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REPORTS OF THE ELECTRIC
RELIABILITY COUNCIL OF TEXAS

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PUBLIC UTILITY COMMISSION
OF TEXAS

PROJECT NO. 47552

ISSUES RELATED TO THE
DISASTER RESULTING FROM
HURRICANE HARVEY

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PUBLIC UTILITY COMMISSION
OF TEXAS

**ELECTRIC RELIABILITY COUNCIL OF TEXAS, INC.'S
REPORT CONCERNING IMPACTS OF HURRICANE/TROPICAL STORM HARVEY**

Pursuant to Public Utility Commission Substantive Rule 25.362(i)(4),¹ Electric Reliability Council of Texas, Inc. (ERCOT) submits this report concerning the impacts of Hurricane and Tropical Storm Harvey on the reliability of the ERCOT system and operation of the ERCOT market.

I. Background

Hurricane Harvey made landfall as a Category 4 hurricane near Rockport, Texas at approximately 10 p.m. on August 25, 2017. At landfall, the storm produced sustained winds of approximately 130 mph and caused significant damage in Rockport and the surrounding areas. The storm gradually weakened to a tropical storm by the evening of August 26, 2017. Since

¹ PUC Substantive Rule 25.362(i)(4) states in part that ERCOT shall file a written report with the Commission when it becomes aware of an “event or situation that could reasonably be anticipated to adversely affect the reliability of the regional electric network; the operation or competitiveness of the ERCOT market; ERCOT’s performance of activities related to the customer registration function; or the public’s confidence in the ERCOT market or in ERCOT’s performance of its duties.” ERCOT is required to file such a report within one business day of becoming aware of such an event or situation, unless the executive director of the Commission specifies in writing that the filing may be delayed. In this instance, the executive director of the Commission authorized ERCOT to delay filing of this report until August 30, 2017.

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making landfall, the storm has produced significant rainfall throughout Central and Southeast Texas. In particular, the Houston metropolitan area has received unprecedented rainfall—exceeding 50 inches in some areas as of this morning—which has caused extensive flooding. Although rainfall related to Tropical Storm Harvey is expected to subside in the Houston area in the coming days, it is expected that it will take significant time for flood waters to recede.

II. Actions taken by ERCOT prior to landfall of Hurricane Harvey

To minimize the impact of Forced Outages the approaching storm was expected to cause, ERCOT worked with Transmission Service Providers (TSPs) to restore or cancel as many Planned Outages as possible. Also, on Friday, August 25, 2017, ERCOT activated its internal Disaster Management Team, who worked throughout the following days to ensure ERCOT's operations were not impacted during the storm event.

ERCOT also provided several operations notices to Market Participants in advance of the storm. ERCOT issued a hurricane-related Operating Condition Notice (OCN) on August 23, 2017 and Advisory and Watch on August 24, 2017. On August 25, 2017, prior to the hurricane's landfall, ERCOT issued an Emergency Notice due to the Forced Outage of various transmission facilities caused by the hurricane. ERCOT canceled the Emergency Notice today and has issued an OCN due to the impact of the remaining Forced Outages on the ERCOT system.

III. Impacts to the ERCOT system and system reliability due to Hurricane and Tropical Storm Harvey

The ERCOT system has experienced a number of transmission Forced Outages as a result of this storm event. Since the hurricane first made landfall, six 345kV transmission lines have experienced storm-related Forced Outages; however, as of this morning, all but two of these lines have been restored. In addition, 91 138kV circuits and 138 69kV circuits in the areas impacted by the storm have also experienced storm-related Forced Outages. Approximately 52% of the 138kV

facilities and 34% of the 69kV facilities remain outaged as of this morning. The large majority of these outaged facilities are located in the Coastal Bend area of Texas, where the storm initially came ashore. However, some of these facilities are located in the Houston area and have been impacted by storm-related flooding. These outages have resulted in the disruption of service to large numbers of customers and the temporary islanding of a small part of the ERCOT system. ERCOT has submitted required reports concerning these events to the Department of Energy and to the North American Electric Reliability Corporation.

As a result of certain 345kV outages, ERCOT issued two Reliability Unit Commitment (RUC) instructions to make generation available for reliability purposes. Specifically, on Saturday, August 25, 2017, ERCOT instructed one generation facility to bring additional capacity online in order to ensure sufficient resiliency in the Lower Rio Grande Valley to address any immediate impacts of the storm. On Sunday, August 26, 2017, ERCOT instructed another unit in the Victoria area to provide system resiliency and voltage support. These were the only two commitments attributable to the storm thus far.

In addition to these transmission outages, generation capacity has been negatively impacted by the storm. As of this morning, approximately 8,000 MW of generation is outaged and approximately 3,000 MW is derated due to storm-related causes. The outages are generally attributable to rain or floodwaters affecting fuel supplies, outages of transmission facilities at the generator's point of interconnection, or the inability of plant personnel to reach the generating facility. This amount of outaged generation has been dropping, down from a maximum of over 10,000 MW.

Despite the foregoing storm-related outages, ERCOT has had plenty of generation to meet total system demand and expects to have sufficient generation for the foreseeable future. System

demand has been significantly less than normal since August 25, 2017. More specifically, ERCOT peak demand was 43,857 MW on August 26; 41,707 MW on August 27; 44,861 MW on August 28; and 48,573 MW on August 29. This demand is approximately 15,000-20,000 MW lower than what is typically observed during this time of year, and is attributable largely to cooler temperatures in the region as well as the substantial number of customer outages in the areas affected by the storm. System demand is expected to stay at moderate levels over the next several days due to cooler than normal temperatures, resulting in unusually low demand and sufficient generation capacity. Throughout the course of the storm, ERCOT has been working with transmission and generation owners to protect the reliability of the grid, and will continue to do so. As of this filing, ERCOT has not required emergency imports over the DC Ties or Block Load Transfers from other systems, and has not ordered shedding of any firm load to maintain system reliability.

ERCOT will continue to monitor the impacts of Hurricane/Tropical Storm Harvey—particularly for localized problems in the storm-affected areas. Future Forced Outages in these areas could result in localized reliability concerns. ERCOT will also continue to coordinate with TSPs to mitigate any potential negative impacts on ERCOT system reliability during system restoration.

IV. Impacts on the ERCOT market to date due to Hurricane and/or Tropical Storm Harvey

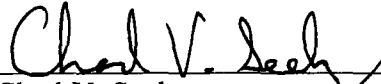
The ERCOT market has continued to function as expected throughout the storm event, and generation has been sufficient to meet demand. Although, no significant storm-related effects have been observed in the market, ERCOT has experienced some difficulty receiving metering data from certain generators in the storm-affected areas. This was not an unexpected result of the storm,

however, and ERCOT is working with TSPs to obtain or estimate data as needed. Of note, ERCOT has observed no significant loss of residential metering data.

V. Future Considerations

ERCOT will continue working with transmission and distribution providers as they continue repairs to damaged transmission facilities. Because current forecasts project that Tropical Storm Harvey will move to the northeast over the next few days, ERCOT does not expect any major system-level reliability or market impacts from the storm. However, ERCOT will promptly update the Commission should conditions change. ERCOT would be pleased to provide any other information the Commission may request concerning this event.

Respectfully submitted,



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