Facilities Study Report

For

Physical Interconnection of

PJM Generation Interconnection Request Project ID AG2-411

Statler Hill 115 kV

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 Mid-Atlantic Interstate Transmission, LLC (MAIT).

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 solar Generating Facility located in Somerset County, Pennsylvania with a designated PJM Project ID of AG2-411. The installed facilities will have a total Maximum Facility Output (MFO) of 63.0 MW with 40.7 MW of this output being recognized by PJM as Capacity.

2. POINT OF INTERCONNECTION (POI)

The Generating Facility will interconnect with the MAIT transmission system via a direct connection into the Statler Hill 115 kV substation.

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 last Project Developer-owned structure near the Statler Hill 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:

- Circuit breakers and associated equipment located between the high side of the MPT(s) or GSU(s) and the Point of Change in Ownership
- Generator lead line from the Generating Facility to the Point of Change in Ownership
- Relay and protective equipment, telecommunications equipment, and Supervisory Control and Data Acquisition (SCADA) to comply with the TO's Applicable Technical Requirements and Standards

B. Transmission Owner Facilities Study Results

The following is a description of the planned Transmission Owner facilities for the physical interconnection of the proposed AG2-411 project to MAIT transmission system. These facilities shall be designed according to MAIT Applicable Technical Requirements and Standards. Once built, MAIT will own, operate, and maintain these Facilities.

1. TRANSMISSION OWNER INTERCONNECTION FACILITIES:

1.1 AG2-411 Transmission Line Interconnection

Install line terminal equipment within the existing Statler Hill substation. Install one span from Statler Hill substation to the Project Developer-owned dead-end structure outside the existing substation fence.

- Install
    - 0.1 miles of conductor 795 kcmil 26/7 ACSR shielded by (1) 7#8 Alumoweld
    - Substation line exit facilities, including dead end structures and disconnect switches, described in the Statler Hill substation expansion scope.
- Siting/Licensing Assumptions:
    - Full Application will be required.
- Scope of Work Assumptions
    - Assume minimal social and ecological impacts.
    - Assume no local opposition to the project.
    - Location of Project Developer POI assumed
    - Location of Project Developer station assumed
    - A ground survey will be required for design and as-built.
- Ancillary Scope of Work
    - Project Management
        - Provide project management, coordination, administration, scheduling, material management and project development if required.

1.2 AG2-411 Generation Facilities

- Description of Work
    - Integrate Project Developer protection and controls to the transmission systems
- Relay & Control
    - Integrate Project Developer protection and controls.
- Ancillary Scope of Work
    - Project Management
        - Provide project management, coordination, administration, scheduling, material management and project development if required.
- Testing and Commissioning

- Testing and commissioning services as required.

2. STAND ALONE NETWORK UPGRADES

None.

3. NETWORK UPGRADES

3.1 Hooversville Substation

Review and update relay settings.

- Relay & Control
  - Review and update relay settings.
- Ancillary Scope of Work
  - Project Management
    - Provide project management, coordination, administration, scheduling, material management and project development if required.
  - Testing and Commissioning
    - Testing and commissioning services as required for revised relay settings.

3.2 Bedford North Substation

- Description of Work
  - Review and update relay settings.
- Relay & Control
  - Review and update relay settings.
- Ancillary Scope of Work
  - Project Management
    - Provide project management, coordination, administration, scheduling, material management and project development if required.
  - Testing and Commissioning
    - Testing and commissioning services as required for revised relay settings.

3.3 Bedford North – Statler Hill 115 kV Line

Relocate line exit of the Bedford North-Statler Hill 115 kV Line in Statler Hill Substation to be between 115 kV Forward Line and AG2-411 Line Exits.

- Existing Conditions
  - The existing conductor is 795 kcmil 26/7 ACSR, shielded by (2) 3/8" 7-Strand EHS Steel constructed on single circuit, multi-pole wood and H-frame structures.

- Install:
    - (2) single circuit, steel, monopole, dead-end structures on concrete foundations
    - (1) single circuit, light duty steel, monopole, direct embedded, tangent structure
    - 0.1 miles of 795 kcmil 26/7 ACSR conductor and (1) 7#8 Alumoweld and (1) OPGW shield wire
    - Transfer existing conductor and shield wire to new dead-end structure
- Remove:
    - (1) single circuit, wood, monopole, direct embedded, deadend structure (Str. 33B)
    - 0.1 miles of 477 kcmil 26/7 ACSR conductor and (2) 3/8" 7-strand EHS steel shield wire
- Siting/Licensing Assumptions:
    - Full Application is required. To be shared with Estimate PN-T-00022848.
    - Assume minimal social and ecological impacts.
    - Assume no local opposition to the project.
- General Notes/Assumptions:
    - Outage can be obtained to perform line construction.
    - A ground survey will be required for design and as-built.
    - It is assumed the existing conductor and shield wire are in adequate condition and can be transferred. An engineering analysis during project development will be required.
    - New dead-end structure to be located on the Bedford North - Statler Hill 115 kV Line.
    - It is assumed the adjacent structures are in adequate condition and can handle the new loading. An engineering analysis during project development will be required.
    - Included a tangent structure to ensure crossing clearance.
- Ancillary Scope of Work
    - Project Management
        - Provide project management, coordination, administration, scheduling, material management and project development if required.
    - Access Roads
        - Access roads will be required, terrain is flat, approximately 0.1 miles.
    - Environmental
        - Perform field investigations to verify the presence or absence of wetlands and identify any relevant environmental constraints.
    - Assumptions:
        - Road Bonds are required
        - Environmental Filming (Documentation of Existing roads are required)
        - Environmental Access and Road Crossing Permit Fees is required

        - Environmental Development of Permit Binder is required
        - Environmental Cultural Resource Consultation is required
        - Environmental Construction walk down is required
        - RTE consultation letters are required
        - Wetland delineations and Water Quality Certification (WDR) applications are included based on field findings.
        - Stormwater permits and local approvals are assumed
        - Internal environmental engineering and external project management costs are included
        - A phase 1-A site assessment is included
    - Forestry
        - Some grub clearing may be required.
    - Real Estate & ROW
        - Rights & restrictions review on existing line
        - New ROW will be required.

3.4 Statler Hill Substation Expansion

Expand existing Statler Hill substation from a 3-breaker ring bus to a 4-breaker ring bus for the interconnection of the AG2-411 Generator facility.

- Below Grade
    - Perform new lightning protection and grounding survey.
    - Extend ground grid and easements, accordingly.
    - Install cable trench, conduit, and control cables to equipment
    - Install foundations for all equipment, control house, fences posts, and structures
- Above Grade
    - Replace (1) H-frame line exit structure for the relocation of Bedford North Line.
    - Replace (2) 115 kV, 2000A single phase wave traps and tuners for the relocation of Bedford North line exit
    - Replace (1) 115 kV 3-phase CCVT for the relocation of Bedford North line exit
    - Replace (1) 115 kV 3-phase set Surge arrester for the relocation of Bedford North line exit
    - Add (1) 115 kV, 2000A line disconnect switch for the relocation of Bedford North line exit mounted to new H-frame structure
    - Add (1) new H-frame line exit structure for the new AG2-411-line exit.
    - Add (1) new 115 kV, 3000A, 40KA Circuit Breaker on new foundations
    - Add (2) new 115 kV, 2000A bus disconnect switches on new foundations

- Add (2) new 115 kV 3-phase set Surge Arrestors
- Add (1) new 3-phase 115 kV CCVT mounted on new stands and foundations.
- Extend Statler Hill substation by roughly 20’ x 160’ and install new fence. Replace existing gate with new double swing gate.
- Install (1) new small Control House between Lightning Mast and Existing Control House.
- Install new rigid bus, bus supports, strain bus, and conductor drops to support the relocated Bedford North line terminal and the new AG2-411-line terminal

- Relay & Control
  - Install (2) SEL-411L for primary and backup current differential protection over dedicated fiber for the new AG2-411 line.
  - Install (1) SEL-451 relay for 115 kV breaker failure to trip protection
  - Revise the existing anti-islanding scheme to incorporate the new line position connecting to the proposed generation.
- Additional Equipment to be Removed
  - Bedford North Line's H-frame, wave traps, CCVT and Surge arrester
- Scope of Work Assumptions
  - Allowance for Lightning protection study is included
  - There is not enough space in the existing Control house for the new panels and new control building will be needed.
- Ancillary Scope of Work
  - Project Management
    - Provide project management, coordination, administration, scheduling, material management and project development if required.
  - Environmental
    - Support as required for substation reconfiguration
    - Review drawings and support work related to new equipment and new foundations. Provide any necessary support for permitting, if required.
    - Perform field investigations to verify the presence or absence of wetlands and identify any relevant environmental constraints.
    - Assumptions:
      - Road Bonds are required
      - Environmental Filming (Documentation of Existing roads are required
      - Environmental Access and Road Crossing Permit Fees is required
      - Environmental Development of Permit Binder is required
      - Environmental Cultural Resource Consultation is required
      - Environmental Construction walk down is required

- RTE consultation letters are required
- Wetland delineations and Water Quality Certification (WDR) applications are included based on field findings.
- Stormwater permits and local approvals are assumed
- Internal environmental engineering and external project management costs are included
- A phase 1-A site assessment is included

- Information Technology
  - Estimate SCADA work at Statler Hill Substation to support breaker, relays, RTU, meters, wave trap, MOAB, GOAB, battery charger, battery monitor, and disconnect switch, installation, as well as the installation of a SAS-DxP-24 Switch with drawing updates.
    - Assumed that the existing SCADA transport at Statler Hill Substation is sufficient for additional SCADA telemetry.
  - Underground ADSS will be utilized from the substation control building to the PCO just East of the Statler Hill substation yard.
    - Install/Test approximately 0.06 miles of 48F/SM from the Statler Hill Control House to the AG2-411 Project Developer PCO.
    - It is assumed that two separate fiber cables are being run for this build, but no spatial diversity is required.
- Real Estate & ROW
  - RE/ROW needed for substation expansion, roughly 20’ x 160’. Note, property is being expanded to the east all with parcel ID parcel ID S39-006-059-01 which is owned by Somerset REC.
  - Real estate cost has been included for:
    - Internal support including permitting, document review, project planning meetings, subcontractor oversight and assistance with transfer of assets if required.
    - External support for general project support, acquisition (assuming voluntary, no condemnation); assuming NO field construction support will be required.
    - Easement digitization and other GIS support provided.
    - Cost of purchasing new land rights and associated fees such as recording costs or permits (estimated--actual cost will depend on current market values, land type, location and negotiations).
    - Recording fees: do not include taxes that may be required by specific counties via a "Real Estate Transfer Tax Statement of Value."
- Testing and Commissioning
  - Testing and commissioning services are required for new equipment and relays.

4. OTHER SCOPE OF WORK

4.1 AG2-411 Interconnection Substation Metering Requirements

Install (1) one new 3-phase free standing CT/VT Combo Unit, metering panel, and revenue metering for new lead generation line for AG2-411 at Statler Hill Substation.

- Below Grade
    - (1) Lot of excavation, conduit, backfill, grounding, and wiring between Free Standing CT/VT Combo units to revenue metering.
    - (1) Lot of foundations for Free-standing CT/VT 115 kV Combo Unit.
- Above Grade
    - (1) set of 3-phase Free Standing CT/VT Combo Unit 115 kV.
- Relay & Control
    - (1) New Revenue Metering Panel with test switches. The material for the Revenue Meter to be included in revenue metering support estimate.
- Scope of Work Assumptions
    - It is assumed current and voltage signals will be pulled from new 3-phase free standing CT/VT Combo Units.
    - Assumes enough room in AG2-411 Control house to support a new revenue metering panel.
    - Assumes enough room in AG2-411 substation to add in free standing CT/VT Combo Units. Final location to be determined during detailed engineering.
    - Assumes the same crew that is constructing the Statler Hill substation expansion scope will be adding the revenue metering panel and freestanding CT/VT combo units.
- Project Management
    - Provide project management, coordination, administration, scheduling, material management and project development if required.
- Revenue Metering:
    - Provide high end revenue meter and engineering support for revenue metering at FE Substation Selma.
- Testing and Commissioning
    - Testing and commissioning services as required.

5. MILESTONE SCHEDULE FOR COMPLETION OF MAIT WORK

Facilities outlined in this report are estimated to take 37 months to construct, from the time the Generation Interconnection Agreement is fully executed. This schedule 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

Preliminary Engineering	1	2
Siting, Permitting & Real Estate	5	26
Detailed Engineering	3	26
Equipment Delivery	28	28
Construction	29	35
Testing and Commissioning	33	37

6. ASSUMPTIONS IN DEVELOPING SCOPE/COST/SCHEDULE

6.1 Scope Assumptions

- Project Developer is responsible for making all arrangements for electric distribution service (if required) for its generation station. No costs or schedule are included herein.
- Fiber shall be installed by the Project Developer between Geneva and Project Developer's substation for protection communication. At least (2) dedicated fiber pairs are required, for primary and backup line protection relaying. Primary and backup communications shall be routed in separate fiber cables, though physically independent paths are not required.

6.2 Cost Estimate Assumptions

- The cost estimates provided for this project were developed as of April 2026, based upon current market conditions. Hence, they are subject to significant changes in the event that project implementation is delayed. Notwithstanding the cost estimates from this report being used in the Generator Interconnection Agreement for the related project, MAIT reserves the right to re-evaluate and provide a more accurate cost estimate during the implementation phase of the project. In accordance with section 217 of the Open Access Transmission Tariff, the Project Developer will be responsible for 100 percent of the actual costs of the facilities required to accommodate its Interconnection Request.
- MAIT reserves the right to charge the Project Developer operation and maintenance expenses to maintain the Project Developer attachment facilities, including metering facilities, owned by MAIT. These costs will be specified in the Generator Interconnection Agreement.

6.3 Schedule Assumptions

- This schedule assumes that all issues covered by the "Environmental, Real Estate and Permitting Issues" section of this document are resolved. Construction cannot begin until after all applicable permits and/or easements have been obtained.
- MAIT's ability to support this schedule also depends on the feasibility of taking the required outages to support construction. Outages that are determined to negatively impact system reliability or cause congestion may be delayed or denied, at any time, even if they are submitted on time based on the Outage Submittal Rules in section 4.2.1 of PJM Manual 03. This includes, but is not limited to, outages requested between the months of June and September, as well as January and March, which typically get denied due to summer and winter peak conditions. Therefore, the construction schedule will be adjusted as needed to accommodate any outage restrictions that have been identified by MAIT or the Transmission Provider.

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 AG2-176 GIA, and in PJM Manuals M01 and M14D. The details of applicable revenue metering requirements are given in the "Requirements for Transmission Connected Facilities" posted on PJM website.

The revenue metering will be installed on the Transmission Owner side of the Point of Change in Ownership, and will be installed, owned, and maintained by Transmission Owner.

The revenue metering system (particularly the revenue metering current transformers) shall be designed to accurately meter the light loads that will occur when the facility is not generating power and only back-feeding station service from the Transmission Owner. This may require the use of high accuracy extended range current transformers.

Transmission Owner will obtain real-time, site-specific, generation data from PJM, via the required communication link from Project Developer to PJM. Transmission Owner will work with PJM and Project Developer to ensure the generation data provided to PJM meets Transmission Owner's requirements.

These requirements are in addition to any metering required by PJM.

8. LAND REQUIREMENTS FOR INTERCONNECTION SUBSTATION

Not Applicable.

9. APPLICABLE TECHNICAL REQUIREMENTS AND STANDARDS

The Requirements for Transmission Connected Facilities, Revision 7, dated January 27, 2026, shall apply.

The TPP-REF-003 Transmission Planning Criteria, Revision 10, dated December 19, 2023, shall apply.

10. ENVIRONMENTAL AND PERMITING

The following are possible environmental, real estate and permitting issues:

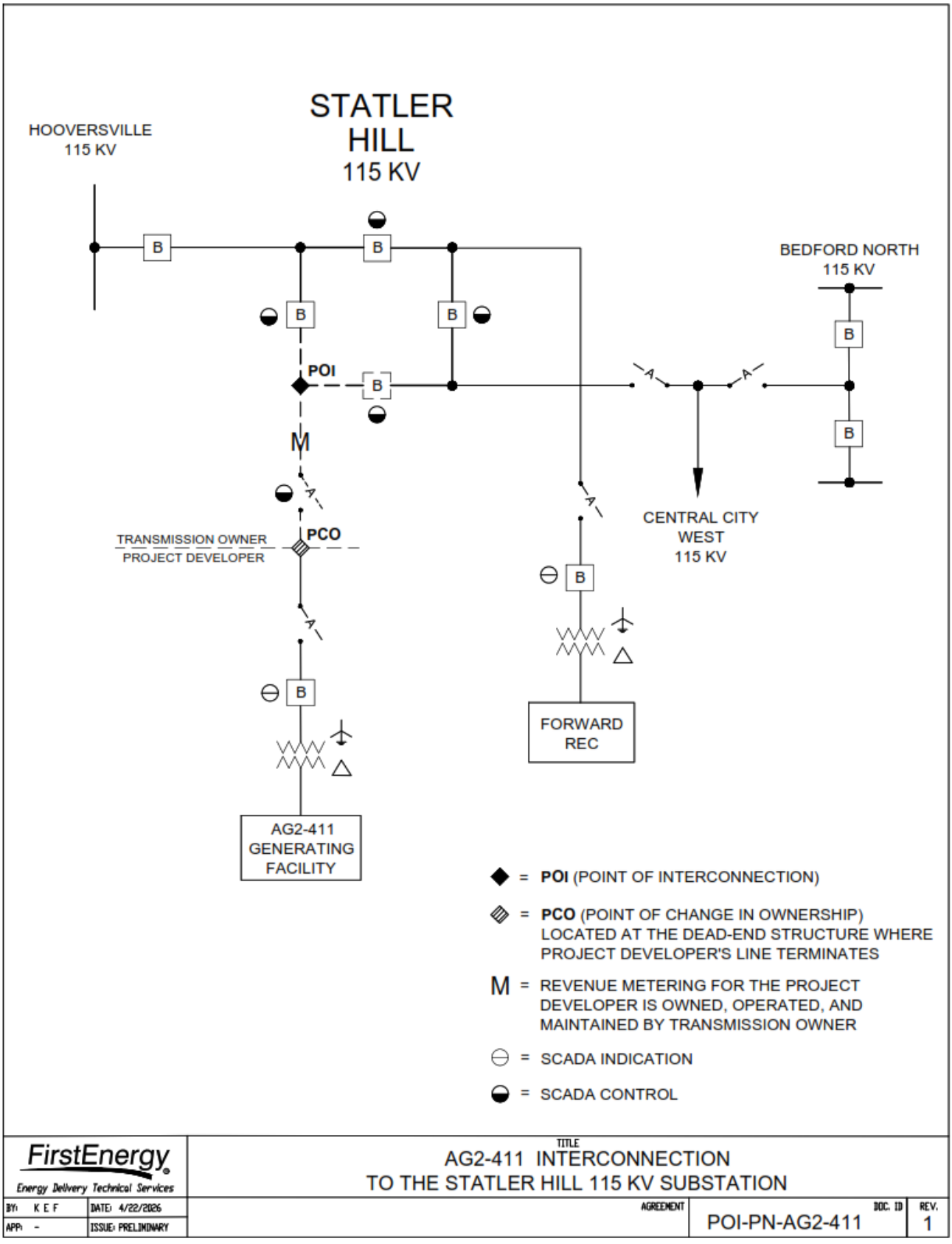
- Environmental permitting, Real Estate acquisition, and notifications to the state's Public Utilities Commission (PUC) vary, some up to twelve (12) months after preliminary engineering is completed to secure the required approvals.
- Prior to agreement by Project Developer to purchase the property, a Phase 1 Environmental Assessment should be conducted for the entire site to avoid assumption of environmental liabilities by Project Developer or Transmission Owner.
- The Transmission Owner interconnection substation may involve environmental surveys, permits, approvals and plans with federal, state, and/or local agencies.
- Assumed Project Developer is to provide all access rights, easements, ROW and permits necessary to complete the Project to the satisfaction of Transmission Owner. Environmental permitting shall encompass all federal, state, and local requirements, consultations, and agency coordination. Confirmation of meeting all permitting requirements shall be provided to Transmission Owner, prior to start of construction. Following construction and energization, confirmation of permit closeout shall be provided to the satisfaction of Transmission Owner, prior to transfer of ownership. If any of these elements are not included in the final agreement between Transmission Owner and Project Developer, twelve (12)-to-eighteen (18) months should be added to the Project Schedule to secure necessary permits, and additional costs would apply.
- Project Developer will provide copies of all the relative environmental permits and other necessary approvals to Transmission Owner before Transmission Owner accepts the interconnection facilities.

- Project Developer is required to install an access road from the new interconnection substation to the nearest public road (must be approved by Transmission Owner) and obtain access rights for Transmission Owner. Project Developer is responsible to maintain access road and ensure unimpeded access for Transmission Owner at all times.
- Project Developer is responsible for all property acquisition (including easements/rights-of-way (ROW)) for transmission, distribution and communication facilities needed for the generator interconnection.
- If Project Developer owns the project property, in fee title, Transmission Owner will require a fee property transfer for the interconnection substation site which may require subdivision approval, together with permanent access rights to and from the substation, as well as a perpetual easement for any transmission lines to the substation. Project Developer is responsible for all costs, including but not limited to subdivision, associated with the property transfer.
- If Project Developer leases the project property, the Project Developer will be required to obtain fee property from the underlying fee property owner, on behalf of Transmission Owner, for the interconnection substation site, together with permanent access rights to and from the substation, as well as a perpetual easement for any transmission lines to the substation.
- All property rights must be surveyed and metes and bounds descriptions prepared for incorporation into Transmission Owner's document forms, for transfer of title.
- The Transmission Owner interconnection substation and transmission line loop will involve PUC notification/approval.
- All work occurs within an existing transmission line right-of-way or on Project Developer's property with access to all existing structures possible via that property and the right-of- way following established access routes that do not cross wetlands or streams.
- Project Developer will develop, and secure regulatory approval for, all necessary Erosion and Sediment Control (E&SC) plans and National Pollutant Discharge Elimination System (NPDES) permits.
- Project Developer will obtain all necessary permits.
- Project Developer will conduct all necessary wetlands and waterways studies and permits.
- Project Developer will conduct all necessary historical and archaeological studies.
- If the Project Developer plans to cross the transmission line right of way with facilities or access roads, please refer to the Transmission Rights-of-Way Restrictions information located at:

  https://www.firstenergycorp.com/help/safety/real-estate-power-lines/transmission-right-of-way.html#ROWform

C. APPENDICES

ATTACHMENT #1: SINGLE LINE DIAGRAM FOR THE PHYSICAL INTERCONNECTION



ATTACHMENT #2: PROTECTION REQUIREMENTS

Project Developer Protection Requirements

- The generation delivery points must comply with the technical requirements detailed in the FirstEnergy "Requirements for Transmission Connected Facilities" document.
- The Generator Step-Up (GSU) transformer(s) connecting to the FE system shall have a grounded-wye winding configuration on the high side and a delta configuration on the low side. This establishes an effective ground on the transmission system and mitigates overvoltage conditions during ground faults. A delta connected winding on the low side provides isolation of zero-sequence currents such that the FE system will not be exposed to ground faults on the generator system.
- Single fully rated circuit breaker is required at the point of change in ownership (PCO).
- Two (2) SEL-411L's for primary and backup current differential protection are required for the transmission line connecting the FE interconnection substation to the PCO. The Project Developer shall install and maintain direct fiber between the FE interconnection substation and the Project Developer substation for use by these relays for primary and backup protection and direct transfer trip. Part number and firmware of relays shall be sent to FE for approval to confirm communications compatibility. The 87L channel shall be used to communicate anti-islanding DTT to Project Developer. The 87L channel shall also be used for breaker failure DTT communications.
- Redundant protection schemes are required to protect the Project Developer owned equipment at POI voltage. Each zone of protection covering the POI voltage portion of the Project Developer's system, the GSU Transformer(s), and the POI voltage interconnection breaker, shall be protected by two independent relay schemes meeting the following redundancy requirements. Primary and backup relaying shall use independent CTs, and independent PTs or independent windings from the same PTs. Primary and backup relaying shall not have any common wiring, isolating switches, or auxiliary tripping relays. Redundancy of a protection system can be achieved by ensuring that there is no single point of failure between two locally independent primary and backup protection schemes for a given element. Relays from the same manufacturer are acceptable for both the primary and backup schemes.
- A protection scheme containing generator Intertie functions is required and must be able to provide tripping for the following functions: overfrequency, underfrequency, phase and zero-sequence overvoltage, phase undervoltage, directional overcurrent, and directional power. The current source and voltage source are to be at the Transmission POI voltage. The current source for the intertie relaying is preferred to be from CTs on the POI voltage interconnection breaker. The voltage source for the intertie relaying is preferred to be located between the high side of the GSU Transformer and the POI voltage interconnection breaker. If the PTs are located on the line-side of the breaker, PT primary-side fusing is required for isolation of a failed PT to prevent interruption of the FirstEnergy line.
- C800 CTs must be used on the POI voltage portion of the Project Developer's system, and the CTs should not saturate for the maximum expected through-fault current at the tap ratio in use.
- The relaying system and interrupting device control circuits shall have a reliable source of power independent from the AC system or immune to AC system disturbance or loss (for example - DC battery and charger) to assure proper operation of the protection scheme.
- If there are multiple existing utility feeds, they shall not be paralleled. Either a mechanical or electrical interlock shall be in place to prevent paralleling of service points.
- The Project Developer's protection system shall be designed and constructed in accordance with all mandatory Protection and Control (PRC) standards established by the North American Electric Reliability Corporation (NERC). The Project Developer shall coordinate with FirstEnergy and the Regional Reliability Coordinator to determine all applicable PRC requirements and ensure the facility's design and operation achieve full compliance.

The Project Developer is solely responsible for protecting its own equipment in such a manner that electrical faults or other disturbances on the FE system do not damage its equipment.

MAIT Protection Requirements

To coordinate with proposed Project Developer substation, the relay settings at the following stations will need adjusted (note that in some cases due to limitations of the existing relays, relays may need to be replaced):

The interconnection of the new generator to the Bulk Electric System (BES) transmission network will initiate a review of existing protection schemes and may introduce new requirements to ensure compliance with the PRC standards established by the NERC. Additional protection system upgrades at the interconnecting station, and potentially at other affected stations, will be determined by FirstEnergy and the Regional Reliability Coordinator during subsequent stages of the project, prior to detailed design.

At Statler Hill Substation

- Review/revise relay settings and protection scheme wiring as needed for the protection schemes adjacent to the new AG2-411 ring bus node
- For the new AG2-411 115 kV line:
    - Two (2) SEL-411L relays for primary and backup line protection over dedicated fiber
    - One (1) set of three (3) 115 kV CCVTs
- For the new 115 kV breaker position, install:
    - One (1) 115 kV circuit breaker with two (2) sets of CTs per bushing
    - One (1) SEL-451 relay for breaker failure, and control as needed
- Revise the existing anti-islanding scheme to incorporate the new line position connecting to the proposed generation.

At Hooverville Substation

- Review/revise relay settings as needed.

At Bedford North Substation

- Review/revise relay settings as needed.

Short Circuit Data

The short circuit levels at the Statler Hill 115 kV bus are the following:

Short Circuit values at 115 kV

Three phase faults = 11.6 kA

Single line to ground fault = 9.5 kA

Transmission System Impedances at 115 kV, 100 MVA base

Positive sequence: $Z1 = (0.0077 + j0.0428)$ (per unit)

Zero sequence: $Z0 = (0.0165 + j0.0695)$ (per unit)

The fault currents provided are bolted, symmetrical values for present, normal transmission system conditions. Future increases in fault currents are possible and it is the Project Developer's responsibility to upgrade their equipment and/or protective equipment coordination when necessary. No generation assets were modeled.

ATTACHMENT #3: PRELIMINARY GEOTECHNICAL SUMMARY

Observation & Concern Table

Category	Source	Risk	Comment
Surficial Soil Survey	USDA Soil Survey	Moderate	Udorthents mine spoil
Geologic Formation/Group	PA/USGS Geologic Survey	Moderate	Coal present
Karst	USGS/ TAMI 2	Low	Bedrock mapped with minor limestone, TAMI indicates no karst features
Landslide Susceptibility	GIS/Google Earth/FEMA Risk Map	Low to Moderate	Site is slightly to moderately sloped
Coal Mining and Oil and Gas Wells	PA Geologic Survey/TAMI 2	High	Surrounding site area contains underground mined areas
Environmental Hazard	US Wetland Maps/FEMA	Low	Low risk of flooding
Past Development	TAMI/GIS MAP/Historic Aerials	Low	Undeveloped except for existing substation and T-Line

Site Background/Geologic Hazards Potential

This review was conducted to determine potential geologic hazards and risk at the existing Statler Hill 115kV substation Project Developer location (AG2-411). The existing substation is located in Stoystown, Somerset County, Pennsylvania. This includes improvements to the existing Statler Hill substation which is located north of the Hooversville – Statler Hill 115 kV HSH transmission line and east of Ridge Road. The existing substation and transmission line are operated by MAIT and was installed in 2008. The proposed improvements to the substation would consist of the installation of one breaker with SCADA control. This location was reviewed for surficial soils survey, geologic formation/group, karst, landslide susceptibility, coal mining and oil and gas well resource mapping, environmental hazards, and past development. The review was performed to identify any geologic risks that could affect the project's budget, constructability, and/or schedule.

Surficial Soil Survey

The United States Department of Agriculture Web Soil Survey indicates that the site is currently mapped as Udorthents mine spoil (UDD). The soils are generally highly variable and generally consist of gravelly clays and silts. The soil series is well drained and currently mapped with a Hydrologic Soil Group (HSG) C classification, indicating the soils have a moderately slow infiltration rate. The depth to the water table is listed as greater than 80 inches below the ground surface.

Geologic Formation/Group

The site is located in the Allegheny Mountain Section of the Appalachian Plateaus Physiographic province. The Appalachian Plateaus Physiographic province features relatively flat-lying sedimentary rocks deeply cut by rivers, creating rugged, dissected landscapes with high ridges and deep valleys, known for coal and natural gas reserves. The Geologic Map of Pennsylvania maps the site to be located within the Glenshaw Formation (Pcg). The Glenshaw Formation is a Late Pennsylvanian sedimentary unit in the Appalachian Basin that represents cycles of alluvial (river), deltaic, and shallow marine environments, characterized by sandstone, shale, coal, and marine limestone beds.

Karst

The site is mapped to be within the Glenshaw Formation, which is primarily shale bedrock but does contain occasional limestone beds. The Transmission Asset Mapping Interface (TAMI 2) was reviewed and the site is not mapped within an area prone to karst features. Based on the bedrock geology and karst mapping, there appears to be a low risk of karst related concerns for the site. A determination of karst risk should be discussed in the sites geotechnical report to better understand the risk.

Landslide Susceptibility

The Allegheny Mountain Section is listed as a generally low, but includes local areas of high to moderate risk of landslide susceptibility by the Pennsylvania Geological Survey titled "Landslides in Pennsylvania". FEMA national risk index for the area in which the site is located as a relatively low risk to landslides. Transmission Asset Mapping Interface (TAMI) was utilized to generate elevation profiles for the potential site area. The ground surface slopes downward from west to east but levels off where the substation sits. The site also undulates in a north to south direction. No excessively steep slopes are shown on the TAMI profile, but the profile should be considered an approximation. Given the mapped risks by FEMA and the Pennsylvania Geological Survey, there appears to be a low to moderate risk of landslide susceptibility.

Resource Mapping

There is significant coal resources and mining activity in this region. Based on the Pennsylvania Department of Environmental Protection Mining map tool, the maps indicate that underground mining has occurred at the site and surrounding area. There is potential for uncontrolled fills, mine subsidence induced by loading and dramatic fluctuation in subsurface water. TAMI 2 was also reviewed but does not show the same mine located below the site. In either case, the potential for mining at the site remains a high risk concern and will take additional geotechnical efforts during site planning. Several unconventional and conventional natural gas wells are located within Somerset County. Available mapping indicates that no gas or oil wells have been located in the site vicinity.

Environmental Hazards

Based on FEMA and U.S. Fish and Wildlife Service maps there are no wetlands or features that would cause an increased risk of flooding to the immediate site location. An environmental study should still be conducted to confirm this prior to construction.

Past Development

The past development assessment of the site was based on aerial photography. Based on aerial photography dating back to 1958, this site was generally wooded up until the construction of the substation around 2008. The size and exact extent of the mining is not easily discernible from the historic aerials.

Recommendations, Geotechnical Opinion, and Estimating

List of Observations/ Statler Hill 115 kV

1. The site is mapped to be within Udorthents mine spoil. Gravelly silts and clays.
2. This site is part of the Glenshaw Formation and contains both thin limestone and coal
3. Low potential for karst
4. Low to moderate risk for landslide occurrence
5. Low environmental impact risk
6. Mining activity present in the immediate area

The geotechnical conditions of this site seem to conclude that it is relatively high-risk location due to the coal mining that has occurred on the site. Additional due diligence will be required to determine the extent of the coal mining and additional costs might be expected to determine the extent and any potential interference with the site improvements. This would include additional borings for mining. If mining is encountered higher foundation costs would be expected to mitigate the mining. The above risk assessment does not confirm if the mining below grade is present below the site but it should be noted that the mining could potentially extend below the site and the estimate should assume that mining has occurred. To the extent possible, any background from the substation construction should be reviewed further.