

Release Date: May 3, 2023

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

SUMMARY

Assuming that the ERCOT Region experiences typical summer grid conditions, ERCOT anticipates that there will be sufficient installed generating capacity available to serve the system-wide forecasted peak load for the upcoming summer season, June - September 2023.

The base summer peak load is 82,739 MW. This load amount is based on average weather conditions at the time of the summer peaks for years 2007 through 2021, and does not incorporate ERCOT's summer 2023 weather outlook. Weather forecast information, including the 2023 summer weather outlook, is available at:
<https://www.ercot.com/gridmktinfo/dashboards/weatherforecast/>

The peak load also incorporates load adjustments to account for incremental solar rooftop system additions as well as the interconnection of Large Loads (such as crypto-mining facilities) to Transmission Service Provider networks and individual generating units. The background tab includes a detailed description of the methodology used for accounting for these Large Loads.

Approximately 97,000 MW of summer-rated resource capacity is expected to be available for the summer peak load. This includes 688 MW of planned thermal resources and 372 MW of planned solar resources forecasted to be available by July 2023. The total resource amount also includes 3,544 MW of installed battery storage capacity, with 447 MW of the installed total assumed to be available for dispatch prior to the highest summer net load hours. (Net load is total load minus wind and solar generation.) This capacity estimate serves as a proxy for the amount expected during a tight reserve hour for the upcoming summer and is an interim availability assumption to be used until a formal capacity contribution method is adopted for future SARA reports.

Also noteworthy is a 568 MW gas-steam unit that changed its operations from year-round to summer only. The total amount of capacity associated with units operating only during the summer now stands at 704 MW, which is the highest amount since summer 2016.

ERCOT and thermal generation owners are closely monitoring the potential impacts of the U.S. Environmental Protection Agency's March 15th approval of its "Good Neighbor Plan" for reducing cross-state emissions of ozone-forming nitrogen oxides (NOx). Several generation owners in the ERCOT region indicated the potential that certain generators may face operational constraints in complying with the Program's provisions as soon as July 2023. Texas, Louisiana and other parties filed a motion with the Fifth Circuit court to stay the EPA's regulatory action due to potential reliability impacts. On May 1, 2023, the Court granted the motion to stay the EPA action.

The summer SARA includes a typical thermal generating unit outage assumption of 5,034 MW. This outage assumption is based on historical outage data for the last three summer seasons (2020, 2021, 2022).

The summer SARA includes two Risk Scenario tabs: Base & Moderate Risk Scenarios, and Extreme Risk Scenarios. The most severe Risk Scenario assumes a high peak load, extreme unplanned thermal plant outages based on historic observations, and extreme low wind power production.

Seasonal Assessment of Resource Adequacy for the ERCOT Region

Summer 2023

Release Date: May 3, 2023

Installed and Summer Capacity Ratings, MW

Resources, MW	Installed Capacity Rating 1/	Expected Capacity for Summer Peak Demand 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	5,436	3,258	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	4,410	1,322	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	27,900	5,847	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	15,659	12,264	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	-	-	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	-	-	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	-	-	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	471	372	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

96,988

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.

Seasonal Assessment of Resource Adequacy for the ERCOT Region
Summer 2023
Release Date: May 3, 2023

Base & Moderate Reserve Capacity Risk Scenarios, MW

	Forecasted Peak Load / Typical Unplanned Outages / Typical Wind and Solar	High Peak Load / Typical Unplanned Outages / Typical Wind and Solar	Forecasted Peak Load / High Unplanned Outages / Typical Wind and Solar	Forecasted Peak Load / Typical Unplanned Outages / Low Wind and Solar
Scenario Adjustments				
[a] Peak Load Forecast (Baseline)	82,739	82,739	82,739	82,739
[b] Rooftop PV Forecast Reduction, MW	(432)	(432)	(432)	(432)
[c] Large Flexible Load Adjustment, MW	1,105	1,105	1,105	1,105
[d] Adjusted Peak Load Forecast, [a+b+c]	83,412	83,412	83,412	83,412
[e] Total Resources (from Forecast Capacity tab)	96,988	96,988	96,988	96,988
Uses of Reserve Capacity				
High Peak Load Adjustment	-	3,389	-	-
Typical Planned Outages, Thermal	59	59	59	59
Typical Unplanned Outages, Thermal	4,975	4,975	4,975	4,975
High Unplanned Outage Adjustment, Thermal	-	-	3,389	-
Low Wind Output Reduction to 2,894 MW	-	-	-	7,533
Low Solar Output Reduction to 9,263 MW	-	-	-	3,373
[f] Total Uses of Reserve Capacity	5,034	8,423	8,423	15,940

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	8,542	5,153	5,153	(2,365)
[h] Pre-EEA Resources available for ERCOT deployment (Emergency Response Service, distribution voltage reduction, LFL curtailment)	-	-	-	2,760
[i] EEA Resources available for ERCOT deployment	-	-	-	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	8,542	5,153	5,153	2,212

Seasonal Assessment of Resource Adequacy for the ERCOT Region

Summer 2023

Release Date: May 3, 2023

Extreme Reserve Capacity Risk Scenarios, MW
(One or a combination of extreme risk assumptions resulting in low probability, high impact outcomes)

	Extreme Peak Load / Typical Unplanned Outages / Typical Wind and Solar	Extreme Peak Load / Extreme Unplanned Outages / Typical Wind and Solar	High Peak Load / Extreme Unplanned Outages / Extreme Low Wind
Scenario Adjustments			
[a] Peak Load Forecast (Baseline)	82,739	82,739	82,739
[b] Rooftop PV Forecast Reduction, MW	(432)	(432)	(432)
[c] Large Flexible Load Adjustment, MW	1,105	1,105	1,105
[d] Adjusted Peak Load Forecast, [a+b+c]	83,412	83,412	83,412
[e] Total Resources (from Forecast Capacity tab)	96,988	96,988	96,988
Uses of Reserve Capacity			
High/Extreme Peak Load Adjustment	5,114	5,114	3,389
Typical Planned Outages, Thermal	59	59	59
Typical Unplanned Outages, Thermal	4,975	4,975	4,975
Extreme Unplanned Outage Adjustment, Thermal	-	6,173	6,173
Extreme Low Wind Output Adjustment to 61 MW	-	-	10,366
[f] Total Uses of Reserve Capacity	10,148	16,321	24,962

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	3,428	(2,745)	(11,386)
[h] Pre-EEA Resources available for ERCOT deployment (Emergency Response Service, distribution voltage reduction, LFL curtailment)	-	2,760	2,760
[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	3,428	1,832	(6,809)

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
1288 SCHOOLHOUSE SOLAR	22INR0211	LEE	SOLAR	SOUTH	2025	-	-	-	
1289 SECOND DIVISION SOLAR	20INR0248	BRAZORIA	SOLAR	COASTAL	2024	-	-	-	
1290 SHAULA I SOLAR	22INR0251	DEWITT	SOLAR	SOUTH	2025	-	-	-	
1291 SHAULA II SOLAR	22INR0267	DEWITT	SOLAR	SOUTH	2026	-	-	-	
1292 SIGNAL SOLAR	20INR0208	HUNT	SOLAR	NORTH	2024	-	-	-	
1293 SODA LAKE SOLAR 1 SLF	23INR0080	CRANE	SOLAR	WEST	2023	-	-	-	
1294 SODA LAKE SOLAR 2	20INR0143	CRANE	SOLAR	WEST	2024	-	-	-	
1295 SP JAGUAR SOLAR	24INR0038	MCLENNAN	SOLAR	NORTH	2024	-	-	-	
1296 SPACE CITY SOLAR	21INR0341	WHARTON	SOLAR	SOUTH	2025	-	-	-	
1297 SPARTA SOLAR	22INR0352	BEE	SOLAR	SOUTH	2023	-	-	-	
1298 STAMPEDE SOLAR	22INR0409	HOPKINS	SOLAR	NORTH	2023	-	-	-	
1299 STARLING SOLAR	23INR0035	GONZALES	SOLAR	SOUTH	2024	-	-	-	
1300 STARR SOLAR RANCH	20INR0216	STARR	SOLAR	SOUTH	2024	-	-	-	
1301 SUNRAY	21INR0395	UVALDE	SOLAR	SOUTH	2024	-	-	-	
1302 TALITHA SOLAR	21INR0393	JIM WELLS	SOLAR	SOUTH	2024	-	-	-	
1303 TANGLEWOOD SOLAR	23INR0054	BRAZORIA	SOLAR	COASTAL	2025	-	-	-	
1304 TEXANA SOLAR	18INR0058	WHARTON	SOLAR	SOUTH	2024	-	-	-	
1305 TEXAS SOLAR NOVA	19INR0001	KENT	SOLAR	WEST	2023	-	-	-	
1306 TEXAS SOLAR NOVA 2	20INR0269	KENT	SOLAR	WEST	2023	-	-	-	
1307 TIERRA BONITA SOLAR	21INR0424	PECOS	SOLAR	WEST	2024	-	-	-	
1308 TRES BAHIAS SOLAR	20INR0266	CALHOUN	SOLAR	COASTAL	2023	-	-	-	
1309 TROJAN SOLAR	23INR0296	COOKE	SOLAR	NORTH	2024	-	-	-	
1310 TULSITA SOLAR	21INR0223	GOLIAD	SOLAR	SOUTH	2024	-	-	-	
1311 TYSON NICK SOLAR	20INR0222	LAMAR	SOLAR	NORTH	2024	-	-	-	
1312 ULYSSES SOLAR	21INR0253	COKE	SOLAR	WEST	2024	-	-	-	
1313 UMBRA (STOCKYARD) SOLAR	23INR0155	FRANKLIN	SOLAR	NORTH	2024	-	-	-	
1314 XE MURAT SOLAR	22INR0354	HARRIS	SOLAR	HOUSTON	2024	-	-	-	
1315 ZIER SOLAR	21INR0019	KINNEY	SOLAR	SOUTH	2023	-	-	-	
1316 Planned Capacity Total (Solar)						471.4	471.4		
1317 Solar Peak Average Capacity Percentage		SOLAR_PL_PEAK_PCT	%			100.0	79.0		
1318									
1319 Planned Storage Resources with Executed SGIA									
1320 ADMASTOWN STORAGE	21INR0209	WICHITA	STORAGE	WEST	2025	-	-	-	
1321 AEP_N_ALAMO_LD02(SMT ALAMO)	23INR0477	HIDALGO	STORAGE	SOUTH	2023	-	-	-	
1322 AL PASTOR BESS	24INR0273	DAWSON	STORAGE	WEST	2024	-	-	-	
1323 AMSTERDAM STORAGE	22INR0417	BRAZORIA	STORAGE	COASTAL	2024	-	-	-	
1324 ANEMOI ENERGY STORAGE	23INR0369	HIDALGO	STORAGE	SOUTH	2023	-	-	-	
1325 ARROYO STORAGE SLF	24INR0306	CAMERON	STORAGE	COASTAL	2024	-	-	-	
1326 BIG STAR STORAGE	21INR0469	BASTROP	STORAGE	SOUTH	2023	-	-	-	
1327 BOOC BESS	23INR0470	BORDEN	STORAGE	WEST	2024	-	-	-	
1328 BORDERTOWN BESS	23INR0354	STARR	STORAGE	SOUTH	2025	-	-	-	
1329 BRAZOS BEND BESS	23INR0363	FORT BEND	STORAGE	HOUSTON	2024	-	-	-	
1330 BRIGHT ARROW STORAGE	22INR0302	HOPKINS	STORAGE	NORTH	2023	-	-	-	
1331 BRP ANTUA BESS	22INR0349	VAL VERDE	STORAGE	WEST	2023	-	-	-	
1332 BRP AVILA BESS	23INR0287	PECOS	STORAGE	WEST	2024	-	-	-	
1333 BRP CACHI BESS	22INR0388	GUADALUPE	STORAGE	SOUTH	2024	-	-	-	
1334 BRP CARINA BESS	22INR0353	NUECES	STORAGE	COASTAL	2024	-	-	-	
1335 BRP DICKENS BESS	22INR0325	DICKENS	STORAGE	PANHANDLE	2023	-	-	-	
1336 BRP HYDRA BESS	22INR0372	PECOS	STORAGE	WEST	2023	-	-	-	
1337 BRP LIBRA BESS	22INR0366	GUADALUPE	STORAGE	SOUTH	2023	-	-	-	
1338 BRP PALEO BESS	22INR0322	HALE	STORAGE	PANHANDLE	2023	-	-	-	
1339 BRP PAVO BESS	22INR0384	PECOS	STORAGE	WEST	2023	-	-	-	
1340 BRP TORTOLAS BESS	23INR0072	BRAZORIA	STORAGE	COASTAL	2023	-	-	-	
1341 BRP ZEYA BESS	23INR0290	GALVESTON	STORAGE	HOUSTON	2024	-	-	-	
1342 CALLISTO I ENERGY CENTER	22INR0490	HARRIS	STORAGE	HOUSTON	2024	-	-	-	
1343 CITADEL BESS	24INR0147	HARRIS	STORAGE	HOUSTON	2024	-	-	-	
1344 CONNOLLY STORAGE	23INR0403	WISE	STORAGE	NORTH	2024	-	-	-	Yes
1345 CORAL STORAGE	23INR0124	FALLS	STORAGE	NORTH	2023	-	-	-	
1346 COTTONWOOD BAYOU STORAGE	21INR0443	BRAZORIA	STORAGE	COASTAL	2024	-	-	-	
1347 DAMON STORAGE	23INR0523	BRAZORIA	STORAGE	COASTAL	2023	-	-	-	
1348 DANISH FIELDS STORAGE	21INR0450	WHARTON	STORAGE	SOUTH	2023	-	-	-	
1349 DIBOLL BESS (DGR)	23INR0522	ANGELINA	STORAGE	NORTH	2023	-	-	-	
1350 EBONY ENERGY STORAGE	23INR0154	COMAL	STORAGE	SOUTH	2024	-	-	-	
1351 ELIZA STORAGE	22INR0260	KAUFMAN	STORAGE	NORTH	2024	-	-	-	
1352 ESTONIAN ENERGY STORAGE	22INR0336	DELTA	STORAGE	NORTH	2024	-	-	-	
1353 EVAL STORAGE	22INR0401	CAMERON	STORAGE	COASTAL	2024	-	-	-	
1354 FENCE POST BESS	22INR0405	NAVARRO	STORAGE	NORTH	2023	-	-	-	
1355 FERNAND GRID BESS	22INR0422	BEXAR	STORAGE	SOUTH	2025	-	-	-	
1356 FIVE WELLS STORAGE	23INR0159	BELL	STORAGE	NORTH	2023	-	-	-	
1357 FORT DUNCAN BESS	23INR0350	MAVERICK	STORAGE	SOUTH	2025	-	-	-	
1358 GIGA TEXAS ENERGY STORAGE	23INR0239	TRAVIS	STORAGE	SOUTH	2023	-	-	-	
1359 GREAT KISKADEE STORAGE	23INR0166	HIDALGO	STORAGE	SOUTH	2024	-	-	-	
1360 GREEN HOLLY STORAGE	21INR0029	DAWSON	STORAGE	WEST	2024	-	-	-	
1361 GRIZZLY RIDGE BESS (DGR)	22INR0596	HAMILTON	STORAGE	NORTH	2023	9.9	9.9		
1362 GUAJILLO ENERGY STORAGE	23INR0343	WEBB	STORAGE	SOUTH	2024	-	-	-	
1363 HOUSE MOUNTAIN 2 BATT	22INR0485	BREWSTER	STORAGE	WEST	2023	-	-	-	
1364 HUMMINGBIRD STORAGE	22INR0327	DENTON	STORAGE	NORTH	2023	-	-	-	
1365 INERTIA BESS 2	22INR0328	HASKELL	STORAGE	WEST	2023	-	-	-	
1367 IRON BELT ENERGY STORAGE	22INR0375	HASKELL	STORAGE	WEST	2025	-	-	-	
1368 JUNCTION BESS (DGR)	25INR0208	DAWSON	STORAGE	WEST	2025	-	-	-	
1369 LARKSPUR ENERGY STORAGE	23INR0521	KIMBLE	STORAGE	SOUTH	2023	9.9	9.9		
1370 LIMOUSIN OAK STORAGE	23INR0340	UPTON	STORAGE	WEST	2025	-	-	-	
1371 MUSTANG CREEK STORAGE	22INR0338	GRIMES	STORAGE	NORTH	2023	-	-	-	
1372 MYRTLE STORAGE	21INR0484	JACKSON	STORAGE	SOUTH	2023	70.5	70.5		
1373 NORIA STORAGE	23INR0062	BRAZORIA	STORAGE	COASTAL	2023	-	-	-	
1374 ORIANA BESS	24INR0109	NUCEES	STORAGE	COASTAL	2024	-	-	-	
1375 PADUA GRID BESS	22INR0368	VICTORIA	STORAGE	SOUTH	2024	-	-	-	
1376 PLATINUM STORAGE	22INR0554	BEXAR	STORAGE	SOUTH	2024	-	-	-	
1377 RAMSEY STORAGE	21INR0505	FANNIN	STORAGE	NORTH	2024	-	-	-	
1378 RED HOLLY STORAGE	21INR0033	WHARTON	STORAGE	SOUTH	2024	-	-	-	
1379 ROCINANTE BESS	23INR0232	DAWSON	STORAGE	WEST	2024	-	-	-	
1380 RODEO RANCH ENERGY STORAGE	23INR0371	GONZALES	STORAGE	SOUTH	2024	-	-	-	
1381 RYAN ENERGY STORAGE	20INR0246	REEVES	STORAGE	WEST	2023	-	-	-	
1382 SABAL STORAGE	22INR0398	CORYELL	STORAGE	NORTH	2024	-	-	-	
1383 SMT ALAMO (DGR)	23INR0477	CAMERON	STORAGE	COASTAL	2023	16.4	16.4		
1384 SMT LOS FRENSOS (DGR)	23INR0508	HIDALGO	STORAGE	SOUTH	2023	-	-	-	
1385 SMT MISSION (DGR)	23INR0511	CAMERON	STORAGE	COASTAL	2023	-	-	-	Yes
1386 SMT RIO GRANDE (DGR)	23INR0609	STARR	STORAGE	SOUTH	2023	-	-	-	Yes
1387 SMT RIO GRANDE II (DGR)	23INR0510	STARR	STORAGE	SOUTH	2023	-	-	-	Yes
1388 SOHO BESS	23INR0419	BRAZORIA	STORAGE	COASTAL	2024	-	-	-	
1389 SOWERS STORAGE	22INR0552	KAUFMAN	STORAGE	NORTH	2024	-	-	-	
1390 SP JAGUAR BESS	24INR0039	MCLENNAN	STORAGE	NORTH	2024	-	-	-	
1391 ST. GALL ENERGY STORAGE	22INR0524	PECOS	STORAGE	WEST	2023	-	-	-	
1392 STAMPEDE BESS	22INR0410	HOPKINS	STORAGE	NORTH	2023	-	-	-	
1393 STOCKYARD GRID BATT	21INR0492	TARRANT	STORAGE	NORTH	2023	150.6	150.6		
1394 SUN VALLEY BESS	22INR0429	HILL	STORAGE	NORTH	2023	-	-	-	
1395 TALITHA BESS	23INR0331	JIM WELLS	STORAGE	SOUTH	2024	-	-	-	
1396 TANZANITE STORAGE	22INR0549	HENDERSON	STORAGE	NORTH	2024	-	-	-	
1397 TIDWELL PRAIRIE STORAGE 1	21INR0517	ROBERTSON	STORAGE	NORTH	2024	-	-	-	
1398 TIMBERWOLF BESS 2	22INR0495	CRANE	STORAGE	WEST	2023	-	-	-	
1399 UMBRA (STOCKYARD) BESS	23INR0156	FRANKLIN	STORAGE	NORTH	2024	-	-	-	
1400 ZIER STORAGE	21INR0027	KINNEY	STORAGE	SOUTH	2023	-	-	-	
1401 SMALL GENERATORS WITH SIGNED IAs AND 'MODEL READY DATES' PENDING *									
1402 Planned Capacity Total (Storage)						257.3	257.3		
1403 Storage Peak Average Capacity Percentage		STORAGE_PL_PEAK_PC1%	%			100.0	-		
1404									

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 GREEK 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)	OLINGER_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.

Seasonal Assessment of Resource Adequacy for the ERCOT Region
Summer 2023
Release Date: May 3, 2023

Planning Reserve Margins

	Summer
Peak Demand Forecast, MW	82,739
Rooftop PV Forecast Reduction, MW	(432)
Large Flexible Load Adjustment, MW	1,105
<hr/>	
Adjusted Peak Load Forecast, MW	83,412
<hr/>	
Total Resources, MW	96,988
Emergency Resources Deployed by ERCOT, MW ¹	4,577
<hr/>	
Planning Reserve Margin ²	23.0%

Formula: PRM = (Total Resources / (Adjusted Peak Demand - Emergency Resources)) - 1, expressed as a percentage

¹ The derivation of the emergency resource amount is described in the Scenario Assumptions Details tab.

² The Planning Reserve Margin (PRM) is the forecasted capacity reserve that can cover higher-than-expected peak demand and lower-than-expected resource availability when looking at months or longer in the future. This is in contrast to operating reserve measures that focus on actual available capacity during real-time and hour-ahead operating periods. Consequently, the PRM is not an appropriate measure of capacity reserves when operations timeframes are being considered.

	Base & Moderate Risk Scenarios	Extreme Risk Scenarios
Adjusted Peak Load Forecast	<p>Based on average weather conditions from 2007 – 2021 at the time of the summer peak.</p> <p>These baseline forecasts are adjusted downwards to account for peak load reductions from rooftop solar installations that are not already accounted for in the baseline forecasts. The rooftop solar load reductions for the forecasted summer peak load hour (August 10, hour-ending 17 (5 pm) is 432 MW.</p>	
Load Adjustments	<p>Based on the 2011 weather conditions at the time of Summer season peak.</p> <p>These baseline forecasts are adjusted downwards to account for peak load reductions from rooftop solar installations that are not already accounted for in the baseline forecasts. The rooftop solar load reductions for the forecasted summer peak load hour (August 10, hour-ending 17 (5 pm) is 432 MW.</p>	<p>Assumed weather conditions 2% worse than occurred in 2011 at the time of Summer season peak.</p> <p>These baseline forecasts are adjusted downwards to account for peak load reductions from rooftop solar installations that are not already accounted for in the baseline forecasts. The rooftop solar load reductions for the forecasted summer peak load hour (August 10, hour-ending 17 (5 pm) is 432 MW.</p>
Typical Planned Outages, Thermal	<p>Based on the historical average of planned outages for July through August weekdays, hours ending 3 pm - 8 pm, for the last three summer seasons (2020 - 2022). Outage history excludes units that are not expected to be available for the peak period of the upcoming seasons. These unavailable units are comprised of units that have retired, have announced upcoming retirements, are under extended outage, are mothballed, or are unavailable switchable generators.</p>	
Typical Unplanned Outages, Thermal	<p>Based on historical average of unplanned outages for June through September weekdays, hours ending 3 pm - 8 pm, for the last three summer seasons (2020 - 2022). Outage history excludes units that are not expected to be in-service for the peak period of the upcoming seasons. These unavailable units are comprised of units that have retired, have announced upcoming retirements, are under extended outage, are mothballed, or are unavailable switchable generators.</p>	
Unplanned Outage Adjustments, Thermal	<p>The High Unplanned Outage Adjustment is based on the 95th percentile of historical unplanned outages for June through September weekdays, hours ending 3 pm - 8 pm, for the last five summer seasons (2018 - 2022); the adjustment is the 95th percentile value, 8,364 MW, less the typical unplanned outage amount of 4,975 MW.</p> <p>The outages for the High Unplanned Outage Adjustment include an incremental amount from Private Use Network (PUN) generators; specifically, the 95th percentile amount less the 50th percentile amount. See the Background tab for more information on the treatment of PUN capacity. Outage history excludes units that are not expected to be available for the peak period of the upcoming seasons. These unavailable units are comprised of units that have retired, have announced upcoming retirements, are under extended outage, are mothballed, or are unavailable switchable generators.</p>	<p>Based on the maximum historical unplanned outage level for June through September weekdays, hours ending 3 pm - 8 pm, for the last five summer seasons (2018 - 2022); the adjustment is 11,148 MW, less the typical unplanned outage amount of 4,975 MW.</p> <p>The outages for the Extreme Unplanned Outage Adjustment include an incremental amount from Private Use Network (PUN) generators; specifically, the 95th percentile amount less the 50th percentile amount. See the Background tab for more information on the treatment of PUN capacity. Outage history excludes units that are not expected to be available for the peak period of the upcoming seasons. These unavailable units are comprised of units that have retired, have announced upcoming retirements, are under extended outage, are mothballed, or are unavailable switchable generators.</p>
Wind Output Adjustments	<p>The adjustment is based on the 10th percentile of hourly wind capacity for the daily period hour-ending 13 - 20 for the months of June through September. The capacity values are derived from annual hourly simulated wind output profiles for the period 1980 - 2021 inclusive. The profiles reflect hourly weather conditions for each of the 42 simulated weather years. A profile is developed for each current operational wind site as well as each planned wind site included in the 2023 Summer SARA. This low wind output level is 2,894 MW. The adjustment is the summer Peak Average Capacity Contribution, 10,427 MW, less 2,894 MW.</p> <p>The methodology report for profile development is available at: https://www.ercot.com/files/docs/2021/12/07/Report_ERCOT_1980-2020_WindSolarDGPVGenProfiles.pdf</p>	<p>The adjustments are based on the minimum hourly wind capacity value for the daily period hour-ending 13 - 20 for the months of June through September. The capacity values are derived from annual hourly simulated wind output profiles for the period 1980 - 2021. The profiles reflect hourly weather conditions for each of the 42 simulated weather years. A profile is developed for each current operational wind site as well as each planned wind site included in the 2023 Summer SARA. This extreme low wind output level is 61 MW. The adjustment is the summer Peak Average Capacity Contribution, 10,427 MW less 61 MW.</p> <p>Note that a scenario with a combined extreme peak load and extreme-low renewables output is not provided because an extreme peak load is associated with high solar output due to minimal cloud cover serving as a driver for both system conditions.</p>
Solar Output Adjustments	<p>The adjustment is based on the 10th percentile of hourly solar capacity for the daily period hour-ending 13 - 18 for the months of June through August. (Note that September is excluded due to very low output beginning in mid-month and the extremely low likelihood of a summer peak load occurring that late in September.) The capacity values are derived from annual hourly simulated solar output profiles for the period 1980 - 2021 inclusive. The profiles reflect hourly weather conditions for each of the 42 simulated weather years. A profile is developed for each current operational solar site as well as each planned wind site included in the 2023 Summer SARA. This low solar output level is 9,263 MW. The adjustment is the summer Peak Average Capacity Contribution, 12,636 MW, less 9,263 MW.</p> <p>The methodology report for profile development is available at: https://www.ercot.com/files/docs/2021/12/07/Report_ERCOT_1980-2020_WindSolarDGPVGenProfiles.pdf</p>	N/A
Emergency Resources Deployed by ERCOT prior to EEA Declaration	<p>An amount is only shown if Capacity Available for Operating Reserves, line item [g], is at or below 3,000 MW. Consists of the sum of (1) expected Emergency Response Service (873 MW), (2) TDSP Distribution Voltage Reduction (562 MW), and (3) the expected peak consumption by operational LFLs at co-located and standalone sites (488 MW and 837 MW respectively), which is assumed to be available for curtailment based on ERCOT requests to address an imminent capacity reserve shortage. The ERS and Distribution Voltage Reduction amounts reflect a 2% gross-up to account for avoided transmission losses. Other resources that may be available include voluntary customer Demand Response (including customer installation of backup generators), switchable generation resources currently serving the Eastern Interconnection, and additional DC tie imports subject to availability.</p>	
Emergency Resources Deployed by ERCOT	<p>An amount is only shown if Capacity Available for Operating Reserves, line item [g], is at or below 2,300 MW. Consists of the sum of expected Load Resources Available for Responsive Reserves for the summer season (1,438 MW), Load Resources Available for Non-Spinning Responsive Reserves for the summer season (49 MW), Emergency Response Service (873 MW), Transmission and Distribution Service Provider (TDSP) load management programs (330 MW) and TDSP Distribution Voltage Reduction (562 MW). Each of these amounts reflect a 2% gross-up to account for avoided transmission losses. Other resources that may be available include voluntary customer Demand Response (including customer installation of backup generators), switchable generation resources currently serving the Eastern Interconnection, and additional DC tie imports subject to availability.</p>	

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 probabilistic reliability standard.

For seasonal assessments that look ahead less than a year, specific information may be available (for example, an anticipated common-mode event such as a system-wide heat wave) which can be used to consider the range of resource adequacy outcomes in a more deterministic manner.

The SARA report focuses on the availability of sufficient operating reserves to avoid emergency actions such as deployment of voluntary load reduction resources. It uses operating reserve thresholds of 2,300 and 1,000 MW, respectively, to indicate the risk that an Energy Emergency Alert Level 1 (EEA1) and Level 3 (EEA3) may be triggered during the time of the forecasted seasonal peak load. These threshold levels are intended to be roughly analogous to the 2,300 and 1,000 MW Physical Responsive Capability (PRC) thresholds for EEA1 and EEA3 with controlled outages ordered by ERCOT, respectively. However, PRC is a real-time capability measure for Resources that can quickly respond to system disturbances. In contrast, the SARA operating reserve reflects additional capability assumed to be available before energy emergency procedures are initiated, such as from Resources qualified to provide non-spinning reserves. Additionally, the amount of operating reserves available may increase relative to what is included in the SARA report due to the market responding to wholesale market price increases and anticipated capacity scarcity conditions. Given these considerations, ERCOT believes that the 2,300 and 1,000 MW reserve capacity thresholds are reasonable indicators for the risk of Energy Emergency Alerts given the uncertainties in predicting system conditions months in advance.

The SARA report is intended to illustrate the range of resource adequacy outcomes that might occur. It serves as a situational awareness tool for ERCOT operational planning purposes, and helps fulfill the "extreme weather" resource adequacy assessment requirement per Public Utility Commission of Texas rule 25.362(i)(2)(H). In addition to a base scenario, several other scenarios are developed by varying the value of load forecast and resource availability parameters. The variations in these parameters are based on historic ranges of the parameter values, known changes expected in the near-term, or reasonable assumptions regarding potential future events.

Thermal Outage Accounting

Directly comparing SARA thermal unplanned (previously "forced") outage scenario capacity with outage amounts listed in ERCOT outage reports — such as the Unplanned Resource Outages Report — will yield misleading results. The reason is that the SARA report consists of multiple resource availability line items, and thermal outages for certain resource types are reflected elsewhere in the SARA reports rather than the thermal outage scenario line items. As a result, the SARA thermal outage scenario amounts will always be less than what is typically shown in other outage reports. The main differences include the following:

- Outages for Private Use Network (PUN) generators are incorporated in the line item called "Capacity from Private Use Networks." This is an aggregate estimate of the amount of capacity available for the ERCOT grid during the highest 20 seasonal hourly demands for the last three years and incorporates average generator outage amounts over those hourly intervals. Additionally, the aggregate estimate reflects PUN owner decisions to supply power to their industrial loads versus export to the grid. PUN outages are thus already reflected in the SARA available resource capacity estimate.
- Extended outages are reported in the SARA Capacities tab in a line item called "Operational Capacity Unavailable due to Extended Outage or Derate." Extended Outages are those forced outages that are expected to last a minimum of 180 days as reported by the resource owner via submission of a Notice of Suspension of Operations (NSO) form. These outages are thus already reflected in the SARA available resource capacity estimate.
- The capacity of Switchable Generation Resources (SWGRs) that are assumed to serve a neighboring grid for the season is deducted from available resource capacity, so outages associated with these SWGRs are not reflected anywhere in the SARA report.

To more closely align the SARA with other outage reports based on ERCOT Outage Scheduler data, a modification was made to the treatment of outages classified as *Unavoidable Extensions*, or UEs. UEs are defined as "a Planned or Maintenance Outage that is not completed within the ERCOT-approved timeframe and extended." For past SARA reports, if the original outage was classified as Planned in the Outage Scheduler, then the UE would continue to be classified as Planned. If the original outage was classified as Forced, then the UE would continue to be classified as Forced. In contrast, for other ERCOT outage reports, UE outages are all classified as Forced (Unplanned). SARA reports now treat all UEs as Unplanned. While this category change does not impact the total base outage amount, it does increase the high and extreme unplanned thermal adjustments used in several risk scenarios.

Accounting for Large Flexible Loads

Due to a new influx of Large Flexible Loads (LFLs), an interim solution was implemented to better account for the peak consumption of these loads. The new interim methodology utilizes the 20 hours over each of the past three years with the lowest average Physical Responsive Capability. The methodology compares historical load zone prices to an ERCOT determined (and industry backed) estimate of the bitcoin mining breakeven cost. This breakeven cost was estimated at \$96/MWh and is based on the average economics of an Antminer S19 bitcoin mining rig from March 15th, 2023 through April 14th, 2023. If the historical load zone price for the LFL's respective load zone was below the breakeven threshold then the load's peak summer consumption was estimated to be the maximum observed consumption at the site according to internal tracking of LFL projects. If the historical load zone price was greater than the breakeven threshold then the LFL was assumed to be fully curtailed and consuming only 3% of the load's maximum capability. The 3% assumption accounts for the idle power draw of ASIC miners and necessary auxiliary cooling on site. The estimated consumption for each LFL, including both co-located and stand-alone loads, was summed for each of the 60 hours analyzed and then averaged to calculate the total estimated average consumption. This value was calculated to be 837 MW for stand-alone LFLs and 488 MW for co-located LFLs. This is reflected in item [c] as an adjustment to the baseline peak load forecast on the Base, Moderate & Extreme Risk Scenario tabs. The reported adjustment of 1,105 MW is the result of subtracting the 220 MW already allocated for peak LFL consumption in the baseline peak load forecast from the newly calculated average expected peak LFL consumption of 1,325 MW (837 MW + 488 MW). This adjustment reflects ERCOT's continuous effort to better understand and forecast the operations of Large Flexible Loads.