Facilities Study Report

For

Physical Interconnection of

PJM Generation Interconnection Request

Project IDs AE2-261 / AG1-460

Kincaid-Pana 345KV

December 2024

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 Commonwealth Edison

A. Transmission Owner Impact Study Summary

1. PROJECT DESCRIPTION

The Project Developer (PD) has proposed a Solar Generating Facility located in, Christian County, Illinois with a designated PJM Project ID of AE2-261. The installed facilities will have a total Maximum Facility Output (MFO) of 299MW with 179.4MW of this output being recognized by PJM as Capacity.

The Project Developer (PD) has also proposed a Storage uprate to a planned/existing Storage Generating Facility located in, Christian County, IL with a designated PJM Project ID of AG1-460.

This project is an increase to the AE2-261 project, and will share the same Point of Change in Ownership.

The AG1-460 project is a 30MW uprate (12MW Capacity uprate) to the previous project. The total installed facilities will have a capability of 329MW with 191.4MW of this output being recognized by PJM as Capacity.

2. POINT OF INTERCONNECTION (POI)

The Generating Facility will interconnect with the Commonwealth Edison transmission system via a newly constructed 345kV breaker-and-a-half substation, TSS 903 Tovey, tapping the STA. 21 Kincaid - Auburn Solar 345kV line, L.2105, approximately miles from STA. 21 Kincaid and 8.3 miles from Auburn Solar.

The construction of the new interconnection substation will result in the splitting of the existing STA. 21 Kincaid – Auburn Solar 345kV, L.2105 into two lines on the transmission system. The new L.90302 will connect TSS 903 Tovey to Auburn Solar and L.2105 will connect TSS 903 Tovey to STA. 21 Kincaid.

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

3. POINT OF CHANGE IN OWNERSHIP

The Point in Change of Ownership will be located at the first dead-end structure inside TSS 903 Tovey 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:

4.1. The PD is responsible for construction of the additional 299MW Solar generation. The PD is also responsible for two (2) 345kV circuit breakers, two (2) generator step-up transformers (GSU), four (4) 345kV motor operated disconnect switches, and a 345kV generation lead line with associated structures terminating at TSS 903 Tovey.

- At AG1-460 The PD is responsible for construction of the additional 30MW of storage. The PD is also responsible for one (1) 345kV circuit breaker, one (1) generator step-up transformer (GSU), and one (1) 34kV circuit breaker.

- At AE2-261 (including AG1-460) Kincaid-Pana 345KV, in general, Project Developer relaying, etc. to follow section 6.1 (Design F) of latest version of ComEd interconnections guidelines (for Generators at Transmission Level) Rev2 Effective date 12/16/21, with the following project specific notes (where applicable):

- New 345kV gas circuit breakers to auto trip and isolate for critical gas level
- New 345kV Tie Line terminal relay types to be the same as ComEd terminal relays. This includes relay firmware versions
- ComEd Protection and Control Engineering must review all Project Developer relay protection design drawings and relay settings.
- Project Developer equipment impedance and/or test data must be provided to ComEd Protection and Control Engineering to model in a short circuit program.
- Project Developer to include over/under frequency and voltage protection at solar farm collector bus. Suggested settings will be provided by ComEd. Under-frequency settings are to comply with MAIN Guide 1B.
- Dual bus protection for 34.5kV bus.
- Dual TRFM protection and site protection must be compliant with NERC & PJM requirements.
- Metering is required to be installed per ComEd & PJM standards.
- SCADA interface to ComEd will be required.
- Witness testing by ComEd or a Designated Authority will be required and must be pre-scheduled at least 90 days in advance.

4.2. Project Developer to provide transformer test reports for 345kV - 34.5kV step up transformers, for ComEd short circuit modeling. Test reports must include %Z impedance and load loss.

4.3. At Black Diamond collector station, GIC to incorporate MPT#3 into existing two terminal 345kV L90301 tie line relaying. ComEd's tie line relaying will not change to support a three terminal configuration. Both entities to issue new tie line relay settings as needed.

4.4. 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 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

4.5 Install a dual SCADA/AMI meter fitting at the output terminal of the battery storage system to measure the power flow to and from the ComEd transmission system. The dual SCADA/AMI meter and associated instrument transformers shall be sized to properly measure the wholesale power requirement for charging and discharging the battery storage system. The Project Developer shall provide appropriate telemetry from the dual SCADA/AMI meter to the ComEd SCADA system to provide meter

data.

4.5 The PD will be responsible to purchase real estate or obtain the necessary right-of-way easement to install the 345kV transmission line to TSS 903 Tovey substation.

4.6 New Gas Circuit breaker control for loss of SF6 gas condition should be as follows (see Engineering practice EP-5206E and relay specifications):

- For an open SF6 circuit breaker, when SF6 gas drops to the critical level, the close circuit of breaker shall be opened, and motor operated disconnects on both sides of CB shall be opened
- For a closed SF6 gas circuit breaker, when SF6 gas drops to the critical level, the circuit breaker shall be opened, and motor operated disconnects on both sides of CB shall be opened and the close of the circuit breaker shall be opened.

4.7 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 the fault current for an existing BES bus. Settings changes may be required per the outcome of this coordination study.

4.8 The PD is to provide two, physically diverse, Single Mode Fiber paths between TSS 903 Tovey Interconnection Substation and Black Diamond Solar.

4.9 PD will be responsible for Line L.90301 Single Mode Fiber from Project Developer Substation to ComEd's Substation TSS 903 Tovey. This will be used for Primary Relay scheme using Direct-on-Fiber connections per the Relay Notes. The minimum Fiber count is 48 Fibers and construction will be in adherence with ComEd Transmission Line standards. The PD will own and maintain this Fiber cable up to the fiber distribution panel in TSS 903 Tovey.

4.10 PD to provide limiting Transmission Facility ratings for their portion of 345kV L90301, in accordance with NERC FAC-008, FERC Order 881 and PJM Operational requirements for normal and emergency ratings from -55F to 130F in 5F increments.

4.11 PD will be responsible for Line L.90301 Single Mode Fiber from Project Developer's Substation to ComEd's Substation TSS 903 Tovey. This will be used for Secondary Relay scheme using Direct-on-Fiber connections per the Relay Notes. This Fiber must be built in a physically diverse path from the Fiber path used for the Primary Relay scheme. The minimum Fiber count is 48 Fibers. The PD will own and maintain this Fiber cable up to the fiber distribution panel in TSS 903 Tovey.

4.12 Reference table below

345kV L90301	Function	TSS903	Black Diamond (GIC)
87L-1 SEL-411L-1 (Direct Fiber Sys1)	Current Diff, LTT, BFTT	T R	T R
87L-2 SEL-411L-1 (Direct Fiber Sys2)	Current Diff, LTT, BFTT	T R	T R

4.13 The demarcation of ownership for these Fiber cables will be in the Fiber Distribution Panel (FDP) in the ComEd Substation TSS 903 Tovey. The Project Developer will own and maintain both Fiber cables from ComEd's TSS 903 Tovey FDP all the way to their generator substation.

4.14 The PD will be responsible to request and bear the cost of any outages required on existing transmission or distribution lines that may be required for the transport of any large equipment, i.e. turbines, rotors, turbine structures, etc.

4.15 Option to Build

- If the PD selects the Option to Build, the PD shall construct TSS 903 Tovey.
- The PD shall construct TSS 903 Tovey and transfer ownership to ComEd prior to commercial operation of AE2-261. The PD shall transfer ownership of the real estate in fee to ComEd.
- Substation requirements are described below in section B.

B. Transmission Owner Impact Study Results

The following is a description of the planned Transmission Owner facilities for the physical interconnection of the proposed AE2-261 / AG1-460 project to Commonwealth Edison transmission system. These facilities shall be designed according to Commonwealth Edison Applicable Technical Requirements and Standards. Once built, Commonwealth Edison will own, operate, and maintain these Facilities.

1. TRANSMISSION OWNER INTERCONNECTION FACILITIES:

The TO Interconnection Facilities will include, but not be limited to, the following.

- One (1) new 345kV motor-operated disconnect switch, rated for 3150A, to be installed at each new breaker.
- A 345kV dead-end structure and foundation within the fence of the Interconnection Substation, to terminate the Project Developer's generator lead line.
- Line conductor from the dead-end structure to the bus position in the switchyard of the interconnection substation
- Install equipment necessary to provide bi-directional revenue metering (kWH, kVARH) and real time data (kW, kVAR, and circuit breaker status and 345kV voltage) for 345kV L.90301, on the ComEd side of the POI per ComEd applicable standards.
- Three (3) line disconnect switches, rated for 3000A, to be installed at each line
- Three (3) metering CT/PTs
- Three (3) Surge Arrestors
- Foundation and Structures
- Project Developer to provide two, physically diverse, Single Mode Fiber paths between TSS 903 Tovey Interconnection Substation and Shannon Wind Farm.
    - System 1 Relays will use the "System 1" Fiber cable for a Current Differential Relay Scheme, which will also provide Direct Transfer Trip (DTT). This Fiber cable will be owned and maintained by the Project Developer and should have minimum of 48 Fibers. The demarcation for the Fibers in this cable will be in a Fiber Distribution Panel

(FDP) inside of the TSS 903 Substation. ComEd will own and maintain the FDP.

- System 2 Relays will use the “System 2” Fiber cable for a Current Differential Relay Scheme, which will also provide Direct Transfer Trip (DTT). This Fiber cable will be owned and maintained by the Project Developer and should have a minimum of 48 Fibers. The demarcation for the Fibers in this cable will be in a Fiber Distribution Panel (FDP) inside of the TSS 903 Substation. ComEd will own and maintain the FDP.
- The demarcation of ownership for these Fiber cables will be in the Fiber Distribution Panel (FDP) in the ComEd Substation TSS 903 Tovey. The Project Developer will own and maintain both Fiber cables from ComEd’s TSS 903 FDP all of the way to their Shannon Wind Farm.
- Spare Fibers may be used for telephony, SCADA, Metering, Fire Protection, or other data purposes.
- PM to engage UCOMM Fiber Engineering early in the process.

2. Stand Alone Network Upgrades

TSS 903 Tovey

A new breaker-and-a-half substation, TSS 903 Tovey, will be constructed along the L.2105 345kV transmission line to interconnect the AE2-261 project with the ComEd transmission system.

The greenfield new substation will include

- Three (3) new gas SF6 345kV circuit breakers BT 1-2, BT 2-3, and BT 1-3, with accommodation for future breakers BT 4-5, BT 5-6, and BT 1-6 rated for 3150A
- One (1) new 345kV motor-operated disconnect switches, rated for 3150A, to be installed at each new breaker
- Six (6) new 345kV 1732/3000:1 CCVTs to be installed at Busses 1, 2, and 3
- Six (6) Surge Arrestors

One (1) new 12kV-208/120V AC auxiliary transformer to be installed. This will be fed via a nearby 12kV distribution line to be determined during detailed design; new 12kV UG cable will be run to allow access to TSS 903 Tovey. The distribution line connection will require construction of new 12kV overhead lines and poles from an existing distribution line to TSS 903 Tovey. Connection details and length will be determined during detailed engineering and may exceed the assumptions in this study. If a lower cost option is found during engineering, the cost estimate would be reduced. It is assumed that no new ROW for the new distribution line will be required, but this will be determined during detailed engineering. One (1) propane 120/208V back-up generator to be installed as the emergency station service AC source.

New control building to be installed to accommodate new relaying and relaying for future breaker-and-a-half bus expansion. Control enclosure shall meet latest ComEd standards. If NERC Low Impact, install BSC/IT UCOMM router and firewall. If Medium Impact, use serial communication. The new control building will contain:

- Two (2) 125VDC battery systems
- DC distribution panels
- Relay panels

- Marshalling cabinets
- Auxiliary AC power panels
- Building HVAC system
- Fire/security system
- SCADA
- Metering equipment.
- Additionally, auxiliary data communications will be installed to communicate with PD remote end for SCADA and metering purposes.
- Install one SCADA cabinet based on 61850 Design containing the following

    a. Three SEL-3555 RTACs for RTU, SysLog/SEL protocol concentrator, and Synchrophaser data concentrator.

    b. Two SEL-3555 as redundant HMI, with each tied to its own mouse, keyboard, and monitor on the operator desk.

    c. One SEL-2730M Ethernet switch as SCADA Master Switch.

    d. One Omicron RBX1 Station Scout

    e. One SEL-3350 RTAC for Project Developer data. Install one pair of serial fiber connections for each Project Developer RTU data exchange.
- Install Two Station Bus network cabinets (A and B):

    a. One master SEL-2741 switch

    b. One SEL-2440 DPAC

    c. One SEL-2488 GPS Clock

    d. One SEL-3350 Blueframe Flow Controller

    e. One Ruggedcom RST2228 Ethernet Switch

    f. One Ruggedcom RSG910C Switch with two 1000BASE-SX SFPs
- Connect metering group-provided revenue meter to station IP architecture.
- Confirm latest device model numbers and GDD with the assigned SCADA engineer.

Relay Installs at TSS 903 Tovey.Relaying to follow ComEd DS G2 Whitepaper.

- Install dual 50BF/35/79 SEL-451's for all new CBs in cabinets at each circuit breaker.
- Install relaying consisting of a System 1 87L-1/SEL-411L-1 and a System 2 87L-2/SEL-411L-1 current differential
- Install relaying consisting of a System 1 87L-1/SEL-411L-1 and a System 2 87L-2/SEL-411L-1 current differential
- At TSS903, install standard ComEd 345kV Project Developer interface relaying consisting of a System 1 87L-1/SEL-411L-1 and a System 2 87L-2/SEL-411L-1 current differential scheme.
- In addition, install load rejection logic such that the transfer trip is initiated on both primary and secondary relaying to Project Developer site if 345kV L90301 breakers at TSS903 is opened

Yard cable trench to be installed from control building to breakers and line terminal structures. Cable Trough to have a drainage system installed below the trough per ComEd standards. A lift station may be needed.

New substation to require installation of new fence and (2) sliding vehicular gates that are positioned no less than one half of the yard diagonal apart, as well as site development and grading. Preliminary security classification for the proposed substation indicates that fencing will be 7' with 1' barbed wire; fencing must adhere to all ComEd specifications and requirements. Security requirements including fencing may change. New station grounding, lightning protection, and lighting to be evaluated by studies, designed, and installed.

The developer ground grid shall not be tied to the TSS 903 Tovey ground grid. New property will need to be purchased.

The access road to the main public road should be a minimum of 28 feet and have an asphalt or concrete approach. The radius transition to the main road to be in accordance with the requirements of the government having jurisdiction of the public road.

- Minimum width of road is 20'-0"
- Minimum turning radius (horizontal curve) of road to be 40'-0" to the center of the road.
- Maximum slope of road is to be 4.5%

Stormwater detention and any other required stormwater management features to be constructed outside of the substation fence. These must satisfy all local, county, state, and federal requirements for stormwater management.

Security system will need to be installed to meet ComEd standards.

If any utilities are routed under the substation these will need to be re-routed outside of the substation.

3. NETWORK UPGRADES

The Network Upgrades will include, but not be limited to, the following.

Transmission Line Tie-in for new interconnection substation:

Cut existing L2105 345kV transmission line between existing structures #14 and #17 to loop into new TSS 903 substation.

- ComEd will be performing the design, procurement, and construction of the new structures to cut over to the new TSS 903 Tovey Substation.
- Remove existing structures #14 and #16 and install four new vertical 345kV deadend structures #14D, #14E, #16D, and #16E on drilled shaft foundations. Proposed structures #14D and #14E will be approximately 120' in height, and proposed structures #16D and #16E will be approximately 140' in height. All four new structures will be similar to the LS1882 framing.

- Approximately 0.21 circuit miles of newly installed conductor and shield wire are required.
    - New conductor and shield wire between proposed deadend structures #14D, #14E, and the proposed 345kV deadend structure at TSS 903 will be the bundled 1277.2 kcmil 54/7 ACAR conductor and AC-129/668 OPGW, respectively. The new conductor and shield wire will be the same, respectively, between proposed deadend structures #16D, #16E, and the proposed 345kV deadend structure at TSS 903.
    - Existing conductor and shield wire on L2105 is the bundled 1277.2 kcmil 54/7 ACAR and the AC-129/668 OPGW, respectively, and will be transferred to the new cut-in structures #14D and #16E.
- Existing tangent structures #14 and #17 will remain.

Upgrades to neighboring facilities:

Sta 21 Kincaid

- STA21 345kV L2105 terminal, review and reset the existing relays. A previous project intends to install dual 87L SEL-411L-1 each with separate direct Single Mode fiber path communications. 87L-1 and 87L-2 fibers to be reconnected to new remote terminal, TSS903. System 1 fiber to be constructed in a physically diverse path from the System 2 fiber into TSS 903 Tovey, from Sta 21 Kincaid. These two Single Mode fiber paths must also be physically diverse from the two Single Mode fiber paths built from TSS 964 Clear Creek, for L90302.
    - The STA21 relays may need to be re-wired for compatibility with a remote DSS station (remove SBM switches, etc.; reference remote ends of TSS101 GIS).
    - 345kV BT2-6 and BT6-8 already have SEL-451-5 relays. Revise reclosing settings as needed.
- TSS964 345kV L90302 terminal (former L2105), review and reset the existing relays. A previous project intends to install dual 87L SEL-411L-1 each with direct fiber communications. 87L-1 and 87L-2 fiber to be reconnected to new remote terminal, TSS903. System 1 fiber to be constructed in a physically diverse path from the System 2 fiber into TSS 903 Tovey, from TSS 964 Clear Creek. These two Single Mode fiber paths must also be physically diverse from the two Single Mode fiber paths built from Sta 21 Kincaid, for L2105.
    - The TSS964 relays may need to be re-wired for compatibility with a remote DSS station (remove SBM switches, etc.; reference remote ends of TSS101 GIS).
    - 345kV BT4-5 and BT5-6 already have SEL-451-5 relays. Revise reclosing settings as needed.
    - Update TSS964 station prints as required (new line number).

4. OTHER SCOPE OF WORK

ComEd to provide oversight to the Project Developer at the Project Developer's cost or the engineering and construction of the interconnect substation if the Project Developer elects Option to Build.

5. MILESTONE SCHEDULE FOR COMPLETION OFTRANSMISSION OWNER WORK

Facilities outlined in this report are estimated to take 60 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	12
Permitting	12	18
Construction	42	60

6. ASSUMPTIONS IN DEVELOPING SCOPE/COST/SCHEDULE

6.1 This study is based on the Phase 2 System Impact Study Report for PJM Generation Interconnection New Service Request Project AE2-261 Kincaid-Pana 345KV and AG1-460 Kincaid-Pana 345kV. The steady-state voltage study for stability analysis will be performed by PJM during the Facility Phase. The PJM study could identify upgrades to the ComEd system that would become part of this project's scope of work. It is assumed that all associated network upgrades, as listed in the above System Impact study, are complete prior to this New Service Request Project Position being placed in service.

6.2 The schedule is based on GIS (Generator Interconnection Agreement) contract being executed by all parties and the deposit received.

6.3 ComEd cost estimates assume that work will be performed during normal weekdays and with no overtime.

6.4 Transmission line outages for the tap construction have not been identified, but generally are available in spring (March to May) and fall (September to November). These outages are controlled by PJM.

6.5 The PD will be responsible to request and bearing the cost for relocation of existing transmission or distribution lines (including structures) that may be required for transmission line crossings, the transport of any large equipment, such as cranes, etc. The backfeed date identified in earlier sections is not yet approved. Formal submittal of this request to ComEd's TSO for ultimate review by PJM can be made 7 months prior to the back feed request date.

6.6 All upgrades to facilities included in this document will be required to meet the latest ComEd standards.

6.7 Upgrades are subject to change based on detailed design development

6.8 Costs are based on 2024 rates and do not reflect a potential increase in Labor or Material costs.

6.9 Project Developer to upload as-built drawings to ComEd drawing system (Meridian).

6.10 Single fiber routing has not been included in this study.

6.11 ComEd cost estimate is valid for six (6) months after Facilities Study release by PJM.

6.12 This study assumes any additional right-of-way and/or easement work required will be at the expense of the Project Developer.

6.13 This Facilities Study is time-dependent. If the project is not into construction within one year of the issuance, the FS will be void and the project re-studied, requiring the completion of a new FS.

6.14 Both (1) all real property conveyed in fee to ComEd must be remediated to and (2) all real property to which real property rights are transferred to ComEd (as determined in ComEd's discretion) must be remediated to IEPA's Tiered Approach to Corrective Action.

6.15 This Phase 3 System Impact Report assumes that generator output and plant auxiliary power consumption can both be metered with revenue accuracy as described. The final revenue metering configuration and equipment will be confirmed, and may be revised, during detailed engineering following execution of the Generator Interconnection Agreement (GIA).

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 AE2-261 / AG1-460 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 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'.
- BATTERY TERMINAL AMI METERING FOR COMED
- FERC Order 841 designates inflow to charge battery storage facility as wholesale power. To separately measure the power inflow to charge the battery and bill it at wholesale rate, the Project Developer needs to install the following equipment.
    - Advanced Metering Infrastructure (AMI) equipment including AMI Meter and Current Transformer/Potential Transformer (CT/PT) at the output terminal of the battery storage facility to measure power flow from transmission system to charge the battery storage facility.
    - Fiber cable to provide communication link to transmit AMI meter data to the ComEd SCADA system.

8. LAND REQUIREMENTS FOR INTERCONNECTION SUBSTATION

1) For a 345kV substation bisecting one transmission line, the site shall be at least 784' x 472' excluding the stormwater detention facility. The site should be expandable to 784' x 914' without any restriction.

2) The site should be accessible from at least two sides to bring in future transmission lines. This means that there should be no river, another transmission line, hills, forest, or wetland on at least two sides of the site.

3) There should be no legal agreements or other impediment to interconnect additional generator lead lines to this site from other generators in the future.

4) The site should not encroach into ComEd transmission or distribution corridors.

5) If the PD owns the land surrounding the substation site, the PD must provide open easement to ComEd to bring in future transmission lines into the substation.

6) The PD is responsible to build an access road meeting ComEd requirements to the substation site from the nearest public road.

7) The PD is responsible to acquire land to install tie-lines integrating the substation with the ComEd transmission system.

8) The PD is responsible to acquire land for the stormwater detention facility meeting all applicable ComEd Environmental requirements and all applicable municipal, county, and state requirements for stormwater management.

Upon completion of the construction and installation of the interconnection substation, the tie-line, access road, stormwater detention facility and related improvements and facilities, and the satisfactory completion of testing of the interconnection substation acceptable to ComEd, the PD shall transfer all the Property Rights and Permits to ComEd, at no cost or expense to ComEd, pursuant to documentation that is acceptable to ComEd, including (without limitation) the Property Transfer Documents in fee simple.

All real property conveyed in fee to ComEd must be remediated to and all real property to which real property rights are transferred to ComEd (as determined in ComEd's discretion) must be remediated to IEPA's Tiered Approach to Corrective Action Objectives (TACO) Tier 1 residential remediation standards.

9. ENVIRONMENTAL AND PERMITING

- Environmental approvals required for the construction of 345kV TSS 903 Tovey to be acquired at PD cost.
- The PD will be responsible for any remediation costs if greenfield and expansion locations are found to have environmental contaminations.
- PD will purchase the real estate to accommodate the new 345kV TSS 903 Tovey substation and transfer ownership to ComEd. A total of 716,576 square feet of real estate will need to be purchased (784' x 914') for the yard, plus additional real estate for stormwater management features outside of the yard. See Attachments #2.
- PD will be responsible for cost incurred if Army Corps of Engineers, county, and/or municipal permits are needed including storm water permitting.
- It is assumed that all necessary permits will be obtained in a timely manner so as to allow engineering and construction to proceed according to the Milestone Schedule.
- It is assumed that conveyance of property and rights will be obtained to support the PJM Transmission Outage Schedule.
- It is assumed that the required Environmental Study will yield no impediments to the development of the site.
- Both (1) all real property conveyed in fee to ComEd must be remediated to and (2) all real property to which real property rights are transferred to ComEd (as determined in ComEd's discretion) must be remediated to IEPA's Tiered Approach to Corrective Action Objectives (TACO) Tier 1 residential remediation standards.

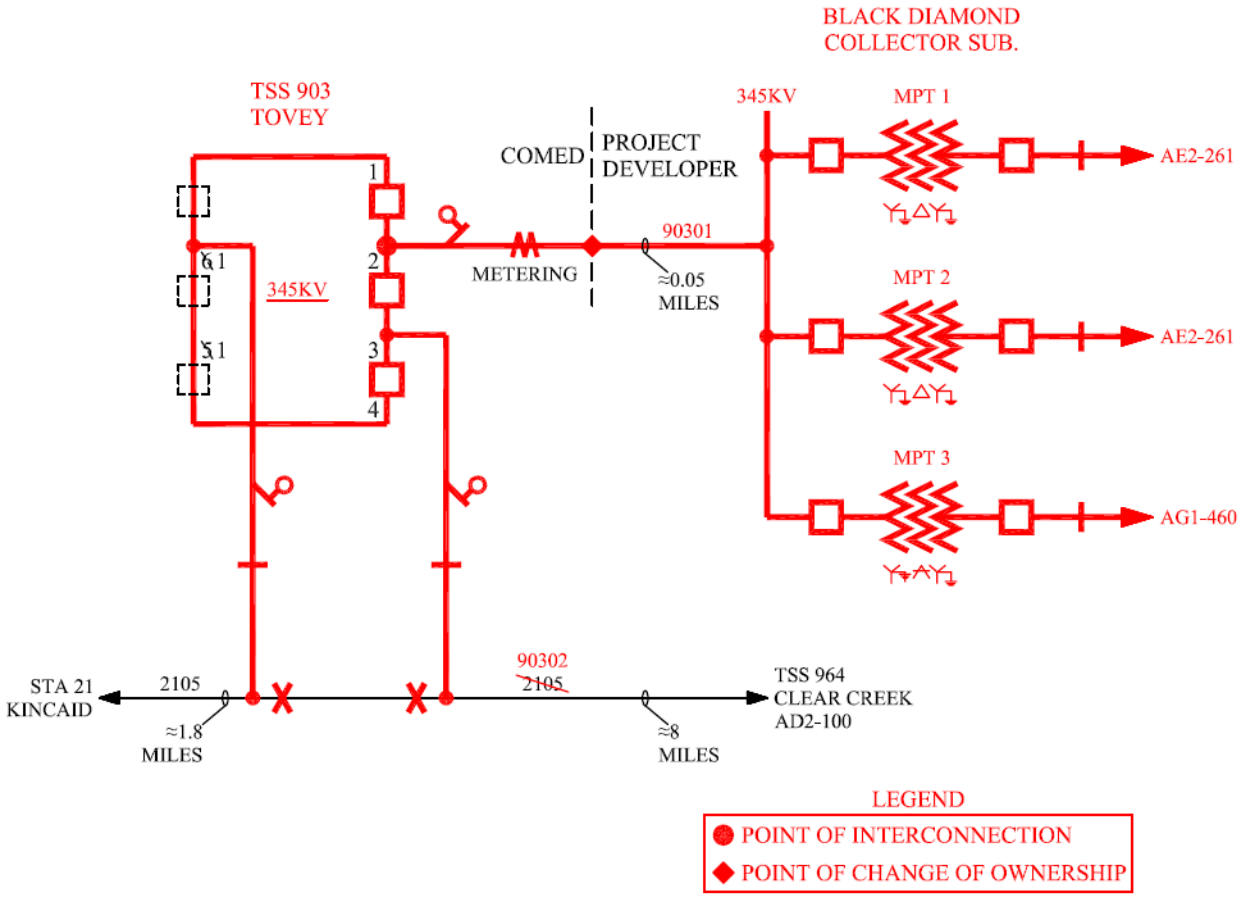
C. APPENDICES

1) Attachment #1: One Line
2) Attachment #2: General Arrangement for the Substation Equipment
3) Attachment #3: One Line Diagram
4) Attachment #4: Transmission Line Tie-In Plan

5) Attachment #5: Geographical Map Showing the Property Location

Attachment #1:

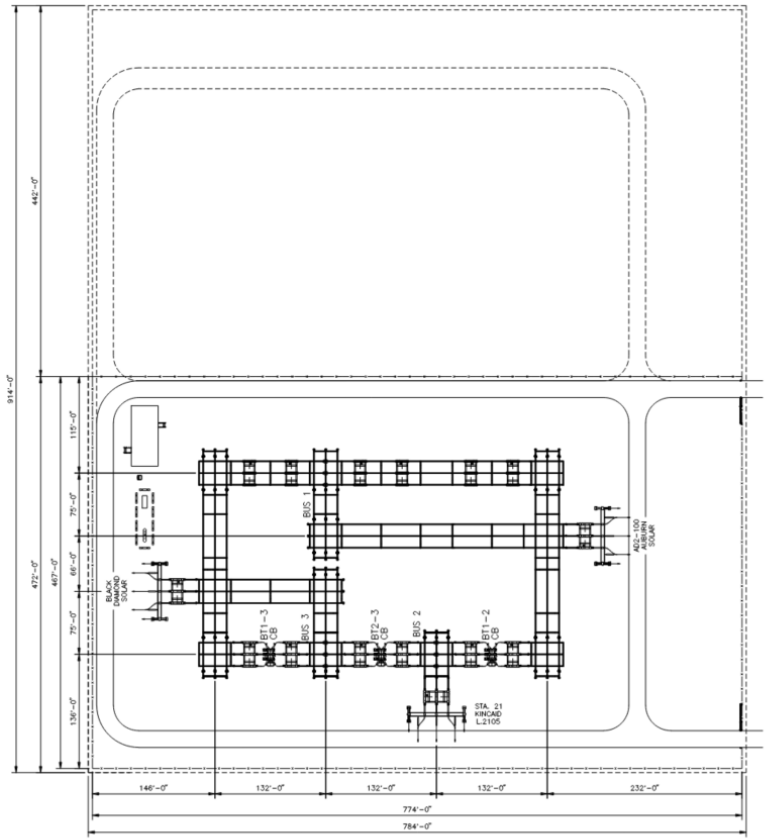
One Line



Attachment #2:

General Arrangement for the Substation Equipment

903E–1000



REV	DATE	DESCRIPTION	TECH.	ENG.
1B	XX/XX/24	ISSUED FOR INFORMATION	DJ	OK
1A	09/27/24	ISSUED FOR INFORMATION	DJ	OK

BURNS McDONNELL
200 W. ADAMS STREET, SUITE 2700
CHICAGO, IL 60606

THE REGISTRANT OF THE NEWLY APPLIED SEAL ONLY ASSUMES RESPONSIBILITY FOR THE CURRENT REVISION.

BURNS & McDONNELL'S ILLINOIS IDFPR REGISTRATION NUMBER IS 184-001310

comed AN EXELON COMPANY

Commonwealth Edison Co.
Chicago, Illinois

PLAN OF
ULTIMATE
345KV SWITCHYARD

TSS 903 TOVEY

SCALE 1" = 60'-0" | DATE 08/07/24
DRAWN BY B&M
ENG. BY B&M

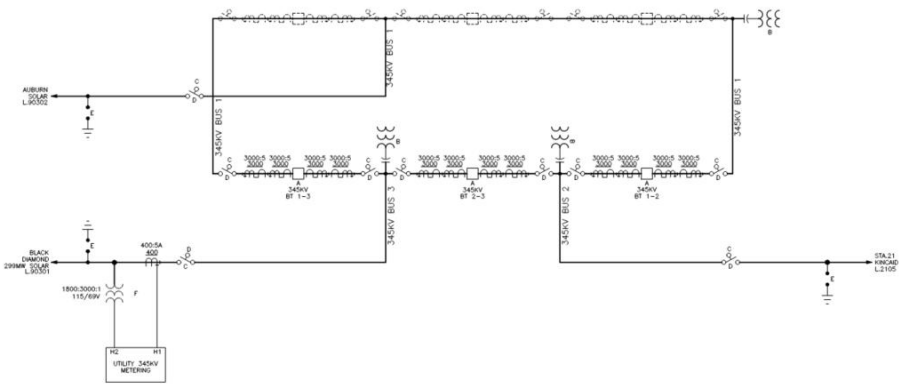
903E–1000

Attachment #3:

One Line Diagram

903E-4000

EQUIPMENT LIST	
ITEM	DESCRIPTION
A	345KV, 3150A, 63KA SIEMENS SF6 CIRCUIT BREAKER, SI #1672433
B	CCVT, 362KV, 60HZ, 1550KV BIL, 199200-115/66.4 VOLTS, RATIO 1732/3000 & 1732/3000:1, ACCURACY 0.3 W, X, Y, Z, WITHOUT CARRIER ACCS SI #417302
C	125V DC, SOUTHERN STATES MOTOR OPERATOR, SI #1640653
D	345KV, 3000A, SOUTHERN STATES, VERTICAL BREAK, SI #333132
E	ARRESTER, SURGE, 264KV, STATION CLASS, USED ON 345KV SYSTEM, SI #1634693
F	TR, COMBO, VOLTAGE AND CURRENT, 1300KV BIL, 345KV, GRD Y/207KV, 400:5 MR RATIOS (CURR), 1800:3000:1 RATIO-115/69 ACCURACY 0.3W-ZZ (POTENTIAL), 0.15B1-B1.8 (CURRENT), 63KA, RF=2



REV	DATE	DESCRIPTION	TECH.	ENG.
1A	09/27/24	ISSUED FOR INFORMATION	AS	OK

BURNS McDONNELL
200 W. ADAMS STREET, SUITE 2700
CHICAGO, IL 60606

THE REGISTRANT OF THE NEWLY APPLIED SEAL ONLY ASSUMES RESPONSIBILITY FOR THE CURRENT REVISION.

BURNS & McDONNELL'S ILLINOIS IDFPR REGISTRATION NUMBER IS 184-001310

REV	DATE	DESCRIPTION	TECH.	ENG.

comed AN EXELON COMPANY

Commonwealth Edison Co.
Chicago, Illinois

ONE LINE DIAGRAM
345KV SWITCHYARD

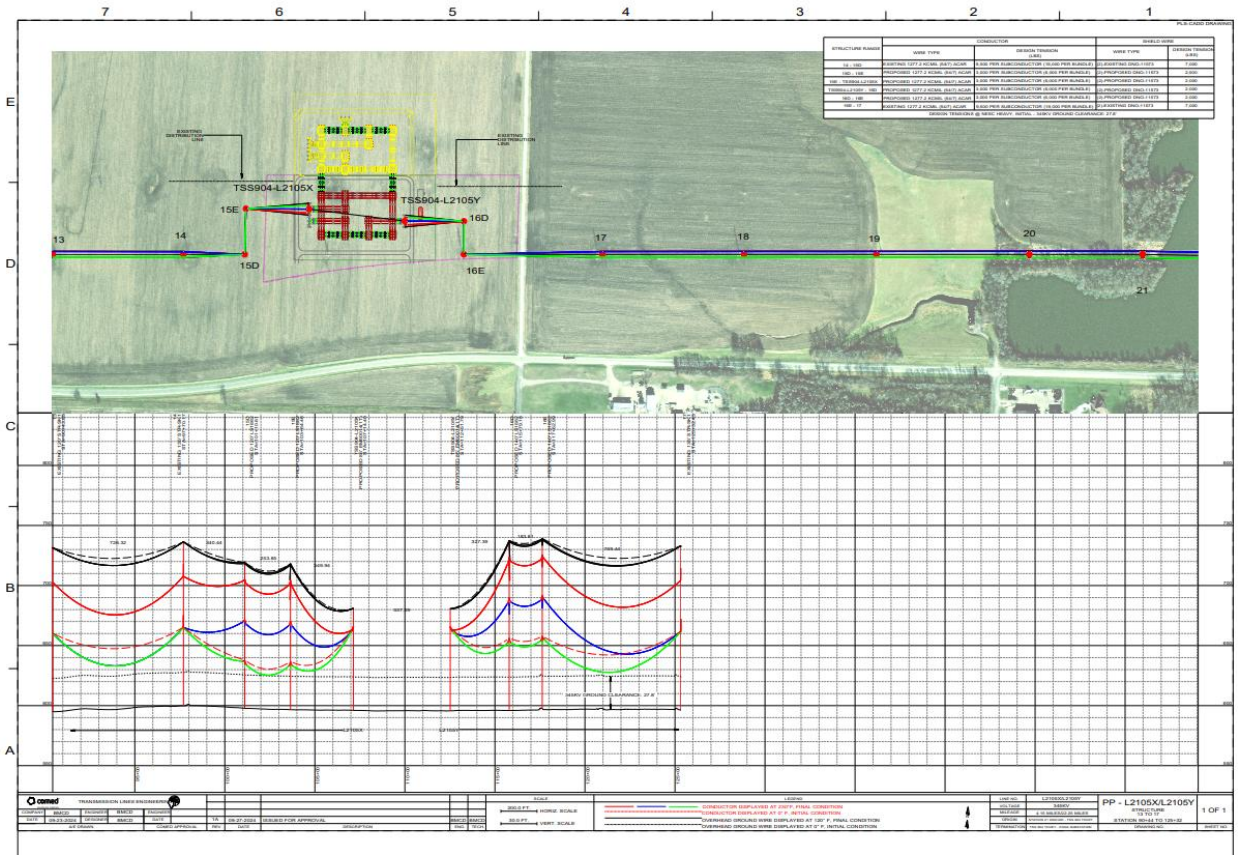
TSS 903 TOVEY DC 02

SCALE	NONE	DATE	08/23/24
DRAWN BY	B&M		
ENG. BY	B&M		

903E-4000

Attachment #4:

Transmission Line Tie-In Plan



Attachment #5:

Geographical Map Showing the Property Location