



2006 Report on the Capacity, Demand, & Resources for the ERCOT Region

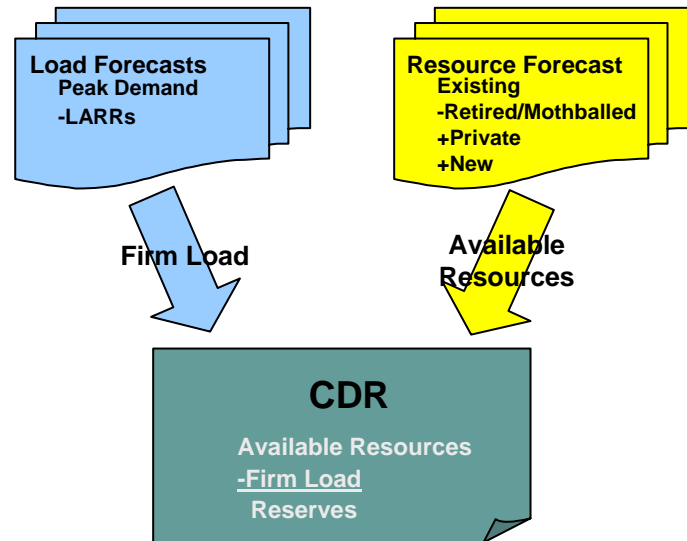
**Board of Directors
June 1, 2006**

**Bill Bojorquez
System Planning**

Elements of the CDR Report

In order to adequately prepare the CDR, ERCOT planners have compiled the best information available with regards to forecasted load demands and available resources.

- Load Forecasts
- LAARs
- Existing Resources
- Wind Generation
- Mothballed Units
- RMR Units
- Private Networks
- New Resources



The CDR is based on a single “**snapshot**” in time. Changes will, and do, occur on a continuous basis and may not be reflected in the current CDR.



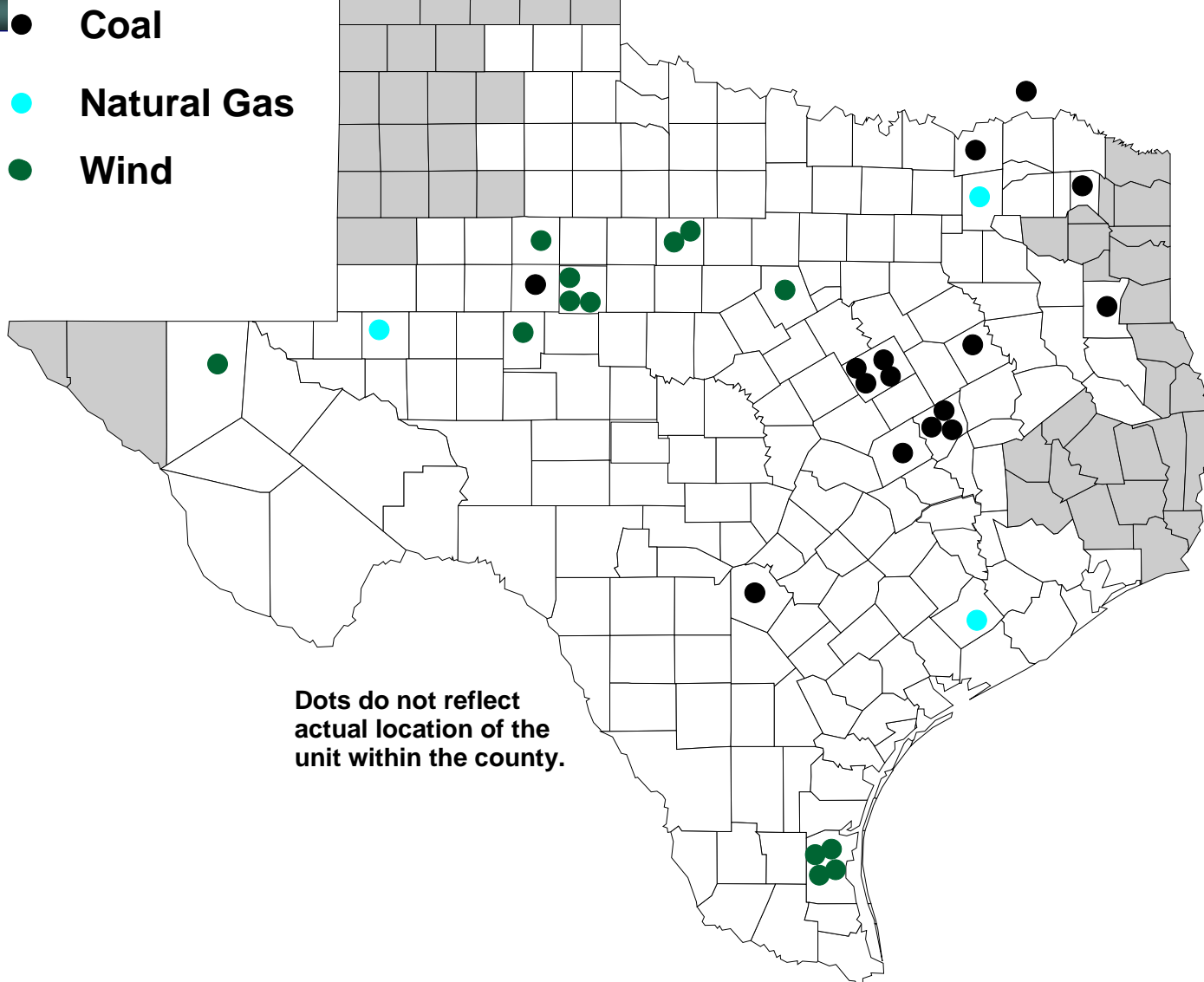
GENERATION INTERCONNECTION ACTIVITY

Currently tracking 99 active generation interconnection or change requests

	North	South	West	Total
Capacity for Grid, MW	14,550	9,730	10,779	35,059
Includes Wind, MW	480	2,930	9,237	12,647

Fuel Type	Not Public	Public	Total
Coal	3,992	11,245	15,237
Gas	3,900	2,300	6,200
Other	975	0	975
Wind	10,002	2,645	12,647
Grand Total	18,869	16,590	35,059

Public Generation Interconnect Requests by Fuel Type





Capacity, Demand, & Reserves in the ERCOT Region for 2006-2011

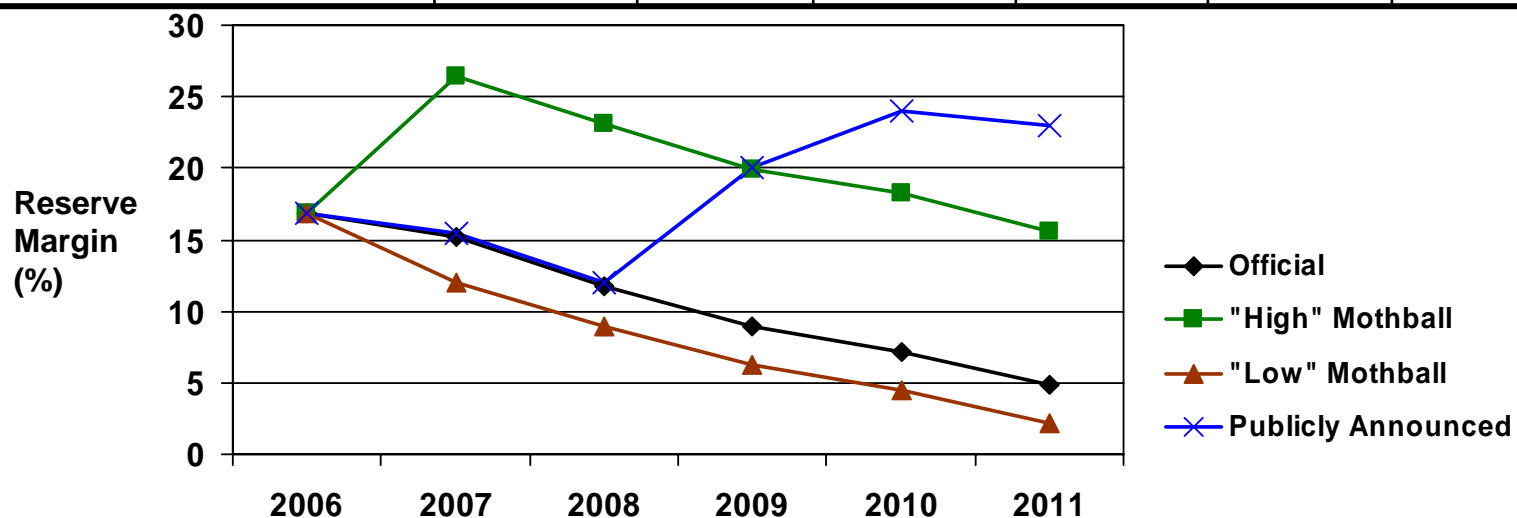
(Summer Summary)

	2006	2007	2008	2009	2010	2011
Load Forecast (MW):						
Total Summer Peak Demand	61,656	63,222	64,318	65,950	67,548	69,034
Less LAARs Serving as Responsive	(1,112)	(1,112)	(1,112)	(1,112)	(1,112)	(1,112)
Firm Load Forecast (MW):	60,544	62,110	63,206	64,838	66,436	67,922
Resources (MW):						
Installed Capacity	58,831	58,831	58,831	58,831	58,831	58,831
Less Retiring Units	0	0	(393)	(451)	(451)	(451)
Capacity from Private Networks	6,419	6,575	6,279	6,279	6,279	6,279
2.6% of Wind Generation	62	62	62	62	62	62
RMR Under Contract	267	170	170	170	0	0
50% of Asynchronous Ties	428	553	553	553	553	553
Switchable Units	2,645	2,810	2,810	2,810	2,810	2,810
Mothballed Units Available	2,104	1,997	1,790	1,787	1,783	1,820
Planned Units (Wind w/ IA -- 2.6%)	0	25	38	38	38	38
Planned Units (Fossil w/ IA)	0	550	550	550	1,300	1,300
Total Resources (MW):	70,756	71,573	70,690	70,628	71,205	71,242
OFFICIAL RESERVE MARGIN:	16.9%	15.2%	11.8%	8.9%	7.2%	4.9%

Alternate Scenarios for 2006 CDR

(Summer)

	2006	2007	2008	2009	2010	2011
Firm Load Forecast (MW):	60,544	62,110	63,206	64,838	66,436	67,922
Total Resources (MW):	70,756	71,573	70,690	70,628	71,205	71,242
RESERVE MARGIN:	16.9%	15.2%	11.8%	8.9%	7.2%	4.9%
"High" Reserve Margin <i>(all Mothballed Units Return)</i>	16.9%	26.4%	23.1%	19.9%	18.2%	15.6%
"Low" Reserve Margin <i>(no Mothballed Units Return)</i>	16.9%	12.0%	9.0%	6.2%	4.5%	2.2%
Reserve Margin w/ Publicly Announced Thermal Units	16.9%	15.4%	12.0%	20.0%	24.0%	23.0%



Key Issues for 2006

In examining the 2006 CDR, ERCOT staff has identified several key issues for to aid in understanding this report.

- ❑ Projected annual demand growth has been increased from 1.8% to 2.3% based on updated social-economic data for Texas.
- ❑ ERCOT staff was unable to reconcile load demands which may be demand or price responsive, other than LAARs.
- ❑ Private Use Networks data was implemented for the first time.
- ❑ The TAC has charged the Generation Adequacy Task Force with reviewing all of the assumptions in the CDR calculation.



ERCOT Demand and Energy “Long-Term” --- Forecasting

- ❑ 1999 to 2004: Simple trend from historical peak and energy data applying engineering judgment.
- ❑ 2005 to current: Econometric techniques that consider long-term economic growth trends, weather profiles, and calendar variables that capture the hourly, weekly, monthly and yearly load patterns.

1. Develop equations describing:
 - Monthly Energy
 - Different equation for each season
 - Hourly Load Shape
 - Different equation for each season
2. Insert forecasted values for variables into equations
 - Except no economic growth for Load Shape equations
3. Produce hourly energy forecast by putting forecasted monthly energy under projected hourly load shape

Representative Variables from Selected Models

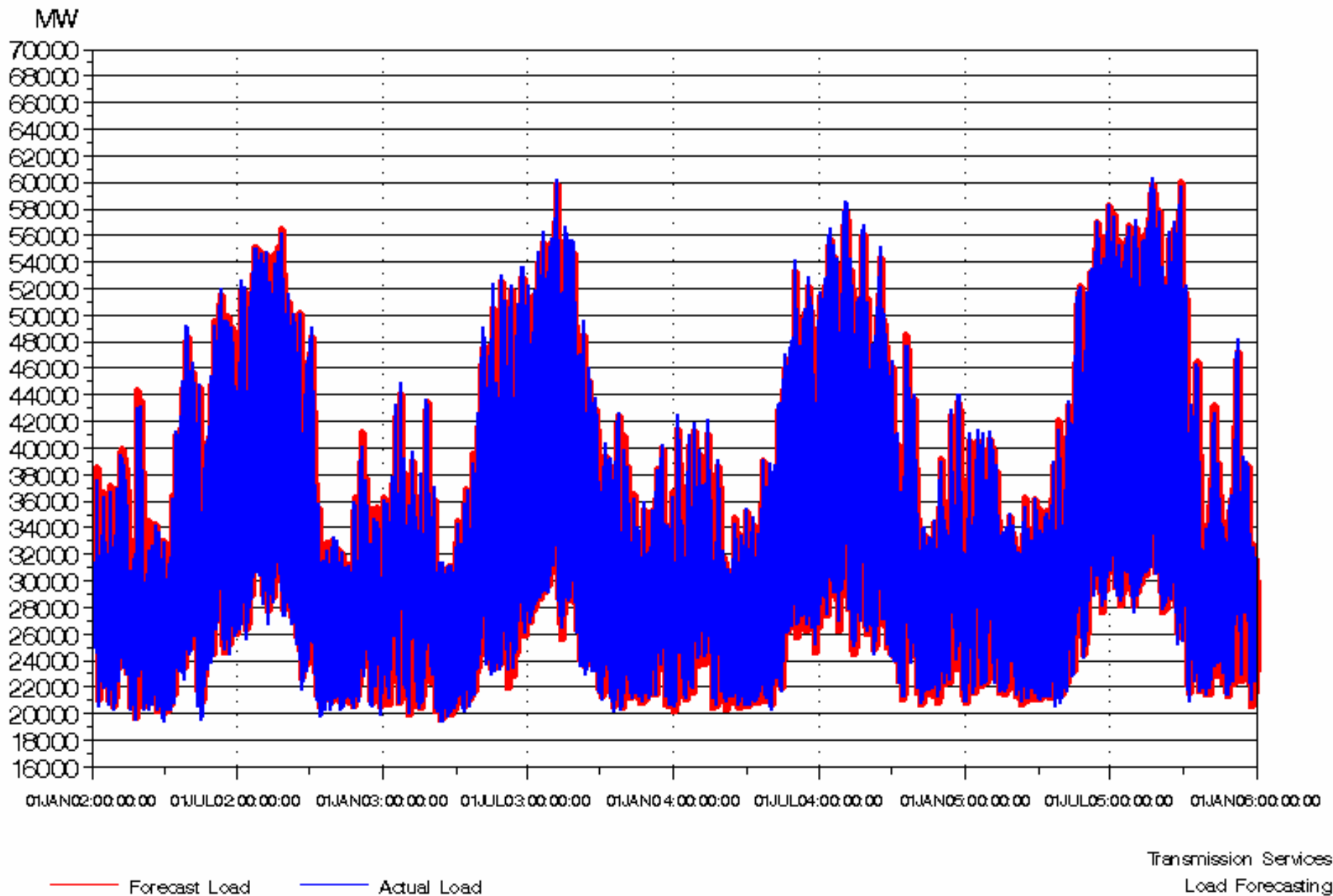
$\text{Load}_{\text{hour } i} = f\{\text{Population, Income, Hour of Day Indicators, Weekday/Weekend, Max Temps, Lagged Temps, Heat Index, Non-Linear Temp Components (square and cube), Temp Gains (diff between daily High and Low temps), Temp Build-up, Dew Point, Dark Fractions, Month*Temp Interactions}\}$

$\text{Energy}_{\text{Month } i} = f\{\text{CDD, HDD, Income, Population, Monthly Indicators}\}$

ERCOT Hourly Load Shape

Historical Fit (2002 – 2005)

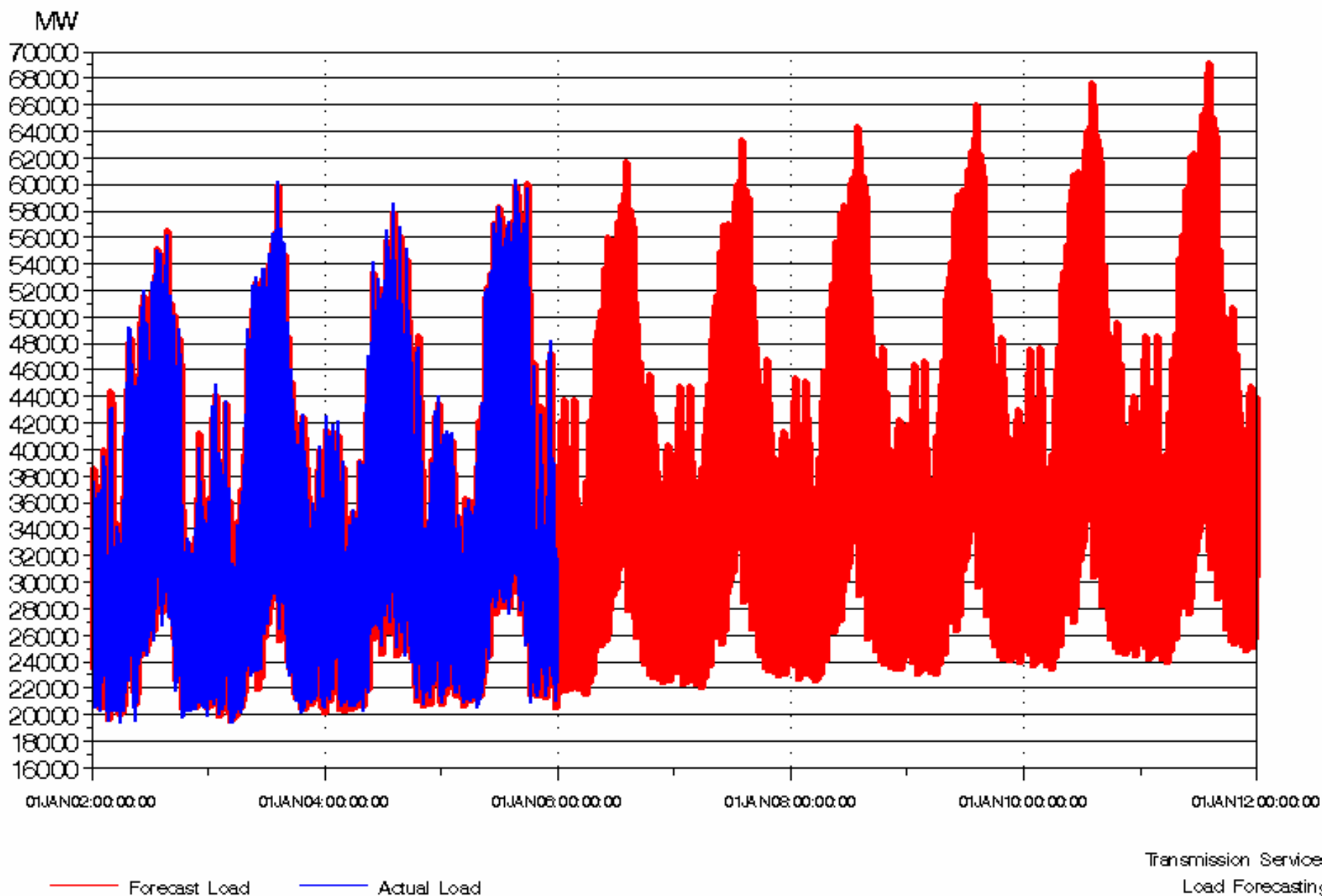
February 23, 2006



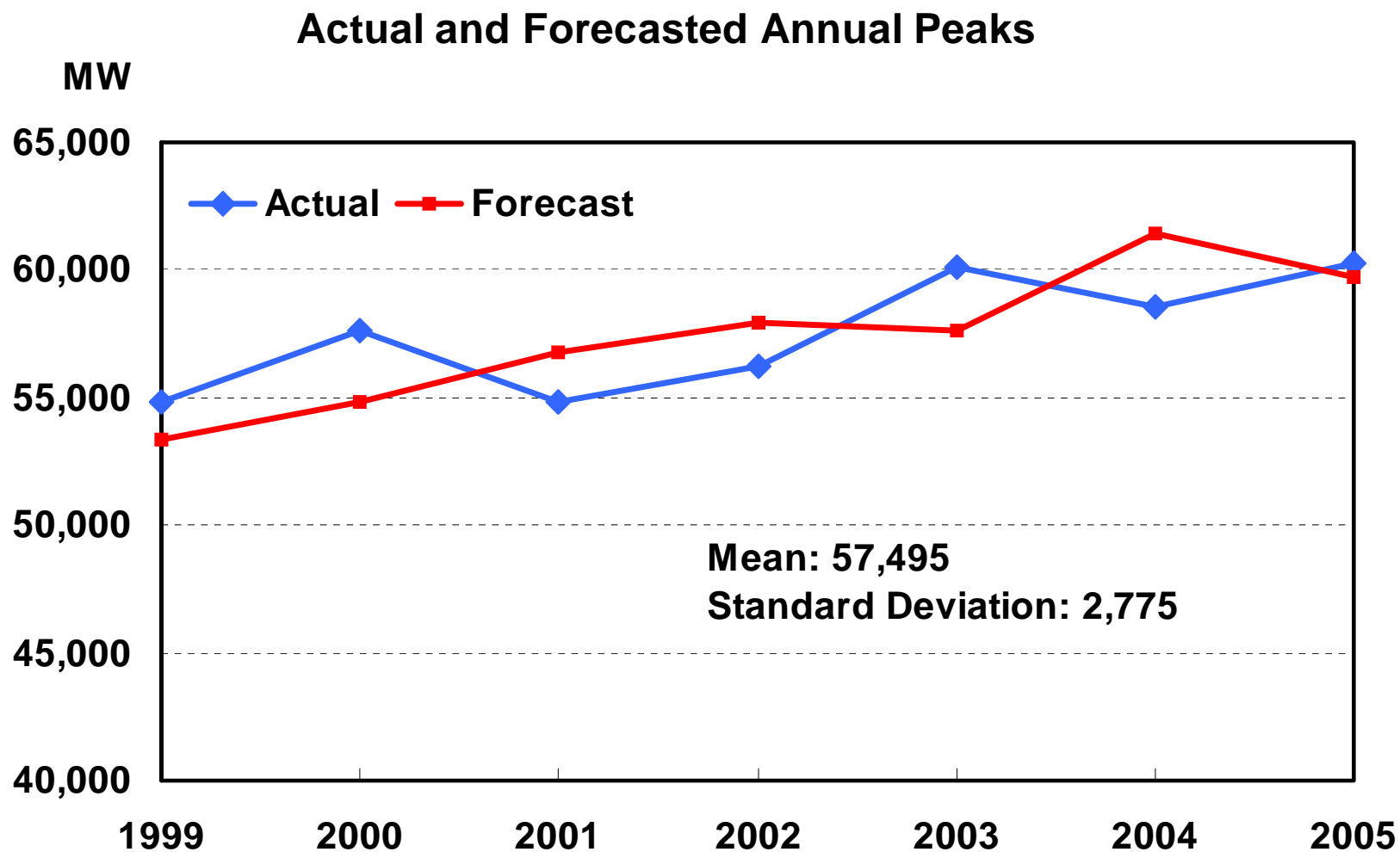
ERCOT Hourly Load Shape

Historical Fit/Forecast (2002 - 2012)

February 23, 2006

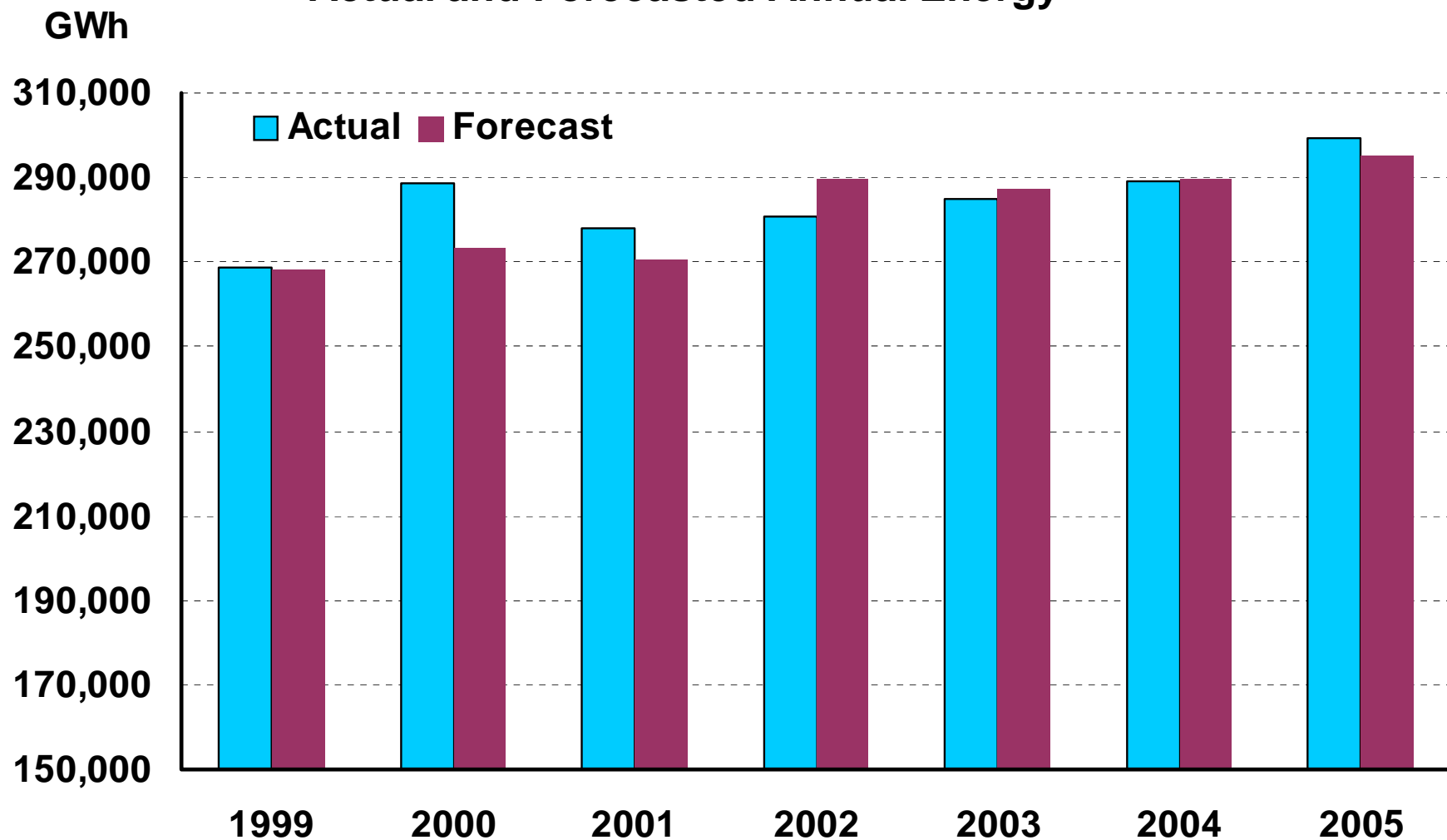


Forecast Performance



Forecast Performance

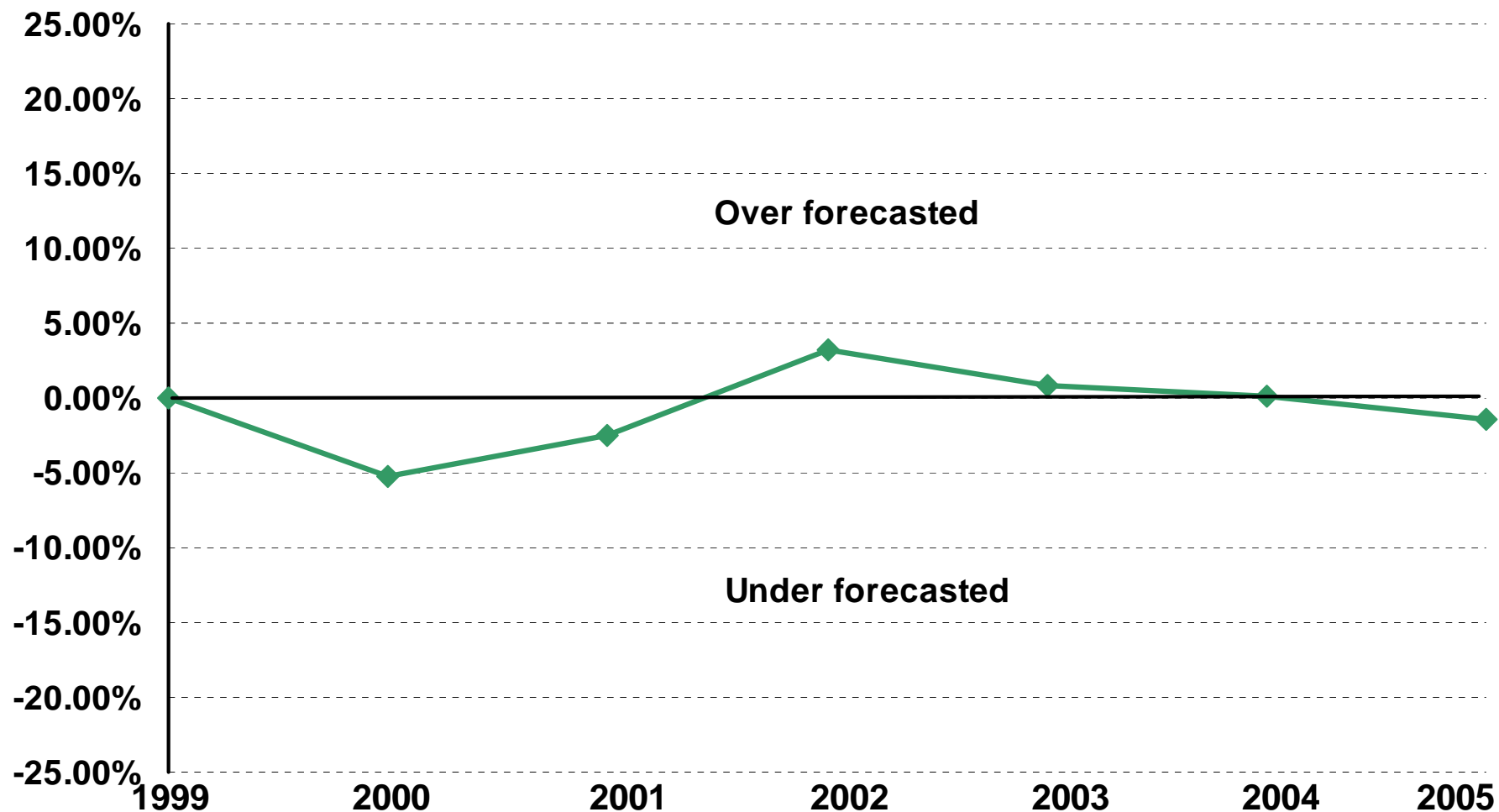
Actual and Forecasted Annual Energy



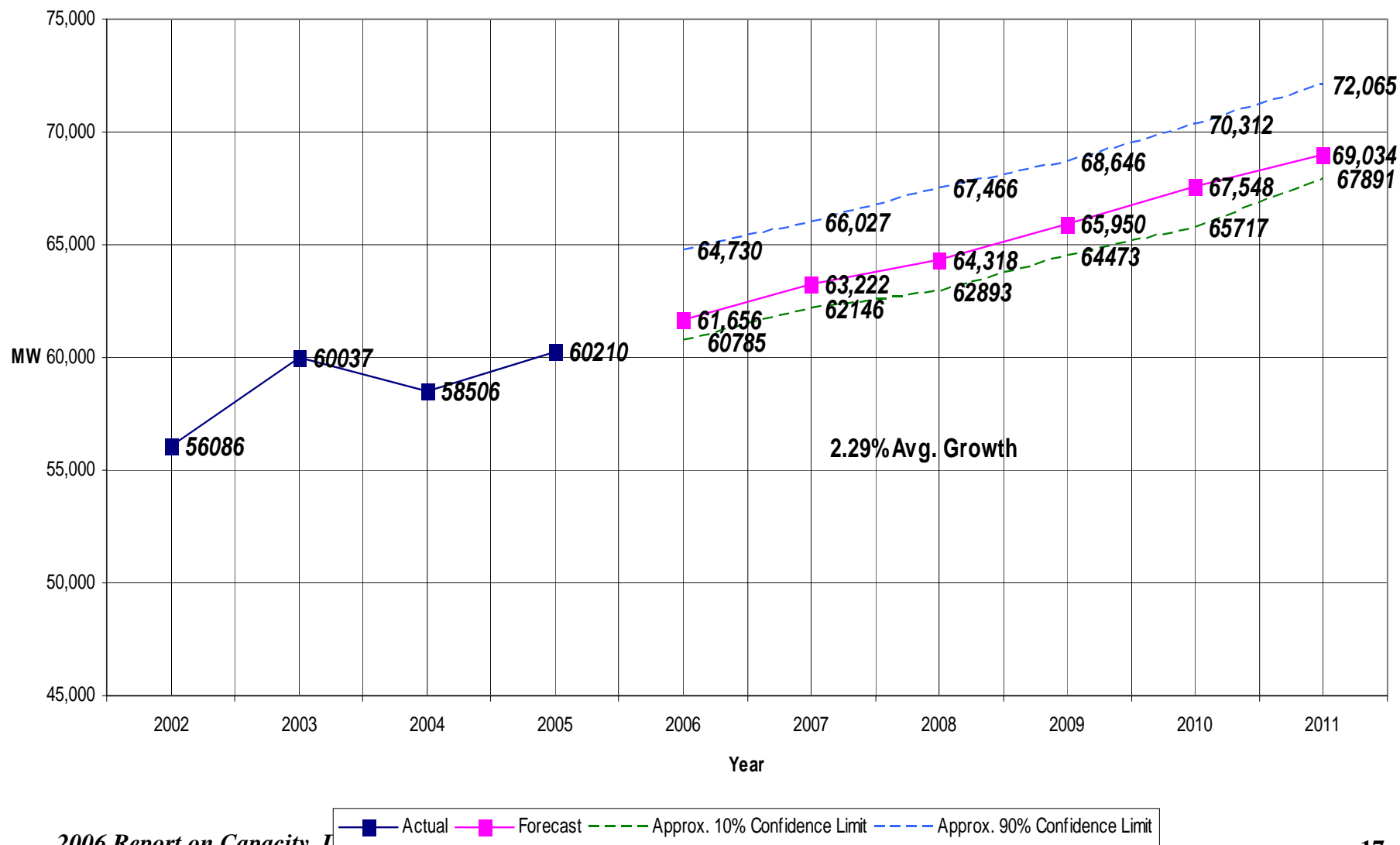


Forecast Performance

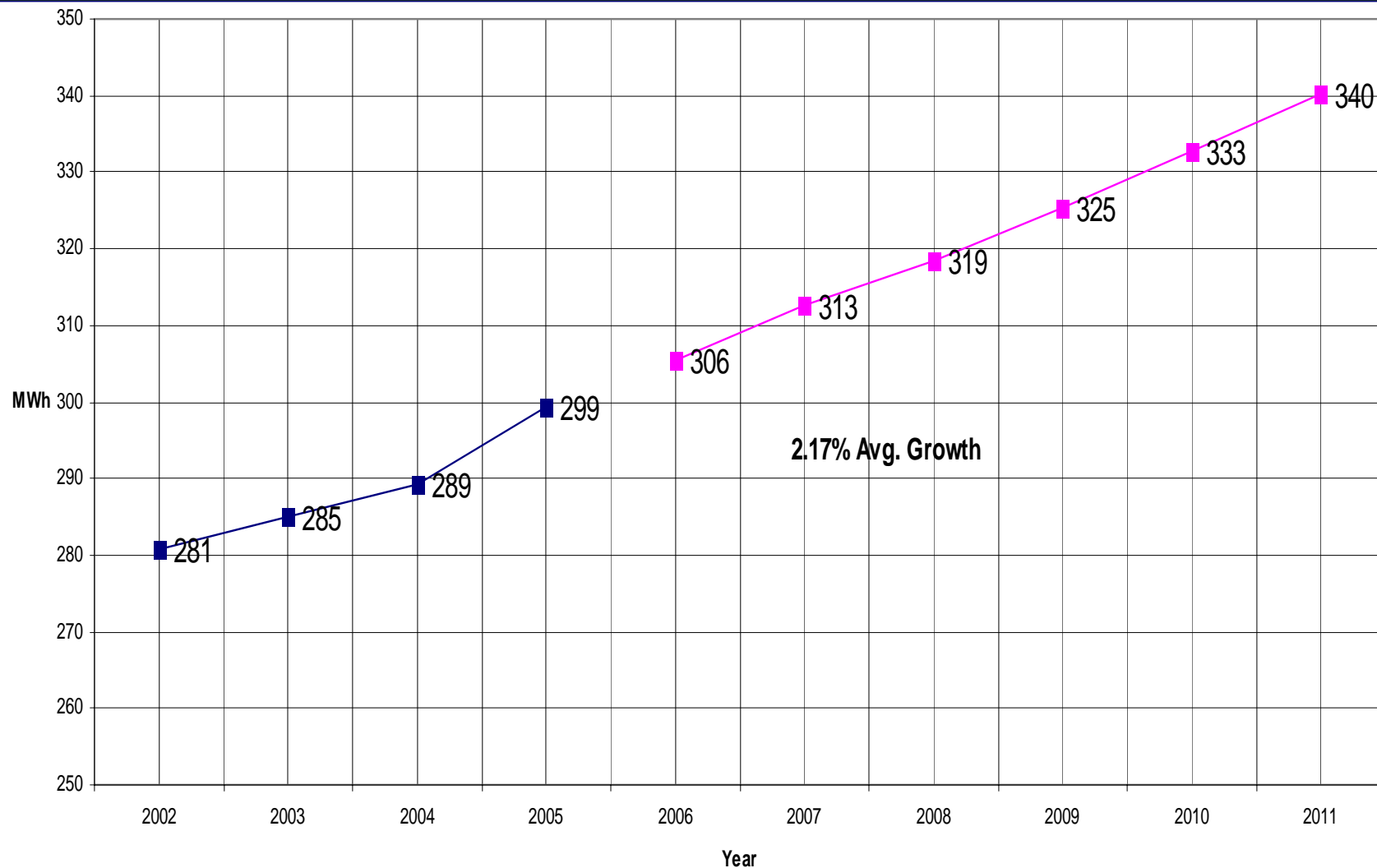
Difference in Actual and Forecasted Annual Energy



Peak Demand and Approx. 90% Confidence Limits



Energy Forecast





Questions?
