



# Capacity, Demand and Reserves Report

*Bill Bojorquez*  
*Board of Directors Meeting*  
*May 16, 2007*

- **Treatment of new generation:**
  - Signed generation interconnection agreement **and** air permit.
- **Change capacity value for wind:**
  - Base wind capacity value on Effective Load Carrying Capability (ELCC) from ERCOT's Loss of Load Probability Study (LOLP)—currently measured at 8.7% of installed capacity.

# Additional April Board Meeting Comments

- Remove total “potential resources” at bottom of report
- Break down “uncommitted” resources and consider a new title
- Clarify units in Full Interconnection Study phase are included in the uncommitted category
- Clarify (or consolidate) multiple “mothball” capacity and wind capacity lines in the report
- Explain Private Networks
- Eliminate footnotes
- Treatment of nuclear plants
- How often should the ELCC for wind be computed?
- How often should the CDR be prepared?

## 2006 Report on the Capacity, Demand, and Reserves in the ERCOT Region

### Summer Summary

Load Forecast:	2006	2007	2008	2009	2010	2011
Total Summer Peak Demand, MW	61,656	63,222	64,318	65,950	67,548	69,034
less LAARs Serving as Responsive Reserve, MW	1,112	1,112	1,112	1,112	1,112	1,112
less LAARs Serving as Non-Spinning Reserve, MW	0	0	0	0	0	0
less BULs, MW	0	0	0	0	0	0
<b>Firm Load Forecast, MW</b>	<b>60,544</b>	<b>62,110</b>	<b>63,206</b>	<b>64,838</b>	<b>66,436</b>	<b>67,922</b>

Resources:	2006	2007	2008	2009	2010	2011
Installed Capacity, MW	58,831	58,831	58,831	58,831	58,831	58,831
Capacity from Private Networks, MW	6,419	6,575	6,279	6,279	6,279	6,279
Wind Generation, MW	2,383	2,383	2,383	2,383	2,383	2,383
RMR Units under Contract, MW	267	170	170	170	0	0
<b>Operational Generation, MW</b>	<b>67,900</b>	<b>67,959</b>	<b>67,663</b>	<b>67,663</b>	<b>67,493</b>	<b>67,493</b>
Asynchronous Ties, MW	856	1,106	1,106	1,106	1,106	1,106
Switchable Units, MW	2,810	2,810	2,810	2,810	2,810	2,810
Mothballed Units, MW	8,833	8,930	8,930	8,930	9,100	9,100
Planned Units (not wind) with Signed IA and Air Permit, MW	0	550	550	550	1,300	1,300
Planned Wind Units with Signed IA, MW	0	1,085	1,576	1,576	1,576	1,576
<b>Total Resources, MW</b>	<b>80,399</b>	<b>82,440</b>	<b>82,635</b>	<b>82,635</b>	<b>83,385</b>	<b>83,385</b>

less 97.4% Existing Wind Generation, MW	2,321	2,321	2,321	2,321	2,321	2,321
less 50% of Asynchronous Ties, MW	428	553	553	553	553	553
less Switchable Units Unavailable to ERCOT, MW	165	0	0	0	0	0
less Mothballed Units Unavailable, MW	6,729	6,933	7,140	7,144	7,317	7,280
less 97.4% Planned Wind Generation, MW	0	1,057	1,535	1,535	1,535	1,535
less Retiring Units, MW	0	0	393	451	451	451
<b>Resources, MW</b>	<b>70,756</b>	<b>71,577</b>	<b>70,693</b>	<b>70,632</b>	<b>71,208</b>	<b>71,245</b>

<b>Reserve Margin</b>	<b>16.9%</b>	<b>15.2%</b>	<b>11.8%</b>	<b>8.9%</b>	<b>7.2%</b>	<b>4.9%</b>
(Resources - Firm Load Forecast)/Firm Load Forecast						

#### Other Potential

<del>Uncommitted</del> Resources*, MW	0	6,575	8,300	10,535	14,000	12,302
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List Mothball Capacity, DC ties and planned units in Full Interconnection study subtotals

<del>Total Potential Resources (including Uncommitted), MW</del>	<del>70,756</del>	<del>78,152</del>	<del>78,993</del>	<del>81,167</del>	<del>85,208</del>	<del>83,547</del>
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~~\* Uncommitted Resources includes:~~  
~~"Mothballed" capacity designated as unavailable to ERCOT,~~  
~~50% of Asynchronous Ties and new fossil and wind generating~~  
~~units with transmission interconnection requests in process (but~~  
~~not with a Signed IA). Wind generating units are discounted by~~  
~~the same factor as applied to existing wind generation.~~

# 2007 Report on the Capacity, Demand, and Reserves in the ERCOT Region

## Summer Summary

**DRAFT**

<b>Load Forecast:</b>	<b>2007</b>	<b>2008</b>	<b>2009</b>	<b>2010</b>	<b>2011</b>	<b>2012</b>
Total Summer Peak Demand, MW	63,794	65,135	66,508	67,955	69,456	70,733
less LAARs Serving as Responsive Reserve, MW	1,125	1,125	1,125	1,125	1,125	1,125
less LAARs Serving as Non-Spinning Reserve, MW	0	0	0	0	0	0
less BULs, MW	0	0	0	0	0	0
<b>Firm Load Forecast, MW</b>	<b>62,669</b>	<b>64,010</b>	<b>65,383</b>	<b>66,830</b>	<b>68,331</b>	<b>69,608</b>

<b>Resources:</b>	<b>2007</b>	<b>2008</b>	<b>2009</b>	<b>2010</b>	<b>2011</b>	<b>2012</b>
Installed Capacity, MW	61,249	61,249	61,249	61,249	61,249	61,249
Capacity from Private Networks, MW	6,513	6,217	6,217	6,217	6,217	6,217
Effective Load-Carrying Capability (ELCC) of Wind Generation	298	298	298	298	298	298
RMR Units under Contract, MW	169	169	169	169	0	0
<b>Operational Generation, MW</b>	<b>68,229</b>	<b>67,933</b>	<b>67,933</b>	<b>67,933</b>	<b>67,764</b>	<b>67,764</b>
50% of Non-Synchronous Ties, MW	553	553	553	553	553	553
Switchable Units, MW	2,848	2,848	2,848	2,848	2,848	2,848
Available Mothballed Generation , MW	165	510	419	594	558	522
Planned Units (not wind) with Signed IA and Air Permit, MW	0	550	550	550	1,300	2,100
ELCC of Planned Wind Units with Signed IA, MW	0	171	174	174	174	174
<b>Total Resources, MW</b>	<b>71,795</b>	<b>72,565</b>	<b>72,477</b>	<b>72,652</b>	<b>73,197</b>	<b>73,961</b>

less Switchable Units Unavailable to ERCOT, MW	158	317	317	0	0	0
less Retiring Units, MW	0	375	375	433	433	433
<b>Resources, MW</b>	<b>71,637</b>	<b>71,873</b>	<b>71,785</b>	<b>72,219</b>	<b>72,764</b>	<b>73,528</b>

<b>Reserve Margin</b>	<b>14.3%</b>	<b>12.3%</b>	<b>9.8%</b>	<b>8.1%</b>	<b>6.5%</b>	<b>5.6%</b>
(Resources - Firm Load Forecast)/Firm Load Forecast						

<b>Other Potential Resources:</b>	<b>553</b>	<b>9,328</b>	<b>14,634</b>	<b>16,086</b>	<b>17,839</b>	<b>17,892</b>
Mothballed Capacity , MW	0	5,197	5,288	5,113	5,318	5,354
50% of Non-Synchronous Ties, MW	553	553	553	553	553	553
Planned Units in Full Interconnection Study Phase, MW	0	3,579	8,793	10,420	11,968	11,985

- **TAC and ERCOT propose December and May reports**
  - May report will include new load forecast and all worksheets
  - December report will only include summer summary table and list of resources – no updated load forecast
- **Requirements to support two CDR reports each year:**
  - Mothball return probability updated twice per year (PRR 713)

# Board Requested Actions

- **Endorse the CDR format changes**
- **Endorse the proposed frequency of the CDR report preparation to twice per year in December and May**

# BACKUP SLIDE (Terminology)

## **Available Mothballed Generation**

The probability that a mothballed unit will return to service multiplied by the capacity of the mothballed unit.

## **BULs**

Balancing up load. Loads capable of reducing the need for electrical energy when providing Balancing Up Load Energy Service as described in the ERCOT Protocols, Section 6, Ancillary Services. BULs are not considered resources as defined by the ERCOT Protocols.

## **LaaRs (Loads acting as resource)**

Load capable of reducing or increasing the need for electrical energy or providing Ancillary Services to the ERCOT System, as described in the ERCOT Protocols, Section 6, Ancillary Services. These Resources may provide the following Ancillary Services: Responsive Reserve Service, Non-Spinning Reserve Service, Replacement Reserve Service, and Regulation Service. The Resources must be registered and qualified by ERCOT and will be scheduled by a Qualified Scheduling Entity.

## **Mothballed Capacity**

The difference in the available mothballed generation (see definition above) and the total mothballed capacity.

## **Mothballed Unit**

A generation resource for which a generation entity has submitted a Notification of Suspension of Operations, for which ERCOT has declined to execute an RMR agreement, and for which the generation entity has not announced retirement of the generation resource.

## **Net Dependable Capability**

Maximum sustainable capability of a generation resource as demonstrated by performance testing.

## **Net Dependable Wind Generation**

The amount of wind generation that the Generation Adequacy Task Force (GATF) has mandated to be included in the CDR. The value is 8.7% of the capacity, both installed capacity and planned capacity.

## **Non-synchronous Tie**

Any non-synchronous transmission interconnection between ERCOT and non-ERCOT electric power systems



# BACKUP SLIDE (Terminology)

## **Other Potential Resources**

Capacity resources that include one of the following:

- Remaining “mothballed” capacity not included as resources in the reserve margin calculation,
- Remaining DC tie capacity not included as resources in the reserve margin calculation, and
- New generating units that have initiated full transmission interconnection studies through the ERCOT generation interconnection process (note that new wind generating units would be included based on the appropriate discounted capacity value applied to existing wind generating units).

## **Planned Units in Full Interconnection Study Phase**

To connect new generation to the ERCOT grid, a generation developer must go through a set procedure. The first step is a high-level screening study to determine the effects of adding the new generation on the transmission system. The second step is the full interconnection studies. These are detailed studies done by the transmission owners to determine the effects of the addition of new generation on the transmission system

## **Private Networks**

An electric network connected to the ERCOT transmission grid that contains load that is not directly metered by ERCOT (i.e., load that is typically netted with internal generation).

## **Reliability Must-Run (RMR) Unit**

A generation resource unit operated under the terms of an agreement with ERCOT that would not otherwise be operated except that they are necessary to provide voltage support, stability or management of localized transmission constraints under first contingency criteria.

## **Signed IA (Interconnection Agreement)**

An agreement that sets forth requirements for physical connection between an eligible transmission service customer and a transmission or distribution service provider

## **Switchable Unit**

A generation resource that can be connected to either the ERCOT transmission grid or a grid outside the ERCOT Region.