Facilities Study Report

For

Physical Interconnection of

PJM Generation Interconnection Request

Project ID AH1-702

BYRON 345KV

Introduction

This Facilities Study has been prepared in accordance with the PJM Open Access Transmission Tariff, as well as the Application and Studies Agreement between the Project Developer and PJM Interconnection, LLC (PJM or Transmission Provider (TP)). The Transmission Owner (TO) is ComEd.

This Facility Study was performed to satisfy the Phase 2 Facility Study requirement of the PJM Tariff. The Facility Study is intended to provide scope, cost and schedule estimates for the project as currently defined and approved for Phase 2 study. In the event project changes are made during DP2 that impact this report, updates will be provided as part of the Phase 3 report. Following execution of the project's final agreement, this report will not be updated to account for other changes made as part of the agreements modification clause and instead the scope change process will be followed.

A. Transmission Owner Facilities Study Summary

1. PROJECT DESCRIPTION

The Project Developer (PD) has proposed a turbine replacement efficiency uprate to an existing Nuclear Generating Facility located in Ogle County, Illinois with a designated PJM Project ID of AH1-702.

This project is an increase to the existing V-047 and V-47 projects, and will share the same Point of Change in Ownership.

The AH1-702 project is a 88 MW uprate (43 MW Capacity uprate) to the existing facility. The total installed facilities will have a capability of 2528 MW with 2353 MW of this output being recognized by PJM as Capacity.

2. POINT OF INTERCONNECTION (POI)

The Nuclear Generating Facility will interconnect with the ComEd transmission system via two existing direct connections into the STA 6 Byron 345kV substation.

The proposed generation interconnection is shown on the single line diagram in Attachment #1.

3. POINT OF CHANGE IN OWNERSHIP

The Point of Change in Ownership will be located at the first dead-end structure inside the STA 6 Byron substation fence line.

4. SCOPE OF PROJECT DEVELOPER INTERCONNECTION FACILITIES

Project Developer will design, build, own, operate and maintain the Project Developer Interconnection Facilities on Project Developer's side of the Point of Change in Ownership (PCO). This includes, but is not limited to:

- At AH1-702 Nuclear Generating Facility, in general, Generation Interconectoin Developer relaying, etc. to follow section 6.1 (Design F) of latest version of EED interconnection guidelines (for Generator Greater than 10MW) Rev 2: Effective 12/16/2021, with the following project specific notes:
    - ComEd Protection and Control Engineering must review all customer relay protection design drawings and relay settings.
    - Project Developer equipment impedance and/or test data must be provided to ComEd

Protection and Control Engineering for all lines, transformers, and solar inverters to model in a short circuit program.

- Project Developer to provide transformer test reports for 345kV-25kV step up transformers. Test reports must include %Z impedance and load loss, including type of Inverter/s used for ComEd short circuit modeling.
- For any new equipment connected to the BES (Bulk Electric System rated at 100kV or above) the associated primary/System 1 and secondary/System 2 protective schemes to have, at a minimum, redundant:
    - Connected CTs (where available)
    - PT secondary (where available)
    - DC control circuits
    - Auxiliary trip relays
    - Circuit breaker trip coils (where available)
    - Communication circuitry.
- All changes to topology, including generation, must be modeled during the Phase 1 study for PRC-027 compliance. A protection system coordination study is required for new BES buses or when there is a 15% (or greater) change in fault current for an existing BES bus. Setting changes may be required per the outcome of this coordination study.

B. Transmission Owner Facilities Study Results

The following is a description of the planned Transmission Owner facilities for the physical interconnection of the proposed AH1-702 project to ComEd transmission system. These facilities shall be designed according to ComEd Applicable Technical Requirements and Standards. Once built, ComEd will own, operate, and maintain these Facilities.

1. TRANSMISSION OWNER INTERCONNECTION FACILITIES:

The ComEd Interconnection Facilities will include, but not be limited to, the following which are existing at STA 6 Byron for each Unit #1 and Unit #2 and shall remain as-is for the addition of AH1-702:

- A 345kV dead-end structure and foundation within the fence of the ComEd facility, to terminate the ComEd generator lead line.
- Line conductor from the dead-end structure to the bus position in the switchyard of the ComEd STA 6 Byron facility.
- One (1) 345kV Motor Operated Disconnect (MOD) switch.
- Foundation and structures
- CT/PT combination units, meters, and associated equipment to meter each Unit #1 and #2.

2. STAND ALONE NETWORK UPGRADE

This section is not applicable.

3. NETWORK UPGRADES

Expanding existing TO substation:

- STA 6 Byron
    - Review and reset relay settings for 345kV L.0621, L.0622, L.0624, L.0626, & L.0627. Retain existing relays.
    - Coordinate as needed with Byron Nuclear Generating Facility to review and reset relay settings.
    - Update fault data in CAPE; check for PRC-027 requirements.
    - Modify mimic boards as required and install new panel if needed.
    - Expand existing control building if necessary to accommodate new equipment. To pull new cables from the marshalling cabinet to the new designated panel.

Upgrades to neighboring facilities:

- TSS 156 Cherry Valley
    - Review and reset relay settings for 345kV L.0621 & L.0622. Retain existing relays.
- TSS 171 Wempletown
    - Review and reset relay settings for 345kV L.0624. Retain existing relays.
- TSS 144 Wayne
    - Review and reset relay settings for 345kV L.0626. Retain existing relays.
- TSS 937 Lee Energy Center
    - Review and reset relay settings for 345kV L.0627. Retain existing relays.

4. OTHER SCOPE OF WORK

This section is not applicable.

5. MILESTONE SCHEDULE FOR COMPLETION OF COMED WORK

Facilities outlined in this report are estimated to take 14 months to construct, from the time the Generation Interconnection Agreement is fully executed. This schedule is may be impacted by the timeline for procurement and installation of long lead items, the ability to obtain outages to construct and test the proposed facilities.

Description	Start month	Finish month
Detailed Design	1	6
Construction	7	12

6. ASSUMPTIONS IN DEVELOPING SCOPE/COST/SCHEDULE

- ComEd estimate does not include costs of design and construction of AH1-702 Nuclear Generating Facility and transmission as described in the Project Developer scope of work. ComEd estimated schedule is based on GIA/CSA contract being executed by all parties.
- 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 2026 rates and do not reflect a potential increase in Labor or Material costs after 2026.
- The Project Developer will be responsible to request and bear the cost for relocation of existing transmission or distribution lines (including structures and other facilities) that may be required for transmission line crossings, the transport of any large equipment, such as turbines, rotors, turbine structures, cranes, etc. Formal submittal of this request to ComEd's TSO for ultimate review by PJM can be made 7 months prior to back feed request date.
- All upgrades to facilities included in this document will be required to meet latest ComEd standards.
- Assumes no additional foundations are needed.
- ComEd cost estimate is valid for six (6) months after Facilities Study release by PJM.
- Upgrades are subject to change based on detailed design development.
- It is assumed that ComEd facilities included in this document will not require a sound study.
- It is assumed no geotechnical soil borings, resistivity study, and analysis for substation will be needed.
- This Facilities Study is time dependent. If the project is not into construction within one year of the issuance, the study will be void and the project re-studied, requiring the completion of a new Facility Study.
- It is assumed that all associated network upgrades, as listed in the Phase 1 study, are complete prior to this New Service Request Project being placed in service.
- No breakers or disconnect switches will be replaced under AH1-702 per a previous IPP power flow stability short-circuit analysis.
- It is assumed that the Project Developer is retaining the existing relays for the 345kV lines between STA 6 Byron and Byron Nuclear Generating station. The corresponding relays at STA 6 Byron will not be upgraded as part of this study.

7. REVENUE METERING REQUIREMENTS

All revenue metering needed for this interconnection project must meet the metering requirements stated in Appendix 2, section 8 of the AH1-702 GIA, and in PJM Manuals M01 and M14D. The details of applicable revenue metering requirements are given in the 'ComEd Interconnection Guidelines' posted on PJM website.

Revenue metering is already in-service on the ComEd side of the Point of Change in Ownership, owned and maintained by ComEd.

- REVENUE METERING FOR PJM AND COMED

- The revenue meter measures the wholesale energy output (Hourly compensated net MWH and Hourly compensated net MVARH) of the Generating Facility.
- The metering equipment, including revenue meter and CT/PT shall be installed, at Project Developer's expense, at the interconnection substation on ComEd side of the Point of Change in Ownership.
- ComEd shall own, operate, maintain, inspect, and test all the metering equipment as set forth in 'Testing of Metering Equipment' section of the PJM Tariff, at the Project Developer's expense.

- REAL-TIME METERING FOR PJM
  - The Project Developer shall install, own, operate, maintain, inspect, and test real-time metering equipment to measure and transmit directly to PJM the real time MW, MVAR, voltage and status of electrical equipment such as circuit breakers and Motor Operated Disconnect switches, in conformance with the requirements listed in PJM Manuals M-01 and M-14D, at the Project Developer's expense.
- RETAIL METERING FOR COMED
  - The AMI Meter measures the energy consumption by the Project Developer at transmission level and hence shall be designed to measure low MW flow.
  - The metering equipment including AMI Meter and CT/PT shall be installed at the interconnection substation on ComEd side of the POI, at the Project Developer's expense.
  - ComEd shall own, operate, maintain, inspect, and test all the metering equipment as set forth in the 'ComEd Interconnection Guidelines'.

8. LAND REQUIREMENTS FOR INTERCONNECTION SUBSTATION

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 or for the project to interconnect at this location 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".

9. APPLICABLE TECHNICAL REQUIREMENTS AND STANDARDS

- ComEd Interconnection Guidelines (For Generators at Transmission Level), Rev. 2, Dated 12/16/2021
- ComEd Guidelines on Land Requirements for Interconnection Substations, Rev. 2, Dated January 2026

10. ENVIRONMENTAL AND PERMITING

No environmental concerns and/or permitting requirements were identified as needed by this study. However, should detailed engineering and design and/or construction activities identify the need for an environmental study and/or permit requirements, the developer is fully responsible for the costs

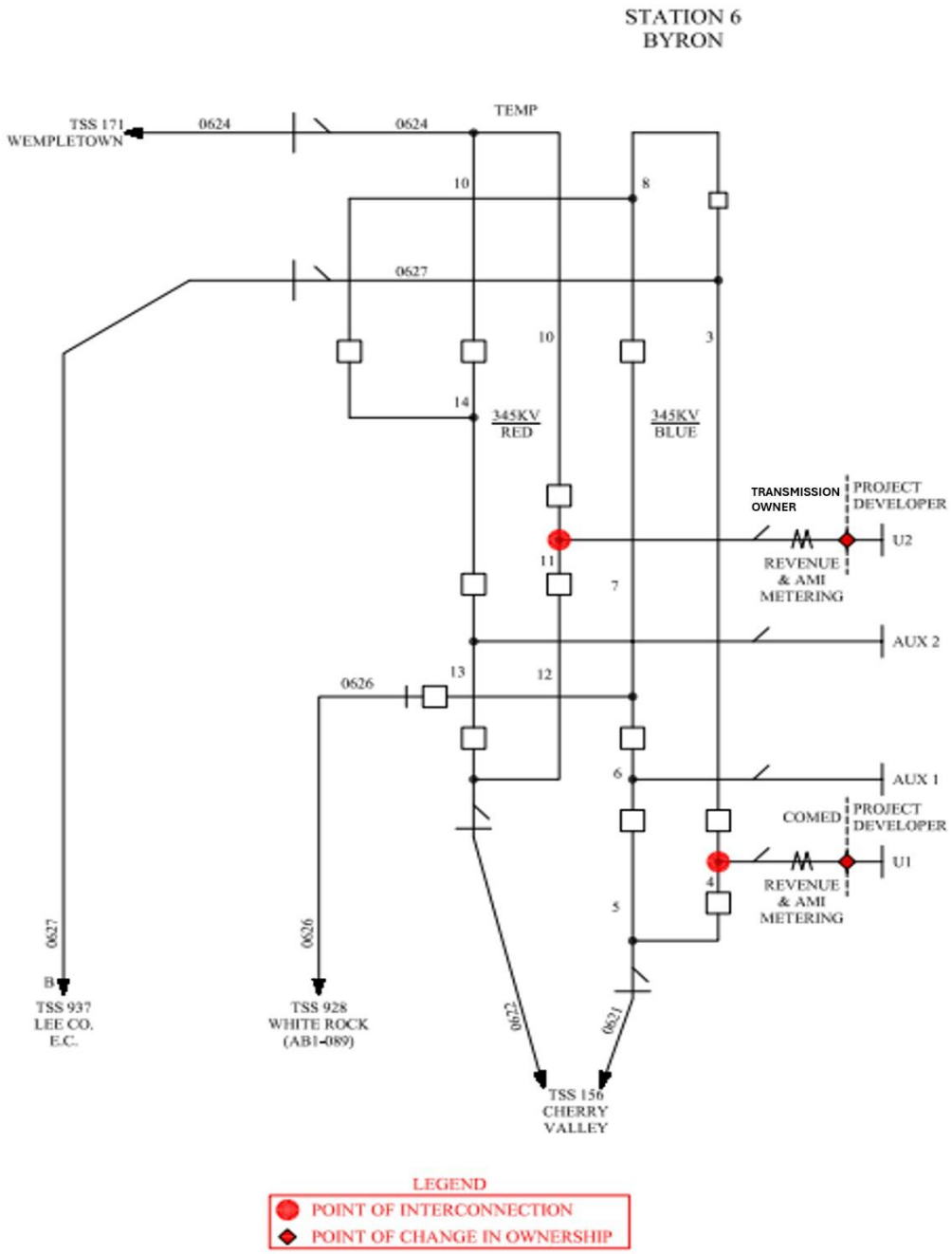
related to any environmental study, any actions to address the identified environmental impacts and the permits. Also, the schedule will be adjusted accordingly to account for the necessary time to perform the environmental study, address the identified environmental impacts and to obtain the permits, if applicable. All environmental studies, actions to address environmental impacts and permit actions shall comply with all ComEd requirements as detailed in "ComEd Environmental Requirements for Third Party Developers", and with all local, city, county, state, and federal requirements.

C. APPENDICES

Attachment #1: Single line Diagram for the Physical Interconnection

Attachment #1:

Single line Diagram for the Physical Interconnection


STATION 6
BYRON
TSS 171
WEMPLETOWN
0624
0624
TEMP
10
8
0627
10
3
14
345KV
RED
345KV
BLUE
TRANSMISSION
OWNER
PROJECT
DEVELOPER
U2
11
7
REVENUE
& AMI
METERING
AUX 2
13
12
0626
6
AUX 1
COMED
PROJECT
DEVELOPER
U1
4
5
REVENUE
& AMI
METERING
0627
B
0626
0622
0621
TSS 937
LEE CO.
E.C.
TSS 928
WHITE ROCK
(AB1-089)
TSS 156
CHERRY
VALLEY
LEGEND
POINT OF INTERCONNECTION
POINT OF CHANGE IN OWNERSHIP