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Report On Dispatchable and Non-Dispatchable Generation Facilities

Public Utility Commission of Texas

December 1, 2023

House Bill 1500 (HB1500), Section 23, passed by the 88th Texas legislature, requires the Public Utility Commission of Texas (PUCT) to submit a report on costs associated with dispatchable and non-dispatchable generation facilities to the Legislature by December 1 each year. Specifically, the report must provide:

(A) load-serving entities' annual costs for backing up both dispatchable and non-dispatchable electric generation facilities to guarantee firm electric energy to the ERCOT power grid; and

(B) annual costs for transmission of electricity from both dispatchable and non-dispatchable generation to load, cumulative costs to interconnect transmission level loads and a breakdown of annual costs for each category as calculated by ERCOT.

This report provides the required information for calendar year 2022 based on data readily available within ERCOT systems. A breakdown of costs as requested under (A) and (B) is not feasible at this time because neither ERCOT nor the load serving entities collected information

in the format directed by the statute during the reporting period. However, PUCT staff is actively working with ERCOT to develop a method to reasonably segregate the annual costs referenced under (A) and (B) between dispatchable and non-dispatchable electric generation facilities. Because both ERCOT's transmission planning and ancillary services procurement are resource agnostic, costs are not allocated on the basis of resource type. Thus, clear segregation of costs between dispatchable and non-dispatchable generation facilities is inherently difficult.[1] Staff expects to provide more information on these cost categories by the December 1, 2024 report.

A. Load-Serving Entities' Annual Costs to Back-up Dispatchable and Non-dispatchable Electric Generation

ERCOT allocates costs associated with procuring reliability services to qualified scheduling entities (QSEs) based on load ratio share. Through its settlement systems, ERCOT assigns these charges to individual QSEs. ERCOT does not have information about how the QSE assigns these costs to load serving entities (LSEs) it represents or how the LSE responsibility is passed on to end-use customers. Each LSE may have different financial and physical hedging arrangements to which ERCOT has no visibility.

Below is a brief explanation of each of the reliability services procured by ERCOT and allocated to QSEs based on their load ratio share.

Ancillary Services (AS) are reliability products used to support the transmission of energy to load. These products are purchased by ERCOT to balance supply and demand of electricity on the grid and for mitigating real-time operational issues. Ancillary services can be provided by

1 Assignment to dispatchable generation may be appropriate for the procurement of FFSS, which is established to mitigate risks in the natural gas supply chain.

qualified generation resources or load resources by adjusting their supply or consumption of electricity when directed by ERCOT. There are currently four types of ancillary services, each of which is described below.

I. **Regulation Services (Regulation Up and Regulation Down**) are provided by resources that can respond to signals from ERCOT to adjust their output or consumption within five seconds to address rapid changes in system frequency.

II. **Responsive Reserve Service** is provided by resources that can, within the first few seconds, arrest significant frequency deviations on the grid and, ultimately, help restabilize system frequency. One example of an event that would cause such a deviation is a large generation resource tripping offline.

III. **Non-Spin Reserve Service** is provided by resources that can be available within 30 minutes and provide the service for at least four consecutive hours, to cover errors in forecasting and to replace deployed reserves.

IV. **ERCOT Contingency Reserve Service** is provided by resources that can be available within 10 minutes and provide the service for at least two consecutive hours, to cover errors in forecasting or to replace deployed reserves.

Other services procured by ERCOT to support transmission of energy to load are described below.

Black Start Service is provided by generation resources that are contracted to be ready to start up without the support of the ERCOT transmission grid in the event of a system wide or partial system outage.

Emergency Response Service (ERS) is provided by qualified generation resources and end-use customers (including aggregations) that are contracted to be deployed, by either decreasing demand or increasing supply, in the event of an emergency. ERS is procured for

two different response times: – responding within 10 minutes or responding within 30 minutes. The ERS charges in Table 1 have been evenly allocated across the months of the respective contract periods.

Firm Fuel Supply Service (FFSS) is provided by qualified generation resources from November 15 through March 15. The generation resources must maintain sufficient back-up fuel and be able to follow ERCOT dispatch instructions during extreme winter weather that results in a disruption in natural gas supply.

Reliability Must Run Service (RMR) ERCOT contracts with resource entities for capacity and energy from generation resources that otherwise would not operate and that are deemed necessary to provide voltage support, stability, or management of localized transmission constraints under applicable reliability criteria, where market solutions do not exist.

Reliability Unit Commitment (RUC) Make Whole Uplift Charges and Claw Back Revenues RUC is a process to ensure that there is adequate resource capacity and ancillary service capacity committed in the proper locations to serve ERCOT's forecasted load. The portion of the RUC settlements (make whole payments to generators) not assigned directly to capacity short entities is allocated to the QSEs based on load ratio share. The extra revenues clawed back from resources that receive RUC instructions (above their make whole payments) are paid out to QSEs on a load ratio share basis.

Voltage Support is a service necessary to maintain transmission and distribution voltages on the ERCOT transmission grid within acceptable limits.

Table 1 below delineates the charges[2] allocated to QSEs from the ERCOT settlement systems for *reliability services* for 2022. The ancillary services settlement data provided in Table 1 includes the ancillary services procured by ERCOT in the Day Ahead Market (DAM) and the self-arranged ancillary services valued at DAM Market Clearing Prices for Capacity.

Table 1: Reliability Services Costs Incurred by Load-Serving Entities ($million)

Month	Ancillary Service Settlement	Black Start Service Settlement	ERS Settlement	Firm Fuel Supply Service Settlement	Reliability Must Run (RMR) Charge	RUC Make Whole Uplift Charge	RUC Claw Back Allocated to Load	Voltage Support Service Charge	TOTAL CY 2022
Jan	$31.8	$0.6	$6.2	$0.0	$0.0	$0.0	($0.0)	$0.0	$38.5
Feb	$67.5	$0.5	$6.2	$0.0	$0.0	$0.0	($7.6)	$0.0	$66.6
Mar	$76.9	$0.6	$6.2	$0.0	$0.0	$0.0	($0.1)	$0.0	$83.6
Apr	$91.5	$0.6	$1.0	$0.0	$0.0	$0.0	($1.3)	$0.0	$91.7
May	$230.2	$0.6	$1.0	$0.0	$0.0	$0.0	($7.3)	$0.0	$224.4
Jun	$106.0	$0.6	$3.9	$0.0	$0.0	$0.0	($0.0)	$0.0	$110.5
Jul	$251.7	$0.6	$3.9	$0.0	$0.0	$0.0	($5.2)	$0.0	$250.9
Aug	$71.4	$0.6	$3.9	$0.0	$0.0	$0.0	($0.1)	$0.0	$75.8
Sep	$37.1	$0.6	$3.9	$0.0	$0.0	$0.0	($0.2)	$0.0	$41.3
Oct	$57.1	$0.6	$2.1	$0.0	$0.0	$0.0	($0.1)	$0.0	$59.7
Nov	$31.6	$0.6	$2.1	$2.9	$0.0	$0.0	($0.7)	$0.0	$36.5
Dec	$179.8	$0.6	$5.0	$5.9	$0.0	$0.0	$0.0	$0.0	$191.3
Total	**$1,232.5**	**$6.8**	**$45.4**	**$8.9**	**$0.0**	**$0.0**	**($22.7)**	**$0.0**	**$1,270.8**

Source: ERCOT

[2] The charges reported here do not include any secondary cost impacts borne by the load serving entities resulting from Reliability Deployment Price Adders (RDPA).

B. Annual Costs for Transmission of Dispatchable and Non-dispatchable Electricity to Load

ERCOT calculated a total of $1.56 billion of *Tier-type*[3] transmission projects submitted by TSPs as having an in-service date in 2022. These estimates are from the data available to ERCOT at this time.

Annual costs associated with transmission of electricity from generation resources to load cannot be calculated precisely at this time because different entities such as ERCOT, PUCT and transmission service providers (TSPs) hold different pieces of transmission cost data over different time periods. No single source captures all costs associated with transmission of electricity to load. For instance, ERCOT has direct access to information about transmission projects and associated costs that are part of the regional transmission planning process (Project Tiers 1-3)[4] while PUCT has information about transmission project costs through the "Monthly Transmission Construction Reports" (MTCR) that are filed by TSPs with the PUCT. MTCR does not capture projects that have a value lesser than $250,000. PUCT also has information on project costs that get reviewed during transmission cost of service proceeding but these may not be contiguous and are dependent on the base rate proceeding timing.

Staff expects to provide a more comprehensive overall annual transmission costs information as calculated by ERCOT in its next report. However, a breakdown of these costs by categories dispatchable and non-dispatchable generation resources may not be achievable because of the nature of transmission planning which is resource agnostic.

[3] As described in ERCOT Protocols 3.11.4.3 Categorization of Proposed Transmission Projects, "ERCOT classifies all proposed transmission projects into one of four categories (or Tiers). Each Tier is defined so that projects with a similar cost and impact on reliability and the ERCOT market are grouped into the same Tier."

[4] https://www.ercot.com/files/docs/2020/10/28/Transmission_Planning_One_Pager_FINAL.pdf