

Release Date: May 3, 2016

**FINAL
Seasonal Assessment of Resource Adequacy for the ERCOT Region (SARA)
Summer 2016**

SUMMARY

The ERCOT Region is expected to have sufficient installed generating capacity to serve peak demands given expected weather conditions for the upcoming summer season (June - September 2016). This capacity is also sufficient given expected weather combined with either extremely low wind output or extreme outages.

This SARA report includes a 70,588 MW summer peak load forecast that reflects the same expectations for average weather that ERCOT assumed for the preliminary SARA report. Total generation resource capacity is estimated at 78,434 MW, which includes 736 MW of planned capacity additions (about 680 MW of thermal capacity and 55 MW of renewables based on summer peak-hour ratings). As with the preliminary report, this final report reflects use of an 80% summer peak average capacity contribution for solar resources. Note that capacity for two units—the PHR Peakers gas-fired plant and Baffin Wind—is excluded from the report because these facilities are now expected to be available later in the summer. Such treatment is consistent with past practice in SARA reports.

Total generation capacity also reflects 416 MW of additional mothballed capacity and a decrease of 512 MW in planned capacity relative to the amounts reported in the preliminary summer SARA report. The new mothball capacity includes the 371 MW Greens Bayou 5 unit, which is undergoing review for transmission system reliability impacts. (Note that ERCOT has initially determined that this unit may be needed for Reliability Must-Run Service. ERCOT's final determination will be made by May 28, 2016). The final summer unit outage forecast is 3,171 MW, developed from historical summer season outage data gathered since the start of the Texas Nodal Market in December 2010.

At this time, ERCOT does not anticipate changes to available generation capacity for the summer season due to compliance with environmental regulations, and continues to monitor implementation and consults with generation resource owners on their regulatory compliance plans.

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Forecasted Capacity and Demand

Operational Resources (Thermal and Hydro), MW	65,916	Based on current Seasonal Maximum Sustainable Limits reported through the unit registration process
Switchable Capacity Total, MW	3,496	Installed capacity of units that can interconnect with other Regions and are available to ERCOT
less Switchable Capacity Unavailable to ERCOT, MW	(300)	Based on survey responses of Switchable Resource owners
Mothball Resources, MW	805	Based on seasonal Mothball units plus Probability of Return responses of Mothball Resource owners
Private Use Network Capacity Contribution, MW	4,266	Average capability of the top 20 hours in the summer peak seasons for the past three years (2012-2014)
Non-Coastal Wind Resources Capacity Contribution, MW	1,693	Based on 12% of installed capacity for non-coastal wind resources per ERCOT Nodal Protocols Section 3.2.6.2.2
Coastal Wind Resources Capacity Contribution, MW	1,015	Based on 55% of installed capacity for coastal wind resources per ERCOT Nodal Protocols Section 3.2.6.2.2
Solar Utility-Scale, Peak Average Capacity Contribution, MW	230	Based on 80% of rated capacity for solar resources per Nodal Protocols Section 3.2.6.2.2
RMR Resources to be under Contract, MW	0	No RMR Resources currently under contract
Non-Synchronous Ties Capacity Contribution, MW	577	Average capability of the top 20 hours in the summer peak seasons for the past three years (2013-2015)
Planned Thermal Resources with Signed IA, Air Permits and Water Rights, MW	680	Based on in-service dates provided by developers of generation resources
Planned Non-Coastal Wind with signed IA, MW	49	Based on in-service dates provided by developers of generation resources and 12% of installed capacity for non-coastal wind resources
Planned Coastal Wind with signed IA, MW	0	Based on in-service dates provided by developers of generation resources and 55% of installed capacity for coastal wind resources
Planned Solar Utility-Scale with signed IA, MW	6	Based on 80% of rated capacity for solar resources per Nodal Protocols Section 3.2.6.2.2
[a] Total Resources, MW	78,434	
[b] Peak Demand, MW	70,588	Based on normal weather from 2002-2014
[c] Reserve Capacity [a - b], MW	7,846	

Range of Potential Risks

	Forecasted Summer Season Peak Load	Extreme Load / Typical Generation Outages	Extreme Load / Extreme Load / Low Wind Output	Extreme Load / Extreme Generation Outages	
Seasonal Load Adjustment	-	2,754	2,754	2,754	Based on extreme weather forecast using 2011 weather data.
Typical Maintenance Outages	324	324	324	324	Based on historical average of planned outages during daily peak hours for June through September weekdays (starting in August 2010).
Typical Forced Outages, Thermal	2,847	2,847	2,847	2,847	Based on historical average of forced outages during daily peak hours for June through September weekdays (starting in August 2010).
90th Percentile Forced Outages, Thermal	-	-	-	1,802	Based on historical forced outages assuming a 90% confidence interval
Low Wind Output Adjustment	-	-	2,078	-	Based on the 10th percentile of wind output associated with the 100 highest Net Load hours (Load minus wind output) for the 2013-2015 summer Peak Load seasons; this wind output level is 679 MW.
[d] Total Uses of Reserve Capacity	3,171	5,925	8,003	7,727	
[e] Capacity Available for Operating Reserves (c-d), MW Less than 2,300 MW indicates risk of FEA1	4,675	1,921	(157)	119	

UNIT NAME	GENERATION INTERCONNECTION	PROJECT CODE	UNIT CODE	COUNTY	FUEL	ZONE	START YEAR	CAPACITY (MW)
		16INR0114		UPTON	SOLAR	WEST	2017	-
687 UPTON SOLAR								7.4
688 Planned Capacity Total (Solar)								80.0
689 Solar Peak Average Capacity Percentage			SOLAR_PL_PEAK_PCT	%				
690								
691 Seasonal Mothballed Resources								
692 MARTIN LAKE U2 (AS OF 10/1/2015)			MLSES_UNIT2	RUSK	COAL	NORTH	1978	805.0
693 Total Seasonal Mothballed Capacity								805.0
694								
695 Mothballed Resources								
696 GREENS BAYOU STG U5 (AS OF 6/27/2016)			GBY_GBY_5	HARRIS	GAS	HOUSTON	1973	371.0
697 J T DEELY U1 (AS OF 12/31/2018)			CALAVERS_JTD1_M	BEXAR	COAL	SOUTH	1918	420.0
698 J T DEELY U2 (AS OF 12/31/2018)			CALAVERS_JTD2_M	BEXAR	COAL	SOUTH	1918	420.0
699 LUFKIN BIOMASS (AS OF 7/6/2016)			LFBIO_UNIT1	ANGELINA	BIOMASS	NORTH	2012	45.0
700 S R BERTRON CTG 2 (SINCE 5/15/2013)			SRB_SRGBT_2	HARRIS	GAS	HOUSTON	1967	13.0
701 S R BERTRON U1 (SINCE 5/15/2013)			SRB_SRBT_G1	HARRIS	GAS	HOUSTON	1958	118.0
702 S R BERTRON U2 (SINCE 5/15/2013)			SRB_SRBT_G2	HARRIS	GAS	HOUSTON	1956	174.0
703 S R BERTRON U3 (SINCE 5/22/2013)			SRB_SRBT_G3	HARRIS	GAS	HOUSTON	1959	211.0
704 S R BERTRON U4 (SINCE 5/22/2013)			SRB_SRBT_G4	HARRIS	GAS	HOUSTON	1960	211.0
705 W A PARISH - PETRA NOVA CTG (AS OF 5/19/2016)			PNPI_GT2	FORT BEND	GAS	HOUSTON	2013	74.0
706 Total Mothballed Capacity								2,057.0
707								
708 Retiring Resources Unavailable to ERCOT (since last CDR)								
709 FRONTERA GENERATION CTG 1 (Not Available for ERCOT after 10/1/2016)			FRONTERA_FRONTEG1_RET HIDALGO		GAS	SOUTH	1916	170.0
710 FRONTERA GENERATION CTG 2 (Not Available for ERCOT after 10/1/2016)			FRONTERA_FRONTEG2_RET HIDALGO		GAS	SOUTH	1916	170.0
711 FRONTERA GENERATION STG (Not Available for ERCOT after 10/1/2016)			FRONTERA_FRONTEG3_RET HIDALGO		GAS	SOUTH	2016	184.0
712 Total Retiring Capacity (since last CDR)								524.0

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 affect 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.

In contrast to the Capacity, Demand and Reserves (CDR) report, which addresses the sufficiency of planning reserves on an annual basis as described above, the SARA report focuses on the availability of sufficient operating reserves to avoid emergency actions such as deployment of voluntary load reduction resources. Consequently, load reduction resources included in the CDR report, such as Emergency Response Service (ERS) and Load Resources that provide operating reserves (LRs), are excluded from the SARA.

The SARA report is intended to illustrate the range of resource adequacy outcomes that might occur, and thus help fulfill the reporting requirement per Public Utility Commission of Texas rule 25.362(i)(2)(H). Several sensitivity analyses are developed by varying the value of certain parameters that affect resource adequacy. The variation in these parameters is based on historic values of these parameters or adjustments by any known or expected changes.