

Release Date: May 3, 2023

**Supplement to the Seasonal Assessment of Resource Adequacy
for the ERCOT Region (SARA)
Summer 2023**

SUMMARY

This Summer SARA supplement presents an additional set of scenarios representing resource availability and forecasted load for hour-ending 9:00 PM. These scenarios are intended to show a range of capacity reserve outcomes for the evening hour when solar production ramps down to a negligible amount. During this hour demand is significantly reduced relative to the forecasted amount for the daily summer peak hour, which is hour-ending 5:00 PM. The 9:00 PM baseline load forecast is 78,267 MW as opposed to the 5:00 PM forecast at 83,412 MW. The scenarios also account for increased typical wind production and Emergency Response Service (ERS) capacity available for this hour.

The four 9:00 PM scenarios comprise the following sets of assumptions reflecting changes in load and wind production:

- Forecasted Peak Load, Typical Unplanned Outages, Typical Wind
- High Peak Load, Typical Unplanned Outages, Typical Wind
- Forecasted Peak Load, Typical Unplanned Outages, Low Wind
- High Peak Load, Typical Unplanned Outages, Low Wind

Note that an analogous 8:00 PM scenario is included in the May 2023 CDR report that shows the Reserve Margin impact for Summer 2024. This hour was selected because it presents the hour that typically experiences the largest decrease in available solar capacity.

Derivation of the Hourly Load Forecasts

The load forecasts for hours-ending 5:00 and 9:00 PM come from ERCOT's official Long Term Load Forecast, and assume that the summer peak load day occurs on August 4th.

Derivation of the 9:00 PM Wind and Solar Output Values

The hour-ending 9:00 PM wind value is the original SARA value multiplied by a ratio of 50th-percentile values taken from 9:00 and 5:00 PM synthetic hourly profiles, which represent the range of potential values for these summer hours based on summer weather over the last 42 years. Because the profiles are hourly averages, the 9:00 PM solar profile values are zero MW. To reflect the amount of solar output available closer to 8:00 PM, a value of 50 MW (for combined operational plus planned capacity) is used.

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Installed and Summer Capacity Ratings, MW

Resources, MW	Installed Capacity Rating 1/	Expected Capacity for Summer Demand, Hour-Ending 9:00 PM 2/	
Thermal Resources, Installed Summer-rated Capacity	73,239	65,091	Based on current Seasonal Maximum Sustainable Limits reported through the unit registration process
Hydroelectric, Peak Average Capacity Contribution	563	478	Based on 84% of installed capacity for hydro resources (Summer season) per ERCOT Nodal Protocols Section 3.2.6.2.2
Switchable Capacity Total	3,840	3,490	Installed capacity of units that can interconnect with other Regions and are available to ERCOT
Less Switchable Capacity Unavailable to ERCOT	(757)	(692)	Based on survey responses of Switchable Resource owners
Available Mothballed Capacity	713	704	Based on seasonal Mothball units plus Probability of Return responses of Mothball Resource owners
Capacity from Private Use Networks	9,575	2,869	Average grid injection during the top 20 Summer peak load hours over the last three years, plus the forecasted net change in generation capacity available to the ERCOT grid pursuant to Nodal Protocols Section 10.3.2.4.
Coastal Wind, Peak Average Capacity Contribution, 9 PM	5,436	5,311	Based on 60% of installed capacity for coastal wind resources (Summer season) per ERCOT Nodal Protocols Section 3.2.6.2.2
Panhandle Wind, Peak Average Capacity Contribution, 9 PM	4,410	2,155	Based on 30% of installed capacity for panhandle wind resources (Summer season) per ERCOT Nodal Protocols Section 3.2.6.2.2
Other Wind, Peak Average Capacity Contribution, 9 PM	27,900	9,530	Based on 21% of installed capacity for other wind resources (Summer season) per ERCOT Nodal Protocols Section 3.2.6.2.2
Solar Utility-Scale, Peak Average Capacity Contribution, 9 PM	15,659	45	Based on 79% of rated capacity for solar resources (Summer season) per Nodal Protocols Section 3.2.6.2.2
Storage, Peak Average Capacity Contribution	3,287	415	Based on the amount of battery storage capability assumed to be available for dispatch prior to the highest summer net load hours. (Net load is total load minus wind and solar generation, and represents the demand that must be met with other available resources.) This is an interim availability assumption for use until a formal capacity contribution method is adopted for future reports
RMR Capacity to be under Contract	-	-	
Capacity Pending Retirement	-	-	Announced retired capacity that is undergoing ERCOT grid reliability reviews pursuant to Nodal Protocols Section 3.14.1.2
Non-Synchronous Ties, Capacity Contribution	1,220	850	Based on net imports during summer 2019 Energy Emergency Alert (EEA) intervals
Planned Thermal Resources with Signed IA, Air Permits and Adequate Water Supplies	720	688	Based on in-service dates provided by developers
Planned Coastal Wind with Signed IA, Peak Average Capacity Contribution, 9 PM	-	-	Based on in-service dates provided by developers and 60% Summer capacity contribution for coastal wind resources
Planned Panhandle Wind with Signed IA, Peak Average Capacity Contribution, 9 PM	-	-	Based on in-service dates provided by developers and 30% Summer capacity contribution for panhandle wind resources
Planned Other Wind with Signed IA, Peak Average Capacity Contribution, 9 PM	-	-	Based on in-service dates provided by developers and 21% Summer capacity contribution for other wind resources
Planned Solar Utility-Scale, Peak Average Capacity Contribution, 9 PM	471	5	Based on in-service dates provided by developers and 79% Summer capacity contribution for solar resources
Planned Storage, Peak Average Capacity Contribution	257	32	Based on the amount of battery storage capability assumed to be available for dispatch prior to the highest summer net load hours. This is an interim availability assumption for use until a formal capacity contribution method is adopted for future reports

[a] Total Resources, MW 146,534 90,971

1/ Installed capacity ratings are based on the maximum power that a generating unit can produce during normal sustained operating conditions as specified by the equipment manufacturer.

2/ Expected capacities by resource type reflect seasonal net maximum sustained ratings for thermal units and the on-peak capacity contributions for wind, solar, battery storage, PUN generators, and hydro. Capacities for generation resources co-located with large flexible loads (LFLs) are reported on a gross capacity basis (i.e., the load is not netted against the capacity).

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9 PM Capacity Risk Scenarios, MW

	9 PM Forecasted Peak Load / Typical Unplanned Outages / Typical Wind	9 PM High Peak Load / Typical Unplanned Outages / Typical Wind	9 PM Forecasted Peak Load / Typical Unplanned Outages / Low Wind	9 PM High Peak Load / Typical Unplanned Outages / Low Wind
Scenario Adjustments				
[a] Peak Load Forecast (Baseline)	77,162	77,162	77,162	77,162
[b] Rooftop PV Forecast Reduction, MW	-	-	-	-
[c] Large Flexible Load Adjustment, MW	1,105	1,105	1,105	1,105
[d] Adjusted Peak Load Forecast, [a+b+c]	78,267	78,267	78,267	78,267
[e] Total Resources (from Forecast Capacity tab)	90,971	90,971	90,971	90,971
Uses of Reserve Capacity				
High Peak Load Adjustment	-	3,389	-	3,389
Typical Planned Outages, Thermal	59	59	59	59
Typical Unplanned Outages, Thermal	4,975	4,975	4,975	4,975
Low Wind Output Adjustment	-	-	12,279	12,279
[f] Total Uses of Reserve Capacity	5,034	8,423	17,313	20,702

Capacity Available For Operating Reserves

[g] Capacity Available for Operating Reserves, Normal Operating Conditions (Scenarios tab e-d-f), MW Less than 2,300 MW indicates risk of EEA1	7,670	4,281	(4,609)	(7,998)
[h] Pre-EEA Resources available for ERCOT deployment (Emergency Response Service, distribution voltage reduction, LFL curtailment)	-	-	2,860	2,860
[i] EEA Resources available for ERCOT deployment	-	-	1,817	1,817
[j] Capacity Available for Operating Reserves, Emergency Conditions (g+h+i), MW Less than 1,000 MW indicates risk of EEA3 Load Shed	7,670	4,281	68	(3,321)

UNIT NAME	GENERATION INTERCONNECTION PROJECT CODE	UNIT CODE	COUNTY	FUEL	ZONE	IN SERVICE YEAR	INSTALLED CAPACITY RATING	SUMMER CAPACITY (MW)	NEW PLANNED PROJECT ADDITIONS TO REPORT
1405 Inactive Planned Resources									
1406 AGATE SOLAR	20INR0023		ELLIS	SOLAR	NORTH	2020	60.0	60.0	
1407 CHILLINGHAM SOLAR	23INR0070		BELL	SOLAR	NORTH	2023	-	-	
1408 CHILLINGHAM STORAGE	23INR0079		BELL	STORAGE	NORTH	2023	-	-	
1409 DONEGAL BESS	23INR0103		DICKENS	STORAGE	PANHANDLE	2024	-	-	
1410 HART WIND	16INR0033		CASTRO	WIND-P	PANHANDLE	2026	-	-	
1411 KONTIKI 1 WIND (ERIK)	19INR0099a		GLASSCOCK	WIND-O	WEST	2023	250.1	250.1	
1412 KONTIKI 2 WIND (ERNEST)	19INR0099b		GLASSCOCK	WIND-O	WEST	2023	250.1	250.1	
1413 MARIAH DEL ESTE	13INR0010a		PARMER	WIND-P	PANHANDLE	2020	152.5	152.5	
1414 NORTHDRAW WIND	13INR0025		RANDALL	WIND-P	PANHANDLE	2020	150.0	150.0	
1415 PARLIAMENT SOLAR	23INR0044		WALLER	SOLAR	HOUSTON	2024	-	-	
1416 PLEASANTON BESS (DGR)	23INR0520		ATASCOSA	STORAGE	SOUTH	2023	9.9	9.9	
1417 RUETER SOLAR	20INR0202		BOSQUE	SOLAR	NORTH	2025	-	-	
1418 SPINEL SOLAR	20INR0025		MEDINA	SOLAR	SOUTH	2024	-	-	
1419 Inactive Planned Capacity Total							872.6	872.6	
1420									
1421 Seasonal Mothballed Resources									
1422 MOUNTAIN CREEK STG 8 (AS OF 3/1/2023, AVAILABLE 6/1 THROUGH 9/30)		MCSES_UNIT8	DALLAS	GAS-ST	NORTH	1967	568.0	568.0	
1423 POWERLANE PLANT STG 1 (AS OF 10/1/2022, AVAILABLE 6/1 THROUGH 9/30)		STEAM1A_STEAM_1	HUNT	GAS-ST	NORTH	1966	18.8	17.5	
1424 SPENCER STG U4 (AS OF 10/24/2022, AVAILABLE 4/2 THROUGH 11/30)		SPNCER_SPNCE_4	DENTON	GAS-ST	NORTH	1966	61.0	57.0	
1425 SPENCER STG U5 (AS OF 10/24/2022, AVAILABLE 4/2 THROUGH 11/30)		SPNCER_SPNCE_5	DENTON	GAS-ST	NORTH	1973	65.0	61.0	
1426 Total Seasonal Mothballed Capacity							712.8	703.5	
1427									
1428 Mothballed Resources									
1429 RAY OLINGER STG 1 (AS OF 4/5/22)		OLINGR_OLING_1	COLLIN	GAS-ST	NORTH	1967	78.0	78.0	
1430 CALENERGY-FALCON SEABOARD STG 3 (AS OF 7/8/22, DUE TO FORCED OUTAGE)		FLCNS_UNIT3	HOWARD	GAS-CC	WEST	1988	62.0	62.0	
1431 Total Mothballed Capacity							140.0	140.0	
1432									
1433 Retiring Resources Unavailable to ERCOT (since last CDR/SARA)									
1434 J T DEELY U1 (INDEFINITE MOTHBALL AS OF 12/31/2018, RETIRING ON 7/7/23)		CALAVERS_JTD1_M	BEXAR	COAL	SOUTH	1977	415.0	420.0	
1435 J T DEELY U2 (INDEFINITE MOTHBALL AS OF 12/31/2018, RETIRING ON 7/7/23)		CALAVERS_JTD2_M	BEXAR	COAL	SOUTH	1978	415.0	420.0	
1436 Total Retiring Capacity							830.0	840.0	

Capacity changes due to planned repower/upgrade projects are reflected in the operational units' ratings upon receipt and ERCOT approval of updated resource registration system information. Interconnection requests for existing resources that involve MW capacity changes are indicated with a code in the "Generation Interconnection Project Code" column.

Although seasonal capacity ratings for battery energy storage systems are reported above, the ratings are not included in the operational/planned capacity formulae. These resources are assumed to provide Ancillary Services rather than sustained capacity available to meet system peak loads.

The capacities of planned projects that have been approved for Initial Synchronization at the time of report creation are assumed to be available for the season regardless of their projected Commercial Operations Dates.

Planned projects for which maximum seasonal sustained capacity ratings have been provided are used in lieu of capacities entered into the online Resource Integration and Ongoing Operations - Interconnection Services (RIOO-IS) system.

Installed capacity ratings are based on the maximum power that a generating unit can produce during normal sustained operating conditions as specified by the equipment manufacturer. These ratings reflect the latest information in the Resource Integration and Ongoing Operations - Resources Services (RIOO-RS) system.