

PJM Generation Interconnection
AG1-513
TSS 951 Aurora Energy Center 138kV

ComEd Facilities Study Report

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A. FACILITIES STUDY INTRODUCTION

1. PROJECT DESCRIPTION

The developer, Aurora Generation LLC (Interconnection Customer, also referred to as IC), has proposed the construction and interconnection of a battery storage facility, with a total capacity of 10MW with 4MW as output being recognized by PJM as capacity. Battery storage facility will be at the IC's existing facility in Aurora, Illinois (2909 North Eola, Aurora, Illinois, 60504). This proposed facility includes three (3) 3.95MVA battery storage inverters with a terminal voltage of 0.69kV.

The battery storage facility will be interconnected at the 138kV customer bus. The proposed generation interconnection is shown on the planning diagram in Attachment #1.

Existing revenue and AMI metering is located in the IC yard and owned by ComEd. Metering is done per unit at this site.

2. AMENDMENTS TO THE IMPACT STUDY DATA OR IMPACT STUDY RESULTS

2.1 In-Service Date

2.1.1 Queue AG1-513 proposed in-service timeline is shown in section 7, Milestone Schedule.

2.2 Affected Systems

2.2.1 There are no MISO impacts for AG1-513.

3. INTERCONNECTION CUSTOMER SCHEDULE

The schedule is based upon the assumption that a CPCN (Certificate of Public Convenience and Necessity), from the ICC (Illinois Commerce Commission) will not be required. Additionally, the customer schedule for the collector substation will need to be coordinated with the construction of the interconnection substation construction by ComEd (See Milestone Schedule Section 7).

4. SCOPE OF WORK BY INTERCONNECTION CUSTOMER (IC)

- 4.1. The IC is responsible for construction of the additional 10MW battery storage facility, which includes three (3) 3.95MVA battery storage inverters, one (1) 138kV breaker and associated disconnects, one (1) 34.5kV breaker and associated disconnects, one (1) 138/34.5/13.8kV 4/8/12MVA main power transformer (MPT), and one (1) set of revenue metering. The relay settings need to be updated.
- 4.2. The IC will be responsible for specifying, purchasing, and installing metering equipment, further described in section B.4.
- 4.3. The IC will be responsible to request and bear the cost of any outages required on existing transmission or distribution lines.

5. DESCRIPTION OF FACILITIES INCLUDED IN THE FACILITIES STUDY

- 5.1 TSS 951 Aurora Energy Center Substation Upgrades (N8133.1)
- 5.2 TSS 144 Wayne Upgrades (N8133.2)
- 5.3 TSS 111 Electric Junction Upgrades (N8133.3)
- 5.3 Meter Installs and Support

6. TOTAL COSTS OF TRANSMISSION OWNER FACILITIES INCLUDED IN FACILITY STUDY

The estimated total cost of AG1-513 project is shown below. The developer is ultimately responsible for all ComEd costs incurred on the project. ComEd's estimates will be revised as the project progresses.

Network Upgrade	Site Location	Direct Material	Material Indirect	Direct Labor	Labor Indirect	Total Project Cost	Section
N8133.1	Non-Direct Connection: Relay Upgrades at TSS951	\$12,300	\$679	\$204,571	\$74,171	\$291,721	B1.1.1
N8133.2	Non-Direct Connection: Relay Upgrades at TSS144	\$12,300	\$679	\$161,213	\$58,450	\$232,642	B1.1.2
N8133.3	Non-Direct Connection: Relay Upgrades at TSS111	\$12,300	\$679	\$152,923	\$55,445	\$221,346	B1.1.3
	Attachment Facility: Meter Installs and Support	\$12,300	\$679	\$129,142	\$46,822	\$188,943	B4
	TOTAL COST					\$934,652	
	Additional for Gross Up Tax					\$106,448	

NOTE: Costs are based on 2022 rates and do not reflect potential increase of labor or material costs.

7. SUMMARY OF MILESTONE SCHEDULES FOR COMPLETION OF WORK INCLUDED IN FACILITY STUDY

Description	Schedule
Notice to Proceed (ISA and CSA signed with security deposit)	Day 1
Instrument transformers and wire feeds installed for metering (by IC)	Day 100
ComEd meters installed and tested (by ComEd)	Day 465
Relay settings updated (by ComEd)	Day 465

The above Milestone Schedule starting date is when the Interconnection Services Agreement and the Construction Services Agreement (if applicable) is executed and deposit received. The schedules are based upon the assumption that the CPCN from the ICC will not be required. The exact Milestone Schedule will be negotiated and determined upon the execution of the Interconnection Services Agreement and Construction Services Agreement.

B. TRANSMISSION OWNER (COMED) FACILITIES STUDY RESULTS

1. NON-DIRECT CONNECTIONS

1.1 Relay Upgrades

1.1.1 TSS 951 Aurora Energy Center (N8133.1)

Relay settings need to be updated at TSS 951 Aurora Energy Center L95102. Connect new meters into the SCADA system at TSS 951 Aurora Energy Center.

1.1.2 TSS 144 Wayne (N8133.2)

Relay settings need to be updated at TSS 144 Wayne L14403.

1.1.3 TSS 111 Electric Junction (N8133.3)

Relay settings need to be updated at TSS 111 Electric Junction L11103.

2. DIRECT CONNECTIONS

Not Applicable

3. ATTACHMENT FACILITIES

See metering section B.4 below.

4. METERING

4.2 METERING FOR PJM AND COMED:

The Revenue Meter measures the wholesale energy output (Hourly compensated net MWH and Hourly compensated net MVARH) of the Interconnected Customer (IC) generating facility. The IC shall install all the metering equipment (CT/PT, support structures, wiring, etc), excepting the meter itself. The metering equipment shall be located at the collector substation for University Park North Energy Center, at the IC's expense.

ComEd shall install the meter itself at the collector substation for University Park North Energy Center, at the IC's expense.

IC shall own, operate, maintain, inspect, and test all the metering equipment (excepting the meter itself) as set forth in 'Testing of Metering Equipment' section of the PJM Tariff, at its expense.

ComEd shall own, operate, maintain, inspect, and test the meter itself, as set forth in 'Testing of Metering Equipment' section of the PJM Tariff, at the IC's expense.

4.1 METERING FOR PJM:

The IC shall install, own, operate, maintain, inspect, and test real-time telemetry 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 disconnects, in conformance with the requirements listed in PJM Manuals M-01 and M-14D.

4.2 METERING FOR COMED:

The AMI Meter measures the energy consumption by the IC at transmission level. The AMI Meter and all associated components shall be installed at the Interconnection Substation on the ComEd side of POI, at the IC's expense.

ComEd shall own, operate, maintain, inspect, and test all the metering equipment as set forth in the 'ComEd Interconnection Guidelines'.

4.3 The details of all metering requirements will be specified during detailed engineering. If metering equipment already exists, it may need to be replaced to accommodate this queue. Additional meters may be required such

as aux meters for power consumption at the generating facility.

- 4.4 The IC will be responsible for specifying, purchasing, and installing the instrument transformers along with the wire feeds to the meters. ComEd will review and approve IC's proposed instrument transformer equipment and shall be provided full access to metering equipment. ComEd will install and own the meters on the IC property. It is assumed that the existing fiberoptic connection from ComEd's meters to ComEd's substation will have capacity available and functional to support the additional meters. If additional fiber needs to be installed, it will be installed at IC expense.

5. ENVIRONMENTAL, REAL ESTATE, AND PERMITTING ISSUES

- 5.1 IC will be responsible for site restoration required for substation and transmission upgrades. This includes, but is not limited to road restoration/improvements, wetland restoration, and farm field restoration/crop damage. Costs associated with this are at the expense of the IC.
- 5.2 The IC will be responsible for the cost to purchase real estate or obtain the necessary right-of-way easement for all upgrades associated with this project. These associated upgrades are not included in the costs listed in this study.
- 5.3 IC will be responsible for remediation costs for locations found to have environmental contamination and remediation. This may require contaminated soil disposal as well as lead paint removal for existing structure work.
- 5.4 It is assumed that all necessary permits, easements, and fee simple acquisitions will be obtained in a timely manner to allow engineering, construction, and outages to proceed according to the Milestone Schedule.
- 5.5 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.

6. SUMMARY OF RESULTS OF STUDY

6.1 Cost Estimate:

The following estimate is a breakdown of the costs of the ComEd work for AG1-513 installations.

	Network Upgrade	Site Location	Total Project Cost	Section
Non-Direct Connection	N8133.1	Relay Upgrades at TSS951	\$291,721	B1.1.1
Non-Direct Connection	N8133.2	Relay Upgrades at TSS144	\$232,642	B1.1.2
Non-Direct Connection	N8133.3	Relay Upgrades at TSS111	\$221,346	B1.1.3
Attachment Facility		Meter Installs and Support	\$188,943	B4
		TOTAL COST	\$934,652	
		Additional for Gross Up Tax	\$106,448	

Note:

Costs are based on 2022 rates and do not reflect potential increase of labor or material costs.

¹ IL sales taxes not reflected in this cost estimate.

² Carrying charges are anticipated to be zero

6.2 Milestone Schedule

Description	Schedule
Notice to Proceed (ISA and CSA signed with security deposit)	Day 1
Instrument transformers and wire feeds installed for metering (by IC)	Day 100
ComEd meters installed and tested (by ComEd)	Day 465
Relay settings updated (by ComEd)	Day 465

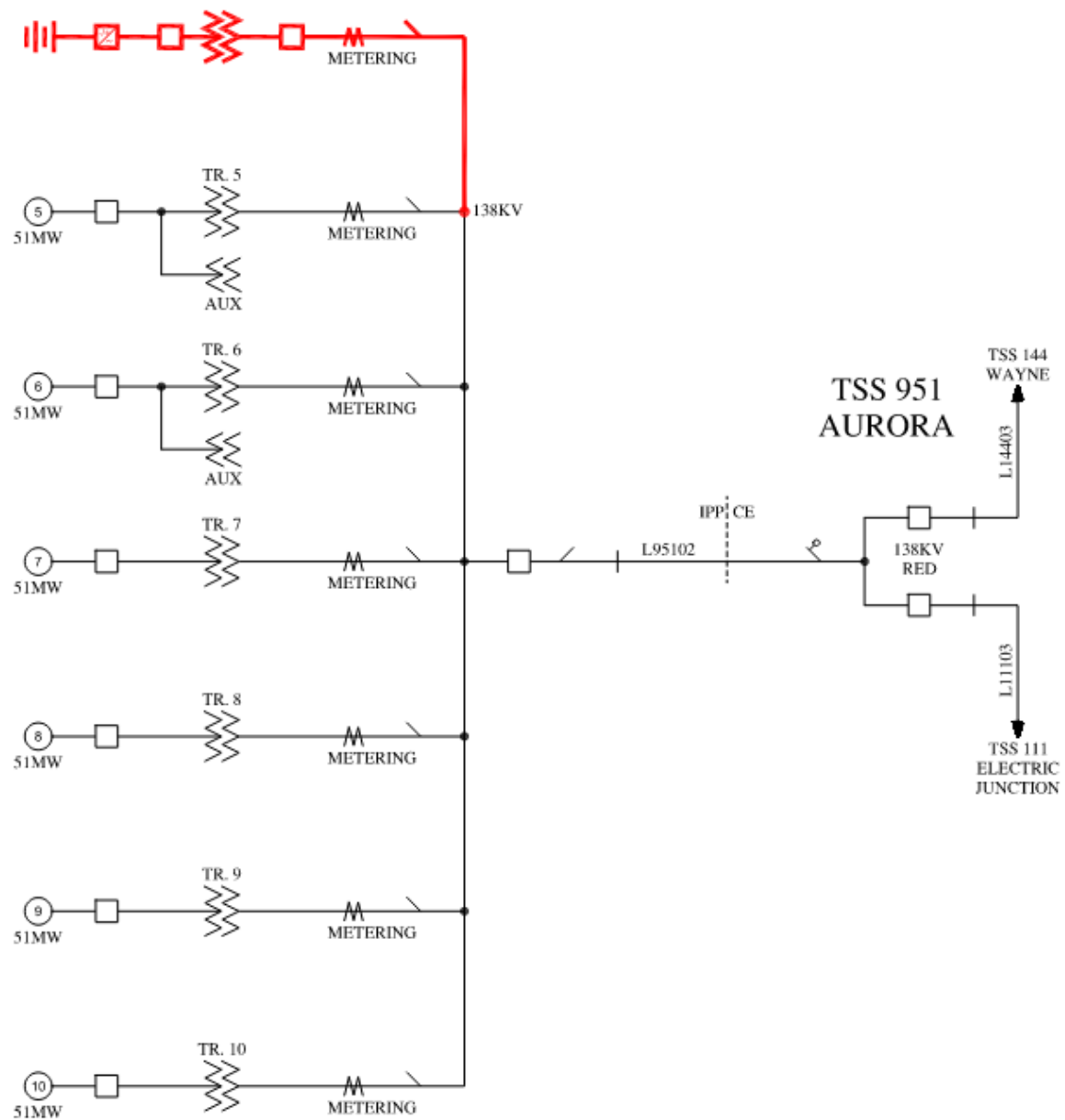
7. ASSUMPTIONS IN DEVELOPING COSTS AND SCHEDULES

- 7.1 It is assumed that all associated network upgrades, as listed in the System Impact Study, are complete prior to this queue position being placed in service.
- 7.2 The schedule is based on ISA/CSA contract being executed by all parties and deposit received.
- 7.3 ComEd cost estimates assume that work will be performed during normal weekdays and with no overtime.
- 7.4 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.
- 7.5 The IC will be responsible to request and bear 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.
- 7.6 Backfeed date identified in earlier sections is not yet approved. Formal submittal of this request to ComEd's TSO for ultimate review by PJM must be made 7 months prior to back feed request date.
- 7.7 Customer to upload as-built drawings to ComEd drawing system (Meridian).
- 7.8 Single fiber routing has not been included in this study.
- 7.9 ComEd cost and schedule estimate is valid for six (6) months after Facilities Study is submitted to PJM.
- 7.10 This study assumes that there will be no additional right-of-way and/or easements required.
- 7.11 This Facility 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 completion of a new FS.
- 7.12 All labor estimated is straight time and based on a five day work week schedule. Overtime may be required due to clearances and work hour restrictions to meeting project schedule.
- 7.13 Permitting costs included are based on historical data. Special permits may be required and are not included within the estimate.
- 7.14 Estimate reflects straight time hourly rates – no delays, strikes, constraints, or interruptions in work.
- 7.15 Material handling is included per recent figured and as applicable with maximum handling per item of \$10k.
- 7.16 Sales tax is included in all electrical material line items issued from stores, other specialty items by exception.
- 7.17 Land acquisition and ROW costs are excluded.
- 7.18 Costs assume that the site can be drained via customary stormwater drainage infrastructure. Pumps and lift stations are not included within the estimate.
- 7.19 Estimate assumes no major contamination and dewatering required.
- 7.20 All Engineering is per ComEd standards.

C. APPENDIX

Attachment #1: High Level Planning Diagram Depicting Interconnection Facilities and Points of Ownership/Demarcation

Attachment #1:
**High Level Planning Diagram Depicting Interconnection Facilities and Points of
Ownership/Demarcation**



AURORA GENERATION LLC