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**CY 2023 REPORTS OF THE
ELECTRIC RELIABILITY COUNCIL
OF TEXAS**

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**PUBLIC UTILITY COMMISSION
OF TEXAS**

**ELECTRIC RELIABILITY COUNCIL OF TEXAS, INC.'S
REPORT OF EMERGENCY EVENT**

Pursuant to 16 TEX. ADMIN. CODE (TAC) § 25.362(i)(4), Electric Reliability Council of Texas, Inc. (ERCOT) files this report regarding the Energy Emergency Alert (EEA) condition that affected the ERCOT System on September 6, 2023, including a description of the events leading up to and following that condition.

I. EXTENSION OF DEADLINE

Subsection 25.362(i)(4) requires ERCOT to file an emergency report “by the end of the following business day after becoming aware of such event or situation,” unless the Executive Director of the Public Utility Commission of Texas (Commission) specifies in writing that the report may be delayed. ERCOT issued a Level 2 Energy Emergency Alert (EEA) on September 6, 2023. Due to continued tight conditions on the ERCOT Transmission Grid, on September 7, 2023, ERCOT requested an extension to file the emergency report by close of business on September 13, 2023. The Executive Director subsequently approved this extension request on September 7, 2023. Accordingly, this report is timely filed.

II. EMERGENCY EVENT OVERVIEW

On September 6, 2023, from approximately 7:10 p.m. until approximately 7:25 p.m., ERCOT observed a decline in the system frequency from 60 Hz to 59.77 Hz, which is outside the target range of 59.9 to 60.1 Hz. In order to access additional power reserves to restore and maintain frequency, ERCOT declared an EEA Level 2 (EEA2) at 7:25 p.m.¹ Due to tight reserve margins

¹ ERCOT Nodal Protocol § 6.5.9 governs actions taken in anticipation of, and in response to, an Emergency Condition in the ERCOT Region. These include entering EEA Levels 1, 2, and 3 respectively, as well as preliminary notices in preparation for a potential Emergency Condition that include, in escalating order, an Operating Condition Notice (OCN), Advisory, and Watch. An EEA overview is available on ERCOT’s website at: https://www.ercot.com/files/docs/2023/06/20/2023%20EEA%20Overview_Final_Updates.pdf. Note that a Watch under the ERCOT Protocols is distinct from a Weather Watch, which is a separate notification intended for the general public.

that evening, ERCOT had already deployed Ancillary Services, including Non-Spinning Reserve Service (Non-Spin), ERCOT Contingency Reserve Service (ECRS), generation-provided Responsive Reserve Service (RRS), and Fast Frequency Response (FFR) at the time of the EEA2. ERCOT had also already deployed Emergency Response Service (ERS) and requested that Transmission Operators (TOs) implement distribution voltage reduction measures, if available. As part of the EEA2 declaration, ERCOT requested deployment of load management program capacity. And immediately after the EEA2 declaration, Load Resources were deployed through RRS to stop frequency decay. At 7:37 p.m., system frequency was restored to 60 Hz through these actions, and no additional measures, including firm load-shedding, were necessary. At 8:27 p.m., the ERCOT System moved from EEA2 up to EEA1, and at 8:37 p.m., the ERCOT System exited EEA1 and returned to normal operations. Operating reserve levels remained tight the following day on Thursday, September 7, at their lowest reaching 3,685 MW, but conditions improved on Friday, September 8 with the lowest reserves of 4,612 MW on that date.

A variety of factors contributed to the low power reserve conditions that resulted in the system frequency decline on September 6. The most significant factor is that the ERCOT Region has experienced an unusually hot summer, resulting in abnormally high electric power demand. This summer's peak demand of 85,464 MW, which occurred on August 10, surpassed the summer 2022 peak demand of 80,148 MW by approximately 6.6%. The week of September 4 through 8 was particularly abnormal, with the peak load of 84,182 MW on September 8 exceeding the previous September demand record of 72,370 MW (set in 2021) by approximately 16%. On September 6, the day of the EEA, high temperatures contributed to a very high peak demand during Hour Ending (HE) 18:00 of 82,705 MW.²

As has been true on many days this summer, abnormally high demand on September 6 persisted into the evening hours, overlapping with the period during which solar generation output decreases. With a decline in solar output, other generation must be used to meet system demand and ensure sufficient reserves. However, because the sunset in early September occurs approximately half an hour earlier than it does in early August and about 45 minutes earlier than

² The previous all-time September peak demand record was 81,674 MW on September 5, 2023 at HE 17:00 (1,031 MW less than the peak demand on September 6, 2023). Each day after September 6, 2023 also set a new all-time September peak demand record: 83,911 MW at HE 17:00 on September 7, 2023 and 84,182 MW also at HE 17:00 on September 8, 2023.

it does in July, the risk associated with the solar ramp is greater in early September than it has been in other periods of extreme demand this summer because of the greater proximity to the demand peak.

On the evening of September 6, the decline in solar generation output was accompanied by limitations on other generation. Wind generation output that evening was relatively low across most of the system. A high-risk transmission constraint in South Texas restricted the flow of generation out of that area to the rest of the ERCOT Transmission Grid. Following the solar generation ramp-down on September 6, and with low wind generation output in the North, Central, and West regions but high wind generation output in the South region, energy flow out of the South increased the loading on a significant 345 kV transmission line beyond that line's post-contingency limit. Because the overload of this element following a contingency could have had significant consequences for grid reliability, ERCOT was forced to direct manual curtailment of 1,590 MW of generation from the South region. ERCOT also moved Ancillary Services from certain Generation Resources immediately north of the constraint to other units in order to allow more generation capacity to provide energy north of the constraint.³ Additionally, although some Generation Resources were experiencing ongoing forced outages during the EEA, the total amount of forced outages was at a lower level than the immediately preceding days and was in line with the level of forced outages observed throughout the 2023 summer season.

Based on the occurrence of the EEA and the need for additional generation, ERCOT initiated communications with the Texas Commission on Environmental Quality (TCEQ) to request enforcement discretion with respect to exceedances of state air permits. Under the TCEQ's existing policy, if ERCOT determines that it is unlikely to be able to meet electric demand and reserve requirements on the ERCOT System, ERCOT may request that TCEQ exercise its

³ To help address this transmission limitation in the future, the ERCOT Board of Directors approved the CPS Energy-San Antonio South Reliability Regional Planning Group Project at the August 31, 2023 meeting and that project is pending Commission approval. The project is expected to provide long-term system reliability improvements and address congestion in the South Texas region. More information on this project is available on the ERCOT website at: [https://www.ercot.com/files/docs/2023/08/24/11.2%20CPS%20Energy%20San%20Antonio%20South%20Reliability%20Regional%20Planning%20Group%20Project%20\(Template\)%20v3.pdf](https://www.ercot.com/files/docs/2023/08/24/11.2%20CPS%20Energy%20San%20Antonio%20South%20Reliability%20Regional%20Planning%20Group%20Project%20(Template)%20v3.pdf). During the interim period until that project is fully approved and constructed, ERCOT is working with TOs in the South Texas region to investigate solutions that may partially mitigate the impact of the transmission limitation.

enforcement discretion with respect to potential violations under its jurisdiction.⁴ On September 6 at 7:29 p.m., immediately after the EEA2 was declared, ERCOT requested that TCEQ exercise enforcement discretion beginning immediately and extending through midnight. TCEQ approved the request shortly thereafter at 7:49 p.m. and ERCOT issued a Market Notice to notify Market Participants. ERCOT placed another such request the following morning of September 7 to extend from noon through midnight on September 7 and 8, and TCEQ approved that request.

Additionally, based on ERCOT's assessment that conditions similar to those observed on September 6 could arise again on September 7 and 8, ERCOT contacted the Department of Energy on the morning of September 7 to inquire about the possibility of securing an order under Federal Power Act⁵ (FPA) § 202(c) for the evening hours of September 7 and 8. Under § 202(c), if DOE finds that an electric reliability emergency exists, it may allow specific generating facilities to operate up to their maximum output levels for a designated period of time, notwithstanding air quality or other permit limitations. ERCOT had been notified that at least one generator would be able to run at a higher level if ERCOT were able to secure a § 202(c) order from the DOE. After consulting with the DOE, ERCOT submitted the official request to DOE at 3:42 p.m., requesting such relief for the period of 5:00 – 9:00 p.m. on September 7 and 8.⁶ At 5:56 p.m., DOE notified ERCOT that it had granted the request in Order No. 202-23-1. ERCOT issued a Market Notice describing the order shortly thereafter.⁷ At 6:51 p.m. on September 8, ERCOT received notice of 16 additional Generation Resources requesting allowances under the DOE's Order.⁸ The order expired at 9:00 p.m. on September 8.

⁴ An explanation of TCEQ's policy on enforcement discretion is available on TCEQ's website at: <https://www.tceq.texas.gov/downloads/response/enforcement-discretion.pdf>.

⁵ Federal Power Act, 16 U.S.C. §§ 791a-825r.

⁶ ERCOT's request is available on DOE's website at: <https://www.energy.gov/sites/default/files/2023-09/ERCOT%20202%28c%29%20Request.pdf>. At the time of the request, only one generation owner had notified ERCOT of limits to its power output due to certain opacity limits under federal environmental permits: WA Parish Unit 8.

⁷ DOE's Order No. 202-23-1 is available on ERCOT's website at: <https://www.ercot.com/about/legal/doe202c>.

⁸ The additional 16 units were each natural gas generation facilities: Bosque Energy Center Block 1, Bosque Energy Center Block 2, Freestone Energy Center Block 1, Freestone Energy Center Block 2, Guadalupe Energy Center Block 1, Guadalupe Energy Center Block 2, Baytown Energy Center, Channel Energy Center, Deer Park Energy Center, Pasadena Power Plant I, Pasadena Power Plant II, Jack A. Fusco Energy Center, Texas City Power Plant, Magic Valley Generation Station, Corpus Christi Energy Center, and Hidalgo Energy Center. The list of units with

III. CHRONOLOGY OF EMERGENCY EVENT

To provide greater context for the September 6, 2023 EEA, ERCOT offers this chronology of its activities that preceded and followed this event. The week of September 4, 2023 began with a federal holiday and load was accordingly lower on September 4 than for a typical Monday. Conditions on the Transmission Grid tightened during the evening hours on Tuesday, September 5, and reserve levels remained relatively low in the evenings with high demand through Thursday, September 7. The summary below identifies, in chronological order, ERCOT's actions taken to maintain reliability on the Transmission Grid for each Operating Day from September 5 through 8, along with the forecasted and actual conditions each day.

Tuesday, September 5

- Forecasts:
 - Projected Peak Hourly Demand: 81,458 MW
 - Projected Tightest Hour: HE 20:00
 - Projected Demand during HE 20:00: 77,084 MW
 - Projected Wind during HE 20:00: 12,597 MW
 - Projected Solar during HE 20:00: 1,322 MW
- Actuals:
 - Peak Hourly Demand: 81,674 MW during HE 17:00
 - Tightest Hour: HE 20:00
 - Actual Load during HE 20:00: 77,496 MW
 - Wind during HE 20:00: 11,385 MW
- 10:31 a.m.: OCN issued for September 7-9 due to anticipated extreme hot weather during that period, with forecasted temperatures above 103° Fahrenheit in the North Central and South Central weather zones.
- 7:20 p.m.: ECRS deployed.
- 8:02 p.m.: ECRS recalled.

Wednesday, September 6

- Forecasts:
 - Projected Peak Hourly Demand: 82,604 MW

accompanying information is available on DOE's website under "ERCOT 202(c) Specified Resources" at: <https://www.energy.gov/ccscr/federal-power-act-section-202c-ercot-september-2023>.

- Projected Tightest Hour: HE 20:00
- Projected Demand during HE 20:00: 76,699 MW
- Projected Wind during HE 20:00: 7,153 MW
- Projected Solar during HE 20:00: 1,158 MW
- Actuals:
 - Peak Hourly Demand: 82,705 MW during HE 18:00
 - Tightest Hour: HE 20:00
 - Actual Load during HE 20:00: 77,196 MW
 - Wind during HE 20:00: 5,492 MW
- 9:30 a.m.: Watch issued for HE 19:00 – 20:00 (i.e., 6:00 – 8:00 p.m.) for a projected reserve capacity shortage with no market solution available, which causes a risk for an EEA event.
- 2:57 p.m.: ECRS deployments began in increments.
- 3:33 p.m.: Non-Spin deployed.
- 4:30 p.m.: Appeal for energy conservation issued through public news media for HE 19:00 – 21:00 (i.e., 6:00 – 9:00 p.m.).
- 6:27 p.m.: All ECRS deployed.
- 6:34 p.m.: Transmission Watch issued for the area south of San Antonio due to a constraint on the DELMSAN5 for high post-contingency overloads in the area. Manual actions were performed to reduce post-contingency overloads.
- 6:46 p.m.: Operating instructions were issued to CPS Energy to remove all RRS and ECRS from thermal units.
- 6:59 p.m.: RRS deployed.
- 7:00 p.m.: Directed manual curtailment of 1,590 MW on Pawnee-to-Calaveras transmission line to manage DELSAN5 constraint.
- 7:14 p.m.: 1,023 MW of ERS deployed. ERCOT also instructed TOs to implement distribution voltage reduction, if available, from 7:15 – 8:44 p.m.
- 7:15 p.m.: Advisory issued due to Physical Responsive Capability (PRC, i.e., the total amount of frequency responsive Resource capability On-Line in Real-Time) falling below 3,000 MW.
- 7:16 p.m.: System frequency reached 59.90 Hz.
- 7:19 p.m.: System frequency reached 59.85 Hz. Fast Frequency Response (FFR) deployed.

- 7:25 p.m.: System frequency reached its lowest point of 59.77 Hz. EEA2 declared.⁹ Transmission and Distribution Utilities (TDUs) were requested to deploy load management programs, if available.
- 7:28 p.m.: 1,593 MW of Load Resources deployed.
- 7:29 p.m.: Request submitted to TCEQ for enforcement discretion to begin immediately and end at midnight.
- 7:40 p.m.: 500 MW of RRS recalled.
- 7:49 p.m.: TCEQ approved ERCOT's request for enforcement discretion.¹⁰
- 7:54 p.m.: All RRS recalled.
- 7:56 p.m.: DC Tie Curtailment Notice (DCTCN) issued regarding curtailment of DC_L (Laredo VFT) DC Tie.
- 8:06 p.m.: 800 MW of Load Resources recalled.
- 8:17 p.m.: All Load Resources recalled.
- 8:27 p.m.: EEA2 ended and EEA1 declared.
- 8:34 p.m.: DCTCN cancelled.
- 8:37 p.m.: EEA1 ended returning the ERCOT Transmission Grid returned to normal operations.¹¹
- 8:44 p.m.: ERS recalled.
- 8:50 p.m.: Advisory cancelled.
- 8:55 p.m.: All ECRS recalled.
- 9:02 p.m.: Transmission Watch for DELMSAN5 constraint cancelled.
- 9:04 p.m.: All Non-Spin recalled.
- 9:33 p.m.: Watch and public energy conservation appeal cancelled.

Thursday, September 7

- Forecasts:
 - Projected Peak Hourly Demand: 84,025 MW

⁹ ERCOT issued a news release providing additional information to the public regarding the EEA2 declaration, available on ERCOT's website at: <https://www.ercot.com/news/release/2023-09-06-ercot-has-initiated>.

¹⁰ ERCOT issued a Market Notice at 8:01 p.m. announcing TCEQ's approval of enforcement discretion for September 6, available on ERCOT's website at: https://www.ercot.com/services/comm/mkt_notices/M-B090623-01.

¹¹ ERCOT issued a news release providing information to the public when EEA1 ended and the ERCOT Transmission Grid returned to normal operations, available on ERCOT's website at: <https://www.ercot.com/news/release/2023-09-06-ercot-has-exited>.

- Projected Tightest Hour: HE 20:00
- Projected Demand during HE 20:00: 79,252 MW
- Projected Wind during HE 20:00: 8,117 MW
- Projected Solar during HE 20:00: 1,213 MW
- Actuals:
 - Peak Hourly Demand: 83,911 MW during HE 17:00
 - Tightest Hour: HE 20:00
 - Actual Load during HE 20:00: 79,223 MW
 - Wind during HE 20:00: 8,528 MW
- 9:57 a.m.: ERCOT contacted DOE regarding likely need for FPA § 202(c) relief.
- 10:00 a.m.: Watch issued for Hour Ending (HE) 19:00 – 20:00 (i.e., 6:00 – 8:00 p.m.) for a projected reserve capacity shortage with no market solution available, which causes a risk for an EEA event.
- 10:08 a.m.: TCEQ approved ERCOT’s request for enforcement discretion.¹²
- 10:45 a.m.: Appeal for energy conservation issued through public news media for HE 18:00 – 21:00 (i.e., 5:00 – 9:00 p.m.).
- 3:42 p.m.: ERCOT submitted an official request to DOE seeking FPA § 202(c) relief for the hours of 5:00-9:00 pm on September 7 and 8.
- 5:56 p.m.: DOE sent ERCOT Order No. 202-23-1 granting FPA § 202(c) request.
- 6:17 p.m.: Non-Spin deployed.
- 6:34 p.m.: ECRS began deployment.
- 6:47 p.m.: Market Notice issued attaching DOE’s FPA § 202(c) Order and explaining the process for utilizing allowances provided by the Order.¹³
- 6:51 p.m.: All ECRS deployed.
- 6:55 p.m.: Transmission Watch issued for the area south of San Antonio due to a constraint on the DELMSAN5 for high post-contingency overloads in the area.
- 7:00 p.m.: Manual action taken using base case constraint PAWNEE-TANGO for post contingency overload of DELMSAN5.
- 8:03 p.m.: All ECRS had been recalled.
- 8:04 p.m.: All Non-Spin had been recalled.

¹² ERCOT issued a Market Notice at 10:33 a.m. announcing TCEQ’s approval of enforcement discretion for September 7, available on ERCOT’s website at: https://www.ercot.com/services/comm/mkt_notices/M-B090723-01.

¹³ ERCOT’s Market Notice attaching and describing DOE’s issuance of Order No. 202-23-1 is available on ERCOT’s website at: https://www.ercot.com/services/comm/mkt_notices/M-C090723-01.

- 8:23 p.m.: Transmission Watch cancelled.
- 9:00 p.m.: Watch and public energy conservation appeal cancelled.

Friday, September 8

- Forecasts:
 - Projected Peak Hourly Demand: 84,336 MW
 - Projected Tightest Hour: HE 16:00
 - Projected Demand during HE 16:00: 84,336 MW
 - Projected Wind during HE 16:00: 5,679 MW
 - Projected Solar during HE 16:00: 13,209 MW
- Actuals:
 - Peak Hourly Demand: 84,182 MW during HE 17:00
 - Tightest Hour: HE 19:00
 - Actual Load during HE 19:00: 80,512 MW
 - Wind during HE 19:00: 6,869 MW
- 4:06 p.m.: ECRS deployed.
- 4:10 p.m.: Non-Spin deployed.
- 5:45 p.m.: All ECRS recalled.
- 6:56 p.m.: ECRS deployed to assist with solar generation ramp down.
- 7:32 p.m.: All ECRS recalled.
- 7:55 p.m.: All Non-Spin recalled.

IV. CONCLUSION

ERCOT will continue to take all actions necessary to ensure the reliability of the ERCOT System. ERCOT would be pleased to provide any additional information regarding the September 6, 2023 EEA that may be helpful for the Commission's consideration. ERCOT personnel will be available at the Commission's September 14, 2023 Open Meeting to address any questions regarding that event.

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Respectfully submitted,

/s/ Matthew Arth

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