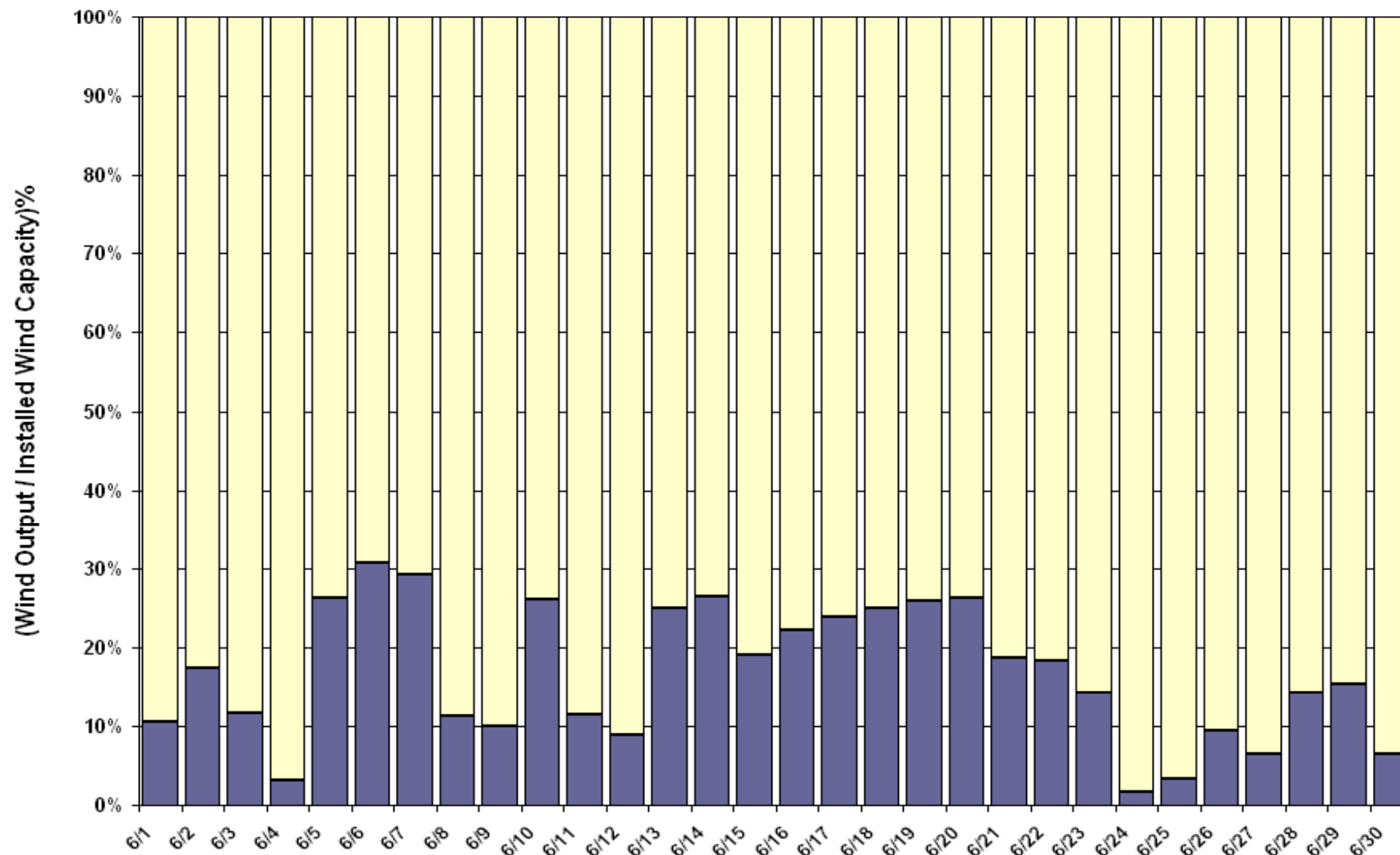
# June 2009 Daily Peak Demand: Hourly Average Actual vs Forecast, Resource Plan & On-line Capacity at Peak



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



# June 2009 Actual Wind Output as a Percentage of the Total Installed Wind Capacity at Peak

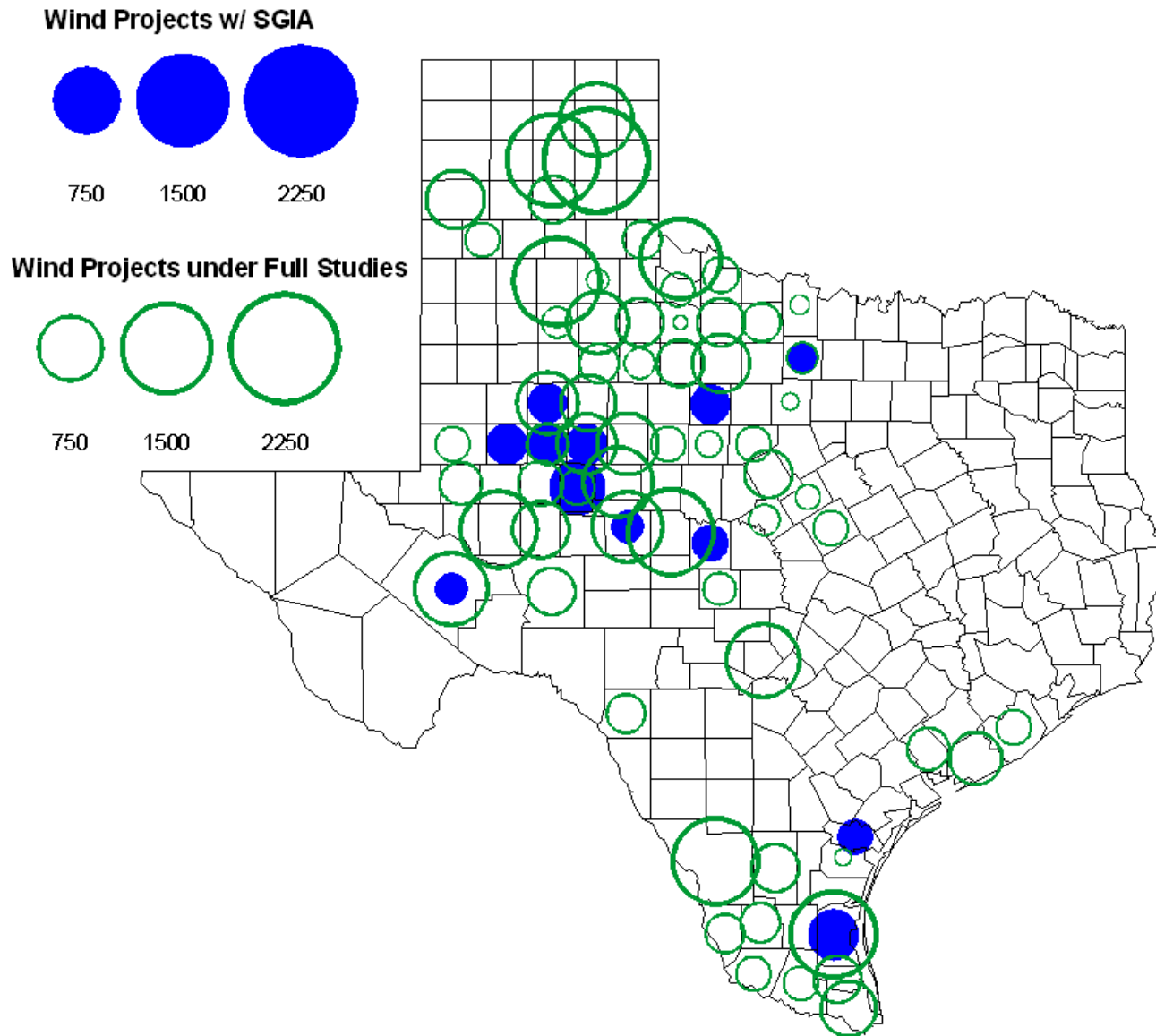


## Planning Summary

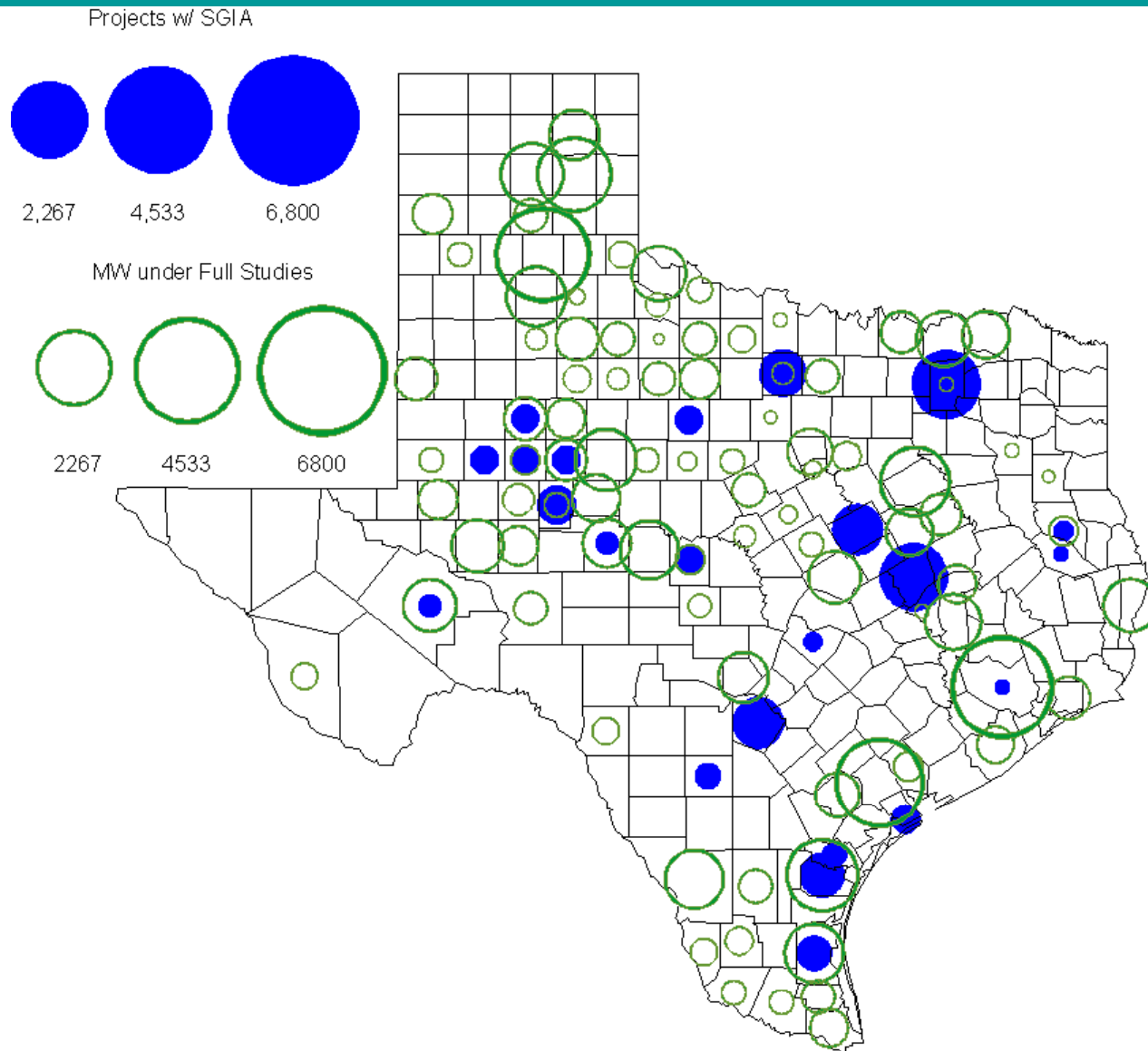
- **ERCOT is currently tracking 242 active generation interconnection requests totaling almost 97,000 MW. This includes over 49,000 MW of wind generation.**
- **Regional Planning is currently reviewing proposed transmission improvements with a total cost of \$948.3 Million**
- **Transmission Projects approved in 2009 total \$ 105 Million**
- **All projects (in engineering, routing, licensing and construction) totals approximately \$4.1 Billion**
- **Transmission Projects energized in 2008 total about \$453 million**



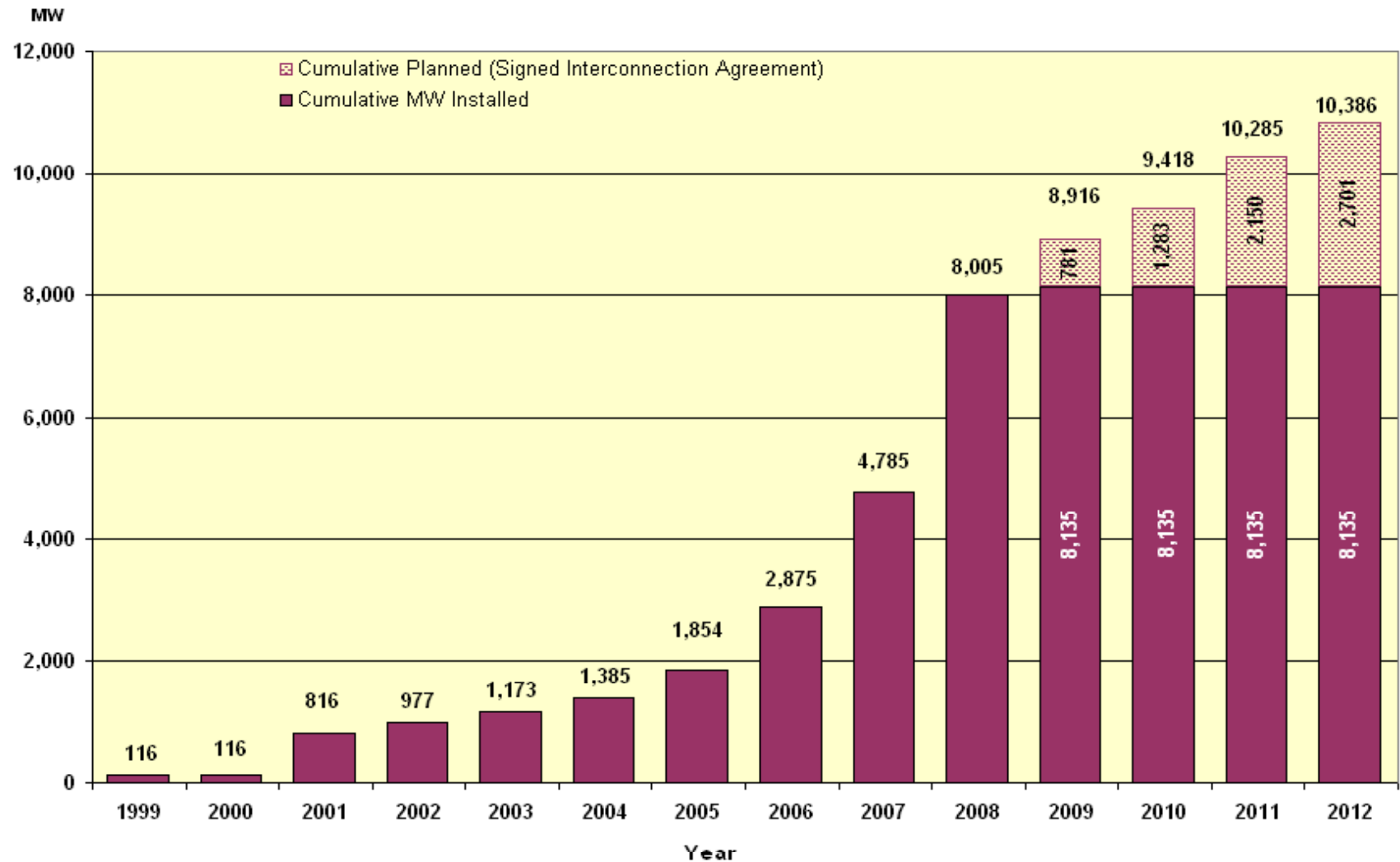
# County Location of Installed Generation and Interconnection Requests (Wind) June 2009



# County Location of Installed Generation and Interconnection Requests (all fuels) June 2009

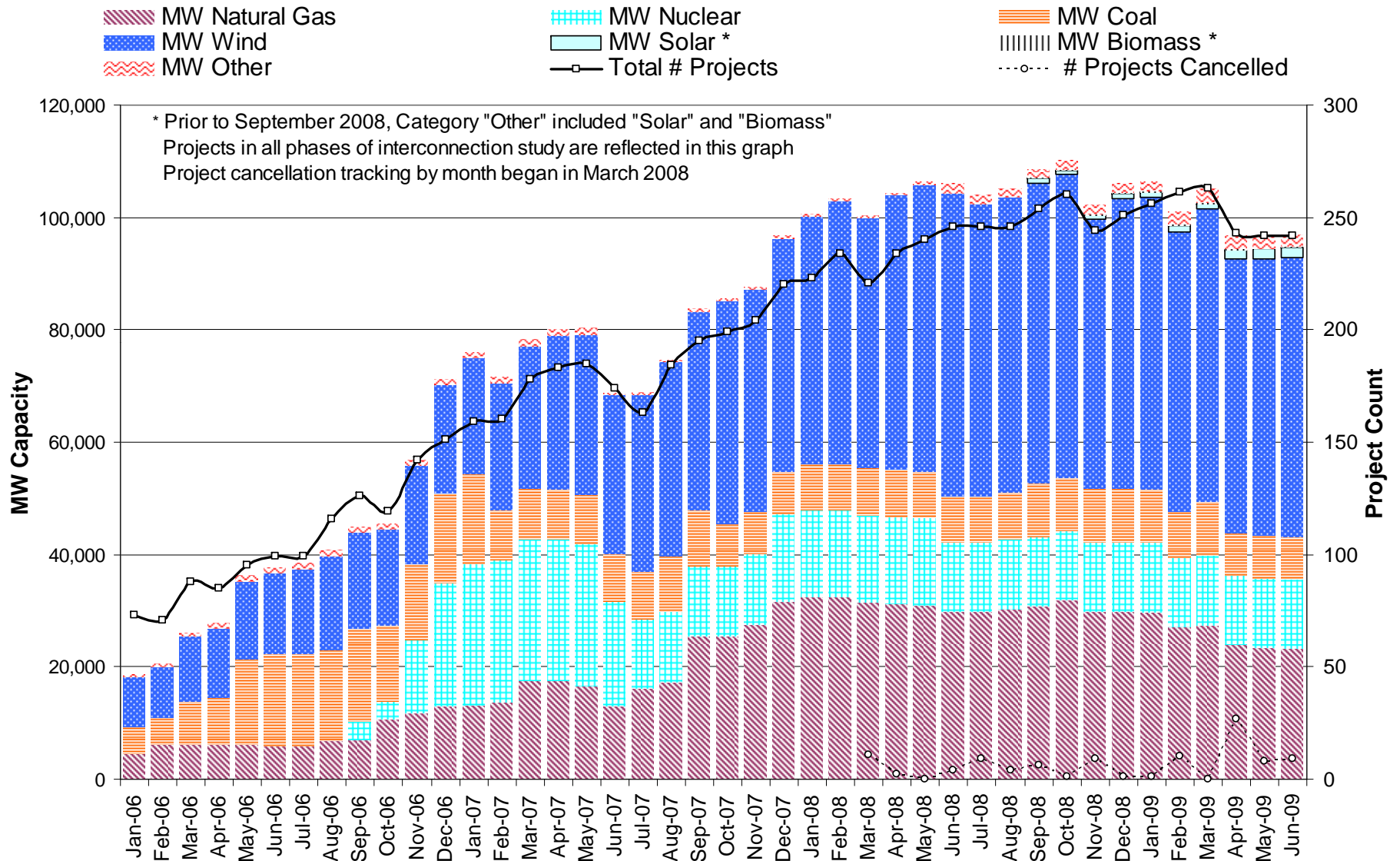


# Wind Generation



(as of June 30, 2009)

# Generation Interconnection Activity by Fuel



# Generation Interconnection Activity by Project Phase

