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February 23, 2022

Public Utility Commission of Texas
Chairman Peter Lake
Commissioner Will McAdams
Commissioner Lori Cobos
Commissioner Jimmy Glotfelty
1701 N. Congress Ave.
Austin, Texas 78711

Re: PUC Project No. 52373, *Review of Wholesale Electric Market Design*

Dear Chairman and Commissioners:

Pursuant to Public Utility Commission of Texas (Commission) instruction at the January 13, 2022 open meeting, Electric Reliability Council of Texas, Inc. (ERCOT) provides the following information regarding the capability of existing natural gas resources to make use of stored alternative fuels or stored natural gas. The information provided comes from an annual winter fuel survey, the latest conducted in November 2021, and a request for information that ERCOT sent to Resource Entities with natural gas resources in January 2022.

The following summary of the information ERCOT collected includes three categories of resources:

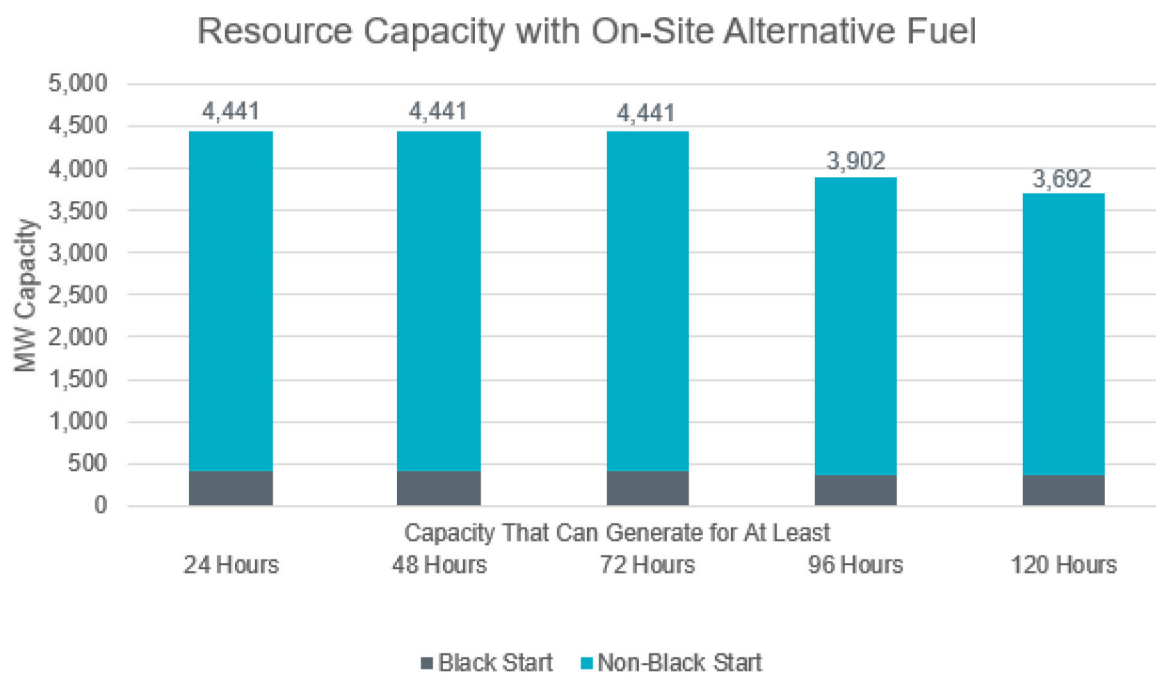
- Resources that currently have the capability to utilize an alternative fuel that is stored on-site to generate power
- Resources that have some infrastructure to utilize an alternative fuel that is stored on-site to generate power, but the infrastructure is inoperable or has not been used in recent history
- Resources that currently have the capability to utilize stored natural gas to generate power and the Resource Entity owns the pipeline from the storage facility to the resource and in some cases also owns the storage facility.

1. Resources with on-site alternative fuel

There are currently 37 resources at 11 plant sites represented by 5 Qualified Scheduling Entities (QSEs) that have the capability to utilize an alternative fuel that is stored on-site. One QSE represents approximately three-fourths of the total capacity. Each unit of a combined cycle plant was counted as a separate resource. All the resources use diesel fuel oil (DFO) as the alternative fuel. Of the 37 resources, 6 require natural gas to start up which represents 1,412 MWs of capacity and 4 other resources, representing 261 MW of capacity, require some natural gas to be mixed with diesel fuel oil (DFO) to run. All resources have tested their ability to run on DFO within the last year except for one smaller unit which was last tested in 2014.

The following chart illustrates the total capacity of resources that can utilize DFO in terms of MWs and hours that they can operate at maximum output. The number-of-hours information is based on the maximum output of the resources while utilizing DFO, which in some cases is less than the maximum output if the resource was running solely on natural gas. ERCOT notes that the resources could operate for a longer time if they were not running at maximum output, but efficiency would decrease, and emission rates would increase. The totals in the chart are separated by resources that currently have a Black Start Service contract and those that do not.

The number of hours shown below are based on on-site storage capacity assuming the fuel tanks are full. All resources could generate at maximum output for at least 72 hours based on storage capability. Additionally, all resources could generate at maximum output for at least 168 hours without exceeding annual emission limitations.



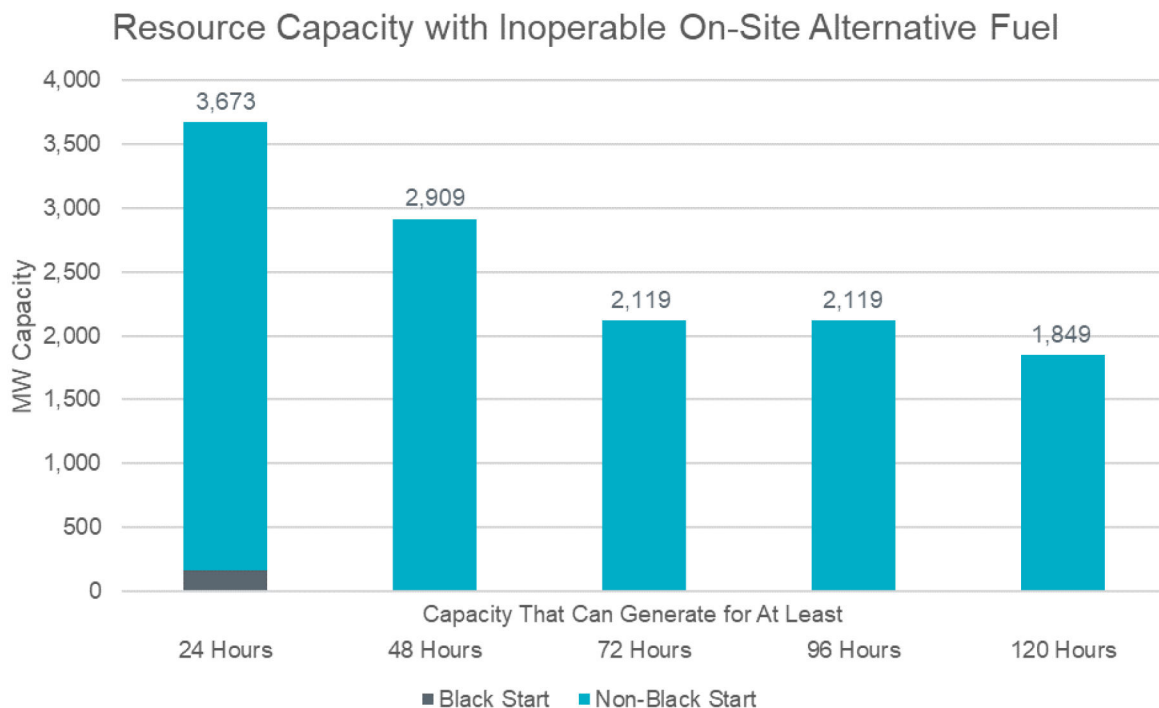
2. Resources with inoperable on-site alternative fuel infrastructure

There are currently 18 resources at 11 plant sites represented by 5 QSEs that have some infrastructure to utilize an alternative fuel that is stored on-site to generate power, but the infrastructure is inoperable or has not been used in recent history. Each unit of a combined cycle plant was counted as a separate resource. The alternative fuel for all the resources is DFO.

All Resource Entities indicated that some level of inspection, maintenance, repairs, refueling, and/or testing would be necessary for these resources to be able to operate on DFO. Most of the Resource Entities did not have enough information to quantify the amount of work that would be required, how long it would take, or if it was even feasible, and in some cases, the amount of work was described as extensive. Some of the resources have never run on DFO despite at one time having the capability, and for some others it has been a significant number of years since they have.

The following chart illustrates the total capacity of resources that have inoperable DFO infrastructure in terms of MWs and hours that they could operate at maximum output, assuming that they are able to bring all their equipment back to operability. Most of the Resource Entities did not know the maximum output capacity of the resources if they were to run on DFO, so ERCOT used the resource's maximum output capacity while running on natural gas as a proxy for these resources. It is possible that the DFO capacity is lower than the natural gas capacity.

The Resource Entities provided ERCOT with the fuel tank capacity in gallons. Most of the Resource Entities did not know the hourly consumption of fuel the resources would have when running on DFO. For these resources, ERCOT used a conservative assumption of 10,000 MWh of generation per one million gallons of fuel tank capacity based on the information provided for other resources. For the number-of-hours data ERCOT assumed that the resources were running at maximum output. ERCOT notes that the resources could operate for a longer time if they are not running at maximum output, but efficiency would decrease, and emission rates would increase. Except for four resources at one plant site, the number of hours shown below are based on on-site storage capacity assuming the fuel tanks are full. For one plant site, the limiting factor was the amount of demineralized water that is stored on site and not the fuel tank capacity. All resources could generate at maximum output for at least 24 hours under the assumption they were able to bring all the equipment back to operability. The totals in the chart are separated by resources that currently have a Black Start Service contract and those that do not.



3. Resources with natural gas storage

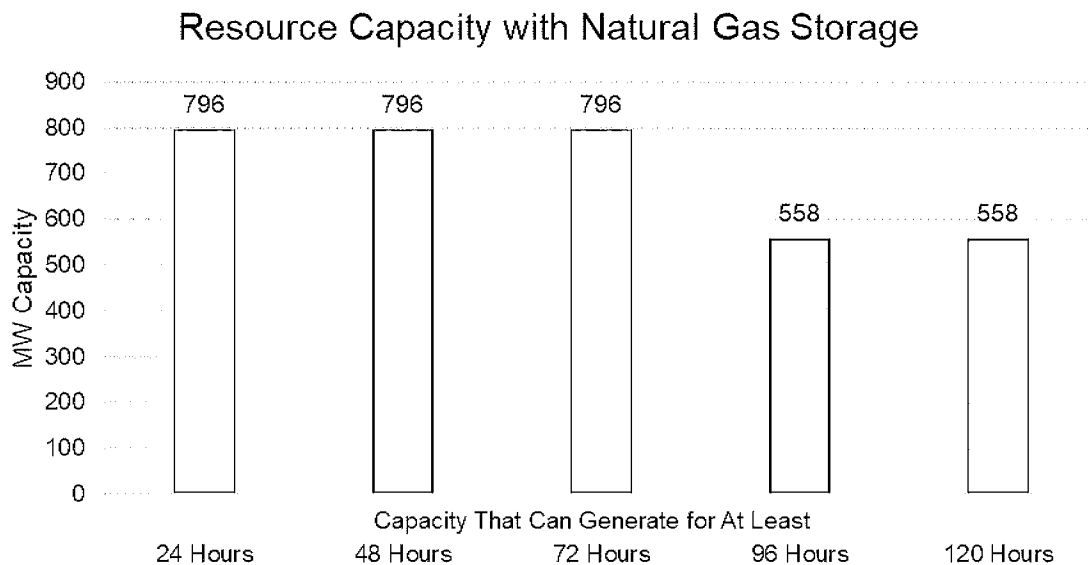
There are currently 10 resources at 3 plant sites represented by 2 QSEs that have the capability to utilize stored natural gas to generate power and the Resource Entity owns the pipeline from the

storage facility to the resource. For 4 of the resources, the Resource Entity owns the storage facility as well. Each unit of a combined cycle plant was counted as a separate resource.

Two of the plant sites (represented by the same QSE) share the same natural gas storage facility. The infrastructure is such that either plant site could run independently at maximum output while drawing solely from the storage facility, but both cannot. Alternatively, both plant sites could run at a reduced output level while drawing solely from the storage facility. For the purposes of calculating the number-of-hours information in the chart below, ERCOT assumed that the larger plant would be operating at maximum output while drawing from the storage facility, and the smaller plant capacity under this scenario was assumed to be zero.

The other plant site has multiple resources, but not all the resources are able to simultaneously draw from the storage facility. If the sole source of natural gas for the plant site was the storage facility the maximum output would be much less than the full plant capacity otherwise.

The following chart illustrates the total capacity of resources that have natural gas storage in terms of MWs and hours that they can operate at maximum output. None of these resources currently have a contract for Black Start Service.



ERCOT is available to answer any questions the Commission may have and stands ready to take any other actions as directed by the Commission.

Regards,
/s/ Dan Woodfin
Dan Woodfin
Vice President, System Operations