PJM Facilities Study Report

For

Network Upgrade N9195

Cycle TC1

Revision 0: MAY 2025

Introduction

This Facilities Study has been prepared in accordance with the PJM Open Access Transmission Tariff and PJM Manuals. The Transmission Owner (TO) is ComEd.

A. Project Description

The System Impact Study for PJM Interconnection Cycle TC1 has identified the need for PJM Network Upgrade N9195. The scope of this Network Upgrade includes the following:

- Upgrade the existing substation STA 12 Dresden by adding 345kV BT 14-15 circuit breaker and associated disconnect switches.
- Upgrade relay & protection at 345kV substation STA 12 Dresden to support installation of 345kV BT 14-15
- Upgrade existing 345kV BT 14-15 circuit breaker notation to 345kV BT 15-16 GCB. During which, the nomenclature for existing 345kV Bus 14, 15 and 16 will be subsequently updated.

Upon completion of the Network Upgrade above, the expected final ratings will be:

- STA 12 Dresden 345kV BT 14-15 circuit breaker and corresponding MODs will have a final rating of 3282/3534/4224/5046 A (1961/2112/2524/3015 MVA SN/SLTE/SSTE/SLD)

The scope of Network Upgrade is shown in Attachment #1.

B. Transmission Owner Facilities Study Results

1. Detailed Scope of work for Network Upgrade N9195.0:

The following is a detailed description of Transmission Owner Upgrades for Network Upgrade N9195.0. These facilities shall be designed according to the Transmission Owner's Applicable Technical Requirements and Standards. Once built the Transmission Owner will own, operate, and maintain these facilities.

- Install a new 345kV BT 14-15 GCB with a 345kV 2.0-cycle IPO breaker with a minimum nameplate capability of 3282/3534/4224/5046 A (1961/2112/2524/3015 MVA) SN/SLTE/SSTE/SLD continuous and interrupting capability of 63kA at -40°F. Circuit breaker shall have a CT ratio of 3000:5. New breaker shall be equipped with a breaker monitor relay, SEL-2411.
- New circuit breaker to be equipped with Motor Operated Disconnects (MODs) on both sides of the breaker. MODs shall have a minimum capability of 3282/3534/4224/5046 A (1961/2112/2524/3015 MVA SN/SLTE/SSTE/SLD

- Re-name/re-label existing 345kV BT14-15 to 345kV BT-15-16 including labels, tags, relays, prints, etc.
- Re-establish CT connections from new circuit breaker to existing protective relaying.
- Install new 345kV bus 15 CCVTs with a ratio of 199,200-115/66.4V.
- Install dual SEL-487B bus differential relaying for new 345kV Bus 15 and connect to dual switch SCADA architecture.
- Install new 50BF/25/79 SEL-451 breaker failure relay and connect to dual switch SCADA architecture.
- Utilize existing SCADA architecture in the existing 345kV control building.
- Install a new foundation to support the new GCB.
- Install new support steel structures with corresponding foundations on both sides of the GCB.
- Install new support steel and foundations to support new CCVTs.
- Install new bus support steel structures with corresponding foundations.

2. MILESTONE SCHEDULE FOR COMPLETION OF COMED WORK

Facilities outlined in this report are estimated to take 45 months to construct, from the time of full execution of the Generation Interconnection Agreement and completion of a construction kickoff call. This schedule may be impacted by the timeline for procurement and installation of long lead items and the ability to obtain outages to construct and test the proposed facilities.

Description	Start month	Finish month
Detailed Design/Settings	1	12
Material Procurement	6	40
Construction	27	45

3. ASSUMPTIONS IN DEVELOPING SCOPE/COST/SCHEDULE

- This cost estimate assumes that work will be performed during normal weekdays and with no overtime. Transmission line outages for construction have not been identified but generally are available from September to May. These outages are controlled by PJM.

- Costs are based on 2025 rates and do not reflect a potential increase in Labor or Material costs after 2025.
- ComEd cost estimate is valid for six (6) months after Facilities Study release by PJM.
- Foundation design assumes typical soil conditions at locations and will be subject to change after soil boring tests.
- All upgrades to facilities included in this document will be required to meet the latest ComEd standards.
- Upgrades are subject to change based on detailed design development.
- ComEd will complete a pre-design and post construction survey for the transmission and substation upgrades, as required. This includes, but is not limited to, the LIDAR survey and video imaging for transmission lines. Costs associated with this are at the expense of the Project Developer(s). Pre-design survey must be completed prior to detailed engineering.
- This study assumes that there will be no additional right-of-way and/or easement work required.
- This Facilities Study is time dependent. If the project is not under construction within one year of the issuance, the study will be void and the project re-studied, requiring the completion of a new Facilities Study.
- It is assumed that all PJM Phase 1 projects are complete prior to this Network Upgrade.
- It is assumed there is sufficient space for new 345kV BT14-15 and associated disconnect switches.

4. LAND REQUIREMENTS

No additional easements, access rights, or temporary or permanent real property rights or acquisitions were identified as required for network upgrades to the ComEd system within this study. However, as further needs are assessed in detailed engineering, design and/or construction activities, if it is determined that there is a need for easements, access rights, or temporary or permanent real property rights or acquisitions, the developer is fully responsible for the costs to acquire these required land rights. Also, as necessary, the schedule will be adjusted accordingly to account for the necessary time to obtain these required land rights. All easements, access rights, or temporary or permanent real property rights or acquisitions shall comply with all ComEd requirements as detailed in “Land requirements for Interconnection Substations”.

5. ENVIRONMENTAL AND PERMITING

- There were no concerns identified regarding environmental approvals and permitting.

C. APPENDICES

Attachment #1: Single line Diagram for Network Upgrade