NYISO Review of the System Reliability Impact Study for Pirates Island Queue #878

For

November 2, 2020 TPAS Recommendation
November 12, 2020 OC Approval

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1. Introduction

The System Reliability Impact Study ("SRIS" or "Study") was performed to evaluate the impact of interconnection of the proposed Pirates Island Project ("Project"), which is being developed by Energy Storage Resources ("Developer"), on the reliability of the New York State Transmission System.

The proposed Point of Interconnection ("POI") will be on the Huntley-Gardenville 115 kV Line #39. The POI is 0.65 miles from the Huntley substation and 23.1 miles from Gardenville substation. The Project will be located in Erie County, NY. Niagara Mohawk Power Corporation d/b/a National Grid ("NM-NG") is the Connecting Transmission Owner ("CTO") for the Project. Independent Electricity System Operator ("IESO") is the Affected System.

The Project, as proposed, is an energy storage plant consisting of forty-two (42) Power Electronics Freemaq PCSK 480V – FP2400KB unit 2.64MVA inverter connected batteries and is expected to have a maximum potential generating capacity of 100 MW and charging capacity of 100 MW (1 hour duration) during summer and winter periods. The Project has a proposed In-Service Date of January 2022, Initial Synchronization Date of February 2022 and Commercial Operation Date of April 2022.

The New York Independent System Operator, Inc. ("NYISO") performed the Study in accordance with the Applicable Reliability Standards set forth under Attachments X of the NYISO Open Access Transmission Tariff ("OATT"). The Study was also conducted in accordance with the applicable NERC, NPCC, NYSRC, and Affected System(s) reliability and design standards; and in accordance with applicable NYISO, NM-NG and Affected System(s) study guidelines, procedures and practices. The Study assessed the impact of the Project in the West (Zone A).

The NYISO commissioned CF Power Ltd. to perform the Study.

2. Summary of Study Findings

Modeling Assumptions

The Study was based on the updated NYISO Class Year 2019 ATBA cases that have 2019 FERC 715 filing 2024 system representation including and the Projects that have already been cost allocated, up to and including Class Year 2017.

Steady State Load Flow Analysis

Under the N-0 pre-contingency condition, no thermal or voltage violations impacted by the Project were identified in the Study Area. Thermal violations observed under post-contingency conditions can be mitigated by redispatch allowed under the NYISO Minimum Interconnection Standards ("MIS").

Under the N-1-1 post-contingency conditions, all thermal overloads can be mitigated by N-1-0 adjustment. No adverse thermal or voltage impact was found due to the Project.

Transfer Assessment

Results of the transfer analysis show that with the Project connected in discharging mode, there is an identified decrease of more than 25 MW in transfer limits on the NY-ON interface and an increase on the ON-NY interface. The degradation due to the Project on NY-ON interface can be mitigated using normal operating procedures.

With the Project connected in charging mode, the analysis identified an increase in transfer limits on the NY-ON and observed a decrease of less than 25 MW in the interface limits was on the ON-NY interface.

Stability Analysis

The stability simulations show that the Project does not adversely impact the stability performance of the system under Local and Normal Design criteria contingencies.

The Project's Low Voltage Ride Through ("LVRT") capability was verified to be compliant with the LVRT requirements.

Critical clearing time ("CCT") assessment indicates that the connection of the Project will not significantly impact the CCT at the POI as well as adjacent buses.

Short Circuit Analysis

For all stations where the bus fault currents increased by more than 100 A, fault duties remained less than station equipment capabilities.

NPCC A-10 Testing

The addition of the Project does not change the classification (BPS status) of the tested bus based on transient stability and steady state tests.

Cost Estimates

System Upgrade Facilities ("SUFs") and Connecting Transmission Owner Attachment Facilities ("CTOAFs") are required to accommodate the Project. The total good faith, non-binding cost estimate of the facilities, as provided by NM-NG, is approximately $13.2 million +/-50%.

The estimated time to construct the identified facilities is 1.5 – 2 years.

3. Conclusions

The results presented in the report indicate that the proposed Project, will not adversely impact the reliability of the New York State Transmission System. This conclusion is based on the following understandings and assumptions:

- The Project will be operated in accordance with all NYISO requirements, including all applicable NYISO and Transmission Owner day ahead and real time operational procedures and limits. The NYISO will operate the Project in a manner that does not negatively impact the New York State Transmission System.
- The Project and associated interconnection facilities will be designed in accordance with all the Applicable Reliability Standards.
- The SRIS results and conclusions are based on the studied scenarios and various assumptions related with the study methodologies, system, and project modeling information provided by the Developer; any project modeling change can result in different results and possible re-study.

Subject to the above, NYISO Staff is satisfied that the Study was performed in accordance with the approved scope and in conformance with the existing Applicable Reliability Standards. Therefore, the NYISO Staff recommends approval of this SRIS.