Revised

Generation Interconnection

System Impact Study Report

for

Queue Project AE2-000 (AE1-020)

OYSTER CREEK 230 KV

229.3 MW Capacity / 816 MW Energy

December 2021

Revision 3

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1 Introduction

This System Impact Study has been prepared in accordance with the PJM Open Access Transmission Tariff, 205, as well as the System Impact Study Agreement between the Interconnection Customer (IC), and PJM Interconnection, LLC (PJM), Transmission Provider (TP). The Interconnected Transmission Owner (ITO) is JCPL.

2 Preface

The intent of the System Impact Study is to determine a plan, with approximate cost and construction time estimates, to connect the subject generation interconnection project to the PJM network at a location specified by the Interconnection Customer. As a requirement for interconnection, the Interconnection Customer may be responsible for the cost of constructing: Network Upgrades, which are facility additions, or upgrades to existing facilities, that are needed to maintain the reliability of the PJM system. All facilities required for interconnection of a generation interconnection project must be designed to meet the technical specifications (on PJM web site) for the appropriate transmission owner.

In some instances an Interconnection Customer may not be responsible for 100% of the identified network upgrade cost because other transmission network uses, e.g. another generation interconnection or merchant transmission upgrade, may also contribute to the need for the same network reinforcement. The possibility of sharing the reinforcement costs with other projects may be identified in the Feasibility Study, but the actual allocation will be deferred until the System Impact Study is performed.

The System Impact Study estimates do not include the feasibility, cost, or time required to obtain property rights and permits for construction of the required facilities. The project developer is responsible for the right of way, real estate, and construction permit issues. For properties currently owned by Transmission Owners, the costs may be included in the study.

The Interconnection Customer seeking to interconnect a wind or solar generation facility shall maintain meteorological data facilities as well as provide that meteorological data which is required per Schedule H to the Interconnection Service Agreement and Section 8 of Manual 14D.

An Interconnection Customer with a proposed new Customer Facility that has a Maximum Facility Output equal to or greater than 100 MW shall install and maintain, at its expense, phasor measurement units (PMUs). See Section 8.5.3 of Appendix 2 to the Interconnection Service Agreement as well as section 4.3 of PJM Manual 14D for additional information.

3 Revision since September 2020 System Impact Study Report

The System Impact Study report has been updated to reflect retooled load flow and stability analysis results considering system changes including the withdrawal of AF1-101. The physical connection costs have not been modified in this revision. Final scope, cost and schedule for both the physical interconnection and network upgrades will be provided in the Facilities Study Report.

- **Load Flow:** Retooled analysis shows that the ACE portion of Network Upgrade Number n6587 is no longer needed.
- **Stability Analysis:** The updated dynamic model and parameters provided by the developer in consultation with their manufacturer significantly reduced the oscillations observed, but did not eliminate it.
  A recommendation for site specific tuning of the AE1-020 (AE2-000) project model parameters in coordination with the Interconnected Transmission Owner(s), in order to ensure that there is minimal interaction between the AE1-020 (AE2-000) STATCOM and facilities and the existing SVC's on the transmission system in close proximity.
- **Reactive Power Assessment:** AE2-000 (AE1-020) meets the reactive power requirements.

4 General

The Interconnection Customer (IC), has proposed a Offshore Wind generating facility located in Ocean County, New Jersey. The installed facilities will have a total capability of 816 MW with 229.3 MW of this output being recognized by PJM as Capacity. The proposed in-service date for this project is June 01, 2023. This study does not imply a TO commitment to this in-service date.

Queue Number	AE2-000 (AE1-020)
Project Name	OYSTER CREEK 230 KV
State	New Jersey
County	Ocean
Transmission Owner	JCPL
MFO	816
MWE	816
MWC	229.3
Fuel	Offshore Wind
Basecase Study Year	2022

Any new service customers who can feasibly be commercially operable prior to June 1st of the basecase study year are required to request interim deliverability analysis.

5 Point of Interconnection

The interconnection of the project to the JCPL system will be accomplished by constructing a new connection to the Oyster Creek 230 kV Substation, located in Ocean County, New Jersey, via a single interconnection point. The IC will be responsible for acquiring all easements, properties, and permits that may be required to construct both the associated Attachment Facilities to the POI. The project will also require Direct and Non-Direct Connection upgrades at the Oyster Creek 230 kV Substation.

Attachment 1 shows a one-line diagram of the proposed Direct Connection facilities for the AE2-000 (AE1-020) generation project to connect to the FirstEnergy ("FE") transmission system. **Attachment 2** provides the proposed location for the point of interconnection. IC will be responsible for constructing all the facilities on its side of the POI, including the Attachment Facilities which connect the generator to the FE transmission system's connection facilities.

6 Cost Summary

The AE2-000 (AE1-020) project will be responsible for the following costs:

Description	Total Cost
Attachment Facilities	$350,500
Direct Connection Network Upgrade	$0
Non Direct Connection Network Upgrades	$4,020,000
System Upgrades (Summer Peak)	$1,732,000[1]
System Upgrades (Light Load)	$0
Total Costs	**$6,102,500**

The costs provided above exclude the Contribution in Aid of Construction ("CIAC") Federal Income Tax Gross Up charge. If, at a future date, it is determined that the CIAC Federal Income Tax Gross Up charge is required, the Transmission Owner shall be reimbursed by the Interconnection Customer for such taxes.

The required Attachment Facilities and Direct and Non-Direct Connection work for the interconnection of the AE2-000 (AE1-020) generation project to the FE Transmission System is detailed in the following sections. The associated one-line with the generation project Attachment Facilities and the Primary Direct and Non-Direct Connection facilities are shown in Attachment 1.

Note: PJM Open Access Transmission Tariff (OATT) section 217.3A outline cost allocation rules. The rules are further clarified in PJM Manual 14A Attachment B. The allocation of costs for a network upgrade will start with the first Queue project to cause the need for the upgrade. Later queue projects will receive cost allocation contingent on their contribution to the violation and are allocated to the queues that have not closed less than 5 years following the execution of the first Interconnection Service Agreement which identifies the need for this upgrade.

[1] See "System Reinforcements – Summer Peak" Section for details.

7 Transmission Owner Scope of Work

The interconnection of the project to the JCPL system will be accomplished by constructing a new connection to the Oyster Creek 230 kV Substation, located in Ocean County, New Jersey, via a single interconnection point. The IC will be responsible for acquiring all easements, properties, and permits that may be required to construct both the associated Attachment Facilities to the POI. The project will also require Direct and Non-Direct Connection upgrades at the Oyster Creek 230 kV Substation.

Attachment 1 shows a one-line diagram of the proposed Direct Connection facilities for the AE2-000 (AE1-020) generation project to connect to the FirstEnergy ("FE") transmission system. **Attachment 2** provides the proposed location for the point of interconnection. IC will be responsible for constructing all the facilities on its side of the POI, including the Attachment Facilities which connect the generator to the FE transmission system's connection facilities.

7.1 Attachment Facilities

The total preliminary cost estimate for the Attachment work is given in the table below. These costs do not include CIAC Tax Gross-up.

Description	Total Cost
Install Attachment Facilities associated with Oyster Creek 230 kV Substation for (1) new POI connections for wind farm.	$ 281,600
Review drawings, nameplates, and relay settings at AE2-000 Customer Substation	$ 68,900
Total Attachment Facility Costs	**$350,500**

7.2 Direct Connection Cost Estimate

The total preliminary cost estimate for the Direct Connection work is given in the table below. These costs do not include CIAC Tax Gross-up.

Description	Total Cost
	$0
Total Direct Connection Facility Costs	**$0**

7.3 Non-Direct Connection Cost Estimate

The total preliminary cost estimate for the Non-Direct Connection work is given in the table below. These costs do not include CIAC Tax Gross-up.

Description	Total Cost
Install two new 230 kV breakers to Oyster Creek 230 kV Substation for one new POI connections for wind farm.	$ 3,586,900
Project Management.	$ 433,100
Total Non-Direct Connection Facility Costs	**$4,020,000**

8 Schedule

Based on the scope of work for the Attachment Facilities and the Direct and/or Non-Direct Connection facilities, it is expected to take a minimum of **15 months** after the signing of an Interconnection Construction Service Agreement to complete the installation. This includes the requirement for the IC to make a preliminary payment that compensates FE for the first three months of the engineering design work that is related to the Attachment Facilities. Full initial deposit is required for the Non-Direct Connection work. This assumes that there will be no environmental issues with any of the new properties associated with this project, that there will be no delays in acquiring the necessary permits for implementing the defined interconnection work and network upgrades, and that all transmission system outages will be allowed when requested.

The schedule for the required Network Impact Reinforcements will be more clearly identified in future study phases. The estimate elapsed time to complete each of the required reinforcements is identified in the "System Reinforcements" section of the report.

9 Transmission Owner Analysis

9.1 Power Flow Analysis

FE performed an analysis of its underlying transmission <100 kV system. The AE2-000 (AE1-020) project did not contribute to any overloads on the FE transmission <100 kV system.

10 Interconnection Customer Requirements

10.1 System Protection

The IC must design its Customer Facilities in accordance with all applicable standards, including the standards in FE's "Requirements for Transmission Connected Facilities" document located at: https://www.pjm.com/planning/design-engineering/to-tech-standards/private-firstenergy .

Preliminary protection requirements will be provided as part of the Facilities Study. Detailed protection requirements will be provided once the project enters the construction phase.

10.2 Compliance Issues and Interconnection Customer Requirements

The proposed Customer Facilities must be designed in accordance with FE's "Requirements for Transmission Connected Facilities" document located at: https://www.pjm.com/planning/design-engineering/to-tech-standards/private-firstenergy. In particular, the IC is responsible for the following:

1. The purchase and installation of a fully rated 230 kV circuit breaker to protect the AE2-000 generator lead line. A single circuit breaker must be used to protect this line; if the project has several GSU transformers, the individual GSU transformer breakers cannot be used to protect this line.

2. The purchase and installation of the minimum required FE generation interconnection relaying and control facilities. This includes over/under voltage protection, over/under frequency protection, and zero sequence voltage protection relays.

3. The purchase and installation of supervisory control and data acquisition ("SCADA") equipment to provide information in a compatible format to the FE Transmission System Control Center.

4. Compliance with the FE and PJM generator power factor and voltage control requirements.

5. The execution of a back-up service agreement to serve the customer load supplied from the AE2-000 generation project metering point when the units are out-of-service. This assumes the intent of the IC is to net the generation with the load.

The IC will also be required to meet all PJM, ReliabilityFirst, and NERC reliability criteria and operating procedures for standards compliance. For example, the IC will need to properly locate and report the over and under voltage and over and under frequency system protection elements for its units as well as the submission of the generator model and protection data required to satisfy the PJM and ReliabilityFirst audits. Failure to comply with these requirements may result in a disconnection of service if the violation is found to compromise the reliability of the FE system.

10.3 Power Factor Requirements

The IC shall design its non-synchronous Customer Facility with the ability to maintain a power factor of at least 0.95 leading (absorbing VARs) to 0.95 lagging (supplying VARs) measured at the high side of the facility substation transformer(s) connected to the FE transmission system.

11 Revenue Metering and SCADA Requirements

11.1 PJM Requirements

The Interconnection Customer will be required to install equipment necessary to provide Revenue Metering (KWH, KVARH) and real time data (KW, KVAR) for IC's generating Resource. See PJM Manuals M-01 and M-14D, and PJM Tariff Section 8 of Attachment O.

11.2 JCPL Requirements

The IC will be required to comply with all FE revenue metering requirements for generation interconnection customers which can be found in FE's "Requirements for Transmission Connected Facilities" document located at: https://www.pjm.com/planning/design-engineering/to-tech-standards/private-firstenergy.

12 Summer Peak Analysis

The Queue Project AE2-000 (AE1-020) was evaluated as a 816.0 MW (Capacity 229.3 MW) injection at Oyster Creek 230 kV substation in the JCPL area. Project AE2-000 (AE1-020) was evaluated for compliance with applicable reliability planning criteria (PJM, NERC, NERC Regional Reliability Councils, and Transmission Owners). Project AE2-000 (AE1-020) was studied with a commercial probability of 100.0 %. Potential network impacts were as follows:

12.1 Generation Deliverability

(Single or N-1 contingencies for the Capacity portion only of the interconnection)

None

12.2 Multiple Facility Contingency

(Double Circuit Tower Line, Fault with a Stuck Breaker, and Bus Fault contingencies for the full energy output)

ID	FROM BUS#	FROM BUS	kV	FROM BUS AREA	TO BUS#	TO BUS	kV	TO BUS AREA	CKT ID	CONT NAME	Type	Rating MVA	PRE PROJECT LOADING %	POST PROJECT LOADING %	AC|DC	MW IMPACT
8259507	206302	28OYSTER C	230.0	JCP&L	227955	CEDAR	230.0	AE	1	JC-P7-1-JCC-230-13	tower	564.0	9.47	121.85	AC	754.4

12.3 Contribution to Previously Identified Overloads

(This project contributes to the following contingency overloads, i.e. "Network Impacts", identified for earlier generation or transmission interconnection projects in the PJM Queue)

None

12.4 Steady-State Voltage Requirements

None.

12.5 Potential Congestion due to Local Energy Deliverability

PJM also studied the delivery of the energy portion of this interconnection request. Any problems identified below are likely to result in operational restrictions to the project under study. The developer can proceed with network upgrades to eliminate the operational restriction at their discretion by submitting a Merchant Transmission Interconnection request.

Note: Only the most severely overloaded conditions are listed below. There is no guarantee of full delivery of energy for this project by fixing only the conditions listed in this section. With a Transmission Interconnection Request, a subsequent analysis will be performed which shall study all overload conditions associated with the overloaded element(s) identified.

None

12.6 System Reinforcements

ID	Idx	Facility	Upgrade Description	Cost	Cost Allocated to AE2-000 (AE1-020)	Upgrade Number
8259507	1	**28OYSTER C 230.0 kV - CEDAR 230.0 kV Ckt 1**	**JCP&L:** **Project id:** N6587 **Description:** Reconductor 0.08 miles of Oyster creek – Cedar 230 kV Line transmission line. Upgrade Cedar Terminal of Oyster Creek 230 kV Substation. **Project Type :** FAC **Cost :** $1,732,000 **Time Estimate :** 10 months **Ratings :** Rate A: 1020 (FE Limit) Rate B: 1176 (FE Limit) Rate C: 1286(FE Limit) Queue: AE2-000 | MW: 754.4 | Cost %: 100% | Cost $: $1,732,000	$1,732,000	$1,732,000	N6587
			TOTAL COST	**$1,732,000**	**$1,732,000**	

Note : For customers with System Reinforcements listed: If your present cost allocation to a System Reinforcement indicates $0, then please be aware that as changes to the interconnection process occur, such as prior queued projects withdrawing from the queue, reducing in size, etc, the cost responsibilities can change and a cost allocation may be assigned to your project. In addition, although your present cost allocation to a System Reinforcement is presently $0, your project may need this system reinforcement completed to be deliverable to the PJM system. If your project comes into service prior to completion of the system reinforcement, an interim deliverability study for your project will be required.

12.7 Flow Gate Details

The following indices contain additional information about each facility presented in the body of the report. For each index, a description of the flowgate and its contingency was included for convenience. The intent of the indices is to provide more details on which projects/generators have contributions to the flowgate in question. All New Service Queue Requests, through the end of the Queue under study, that are contributors to a flowgate will be listed in the indices. Please note that there may be contributors that are subsequently queued after the queue under study that are not listed in the indices. Although this information is not used "as is" for cost allocation purposes, it can be used to gage the impact of other projects/generators. It should be noted the project/generator MW contributions presented in the body of the report are Full MW Impact contributions which are also noted in the indices column named "Full MW Impact", whereas the loading percentages reported in the body of the report, take into consideration the PJM Generator Deliverability Test rules such as commercial probability of each project as well as the ramping impact of "Adder" contributions. The MW Impact found and used in the analysis is shown in the indices column named "Gendeliv MW Impact".

12.7.1 Index1

ID	FROM BUS#	FROM BUS	FROM BUS AREA	TO BUS#	TO BUS	TO BUS AREA	CKT ID	CONT NAME	Type	Rating MVA	PRE PROJECT LOADING %	POST PROJECT LOADING %	AC|DC	MW IMPACT
8259507	206302	28OYSTER C	JCP&L	227955	CEDAR	AE	1	JC-P7-1-JCC-230-13	tower	564.0	9.47	121.85	AC	754.4

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
206360	28O CRK C1	4.8652	50/50	4.8652
206361	28O CRK C2	3.1461	50/50	3.1461
940161	AE2-000 C O1	211.9901	50/50	211.9901
940162	AE2-000 E O1	542.4100	50/50	542.4100
DUCKCREEK	DUCKCREEK	0.0415	Confirmed LTF	0.0415
CANNELTON	CANNELTON	0.0110	Confirmed LTF	0.0110
BLUEG	BLUEG	0.1804	Confirmed LTF	0.1804
G-007A	G-007A	1.0237	Confirmed LTF	1.0237
CHILHOWEE	CHILHOWEE	0.0066	Confirmed LTF	0.0066
CBM-N	CBM-N	0.0730	Confirmed LTF	0.0730
VFT	VFT	1.0255	Confirmed LTF	1.0255
TVA	TVA	0.0647	Confirmed LTF	0.0647
PRAIRIE	PRAIRIE	0.0930	Confirmed LTF	0.0930
NEWTON	NEWTON	0.0498	Confirmed LTF	0.0498
COFFEEN	COFFEEN	0.0190	Confirmed LTF	0.0190
EDWARDS	EDWARDS	0.0189	Confirmed LTF	0.0189
CHEOAH	CHEOAH	0.0185	Confirmed LTF	0.0185
TILTON	TILTON	0.0227	Confirmed LTF	0.0227
SANTEETLA	SANTEETLA	0.0054	Confirmed LTF	0.0054
SMITHLAND	SMITHLAND	0.0074	Confirmed LTF	0.0074
NYISO	NYISO	0.3132	Confirmed LTF	0.3132
COTTONWOOD	COTTONWOOD	0.0777	Confirmed LTF	0.0777
HAMLET	HAMLET	0.0224	Confirmed LTF	0.0224
UNIONPOWER	UNIONPOWER	0.0289	Confirmed LTF	0.0289
GIBSON	GIBSON	0.0075	Confirmed LTF	0.0075
CALDERWOOD	CALDERWOOD	0.0202	Confirmed LTF	0.0202
FARMERCITY	FARMERCITY	0.0126	Confirmed LTF	0.0126
TRIMBLE	TRIMBLE	0.0200	Confirmed LTF	0.0200
CATAWBA	CATAWBA	0.0137	Confirmed LTF	0.0137

12.8 Queue Dependencies

The Queue Projects below are listed in one or more indices for the overloads identified in your report. These projects contribute to the loading of the overloaded facilities identified in your report. The percent overload of a facility and cost allocation you may have towards a particular reinforcement could vary depending on the action of these earlier projects. The status of each project at the time of the analysis is presented in the table. This list may change as earlier projects withdraw or modify their requests.

Queue Number	Project Name	Status
AE2-000	Oyster Creek 230 kV	Active

12.9 Contingency Descriptions

Contingency Name	Contingency Definition
JC-P7-1-JCC-230-13	CONTINGENCY 'JC-P7-1-JCC-230-13' /* MANITOU-OYSTER CREEK 230 LINES DISCONNECT BRANCH FROM BUS 206297 TO BUS 206302 CKT 1 DISCONNECT BRANCH FROM BUS 206297 TO BUS 206302 CKT 2 END

13 Light Load Analysis

The Queue Project AE2-000 (AE1-020) was evaluated as a 816.0 MW injection at Oyster Creek 230 kV substation in the JCPL area. Project AE2-000 (AE1-020) was evaluated for compliance with applicable reliability planning criteria (PJM, NERC, NERC Regional Reliability Councils, and Transmission Owners). Project AE2-000 (AE1-020) was studied with a commercial probability of 100.0 %. Potential network impacts were as follows:

13.1 Light Load Deliverability

(Single or N-1 contingencies)

None

13.2 Multiple Facility Contingency

(Double Circuit Tower Line, Fault with a Stuck Breaker, and Bus Fault contingencies)

None

13.3 Contribution to Previously Identified Overloads

(This project contributes to the following contingency overloads, i.e. "Network Impacts", identified for earlier generation or transmission interconnection projects in the PJM Queue)

None

13.4 Potential Congestion due to Local Energy Deliverability

PJM also studied the delivery of the energy portion of this interconnection request. Any problems identified below are likely to result in operational restrictions to the project under study. The developer can proceed with network upgrades to eliminate the operational restriction at their discretion by submitting a Merchant Transmission Interconnection request.

Note: Only the most severely overloaded conditions are listed below. There is no guarantee of full delivery of energy for this project by fixing only the conditions listed in this section. With a Transmission Interconnection Request, a subsequent analysis will be performed which shall study all overload conditions associated with the overloaded element(s) identified.

None

13.5 System Reinforcements

None

13.6 Flow Gate Details

The following indices contain additional information about each facility presented in the body of the report. For each index, a description of the flowgate and its contingency was included for convenience. The intent of the indices is to provide more details on which projects/generators have contributions to the flowgate in question. All New Service Queue Requests, through the end of the Queue under study, that are contributors to a flowgate will be listed in the indices. Please note that there may be contributors that are subsequently queued after the queue under study that are not listed in the indices. Although this information is not used "as is" for cost allocation purposes, it can be used to gage the impact of other projects/generators. It should be noted the project/generator MW contributions presented in the body of the report are Full MW Impact contributions which are also noted in the indices column named "Full MW Impact", whereas the loading percentages reported in the body of the report, take into consideration the PJM Generator Deliverability Test rules such as commercial probability of each project as well as the ramping impact of "Adder" contributions. The MW Impact found and used in the analysis is shown in the indices column named "Gendeliv MW Impact".

None

13.7 Contingency Descriptions

None

14 Short Circuit Analysis

The following Breakers are overdutied:

None

15 Stability and Reactive Power

(Summary of the VAR requirements based upon the results of the dynamic studies)

15.1 Stability Analysis Executive Summary

Generator Interconnection Request AE2-000 (previously AE1-020) is for an 816 MW Maximum Facility Output (MFO) generating facility, which consists of 71 GE HAL-X 12 MW wind turbines. The AE2-000 generating facility will be located in Ocean County, New Jersey.

Project AE2-000 Oyster Creek 230 kV generation project will interconnect into the Oyster Creek 230 kV Substation, located in Ocean County, New Jersey, via a single interconnection point in the FirstEnergy ("FE") (JCPL zone) transmission system. The POI will be at a JCPL installed deadend structure at the Oyster Creek yard.

This report describes a dynamic simulation analysis of AE2-000 as part of the overall system impact study. The load flow scenario for the analysis was based on the RTEP 2022 peak load case and light load case, modified to include applicable queue projects. AE2-000 has been dispatched online at maximum power output, with approximately 0.98 and 0.97 pu voltage at the generator terminals.

AE2-000 was tested for compliance with NERC, PJM, Transmission Owner, and other applicable criteria. 111 contingencies were studied, each with a 20 second simulation time period (with 1.0 second initial run prior to any events). Studied faults included:

a) Steady state operation (Category P0);

b) Three phase faults with normal clearing time on the intact network (Category P1);

c) Single phase to ground faults with delayed clearing due to a stuck breaker (Category P4);

d) Single phase faults placed at 80% of the line with delayed (Zone 2) clearing at line end remote from the fault due to primary communications/relay failure (Category P5);

e) Single phase to ground faults with normal clearing for common structure (Category P7).

For all 111 fault contingencies tested on the 2022 peak load case and light load case:

a) AE2-000 was able to ride through the faults (except for faults where protective action trips a generator(s)).

b) Post-contingency oscillations were positively damped with a damping margin of at least 3%.

c) Following fault clearing, all bus voltages recover to a minimum of 0.7 per unit after 2.5 seconds (except where protective action isolates that bus).

d) No transmission element trips, other than those either directly connected or designed to trip as a consequence of that fault.

The updated dynamic model and parameters provided by the developer in consultation with their manufacturer significantly reduced the oscillations observed, but did not eliminate it.

A recommendation for site specific tuning of the AE1-020 (AE2-000) project model parameters in coordination with the Interconnected Transmission Owner(s), in order to ensure that there is minimal interaction between the AE1-020 (AE2-000) STACOM and facilities and the existing SVC's on the transmission system in close proximity.

15.2 Reactive Power Assessment

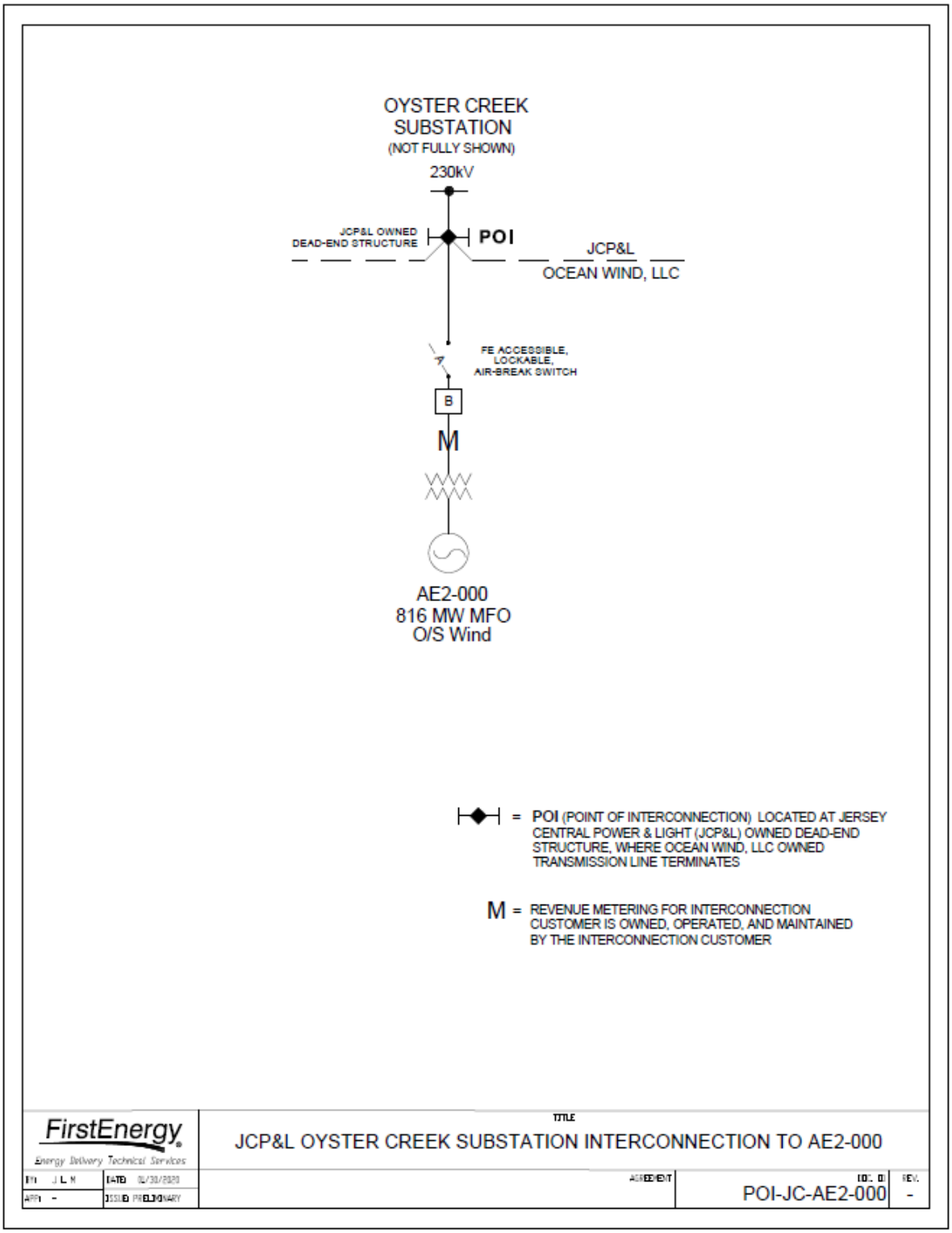
AE2-000 was assessed for compliance with reactive power capability requirements using the supplied capability curves. Please note this is a new facility.

- Generation shall have the ability to maintain a power factor of at least 0.95 leading to 0.95 lagging at the high voltage side of facility transformer.

Generator	MFO	Required pF Range		Maximum (Lagging)	Minimum (Leading)
		Lagging	Leading		
AE2-000	816	0.95	0.95		
Total MVAR Required				268.21	-268.21
MVAR from Generators				Qmax	Qmin
				587.88	-383.40
Reactive power from STATCOM(s)				290	-290
Customer Planned Compensation				60.17	-1200
Qloss				869.78	869.78
Total Available MVAR at High Side of Facility Transformer				1807.83	-1003.62
Deficiency in MVAR				**Meet**	**Meet**

The generating facility AE2-000 **meets** the reactive power requirement at the high side of facility transformers.

16 Attachment 1 – One Line



17 Attachment 2 – Project Location