ERCOT's use of Energy Emergency Alerts

ERCOT has a progressive series of emergency procedures that may be used when operating reserves drop below specified levels. These procedures are designed to protect the reliability of the electric system as a whole and prevent an uncontrolled system-wide outage.

Per ERCOT Protocols and NERC requirements, the grid operator is required to declare an Energy Emergency Alert (EEA) when operating reserves drop below 2,300 MW or system frequency cannot be maintained above certain levels and durations. There are three levels of EEA, depending on the amount of operating reserves that are available to meet the electric demand on the system.

When ERCOT issues an EEA, it is able to take advantage of additional resources that are only available during scarcity conditions. Resources include demand response that is procured specifically for these types of conditions (Emergency Response Service and other demand response from Transmission Operators); use of resources that are normally set aside to provide operating reserves (including mandatory load reduction from some industrial facilities); additional generation or imports from neighboring regions; and voluntary conservation by consumers.

If all of the EEA tools listed above are insufficient, rotating outages are required to help preserve the reliability of the system as a whole. However, rotating outages have only been implemented three times in the history of ERCOT.

Energy Emergency Alert levels

EEA Level 1
When operating reserves drop below 2,300 MW and are not expected to recover within 30 minutes, grid operators can call on all available power supplies, including power from other grids, if available.

EEA Level 2
When operating reserves are less than 1,750 MW and are not expected to recover within 30 minutes, ERCOT can reduce demand on the system by interrupting power from large industrial customers who have contractually agreed to have their electricity turned off during an emergency. ERCOT can also use demand response resources that have been procured to address tight operating conditions.

EEA Level 3
An EEA3 is declared if operating reserves cannot be maintained above 1,375 MW. If conditions do not improve, continue to deteriorate or operating reserves drop below 1,000 MW and are not expected to recover within 30 minutes, ERCOT will order transmission companies to reduce demand on the system.

Which scenarios may result in scarcity conditions?

Summer
Texas is generally hot during the summer, but ERCOT's electric use typically peaks during sustained periods of above-normal or extreme temperatures, when heat begins to build up over time. ERCOT's summer peak demand records are driven largely by a combination of high temperatures across the region's largest urban load centers (i.e., Dallas/Fort Worth, Houston, San Antonio and Austin).

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Based on historical weather data, the following combinations are indicative of normal, above-normal and extreme summer peak demand weather conditions in the ERCOT region:

- **Normal:** temperatures are around or above 102 degrees in Dallas, 102 degrees in Austin/San Antonio and 96 degrees in Houston
- **Above-normal:** temperatures are around or above 104 degrees in Dallas, 104 degrees in Austin/San Antonio and 98 degrees in Houston
- **Extreme:** temperatures are around or above 106 degrees in Dallas, 105 degrees in Austin/San Antonio and 100 degrees in Houston

While a combination of above-normal or extreme temperatures across multiple urban load centers may result in scarcity conditions, other factors can also increase the likelihood of tight operating conditions. Significant generation outages and/or low wind output may make it difficult for grid operators to balance generation and load, even when electric consumption is only moderately high.

Winter

During winter, load typically peaks each day in the early morning and then again in the early evening. Winter peak demand records generally occur after consecutive days of cold build up in the ERCOT region and are driven largely by a combination of low temperatures across the region's largest urban load centers.

Based on historical weather data, the following combinations are indicative of normal, above-normal and extreme winter peak demand weather conditions in the ERCOT region:

- **Normal:** temperatures are 20 degrees in Dallas, 26 degrees in Austin/San Antonio and 30 degrees in Houston
- **Below-normal:** temperatures are 15 degrees in Dallas, 21 degrees in Austin/San Antonio and 25 degrees in Houston
- **Extreme:** temperatures are nearly 10 degrees in Dallas, below 20 degrees in Austin/San Antonio and nearing 20 degrees in Houston

During the winter months, tight grid conditions may also result from reduced generator availability due to weather-related factors. Extreme cold temperatures, restrictions by natural gas suppliers, windy conditions and precipitation that causes icing on wind turbine blades may force generators to become unavailable or operate at reduced levels.

What is a rotating outage?

Rotating outages are controlled, temporary interruptions of electrical service implemented by utilities to reduce demand and preserve the reliability of the electric system as a whole. Utilities are required to shed load based on their percentage of historic peak demand. Rotating outages are only used as a last resort to bring operating reserves back up to a safe level and maintain system frequency.

Rotating outages primarily affect residential neighborhoods and small businesses and are typically limited to 10 to 45 minutes before being rotated to another location. Each transmission company is responsible for determining how they will shed their portion of the load on the system.

ERCOT has initiated system-wide rotating outages three times in the history of ERCOT (Dec. 22, 1989, April 17, 2006 and Feb. 2, 2011).

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