

Release Date: November 7, 2019

**PRELIMINARY
Seasonal Assessment of Resource Adequacy for the ERCOT Region (SARA)
Spring 2020**

SUMMARY

The ERCOT Region is expected to have sufficient installed generating capacity to serve forecasted peak demands in the upcoming spring season (March - May 2020).

This preliminary SARA report reflects a spring 2020 peak forecast of 64,233 MW based on current expectations for average weather.

An additional 6,212 MW of new planned nameplate capacity is expected to be available at the start of the spring season. Of that, 2,903 MW are expected to be available during spring peak load hours, with wind contributing 1,930 MW, gas-fired units contributing 218 MW, and solar contributing 755 MW.

The report also includes a forecast of 11,238 MW of unit outages based on historical outage data from the past three spring seasons (starting with 2017), and assumes the high likelihood that the spring peak demand will occur in May.

While a significant amount of unit maintenance is conducted during the spring season, much of this maintenance is completed prior to the onset of hotter temperatures/higher electricity demand in late May.

The extreme scenario in this report assumes an extreme April peak demand coinciding with average April generation outages occurring during the peak hours of each weekday.

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Forecasted Capacity and Demand

| | | |
|------------------------------------------------------------------------------------|--------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Operational Resources (thermal and hydro), MW | 66,411 | Based on current Seasonal Maximum Sustainable Limits reported through the unit registration process |
| Switchable Capacity Total, MW | 3,691 | Installed capacity of units that can interconnect with other Regions and are available to ERCOT |
| Less Switchable Capacity Unavailable to ERCOT, MW | (868) | Based on survey responses of Switchable Generation Resource owners |
| Available Mothball Resources, MW | 0 | Based on seasonal Mothball units plus Probability of Return responses of Mothball Resource owners |
| Private Use Network Capacity Contribution, MW | 3,018 | Average grid injection during the top 20 winter peak load hours over the last three years, plus the forecasted net change in generation capacity available to the ERCOT grid pursuant to Nodal Protocol Section 10.3.2.4. |
| Non-Coastal Wind Resources Capacity Contribution, MW | 6,215 | Based on 32% of installed capacity for non-coastal wind resources per ERCOT Nodal Protocols Section 3.2.6.2.2 |
| Coastal Wind Resources Capacity Contribution, MW | 2,029 | Based on 68% 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 | 1,235 | Based on 66% of rated capacity for solar resources per Nodal Protocols Section 3.2.6.2.2 |
| Storage, Peak Average Capacity Contribution, MW | 0 | Based on 0% of rated capacity; resources assumed to provide regulation reserves rather than sustained capacity available to meet peak loads |
| RMR Resources to be under Contract, MW | 0 | |
| Capacity Pending Retirement | 0 | Announced retired capacity that is undergoing ERCOT grid reliability reviews pursuant to Nodal Protocol Section 3.14.1.2 |
| Non-Synchronous Ties, Capacity Contribution, MW | 838 | Based on import flows during most recent Energy Emergency Alert (EEA) intervals for the winter season. (Used as a proxy for the spring season due to lack of EEA intervals.) |
| Planned Thermal Resources with Signed IA, Air Permits and Adeq. Water Supplies, MW | 218 | Based on in-service dates provided by developers |
| Planned Non-Coastal Wind with signed IA , MW | 1,216 | Based on in-service dates provided by developers and 32% of installed capacity for non-coastal wind resources |
| Planned Coastal Wind with signed IA , MW | 714 | Based on in-service dates provided by developers and 68% of installed capacity for coastal wind resources |
| Planned Solar Utility-Scale with signed IA, MW | 755 | Based on in-service dates provided by developers and 66% of installed capacity for solar resources |
| Planned Storage, Peak Average Capacity Contribution, MW | 0 | Based on in-service dates provided by developers and a capacity contribution of 0% for storage resources |
| [a] Total Resources, MW | 85,471 | |
| [b] Peak Demand, MW | 64,233 | May peak forecast is based on average weather conditions at time of peak from 2003 – 2017 |
| [c] Reserve Capacity [a - b], MW | 21,238 | |

Range of Potential Risks

| | Forecasted Season Peak Load (May) | Forecasted April Peak Load and Typical Generation Outages During Peak Maintenance Season (March-April) | | Extreme April Peak Load and Typical Generation Outages During Peak Maintenance Season (March-April) |
|--------------------------------------------------------------------------------------|-----------------------------------|--------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| | | Forecasted April Peak Load and Typical Generation Outages During Peak Maintenance Season (March-April) | Extreme April Peak Load and Typical Generation Outages During Peak Maintenance Season (March-April) | |
| Seasonal Load Adjustment | -- | (7,868) | (3,072) | April peak forecast is 56,365 MW, and the extreme peak forecast is 61,161 MW; adjustments reflect April peak forecast for average and 90th percentile weather conditions, respectively |
| Typical May Maintenance Outages, Thermal | 6,064 | 6,064 | 6,064 | Based on historical average of planned maintenance outages for May weekdays (starting in 2017) |
| Typical May Forced Outages, Thermal | 5,174 | 5,174 | 5,174 | Based on historical average of forced outages for May weekdays (starting in 2017) |
| Incremental Unit Outages to Reflect April Peak Maintenance Season, Thermal | -- | 8,785 | 8,785 | Incremental outages based on historical average of forced and planned maintenance outages for April weekdays, hours ending 3 pm - 8 pm (starting in 2017) |
| [d] Total Uses of Reserve Capacity | 11,238 | 12,155 | 16,951 | |
| [e] Capacity Available for Operating Reserves, Normal Operating Conditions (c-d), MW | 10,000 | 9,083 | 4,287 | See the Background tab for additional details |

| UNIT NAME | GENERATION INTERCONNECTION PROJECT CODE | UNIT CODE | COUNTY | FUEL | CDR ZONE | START YEAR | CAPACITY (MW) |
|-----------|-----------------------------------------------|-----------|--------|------|----------|------------|------------------|
|-----------|-----------------------------------------------|-----------|--------|------|----------|------------|------------------|

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 regulation reserves rather than sustained capacity available to meet system peak loads.

* The projects listed in the 'Planned Storage Resources with Executed SGIA' section are all Distributed Generation Resources (DGRs). Since they are 10 MW or less, they are not going through the GINR application process.

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 (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 focuses on the availability of sufficient operating reserves to avoid emergency actions such as deployment of voluntary load reduction resources. It uses an operating reserve threshold of 2,300 MW to indicate the risk that an Energy Emergency Alert Level 1 (EEA1) may be triggered during the time of the forecasted seasonal peak load. This threshold level is intended to be roughly analogous to the 2,300 MW Physical Responsive Capability (PRC) threshold for EEA1. 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 MW reserve capacity threshold is a reasonable indicator 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 variation in these parameters is based on historic ranges of the parameter values or known changes expected in the near-term. The SARA report is not intended to indicate the likelihood of any of these scenario outcomes.