PJM Generation Interconnection

#AB2-070 Brokaw Lanesville

TSS 972 Alta Farms II Wind Farm

345kV

Facilities Study Report

September 2020

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A. FACILITIES STUDY INTRODUCTION

1. PROJECT DESCRIPTION

The developer, Tradewind Energy (Interconnection Customer, also referred as IC), has proposed the construction and interconnection of wind farm generation, consisting of 200MW of wind generation. This proposed wind farm located south of the town of Waynesville, Illinois (in DeWitt County) will interconnect with ComEd transmission system and consist of 100 (one-hundred), 2.0MW wind turbine generators.

The wind farm facility, including TSS 972 Alta Farms II substation, will be interconnected to Mt. Pulaski - Ameren Brokaw 345kV transmission line L18806 via construction of a new interconnection substation (TSS 909 Deer Creek substation) having three (3) 345kV circuit breakers positioned in a breaker-and-a-half configuration with the capacity to expand the 345kV bus for future generation.

The construction of the new interconnection substation will result in the splitting of the existing line into two lines on the transmission system. A new L90907 will connect TSS 909 Deer Creek to Ameren Brokaw Substation, and L18806 will connect TSS 909 Deer Creek to TSS 188 Mt. Pulaski. The proposed generation interconnection is shown on the planning diagram in Attachment #1.

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

2.1 Facility Name and In-Service Date

2.1.1 The IC's facility name is Alta Farms II.

2.1.2 Queue AB2-070 proposed in- service timeline is shown in sect. 7, Milestone Schedule.

2.2 Direct Connection Cost Estimate

2.2.1 This Facility Study was developed based on the IC choosing the "Option to Build" provision for the construction of TSS 909 Deer Creek substation. The IC is responsible for performing the design, procurement, construction and testing to install a new 345kV TSS 909 Deer Creek substation with three 345kV circuit breakers arranged in breaker-and-a-half configuration with future provision to expand (per ComEd specifications).

3. INTERCONNECTION CUSTOMER SCHEDULE

The schedule which 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 collector substation (TSS 972 Alta Farms II) will need to be coordinated with the construction of the interconnection substation (TSS 909 Deer Creek).

4. SCOPE OF WORK BY INTERCONNECTION CUSTOMER (IC)

4.1. The IC is responsible for construction of the 200 MW Wind Farm facility, which includes the following:

- One-Hundred (100) 2MW wind turbine generators
- One-Hundred (100) 0.69kV Circuit Breakers
- One-Hundred (100) Step-up transformers (Generator Setup Units, also referred as GSU's)
- Nine (9) 34.5kV circuit breakers and disconnect switches
- One (1) 34kV to 345kV main transformer (grounded wye high side)
- One (1) 345kV Circuit Breaker with Motor-Operated Disconnects
- One (1) 345kV line L97201 terminating at TSS 909 Deer Creek
- Relaying per ComEd standards

4.2. The IC has elected the "Option to Build" provision to construct TSS 909 Deer Creek substation and transfer its ownership to ComEd prior to commercial operation of AB2-070 generation.

4.3. The IC will purchase the real estate to accommodate the construction of TSS 909 Deer Creek substation.

4.4. The IC will be responsible to purchase real estate or obtain the necessary right-of-way easement to install the transmission line tap to TSS 909 Deer Creek substation.

4.5. The IC 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.

4.6. The Interconnection Customer will also be responsible for obtaining station service power separate of this scope from Ameren.

4.7. The Interconnection Customer shall provide latitude and longitude locations for all proposed wind turbines in advance of engineering the project so ComEd can coordinate the Microwave path(s) necessary to communicate with the new TSS 909 Deer Creek substation. If any proposed wind turbines are in the Microwave path, there may be considerable delays in the project deadline to mitigate any obstructions.

4.8. The Interconnection Customer shall provide and install metering equipment including 345kV optical CT/PT and bi-directional revenue grade meter, on ComEd side of the Point-of-Interconnection at TSS 909 Deer Creek substation.

The metering equipment shall be designed to measure both wholesale energy (KWH and KVARH readings) and retail energy (KWH and KVARH readings) and meet metering requirements stated in 'ComEd Interconnection Guidelines for Generators Greater than 20MW'.

ComEd will own and maintain the metering equipment. The metering equipment shall provide the following data:
a) Instantaneous net KW and KVAR values TO and FROM the generator.
b) Instantaneous Voltage value and circuit breaker status.
c) Hourly compensated KWH and KVARH values TO and FROM the generator.

The metering equipment shall be capable to transmit the real-time data to ComEd and the PJM via a SCADA RTU. The metering equipment shall comply with PJM Manuals M-01 & M-14D, and PJM tariff.

5. DESCRIPTION OF FACILITIES INCLUDED IN THE FACILITIES STUDY

5.1 TSS 909 Deer Creek Substation (n6804)

5.1.1 The IC will be responsible for performing the design, procurement, construction and testing to install a new 345kV TSS 909 Deer Creek substation with circuit breakers arranged in breaker-and-a-half configuration with future provision to expand.

5.1.2 The IC will be responsible for performing the design, procurement, construction and testing to install System 1 and System 2 line protection, System 1 and System 2 bus protection and communication systems.

5.1.3 The IC will be responsible for obtaining telephone/data circuits from the local telecommunications provider for 911 emergency locating, circuits required to be leased per local ordinances, and/or other circuits that cannot be provided via other means of communication (fire/security alarm notification, SCADA, and revenue metering).

5.1.4 The IC will be responsible to install one (1) JMUX fiber node inside the Control Building, two (2) 125VDC battery systems, DC distribution panels, relay panels, marshalling cabinets, auxiliary AC power panels, the building HVAC system, a fire/security system, SCADA, and metering equipment. Additionally, auxiliary data communications will be installed to communicate with IC remote end for SCADA and metering purposes.

5.1.5 The IC will be responsible for the construction of a standing antenna tower inside the substation fence. ComEd will provide the details for the tower once microwave path engineering is completed for the new paths into the windfarm. A suitable microwave equipment shack immediately adjacent to the tower and two (2) 48 pair hybrid fiber optic communications cables

run between fiber distribution panels (FDPs) in each building are also the responsibility of the IC. The tower footprint consists of three foundations at the corners of a triangle approximately 30 foot on a side.

5.1.6 The Interconnection Customer will be responsible to install equipment at the Microwave Shack: 48VDC battery system, DC distribution panels, automatic throw over (ATO), aux AC power panels, building HVAC system, fire/security system, SCADA, ice bridge to the tower, external generator, and external liquid propane tank.

5.1.7 The IC will be responsible to obtain and install, Fiber and JMUX equipment inside of the Control Building for communication to microwave facilities.

5.1.8 The IC will be responsible for performing design, procurement, construction and testing to install distribution feed, a backup generator, and an Automatic Throw Over (ATO) in order to provide and 120/208VAC three (3) phase auxiliary power.

5.1.9 ComEd will provide engineering and construction oversight of the IC's scope of work to construct TSS 909 Deer Creek under "Option to Build".

5.1.10 ComEd will provide legal support related to the transfer of TSS 909 Deer Creek substation ownership from Tradewind Energy to ComEd.

5.1.11 ComEd at IC cost will procure and install Tie-Line metering on ComEd side dead-end at TSS 909 Deer Creek for new line L90907 Deer Creek-Brokaw.

5.1.12 ComEd at IC cost will procure, install, own and maintain the AMI meter including 345kV optical CT/PT on ComEd side of the point-of-interconnection at TSS 909 Deer Creek substation for retail metering.

5.2 Transmission Line Cut-in-Tap (n6807)

5.2.1 ComEd will be responsible for performing the design, procurement, construction and testing at IC cost to install new line facilities which will connect the existing 345kV L18806 circuit to the dead-end structures of the new TSS 909 Deer Creek substation. The existing L18806 will be re-configured to L18806 between TSS 188 Mt. Pulaski and TSS 909 Deer Creek, and L90907 between TSS 909 Deer Creek and Ameren Brokaw Substation.

5.2.2 The IC will transfer the land ownership of this 345kV tap line corridor to ComEd prior to construction of the facilities. ComEd will provide legal support related to the transfer of ownership from Tradewind Energy to ComEd.

5.2.3 ComEd will be responsible to schedule and coordinate all transmission line outages necessary to make cut-in interconnect tie point connections.

5.3 Upgrade Line Relaying at Remote Substations

5.3.1 TSS 188 Mt. Pulaski (n6806)

- Relay settings will need to be updated for existing line protection for 345kV L18806.
- Radio equipment will need to be installed for communication with new microwave tower at TSS 909 Deer Creek.

5.3.2 Ameren Brokaw Substation (n6805)

- IC will be responsible for engaging Ameren to perform design, procurement, construction, and testing to upgrade existing protective relaying, SCADA, and communication equipment for new L90907 between Ameren Brokaw substation and TSS 909 Deer Creek. A separate Ameren/MISO facility study will be required to be completed at cost by the IC. Ameren design coordination is required.

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

The estimated total cost of AB2-070 project for network upgrades is **$7,705,326.** The developer is ultimately responsible for all ComEd costs incurred on the project.

NETWORK #	SITE LOCATION	TOTAL PROJECT COST	STUDY SECTION
n6804	**Engineering and Construction Oversight of TSS 909 Deer Creek**	**$1,999,290**	**A5.1 & B3.1**
n6807	**Transmission Line Cut-in Tap into TSS 909 Deer Creek**	**$4,994,337**	**A5.2 & B2.1**
n6806	**Relay and Protection Work at TSS 188 Mt. Pulaski**	**$172,948**	**A5.3.1 & B4.1**
n6805	**Brokaw Oversight/Coordination**	**$90,675**	**A5.3.2 & B4.2**
n6808	**TSS 95 Chestnut – Comm Upgrade**	**$224,038**	**B4.3**
n6809	**Wapella Site – Comm Upgrade**	**$224,038**	**B4.3**
	Total Cost of ComEd Work	**$7,705,326**	

NOTE: Costs are based on 2020 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	Start	Finish
ISA Approval	Day 1	Day 90
Prepare Project Diagram & Specifications	Day 91	Day 195
Project Design	Day 196	Day 425
Material Procurement	Day 350	Day 500
Tie-In Construction at TSS 909	Day 501	Day 650
Acceptance Testing at TSS 909	Day 651	Day 800

The above Milestone Schedule is based on the Interconnection Services Agreement and the Construction Services Agreement (if applicable) to be executed. 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 Construction Services Agreement. ComEd will make every effort to expedite approvals and execution to accommodate the IPP request. However, ComEd is committing to the above schedule.

B. TRANSMISSION OWNER (COMED) FACILITIES STUDY RESULTS

1. TRANMISSION LINES -NEW

1.1 Not applicable.

2. TRANSMISSION LINES - UPGRADES

2.1 Transmission Line Cut-in-Tap (n6807)

2.1.1 ComEd will be performing the design, procurement, construction and testing to install new line facilities at the TSS 909 Deer Creek substation. ComEd will be responsible for all line work up to the 345kV dead-ends at the TSS 909 Deer Creek substation.

2.1.2 It is feasible to cut-in the existing single circuit 345kV L18806 at the proposed location of the new TSS 909 interconnection. This splits the existing 345kV line into L90907 to Ameren Brokaw Substation and L18806 to Mt. Pulaski. With the information presently available it is determined that the cut-in will be near existing overhead transmission steel h-frame structures #385 and #386.

2.1.3 Description of Proposed Cut-In Configuration:

Cut-in to existing single circuit 345kV L18806 and Install Two Steel Poles:

Two new 70' steel cut-in poles will be installed in the span between existing h-frames #385 and #386. The first (north) steel pole cut-in will be installed approximately 540 ft southwest of existing h-frame #385 in-line with the existing alignment. The second (south) single steel pole cut-in will be installed approximately 615' northeast of existing h-frame #386 in line with the existing alignment.

L18806 & L90907 New Steel Poles:

L18806 to Mt. Pulaski will connect to the new TSS 909 Deer Creek substation from the north steel cut-in pole to a ComEd standard EM60013(1T) A-Frame deadend approximately 185' east of the north cut-in pole. Additionally, L90907 to Ameren Brokaw Substation will connect to the new TSS 909 Deer Creek substation from the south steel cut-in pole to a ComEd standard EM60013(1T) A-Frame deadend approximately 300' east of the south cut-in pole. The new cut-in poles will be installed on the existing L18806 centerline with an existing right-of-way width of 145 feet. The new conductor will be 1277 kcmil ACAR and the new shield wire will be 7#6 alumoweld to match existing. These new spans will both be horizontally oriented.

Note: This transmission layout is based on the point of interconnection coordinate provided in the "Alta Farms II Switchyard & Substation Layout" drawing. If the location of the substation must be shifted, then the locations, heights, and the types of the steel poles needed could change. If the existing transmission corridor is rebuilt as double circuit in the future, then the cut-in structures will need to be replaced at different locations.

The addition of new transmission structures as detailed in this section will be dependent upon ComEd's ability to gain additional easement and/or lease rights necessary within the project's schedule. Should additional real estate purchases, easement updates or lease agreements be necessary, the project schedule will be updated with a new Tie-In Construction at TSS 909.

2.1.4 ComEd will be responsible to perform detailed site-specific survey of existing 345kV L18806 to complete final design.

3. NEW SUBSTATION / SWITCHYARD FACILITIES

3.1 TSS 909 Deer Creek Substation (n6804)

ComEd will review and provide oversight of the Interconnection Customer's "option to Build" design, procurement, construction, and testing of ComEd's new 345kV interconnection substation at TSS 909 Deer Creek having the following equipment (per ComEd design & construction standards):

3.1.1 Three (3) 345kV line dead end structures with testing to check phasing and identification is correct.

3.1.2 Nine (9) 345kV motor operated disconnect switches (includes two (2) line side, six (6) on both sides of all three (3) bus circuit breakers, and one (1) on ComEd Bus 2 line to wind farm 345kV circuit breaker.

3.1.3 Three (3) Siemens 345kV, 2.0-cycle IPO, 3000A, 63kA SF6 gas circuit breakers

3.1.4 A 345kV expandable control building to accommodate System 1 and System 2 batteries, battery chargers, DC panels, protective relaying equipment, one (1) JMUX node, communication equipment, SCADA equipment, metering equipment, marshalling cabinet, aux AC power panels, building HVAC system, and fire/security system.

3.1.5 A Digital Microwave tower and microwave equipment shack.

3.1.6 Foundations and structures for all new equipment.

3.1.7 Two Terminal Line protection:

<u>Protective relaying for 345kV line L18806</u>

System 1 Protection: System 1 protection will utilize a SEL-411L relay with a current differential scheme, communicating via digital microwave between the Transmission terminals. System 1 will also utilize Direct Transfer Trip (DTT) and Breaker Failure Transfer Trip (BFTT) via digital microwave.

System 2 Protection: System 2 protection will utilize a SEL-311C relay set up as directional comparison blocking (DCB) relaying, communicating via Powerline Carrier between the Transmission terminals. System 2 will also utilize BFTT via Stop Block.

Breaker failure protection: Install one SEL-451 relay for breaker failure protection, manual close supervision, and auto reclose function. Also include an SEL-351A relay for auto reclose on adjacent line.

<u>Protective relaying for 345kV line L90907</u>

System 1 Protection: System 1 protection will utilize a SEL-411L relay with a current differential scheme, communicating via digital microwave between the Transmission terminals. System 1 will also utilize Direct Transfer Trip (DTT) and Breaker Failure Transfer Trip (BFTT) via digital microwave.

System 2 Protection: System 2 protection will utilize a SEL-311C relay for set up as directional comparison blocking (DCB) relaying, communicating via Powerline Carrier between the Transmission terminals. System 2 will also utilize BFTT via Stop Block.

Breaker failure protection: Install one SEL-451 relay for breaker failure protection, manual close supervision, and auto reclose function. Also include an SEL-351A relay for auto reclose on adjacent line.

<u>Protective relaying for 345kV line L97201</u>

SEL-411L relay for System 1, SEL-311L for System 2 for current differential schemes over segregated fibers.
System 1 and System 2 fiber cables will be routed in separate ducts or static wires from the collector substation of the Windfarm to TSS 909 Deer Creek. The fiber optic cables will be owned and maintained by the IC, and ownership will terminate at the fiber distribution panel at TSS 909 Deer Creek.

3.1.8 3-phase, 3000:1 CCVT's on 345kV Buses 1, 2, and 3 to be used for System 1 Primary and System 2 Back-up Relay protection and BT synch check.

3.1.9 345kV Bus protection will utilize a dual SEL-487B bus differential package for System 1 and System 2.

3.1.10 Distribution feed for three (3) phase auxiliary station power, a backup generator, and an ATO.

3.2 TSS 972 Alta Farms II

The IC will be responsible for performing design, procurement, construction and testing of the following equipment at TSS 972 Alta Farms II:

3.2.1 Nine (9) 34.5kV circuit breakers and disconnect switches.

3.2.2 One (1) 34kV to 345kV main transformer (grounded wye high side).

3.2.3 One (1) 345kV Circuit Breaker and Motor-Operated Disconnect.

3.2.4 One (1) 345kV line L97201 terminating at TSS 909 Deer Creek (distance to be determined)

3.2.5 Foundations and structure for all equipment.

3.2.6 Conduits and Pedestal boxes.

3.2.7 Relaying and associated equipment per ComEd standards.

3.2.8 The IC will be responsible for installing the two (2) fiber paths between TSS 972 Alta Farms II and TSS 909 Deer Creek for 345kV L97201 relaying.

4. UPGRADES TO EXISTING SUBSTATION / SWITCHYARD FACILITIES

ComEd will be responsible for performing design, procurement, construction and testing to upgrade existing protective relaying, SCADA and communication equipment for 345kV L18806 from Mt. Pulaski and 345kV L90907 from Ameren Brokaw Substation to new TSS 909 Deer Creek substation. Digital microwave equipment at TSS 95 Chestnut and Wapella Microwave site will need to be updated for addition of facilities at TSS 909 Deer Creek.

4.1 At TSS 188 Mt. Pulaski for 345kV L18806: (n6806)

345kV L18806 was previously installed with an SEL-411L and SEL-311C relaying package. These relays will need their settings updated. But, will not require any upgrades.

4.2 At Ameren Brokaw Substation for new 345kV L90907: (n6805)

IC will be responsible for engaging Ameren to perform design, procurement, construction, and testing to upgrade existing protective relaying, SCADA, and communication equipment for new L90907 between Ameren Brokaw substation and TSS 909 Deer Creek. A separate Ameren/MISO facility study will be required to be completed at cost by the IC. Ameren design coordination is required

4.3 Communication Work: (n6808 and n6809)

ComEd will design and procure new digital microwave dishes required for communication at TSS 95 Chestnut and the Wapella Microwave site.

5. METERING

5.1 For PJM:

IC will be required to install equipment necessary to provide Revenue Metering (kWH, kVARH) and real time data (kW, kVAR) for interconnection customer's generating resource. See PJM Manuals M-01 & M-14D, and PJM tariff. ComEd shall be provided full access to metering equipment.

5.2 For ComEd:

IC will be required to 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 IC's generating resource. See ComEd applicable standards available on the PJM website (TO Standards). Optical metering will be installed to eliminate the need for individual metering at each individual wind turbine site. Optical metering has the ability to record both the large outflow of power generation and the sometimes small inflow of auxiliary power requirements of individual wind turbines. It is assumed that required analog and digital communication circuits will be available and obtainable from the Local Telecommunication Provider to meet the Milestone Schedule. ComEd shall be provided full access to metering equipment.

5.3 ComEd at IC cost will procure, install, own and maintain the AMI meter including 345kV optical CT/PT on ComEd side of the point-of-interconnection at TSS 909 Deer Creek substation for retail metering.

6. ENVIRONMENTAL, REAL ESTATE, AND PERMITING

6.1 IC will be responsible to obtain environmental approvals required for the construction of 345kV TSS 909 Deer Creek substation.

6.2 IC will be responsible for any remediation costs if location is found to have environmental contaminations.

6.3 The IC will purchase the real estate to accommodate the construction of 345kV TSS 909 Deer Creek substation. IC is responsible to purchase a 775' x 440' site to construct TSS 909 Deer Creek substation. The site should be expandable to 775' x 880'. Site shall not encroach on ComEd ROW.

6.4 The IC will be responsible to purchase real estate or obtain the necessary right-of-way easement to install the transmission line tap to 345kV TSS 909 Deer Creek substation.

6.5 IC will be responsible for cost incurred if Army Corps of Engineers, county, and/ or municipal permits are needed including storm water permitting.

6.6 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.

6.7 It is assumed that conveyance of property and rights will be obtained to support the PJM Transmission Outage Schedule.

6.8 It is assumed that the required Environmental Study will yield no impediments to the development of the site.

7. SUMMARY OF RESULTS OF STUDY

7.1 Cost Estimate:

The following estimate is a breakdown of the costs of the ComEd work for #AB2-070 network upgrades.

NETWORK #	SITE LOCATION	Direct Material	Indirect Material	Direct Labor	Indirect Labor	TOTAL PROJECT COST
n6804	**Engineering and Construction Oversight of TSS 909 Deer Creek**	$0	$0	$1,554,797	$444,492	**$1,999,289**
n6807	**Transmission Line Cut-in Tap into TSS 909 Deer Creek**	$1,236,156	$145,051	$2,809,841	$803,289	**$4,994,337**
n6806	**Relay and Protection Work at TSS 188 Mt. Pulaski**	$3,589	$421	$131,379	$37,559	**$172,948**
n6805	**Brokaw Coordination**	$0	$0	$70,516	$20,159	**$90,675**
n6808	**TSS 95 Chestnut – Comm Upgrade**	$29,909	$3,510	$148,240	$42,380	**$224,039**
n6809	**Wapella Site – Comm Upgrade**	$29,909	$3,510	$148,240	$42,380	**$224,039**
Total Cost of ComEd Work		**$1,299,563**	**$152,492**	**$4,863,013**	**$1,390,259**	**$7,705,327**

Note:

Costs are based on 2020 rates and do not reflect potential increase of labor or material costs.

[1] IL sales taxes not reflected in this cost estimate.

7.2 Milestone Schedule

Description	Start	Finish
ISA Approval	Day 1	Day 90
Prepare Project Diagram & Specifications	Day 91	Day 195
Project Design	Day 196	Day 425
Material Procurement	Day 350	Day 500
Tie-In Construction at TSS 909	Day 501	Day 650
Acceptance Testing at TSS 909	Day 651	Day 800

8. ASSUMPTIONS IN DEVELOPING COSTS AND SCHEDULES

8.1 Cost Estimates are based on the IC agreement of the "option to build" the interconnection substation, TSS 909 Deer Creek. The ComEd estimate does not include costs to design and construct TSS 909 Deer Creek substation as described in IC scope of work. The Schedule start date is based on ISA/CSA contract being executed by all parties and deposit received.

8.2 Cost Estimates assume that work will be performed during normal weekdays and with no overtime.

8.3 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. Additionally, the line being tapped will require coordination with Ameren who may also have outage limitations.

8.4 A CPCN from the ICC will not be required for installation of ComEd interconnection to the new TSS 909 Deer Creek.

8.5 Foundation design assumes typical soil conditions at locations and will be subject to change after soil boring tests.

8.6 COMM design assumes TSS 95 Chestnut and Wapella Microwave site can support the microwave path and accommodate new digital microwave dishes. Path survey and detailed engineering to confirm the proposed design are feasible.

8.7 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 turbines, rotors, turbine structures, cranes, etc.

8.8 Customer to upload as- built drawings to ComEd drawing system (Meridian)

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

8.10 IC is assumed to be responsible for obtaining station aux and emergency service power.

C. APPENDIX

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

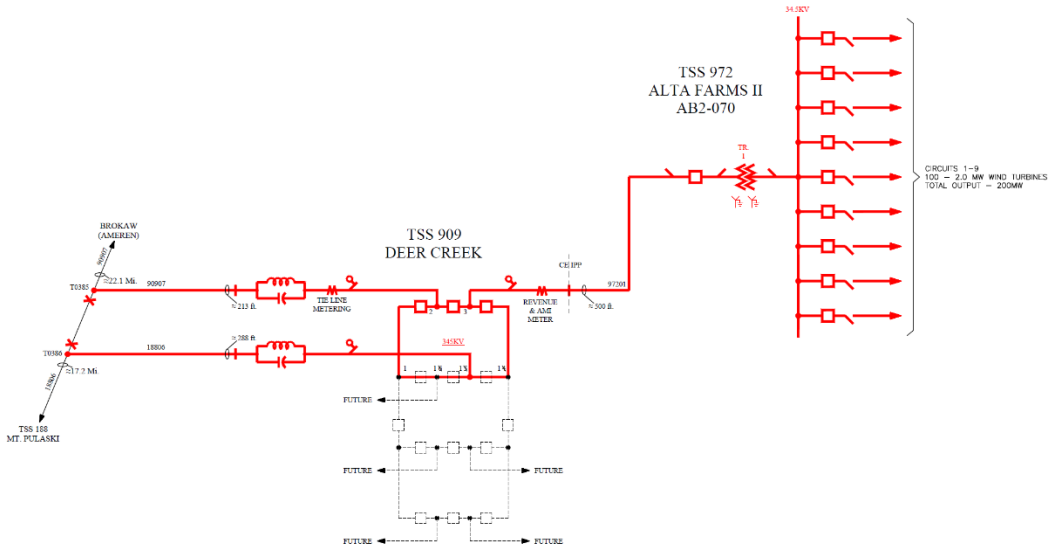
Attachment #2: Real Estate Map Layout

Attachment #3: Real Estate Requirements

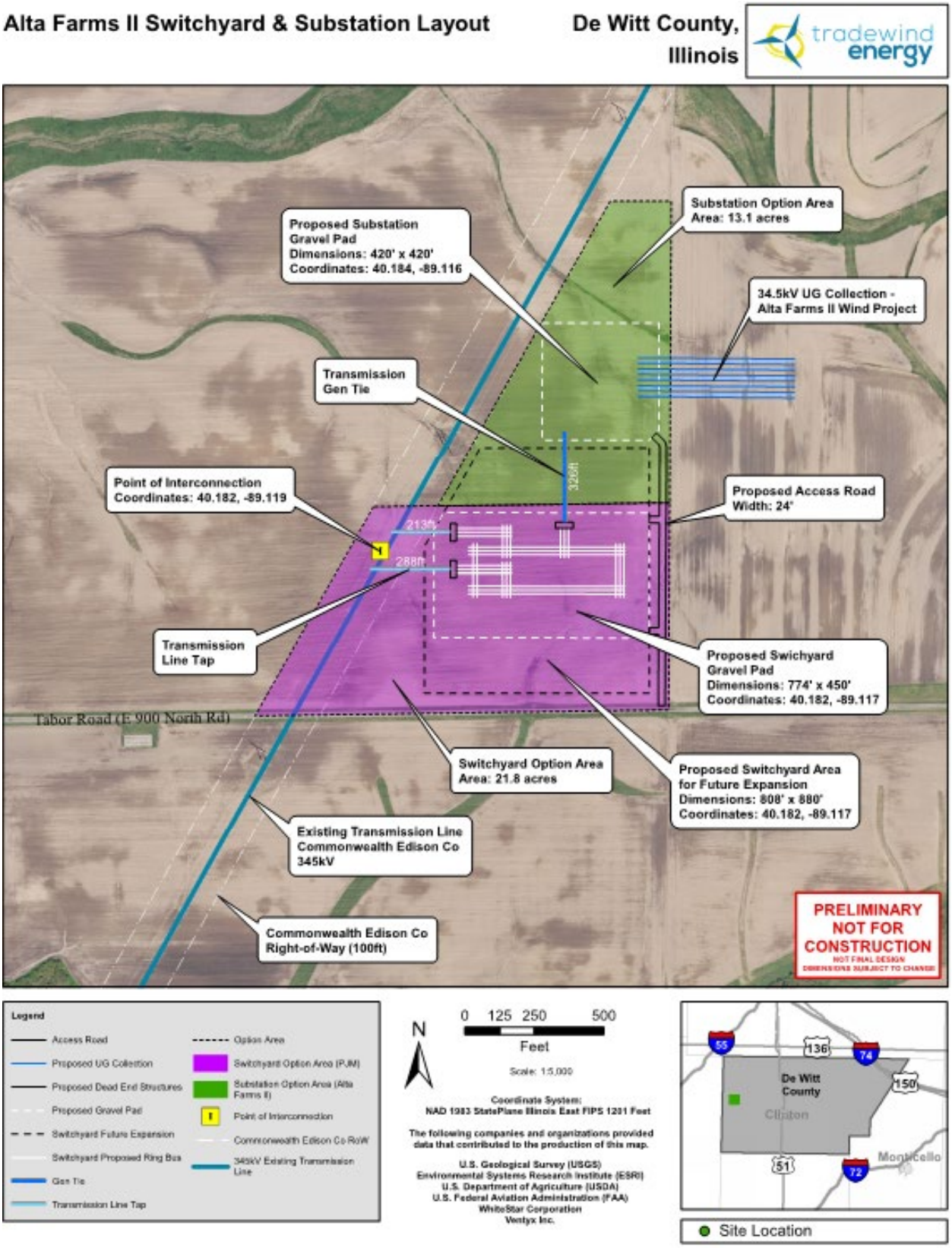
Attachment #4: TSS 909 Deer Creek – General Arrangement 345kV Substation (SK909E-1000)

Attachment #1:

High Level Planning Diagram Depicting Interconnection Facilities and Points of Ownership/Demarcation



Attachment #2: Real Estate Map Layout



Attachment #3: Real Estate Requirements (IC, Wind Farm Generators, WFG)

It is the WFG's responsibility to purchase property, acquire rights, and obtain any required permits for the transmission, distribution, and or communication lines required to interconnect its generation. In addition, the WFG will grant to COMED such rights and interests as may be reasonably necessary to interconnect the generation facilities and associated network upgrades to the COMED system. Real estate transactions will be determined by the type of interconnection configuration employed, which may include:

Conveyance of fee simple ownership to COMED for a switchyard.

Conveyance of perpetual easements (exclusive and nonexclusive) associated with the switchyard including, but not limited to, access, drainage, and such overhead and underground facilities as COMED may reasonably require for the construction, use, maintenance, and operation of the switchyard.

Conveyance and or acquisition of perpetual easements (exclusive and nonexclusive) and or other property rights for all purposes of interconnecting the generation facilities and associated network upgrades with the COMED transmission, distribution and communication systems, including such overhead and underground electrical and related communications, transmission and distribution facilities.

In each of the three transaction scenarios outlined above, or any combination thereof, the WFG will be responsible for executing and delivering all documentation requested by COMED, which may include deeds, easements, purchase agreements, assignments, affidavits, certifications, statements and releases, and for providing a title policy, with the appropriate endorsements, covering the rights and interests conveyed.

COMED will grant to the WFG, subject to engineering review and approval, easement rights or consents, as applicable, for:

Perpendicular crossings of COMED transmission / distribution right of way to accommodate facilities such as roadways and various utilities.

ComEd Scope

COMED will provide the following:

Real estate forms of agreement, which incorporate terms and conditions that reflect COMED's standard business practices.

Engineering review of proposed WFG facilities that involve real estate and/or right of way in which COMED has an interest.

WFG Scope

It is imperative, when the WFG is required by the scope of a project to provide information, that the deliverables itemized below be received by COMED as soon as possible. This will facilitate a timely review and will allow COMED to address the real estate aspects of the project in a timely manner.

The WFG is responsible for providing the following:

The following current information covering all interests and rights to be conveyed to COMED:

- Title Policy/Commitment.
- Copies of all recorded documents listed in above-mentioned Title Policy/Commitment.
- ALTA/ACSM Land Title Survey, which will include adjoining Exelon property, if applicable.

- Phase I Environmental Assessment Report (Phase 2 also if there is a fee conveyance to COMED) and any other environmental reports, notifications and documents as required. WFG to utilize only contractors approved by ComEd Environmental department for this work.
- Wetland Delineation reports. WFG to utilize only contractors approved by ComEd Environmental department for this work
- Annexation Agreement(s), zoning changes or other governmental agreements or approvals entered or proposed for the Project.
- All jurisdictional permits, such as special use and building permits, that have been issued for the project or copies of pending applications that relate to or affect property in which COMED has or will have a right or interest.
- Detailed civil engineering drawings showing the proposed site plan, layout, drainage, access and facilities.

Additional information may also be required, depending on specific project requirements. Requests for such information will be transmitted to the WFG during project development

IPP REAL ESTATE CHECKLIST

DUE DILIGENCE CHECKLIST – PROPERTY TO BE CONVEYED

Note: This list is somewhat project specific and is offered as a guide. All of the information listed is to be submitted by the IPP developer as available during project development. Real Estate & Facilities and Legal will determine what information is required on a project specific basis.

	Item/Document
1.	Title Documents a. Copy of the Policy or Commitment b. Copies of all Schedule B exception documents
2.	Environmental Documents a. Phase 1 Environmental Assessment report (and Phase II Environmental Assessment report, if necessary) b. Wetland delineation report c. Other pertinent reports, notifications and approvals
3.	Zoning/Subdivision Documents a. Copies of any permits that have been issued (special use, building, access, etc.) or pending applications
4.	Land survey(s) with legal description(s)
5.	Site plan, layout drawing(s)

SWITCHYARD/SUBSTATION CONVEYANCE CLOSING CHECKLIST

Note: Several of the items/documents below require due diligence documentation, for example, Items 3 through 5.

	Item/Document	Party Responsible
1.	Purchase and Sale Agreement	ComEd Form
2.	Deed a. Legal Description b. Plat Act Affidavit, if necessary	IPP IPP IPP
3.	Bill of Sale a. List of Personal Property	IPP IPP
4.	Assignment of Contracts and Permits a. List of Contracts and Permits	ComEd Form IPP
5.	Assignment of Warranties (General) a. List of Purchase Orders	ComEd Form IPP
6.	Assignment of Warranties (Primary Contractor(s))	ComEd Form
7.	Copies of all Construction and Development Contracts and Purchase Orders	IPP

8.	Copies of all plans, specifications, operating manuals and warranties	IPP
9.	Copies of any permits necessary for the ownership, construction and use of the Substation, including: a. Certificate of Occupancy b. Driveway / Curb Cut / Access Permits c. Building Permit for Substation d. Drainage Permits	IPP
10.	Transmission Easement (if necessary)	ComEd Form
11.	Drainage Easement (if necessary)	ComEd Form
12.	Electrical (Distribution) Easement (if necessary)	ComEd Form
13.	Fiber Optic Easement (if necessary)	ComEd Form
14.	Ingress-Egress Easement (if necessary)	ComEd Form
15.	Illinois Transfer Tax Declaration (and any local or county declarations, if necessary)	IPP
16.	As-built ALTA Survey	IPP
17.	Title Commitment / Policy (including all endorsements)	IPP
18.	Copies of all underlying title documents	IPP
19.	FIRPTA Certificate	IPP
20.	ALTA Statement	IPP
21.	Gap Undertaking	IPP
22.	Any documents required by the title company to issue affirmative mechanic's lien coverage in favor of ComEd	IPP
23.	Closing Statement	ComEd/IPP
24.	Certified IPP/Corporate or Partnership Authority, Organizational and Good Standing documents	IPP
25.	Plat of Subdivision (formally subdividing the ComEd parcel from the IPP Parcel), if necessary	IPP
26.	Copy of any Annexation Agreement, Redevelopment Agreement, Economic Incentive Agreement or similar document affecting the IPP property, and all related documents	IPP
27.	Comfort letter from municipality regarding zoning, subdivision and land use issues	IPP
28.	Copies of applicable zoning ordinances and maps, and subdivision ordinances and maps	IPP
29.	Release and Subordination documents from IPP's lender (if any) with respect to substation and ComEd's easements	IPP
30.	Any necessary consents for consummation of transaction	IPP

Attachment #4: TSS 909 Deer Creek – General Arrangement 345kV Substation (SK909E-1000)