

**Large Generating Facility - Interconnection System Reliability Impact Study Scope
Queue # 1088: Milliken Solar Project**

1. Purpose

The purpose of this System Reliability Impact Study (“SRIS” or “Study”) is to evaluate the impact of the proposed interconnection of the Milliken Solar Project (“Project”), which is being developed by ConnectGen Cayuga County LLC (“Developer”), on the reliability of the New York State Transmission System (“NYSTS”). The Study will be performed in accordance with Attachment X of the NYISO Open Access Transmission Tariff (“OATT”).

The proposed Point of Interconnection (“POI”) will be on the New York State Electric and Gas (“NYSEG”) Wright Avenue – Cayuga 115 kV line, approximately 19.61 miles from Wright Avenue substation and 8 miles from Milliken substation. The Project will be located in Cayuga County, New York.

The Connecting Transmission Owner (“CTO”) is **NYSEG**.

The Project is a photovoltaic plant utilizing sixty (60) 3.6 MVA SunGrow PV inverters expected to have a maximum potential generating capacity of 200 MW for summer and winter periods.

The Project has a proposed In-Service Date of November 2023, Initial Synchronization Date of November 2023 and Commercial Operation Date of December 2023.

The Study will provide a list of the facilities (CTO Attachment Facilities and System Upgrade Facilities) required to interconnect the Project reliably, and non-binding good faith estimates of cost and time to construct those facilities. The study will also evaluate the impact of the Project on the Affected Transmission Owner, **National Grid**.

The Study will be conducted in accordance with the Applicable Reliability Standards.

2. Interconnection Plan

The Study will include a description of the proposed facilities and the conceptual design of the interconnection to the system. The description will include a breaker one-line diagram depicting the proposed facilities and their integration with the existing facilities.

3. Study Period

The Study will be based on the updated NYISO Class Year 2019 ATBA base cases (“Base Cases”) that have the 2019 FERC 715 2024 system representation. The Study will be conducted using the steady state, stability, and short circuit Base Cases provided by the NYISO, and will include the representation of proposed projects that have already been cost allocated, up to and including Class Year 2017 (as listed in Appendix A of this scope).

4. Study Area

The Study will identify and evaluate the impact of the Project on the 115 kV and above portions of the NYSTS in the following New York load zone: **Central (Zone C)** that is most likely to be affected by the Project. The Study will also evaluate the impact of the Project on the local (*i.e.*, below 115 kV, as applicable) system in the electrical proximity to the POI.

5. Base Case Conditions

The impact of the proposed Project will be evaluated for **summer peak**, and **light load** for the following base case conditions, and as specified under the subsequent sections of this Scope:

Case 1 – Base Case without the Project. The Base Cases will include the baseline system and the proposed projects listed in Appendix A of this scope. The short circuit Base Case will model all the projects as in-service. The power flow Base Case will normally model all projects as in-service and at full output, but may model some projects as out-of-service or at less than full output as necessary to establish a feasible base dispatch. Generation will be dispatched in accordance with NYISO Minimum Interconnection Standard.¹

Case 2 – Case 1 with the Project modeled as in-service and at full output. Generation will be re-dispatched in the power flow case, as needed, in accordance with the NYISO Minimum Interconnection Standard.

6. Analysis

Thermal, voltage, stability and **short circuit** analyses will be conducted to assess the performance of the base system conditions within the Study Area, with and without the Project, in accordance with Applicable Reliability Standards, guidelines and study practices. Any modifications to the Base Cases during the analyses will be documented in the Study Report.

¹ As defined in the NYISO Transmission Expansion and Interconnection Manual (“TEI Manual”).

6.1 Power Flow Analyses: N-0 and N-1

Thermal and voltage steady state analyses, using PSS/E or a comparable load flow program, will be conducted for **summer peak** and **light load** cases, pre-contingency and also for relevant Design Criteria Contingencies conditions, and will be limited to the Study Area.

Thermal limits will be assessed under both Normal Criteria and Emergency Criteria, using normal ratings pre-contingency and applicable post-contingency ratings (*e.g.*, Long-Term-Emergency, LTE, ratings or Short-Term-Emergency, STE, ratings).

Voltage limits will be assessed, pre- and post-contingency, using the applicable voltage limits.

6.2 Power Flow Analyses: N-1-1

The Study will evaluate a selection of N-1-1 contingencies around the POI. Power flow (**summer peak**) steady-state analyses will be performed based on the N-1-1 contingency descriptions provided by the Connecting Transmission Owner and/or the NYISO.

6.3 Transfer Assessments

The transfer assessment will determine the incremental impact of the project on the Normal and Emergency transfer limits of the Western Central and Volney East interfaces (opened and closed definitions, as applicable) in accordance with Applicable Reliability Standards, Guidelines and NYISO study practices. The transfer limits will be evaluated in the predominant west-to-east/north-to-south direction, unless otherwise specified. Sufficient analyses will be conducted to determine the most limiting of the thermal, voltage, or stability limits under summer peak load conditions.

In order to determine transfer limits, the analysis will simulate generation re-dispatches according to the standard proportions used in NYISO transmission planning studies, for NYISO interfaces. Where applicable, for local interfaces, generation re-dispatching will be done in accordance with Transmission Owner standards and practices.

6.4 Stability Analysis

Stability analysis, using PSS/E 33, will be performed for **summer peak** and **light load** conditions to determine the impact of the Project on system performance within the Study Area. This analysis will evaluate the performance of the system for Design Criteria Contingencies and will address issues including, but not limited to, transient stability, dynamic stability (*i.e.*, damping), critical clearing time, coordination of protection and control systems, and

performance of any Special Protection Systems that may be affected. These analyses will explicitly consider the voltage and frequency ride-through capabilities of the facility.

6.5 Short Circuit Analysis

Short circuit analysis will be performed, using ASPEN, to evaluate the impact of the Project on system protection and adequacy of existing circuit breakers, other fault current interrupting devices, and related equipment. All Project impacts of 100 A or more will be identified.

This analysis will be performed in accordance with the NYISO Guideline for Fault Current Assessment (Attachment I of the NYISO Transmission Expansion and Interconnection Manual), and in accordance with Connecting Transmission Owner and Affected System(s) criteria, to the extent such criteria are recognized as Applicable Reliability Standards.

6.6 NPCC A-10 Testing

The Study will review the NPCC Bulk Power System (“BPS”) classification of existing and proposed stations within the proximity of the Project to identify any existing or new stations that could be classified as BPS due to the addition of the Project. This testing will be performed for **summer** peak cases, and in accordance with the latest NPCC A-10 criteria (npcc.org).

7. Modeling Assumptions

7.1 Phase angle regulators (“PARs”), switched shunts, and LTC transformers will be modeled as regulating pre-contingency and non-regulating post-contingency. The study will use PAR schedules established by the NYISO in coordination with the neighboring ISOs through the NERC and NPCC base case development processes. PARs may be adjusted as necessary to relieve pre-contingency overloads.

7.2 SVC and FACTS devices will be set to zero pre-contingency and allowed to operate to full range post-contingency.

8. Evaluation and Identification of Upgrades

If the Study results indicate that the Project, as proposed, would result in violations of Applicable Reliability Standards, analyses will be performed to identify any System Upgrade Facilities or

Distribution Upgrades (if applicable) that would be required to meet the NYISO's Minimum Interconnection Standard. When such upgrades are identified, sufficient re-assessments (among those identified in this scope) should be performed in order to assure that the upgrades do not cause any adverse reliability impact on the Study Area.

9. Cost Estimates of Facilities and Time to Construct

A description of facilities (*i.e.*, CTO Attachment Facilities and System Upgrade Facilities, if any) required to interconnect the Project to the NYSTS or the Distribution System (if applicable), and non-binding good faith estimates of cost and time to construct those facilities, will be provided.

10. Report

The Study Report will document the summary of the results **relevant** to the project impacts, project description, project modeling, study assumptions, criteria and methodology, mitigation solutions and their impact assessment, and conclusions, for each of the analyses identified in this scope.

Appendix A

**List of Other Proposed Projects Modeled in the Base Case
Queue # 1088: Milliken Solar Project**

Queue Pos.	Owner / Project Name	MW (S W)
349	Taylor Biomass Energy, LLC / Taylor Biomass	19.0 22.5
387	Cassadaga Wind, LLC / Cassadaga Wind	126 126
393	NRG Energy, Inc. / Berrians East	508 584
396	Baron Winds, LLC / Baron Winds	300 300
421	EDP Renewables NA/Arkwright Summit	78.4 78.4
422	NextEra Energy Resources, LLC / Eight Point Wind Energy Center	101.2 101.2
505	RES America Developments, Inc. / Ball Hill Wind	100 100
545A	Empire State Line Alternative	N/A
543	Segment B Knickerbocker - Pleasant Valley 345 kV	N/A
556	Segment A Double Circuit	N/A