Seasonal Assessment of Resource Adequacy for the ERCOT Region
Winter 2011-2012

Draft 1 – Released December 1, 2011

SUMMARY

The ERCOT Region should have sufficient installed generating capacity for the Winter 2011/2012 season to cover peak demands resulting from normal or extreme weather conditions with a historically-typical amount of generation outages. However, if extreme weather results in a significantly-higher than normal number of forced generation outages and high electrical demand, the ERCOT system could have insufficient resources available to serve that demand. This insufficiency would result in the need for rotating outages to maintain the integrity of the system as a whole.

In addition, the continuing drought has resulted in the water sources for over 11,000 MW of generation to be at historically-low levels. Low water levels could result in some portion of this generating capacity becoming unavailable during the winter. Such unavailability would reduce the severity of forced outages or demand at which rotating outages could be required.

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Range of Likely Risks

	Installed Capacity, MW	64,363	Based on current Seasonal Maximum Sustainable Limits reported through Registration process
	Planned Units (not wind) with Signed IA and Air Permit, MW	30	Based on in-service dates provided by developers of generation resources
	Capacity from Private Networks, MW	4,390	Based on actual net PUN output during non-EEA periods of August 2011
	Switchable Units, MW	3,168	Installed capacity of units that can switch to other Regions
	less Switchable Units Unavailable to ERCOT, MW	(317)	Based on survey response of Switchable Unit owners
	RMR Units to be under Contract, MW	-	
	Effective Load-Carrying Capability (ELCC) of Wind Generation, MW	834	Based on 8.7% of installed capacity (Effective Load Carrying Capability) of wind per Planning Guide Section 8
	ELCC of Planned Wind Units with Signed IA, MW	-	Based on in-service dates provided by developers of generation resources
	50% of Non-Synchronous Ties, MW	553	Based on 50% of installed capacity of ties, per Planning Guide Section 8
a	**Total Resources, MW**	**73,021**	
b	**Winter Peak Demand, MW**	**53,562**	Updated 50% Probability forecast based on recent Moody's economic forecast and revised weather profile including 2011 impacts
c	**Reserve Capacity (a -b), MW**	**19,459**	

		Base Case	Extreme Conditions	Extreme/ Full Drought Impact *	* - Column added due to current drought risk
	Extreme Load Range	-	6,427	6,427	
	Typical Maintenance Outages	5,268	5,268	5,268	
	90th Percentile Maintenance Outages	-	4,244	4,244	
	Typical Forced Outages	3,759	3,759	3,759	
	90th Percentile Forced Outages		2,645	2,645	
	Forced Outages due to Drought (minimum)	24	24		
	Forced Outages due to Drought (maximum)	-		11,464	
d	**Total Uses of Reserve Capacity**	**9,051**	**22,367**	**33,807**	
e	**Capacity Available for Operating Reserves (c-d), MW**	**10,408**	**(2,908)**	**(14,348)**	
	Less than 2300 MW indicates risk of EEA1				

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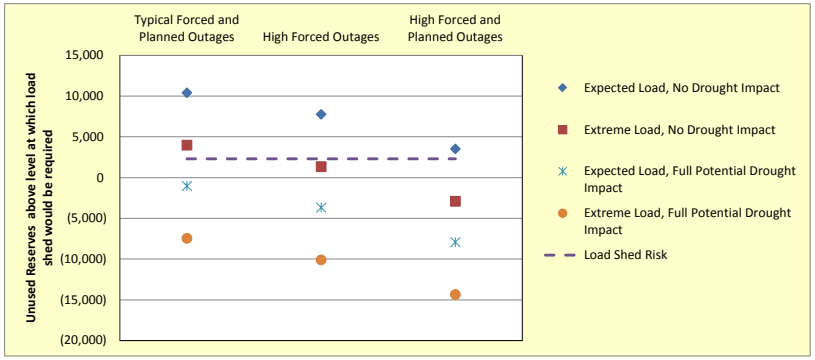
Analysis of All Sensitivities

		64,363	Based on current Seasonal Maximum Sustainable Limits reported through Registration process
	Installed Capacity, MW	30	Based on in-service dates provided by developers of generation resources
	Planned Units (not wind) with Signed IA and Air Permit, MW	4,390	Based on actual net PUN output during non-EEA periods of August 2011
	Capacity from Private Networks, MW	3,168	Installed capacity of units that can switch to other Regions
	Switchable Units, MW	(317)	Based on survey response of Switchable Unit owners
	less Switchable Units Unavailable to ERCOT, MW	-	
	RMR Units to be under Contract, MW	834	Based on 8.7% of installed capacity (Effective Load Carrying Capability) of wind per Planning Guide Section 8
	Effective Load-Carrying Capability (ELCC) of Wind Generation, MW	-	Based on in-service dates provided by developers of generation resources
	ELCC of Planned Wind Units with Signed IA, MW	553	Based on 50% of installed capacity of ties, per Planning Guide Section 8
	50% of Non-Synchronous Ties, MW	**73,021**	
a	**Total Resources, MW**		
b	**Winter Peak Demand, MW**	**53,562**	Updated 50% Probability forecast based on recent Moody's economic forecast and revised weather profile including 2011 impacts
c	**Reserve Capacity (a -b), MW**	**19,459**	

		1	2	3	4	5	6	7	8	9	10	11	12
		Expected Load, No Drought Impact			**Extreme Load, No Drought Impact**			**Expected Load, Full Potential Drought Impact**			**Extreme Load, Full Potential Drought Impact**		
		Typical Forced and Planned Outages	**High Forced Outages**	**High Forced and Planned Outages**	**Typical Forced and Planned Outages**	**High Forced Outages**	**High Forced and Planned Outages**	**Typical Forced and Planned Outages**	**High Forced Outages**	**High Forced and Planned Outages**	**Typical Forced and Planned Outages**	**High Forced Outages**	**High Forced and Planned Outages**
		19,459	**19,459**	**19,459**	**19,459**	**19,459**	**19,459**	**19,459**	**19,459**	**19,459**	**19,459**	**19,459**	**19,459**
	Extreme Load Range	-	-	-	6,427	6,427	6,427	-	-	-	6,427	6,427	6,427
	Typical Maintenance Outages	5,268	5,268	5,268	5,268	5,268	5,268	5,268	5,268	5,268	5,268	5,268	5,268
	90th Percentile Maintenance Outages			4,244			4,244			4,244			4,244
	Typical Forced Outages	3,759	3,759	3,759	3,759	3,759	3,759	3,759	3,759	3,759	3,759	3,759	3,759
	90th Percentile Forced Outages		2,645	2,645		2,645	2,645		2,645	2,645		2,645	2,645
	Forced Outages due to Drought (minimum)	24	24	24	24	24	24						
	Forced Outages due to Drought (maximum)							11,464	11,464	11,464	11,464	11,464	11,464
d	**Total Uses of Reserve Capacity, MW**	**9,051**	**11,696**	**15,940**	**15,478**	**18,123**	**22,367**	**20,491**	**23,136**	**27,380**	**26,918**	**29,563**	**33,807**
e	**Capacity Available for Operating Reserves (c-d), MW**	**10,408**	**7,763**	**3,519**	**3,981**	**1,336**	**(2,908)**	**(1,032)**	**(3,677)**	**(7,921)**	**(7,459)**	**(10,104)**	**(14,348)**
	Less than 2300 MW indicates risk of EEA1												



Winter Inputs

	2012	
Load Forecast:		
Total Summer Peak Demand, MW	53,562	Updated 50% Probability forecast based on recent Moody's economic forecast and revised weather profile including 2011 impacts
less Energy Efficiency Programs (per SB1125)	119	Projected based on SB1125 assuming that 50% of the energy efficiency target is included in the model
less LAARs Serving as Responsive Reserve, MW	1,038	Projected based on Planning Guide Section 8
less Emergency Interruptible Load Service	420	Projected based on Planning Guide Section 8
Firm Load Forecast, MW	51,985	
Resources:		
Installed Capacity, MW	64,363	Based on current Seasonal Maximum Sustainable Limits reported through Registration process
Capacity from Private Networks, MW	4,390	Based on actual net PUN output during non-EEA periods of August 2011
ELCC* of Wind Generation, MW	834	Based on 8.7% of installed capacity (Effective Load Carrying Capability) of wind per Planning Guide Section 8
RMR Units to be under Contract, MW	-	
Operational Generation, MW	69,587	
Non-Synchronous Ties, MW	553	Based on 50% of installed capacity of ties, per Planning Guide Section 8
Switchable Units, MW	3,168	Installed capacity of units that can switch to other Regions
Available Mothballed Generation , MW	496	Based on sum of Installed Capacity of each Mothballed Unit times Probability of Return to Service from survey response by owner of the Unit
Planned Units (not wind) with IA and Air Permit, MW	30	Based on in-service dates provided by developers of generation resources
ELCC* of Planned Wind Units with Signed IA, MW	-	Based on in-service dates provided by developers of generation resources
Total Resources, MW	73,834	
less Switchable Units Unavailable to ERCOT, MW	317	Based on survey response of Switchable Unit owners
less future Unit Retirements, MW	-	
Resources, MW	73,517	
Reserve Margin (Resources - Firm Load Forecast)/Firm Load Forecast	41.42%	

*Effective Load-Carrying Capability

Scenario Inputs			
	Expected Load Adder	-	
	Extreme Load Adder	6,427	Based on load forecast using actual extreme weather year (2011) temperatures
	Typical Maintenance Outages	5,268	Based on average of historic planned outages for hour ending 7-10 of Dec,Jan,Feb weekdays
	90th Percentile Maintenance Outages	4,244	Based on historic planned outages for hour ending 7-10 of Dec,Jan,Feb weekdays
	Typical Forced Outages	3,759	Based on average of historic forced and maint-level outages for hour ending 7-10 of Dec,Jan,Feb weekdays
	90th Percentile Forced Outages	2,645	Based on historic forced and maint-level outages for hour ending 7-10 of Dec,Jan,Feb weekdays
	Low Wind		
	Forced Outages due to Environmental Restrictions		Monticello 1&2 mothballing already included in Installed Capacity
	Forced Outages due to Drought (minimum)	24	Current unavailability
	Forced Outages due to Drought (maximum)	11,464	MW of generation with water sources that are currently at historic lows
	Total Uses of Reserves		

Seasonal Assessment of Resource Adequacy for the ERCOT Region

Background

The Seasonal Assessment of Resource Adequacy (SARA) report is a deterministic approach to considering the impact of potential variables that may impact the sufficiency of installed resources to meet the peak electrical demand on the ERCOT System during a particular season.

The standard approach to assessing resource adequacy for one or more years into the future is to account for projected load and resources on a normalized basis and to require sufficient reserves (resources in excess of peak demand, on this normalized basis) to cover the uncertainty in peak demand and resource availability to meet a one-in-ten-years loss-of-load event criteria on a probabilistic basis.

For seasonal assessments that look ahead less than a year, specific information may be available (such as seasonal climate forecasts or anticipated common-mode events such as drought) which can be used to consider the range of resource adequacy in a more deterministic manner.

The SARA report is intended to illustrate the range of resource adequacy outcomes that might occur. Several sensitivity analyses are developed by varying the value of certain parameters that affect resource adequacy. The variation in these parameters is either based on historic values of these parameters, adjusted by any known or expected change.