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October 13, 2017

Ms. Barcy F. McNeal, Secretary
Ohio Power Siting Board
Docketing Division
180 East Broad Street, 11th Floor
Columbus, Ohio 43215-3793

Re: Case No. 16-1871-EL-BGN, In the Matter of the Application of Icebreaker Windpower Inc. for a Certificate to Construct a Wind-Powered Electric Generation Facility in Cuyahoga County, Ohio.

Supplement to Responses to Second Set of Interrogatories from Staff of the Ohio Power Siting Board

Dear Ms. McNeal:

Attached please find Icebreaker Windpower Inc.'s ("Applicant") supplemental response to question 10(g) in the Second Set of Interrogatories from the staff of the Ohio Power Siting Board ("OPSB Staff"). The Second Set of Interrogatories was provided to the Applicant on September 13, 2017. The Applicant filed responses to these interrogatories on October 2, 2017, and provided, via email, this supplemental response to OPSB Staff on October 12, 2017. At this time, the Applicant is formally filing this supplemental response, with copies to OPSB staff.

We are available, at your convenience, to answer any questions you may have.

Respectfully submitted,

/s/ *Christine M.T. Pirik*
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Cc: Stuart Siegfried
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COLUMBUS 63172-1 77664v1

Revised Generation Interconnection System Impact Study Report

For

PJM Generation Interconnection Request Queue Position Z1-035

Lake Road 138kV

October 2017

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.

General

Icebreaker Windpower Inc., the Interconnection Customer (IC), has proposed an offshore wind generating facility located in Cleveland, OH. The installed facilities will have a total capability of 18 MW with 2.34 MW of this output being recognized by PJM as capacity. The proposed in-service date for this project is December 31, 2020. **This study does not imply a CPP (Cleveland Public Power) commitment to this in-service date.**

Point of Interconnection

Z1-035 will interconnect with the Cleveland Public Power (CPP) Transmission system to the Lake Road 138kV substation, which connects to the First Energy - ATSI transmission system.

Cost Summary

The Z1-035 project will be responsible for the following costs:

Description	Total Cost
Attachment Facilities	$ 0
Direct Connection Network Upgrades	$ 0
Non Direct Connection Network Upgrades	$ 2,468,558
Allocation for New System Upgrades	$ 0
Contribution for Previously Identified Upgrades	$ 0
Total Costs	**$ 2,468,558**

Attachment Facilities

There are no Attachment Facilities required to be constructed by the Transmission Owner.

Direct Connection Cost Estimate

There are no Direct Connection Facilities required to be constructed by the Transmission Owner.

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
Lake Road 138kV substation expansion	$ 2,468,558
Total Non-Direct Facilities Cost Estimate	**$ 2,468,558**

Transmission Owner Scope of Work

The Z1-035 project will tap the Lake Road 138kV substation owned by Cleveland Public Power (CPP), which connects to the ATSI transmission system. Z1-035 is an offshore wind project with six 3.45MW wind turbines to be located in Lake Erie approximately 7 miles offshore northwest of downtown Cleveland, OH in the Cleveland Public Power (CPP) area.

To accommodate this interconnection, installation of one 138kV breaker, two disconnects, one potential transformer, metering and telecommunications will be required. The scope of work includes construction of the 138 kV switchyard and the connection to the existing CPP Lake Road 138kV substation. Please note that the CT/VT metering unit for CPP revenue metering is included in the scope of work for the Icebreaker Substation and not the Ring Bus Expansion.

The CPP Ring Bus Expansion shall include:

- One (1) 138kV Circuit Breaker
- Two (2) disconnects for circuit breaker isolation
- Two (2) poles for carrying two (2) 138kV overhead lines from existing CPP substation
- Three (3) steel H-Frame structures for ring bus expansion. All cross members shall have provisions for mounting future disconnects in each bay similar to what is shown on drawings in Appendix 5 (Drawings and Specifications).
- Overhead strain bus conductor and aluminum bus bar
- Bus supports as required
- 138kV pothead cable terminations and support structure for 138kV underground connection to the Icebreaker substation
- Fencing as shown on design drawings with gates suitable for future transformer delivery and removal

- All necessary clamps, conductors and attachments as required for a fully functioning system
- Complete grounding system as defined by the Contractor's ground system study
- Lighting to meet code requirements
- Static system tied into the existing CPP substation
- Station service and auxiliary power as required
- All duct banks and electrical connections required for connection to the existing CPP control room.
- 138kV Breaker control and protective relaying panel installed in the existing CPP control room
- Foundations for all steel structures and equipment
- Ground system testing and verification
- Removal of existing static mast and line
- Removal of existing structural steel on the rear of the CPP Lake Road substation
- Removal of existing structural steel support steel foundations on the rear of the Lake Road substation
- Removal of existing abandoned coal handling building and adjacent concrete area
- Removal of existing asphalt containment area stored equipment
- Removal of existing debris pile

Transmission Owner Schedule

The time required to complete the scope of work once demolition/construction begins is 9 months.

Revenue Metering and SCADA Requirements

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 Sections 24.1 and 24.2.

The PJM Revenue Metering Requirements may be found at the following link:

http://www.pjm.com/planning/design-engineering/to-tech-standards.aspx

CPP Requirements

The Interconnection Customer will be required to comply with all CPP Revenue Metering Requirements for Generation Interconnection Customers.

Network Impacts

The Queue Project Z1-035 was studied as a 18.0 MW (2.3 MW Capacity) injection CPP Lake Rd 138kV substation in the CPP area. Project Z1-035 was evaluated for compliance with applicable reliability planning criteria (PJM, NERC, NERC Regional Reliability Councils, and Transmission Owners). Project Z1-035 was studied with a commercial probability of 100%. Potential network impacts were as follows:

Generator Deliverability

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

None.

Light Load Analysis

Light Load Studies to be conducted during later study phases (applicable to wind, coal, nuclear, and pumped storage projects).

None.

Multiple Facility Contingency

(Double Circuit Tower Line contingencies were studied for the full energy output. The contingencies of Line with Failed Breaker and Bus Fault will be performed for the Impact Study.)

None.

Short Circuit

(Summary of impacted circuit breakers)

None.

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.

Steady-State Voltage Requirements

(Summary of the VAR requirements based upon the results of the steady-state voltage studies)

None.

Stability and Reactive Power Requirement for Low Voltage Ride Through

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

No mitigations were found to be required.

See Attachment 2 for the Dynamic Simulation Analysis Study.

New System Reinforcements

(Upgrades required to mitigate reliability criteria violations, i.e. Network Impacts, initially caused by the addition of this project generation)

None.

Contribution to Previously Identified System Reinforcements

(Overloads initially caused by prior Queue positions with additional contribution to overloading by this project. This project may have a % allocation cost responsibility which will be calculated and reported for the Impact Study)

None.

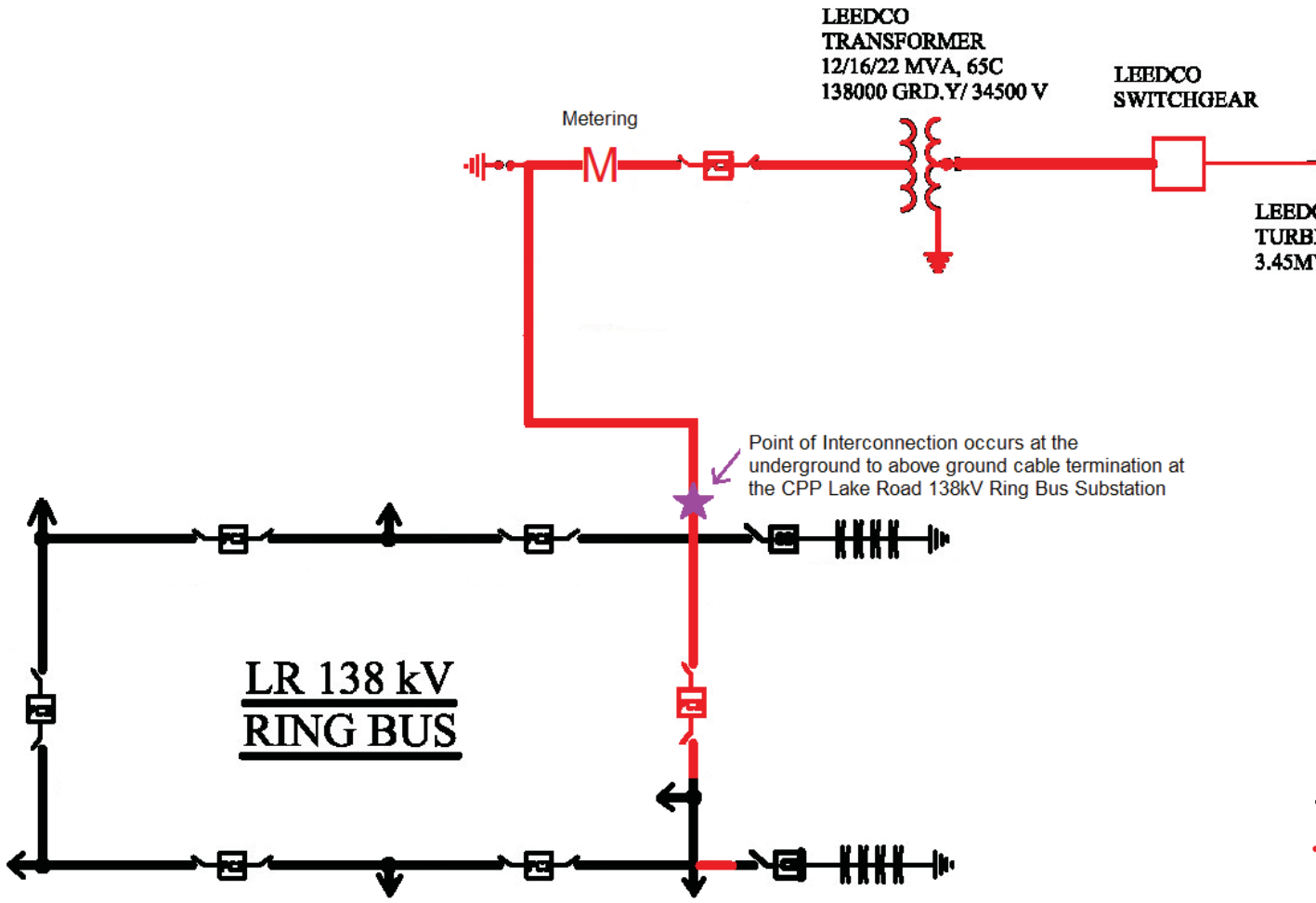
Potential Congestion due to Local Energy Deliverability

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.

Attachment 1. Single Line Diagram



Attachment 2. Dynamic Simulation Analysis

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Executive Summary

PJM queue project Z1-035 is a Generator Interconnection Request for the addition of a 18 MW wind farm consisting of 6 x 3.45 MW Vestas V126 wind turbine generators. Z1-035 has a Point of Interconnection (POI) at the Lake Road 138 kV substation in the American Transmission Systems, Inc. (ATSI) system, in Ohio. This report describes a dynamic simulation analysis of Z1-035 as part of the overall system impact study.

This report describes a dynamic simulation analysis of Z1-035 as part of the overall system impact study.

The load flow scenario for the analysis was based on the RTEP 2020 Summer Peak case, modified to include applicable queue projects. Z1-035 has been dispatched online at maximum power output, with approximately unity power factor at the POI.

The Z1-035 queue project was tested for compliance with NERC, PJM and other applicable criteria. The range of contingencies evaluated was limited to that necessary to assess compliance and each was limited to a 20-second simulation time period.

Simulated NERC Standard TPL-001faults include:

1. Three-phase (3ph) fault with normal clearing (Category P1)
2. Operating of a line section w/o a fault, Single-line-to-ground (slg) on Bus Section and Breaker. (Category P2)
3. Single-line-to-ground (slg) with delayed clearing as a result of breaker failure (Category P4)
4. Single-line-to-ground (slg) with delayed clearing as a result of protection failure (Category P5)
5. Single-line-to-ground (slg) with normal clearing for common structure (Category P7)

Note: For generator interconnection studies, Category P3 and P6 faults will be studied on an as needed basis. In this study, P2 contingencies are covered by P1 and P4 contingencies.

Other applicable criteria tested include:

1. Transmission Owner (TO) specific criteria
2. Other criteria

The system was tested for a system intact condition and the fault types listed above. Specific fault descriptions and breaker clearing times used for this study are provided in the result table.

No relevant High Speed Reclosing (HSR) contingencies were identified.

For all simulations, the queue project under study along with the rest of the PJM system were required to maintain synchronism and with all states returning to an acceptable new condition following the disturbance.

For the remaining fault contingencies tested on the 2020 Summer Peak case:

a) Post-contingency oscillations were positively damped with a damping margin of at least 4% for local modes and 3% for inter-area modes.

b) The Z1-035 generator was able to ride through all faults (except for faults where protective action trips a generator(s)).

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.

No mitigations were found to be required.

1. Introduction

PJM queue project Z1-035 is a Generator Interconnection Request for the addition of a 18 MW wind farm consisting of 6 x 3.45 MW Vestas V126 wind turbine generators. Z1-035 has a Point of Interconnection (POI) at the Lake Road 138 kV substation in the Cleveland Public Power (CPP)/American Transmission Systems, Inc. (ATSI) system, in Ohio. This report describes a dynamic simulation analysis of Z1-035 as part of the overall system impact study.

This analysis is effectively a screening study to determine whether the addition of Z1-035 will meet the dynamic requirements of the NERC, PJM and Transmission Owner reliability standards.

In this report the Z1-035 project and how it is proposed to be connected to the grid are first described, followed by a description of how the project is modeled in this study. The fault cases are then described and analyzed, and lastly a discussion of the results is provided.

2. Description of Project

PJM queue project Z1-035 is a Generator Interconnection Request for the addition of a 18 MW wind farm consisting of 6 x 3.45 MW Vestas V126 wind turbine generators. Z1-035 has a Point of Interconnection (POI) at the Lake Road 138 kV substation in the Cleveland Public Power (CPP)/American Transmission Systems, Inc. (ATSI), in Ohio. This report describes a dynamic simulation analysis of Z1-035 as part of the overall system impact study.

Figure 1 shows the simplified one-line diagram of the Z1-035 loadflow model. Table 1 lists the parameters given in the impact study data and the corresponding parameters of the Z1-035 loadflow model.

The dynamic model for the Z1-035 plant is based on the Vestas V126 PSS/E V33 user defined model V 7.2.17 supplied by developer.

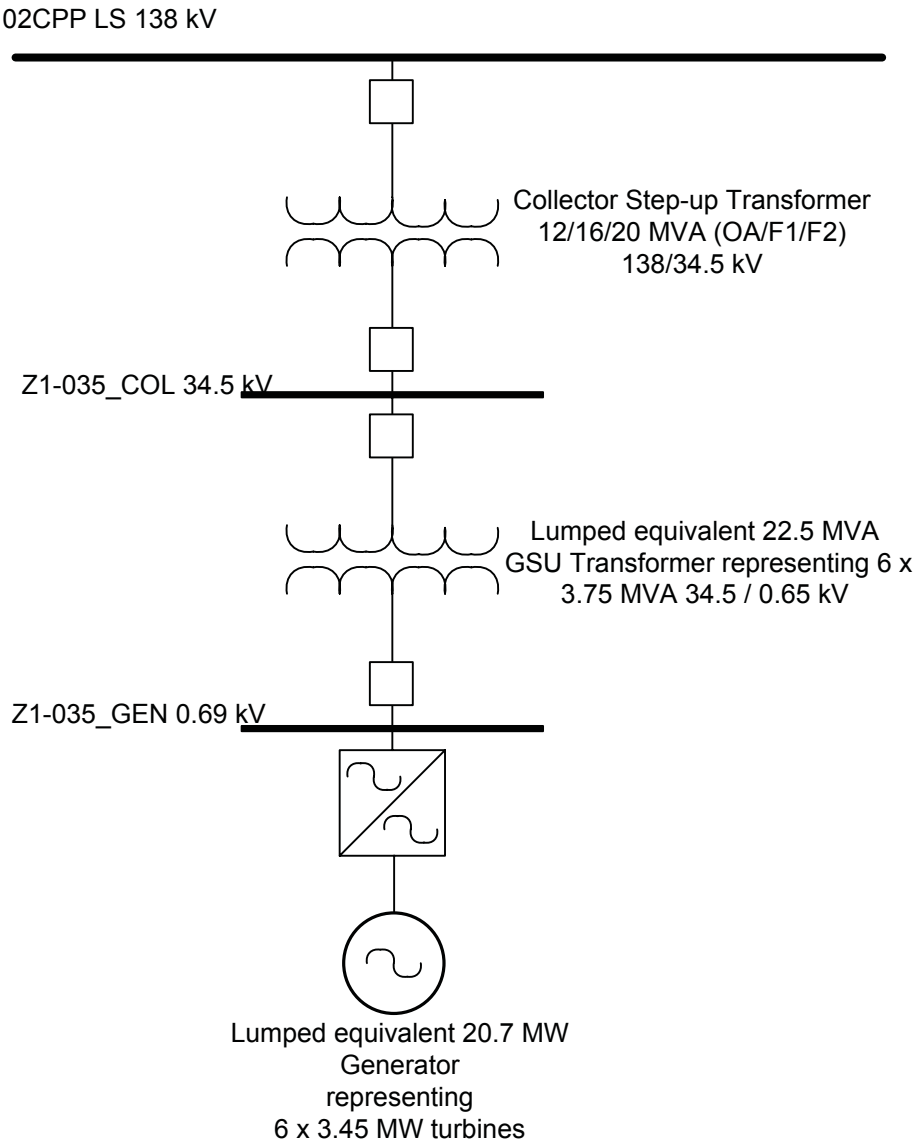


Figure 1: Z1-035 Plant Model

Table 1: Z1-035 Plant Model

	Impact Study Data	Model
Wind turbine generators	6 × 3.45 MW Vestas V126 wind turbines MVA base = 3.75 MVA Vt =0.65 kV PF, Leading / Lagging = 0.9 Saturated sub-transient reactance 0.65+j0.52 pu @ MVA base	Lumped equivalent representing 6 Vestas V126 wind turbines Pgen 20.7 MW Pmax 20.7 MW Pmin 0 MW Qgen 0.0 MVAr Qmax 8.7 MVAr Qmin -8.7 MVAr Mbase 22.5 MVA Zsorce 0.65+j0.52 pu @ Mbase
GSU transformer – wind turbines	6 x 34.5/0.69 kV Rating = 3.75 MVA (OA) Transformer base = 3.75 MVA Impedance = 0.007 + j0.09 pu @ MVA base Number of taps = N/A Tap step size = N/A	6 x 34.5/0.69 kV Rating = 3.75 MVA (OA) Transformer base = 3.75 MVA Impedance = 0.007 + j0.09 pu @ MVA base Number of taps = N/A Tap step size = N/A
Collector step-up transformer	138/34.5 kV Rating = 12/16/20 MVA (OA/F1/F2) Transformer base = 12 MVA Impedance = 0.032 + j 0.434 pu @ MVA base Number of taps = N/A Tap step size = N/A	138/34.5 kV Rating = 12/16/20 MVA (OA/F1/F2) Transformer base = 12 MVA Impedance = 0.032 + j 0.434 pu @ MVA base Number of taps = N/A Tap step size = N/A
Station Load	0.075MW + 0.022MVAR	0.075MW + 0.022MVAR
Auxiliary Load	0.075MW + 0.022MVAR	0.075MW + 0.022MVAR
Transmission line	Length, 0.123 miles R+jX = 0.00042+j0.00365 B = 0.00001	R+jX = 0.00042+j0.00365 B = 0.00001

3. Loadflow and Dynamics Case Setup

The dynamics simulation analysis was carried out using PSS/E Version 33.7.

The load flow scenario and fault cases for this study are based on PJM's Regional Transmission Planning Process[1].

The selected load flow scenario is the RTEP 2020 Summer Peak case with the following modifications:

a) Addition of all applicable queue projects prior to Z1-035.

b) Addition of Z1-035 queue project.

c) Removal of withdrawn and subsequent queue projects in the vicinity of Z1-035.

d) Dispatch of units in the PJM system to maintain slack generators within limits.

The Z1-035 initial conditions are listed in Table 2, indicating maximum power output, with Z1-035 regulating to unity power factor at the generator bus.

Table 2: Z1-035 machine initial conditions

Bus	Name	Unit	PGEN (MW)	QGEN (MVAR)	ETERM (p.u.)	POI Voltage (p.u.)
924804	Z1-035 GEN 0.6000	1	20.7	-3.1	1.00	1.01

Generation within the vicinity of Z1-035 has been dispatched online at maximum output (PMAX). The dispatch of generation in the vicinity of Z1-035 is given in Attachment 3.

[1] Manual 14B: PJM Region Transmission Planning Process, Rev 33, May 5 2016, Attachment G : PJM Stability, Short Circuit, and Special RTEP Practices and Procedures.

4. Fault Cases

Tables 3 listed the contingencies and results that were studied, with representative worst case total clearing times provided by PJM. Each contingency was studied over a 20 second simulation time interval.

Simulated NERC Standard TPL-001faults include:

1. Three-phase (3ph) fault with normal clearing (Category P1)
2. Operating of a line section w/o a fault, Single-line-to-ground (slg) on Bus Section and Breaker. (Category P2)
3. Single-line-to-ground (slg) with delayed clearing as a result of breaker failure (Category P4)
4. Single-line-to-ground (slg) with delayed clearing as a result of protection failure (Category P5)
5. Single-line-to-ground (slg) with normal clearing for common structure (Category P7)

Note: For generator interconnection studies, Category P3 and P6 faults will be studied on an as needed basis. In this study, P2 contingencies are covered by P1 and P4 contingencies.

Other applicable criteria tested include:

1. Transmission Owner (TO) specific criteria
2. Other criteria

The system was tested for a system intact condition and the fault types listed above. No relevant High Speed Reclosing (HSR) contingencies were studied.

5. Evaluation Criteria

This study is focused on Z1-035, along with the rest of the PJM system, maintaining synchronism and having all states return to an acceptable new condition following the disturbance. The recovery criteria applicable to this study are as per PJM's Regional Transmission Planning Process and Transmission Owner criteria:

a) The system with Z1-035 included is transiently stable and post-contingency oscillations should be positively damped with a damping margin of at least 4% for local modes and 3% for inter-area modes.

b) The Z1-035 is able to ride through faults (except for faults where protective action trips Z1-035).

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.

6. Summary of Results

Plots from the dynamic simulations are provided in Attachment 4, with results summarized in Table 3.

Due to the frequency protection was disabled due to the PSSE deficiency in calculating frequencies.

For the fault contingencies tested in this study:

a) Post-contingency oscillations were positively damped with a damping margin of at least 4% for local modes and 3% for inter-area modes.

b) The Z1-035 generator was able to withstand all contingencies.

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.

7. Mitigations

No Mitigations were found to be required.

Table 3: Fault list

P0: Steady State

Fault ID	Duration
P0.00	Steady State 20 sec run

P1: Three Phase Faults with normal clearing

Fault ID	Fault description	Clearing Time Normal (Cycles)
P1.00	3ph @ Z1-035 138/34.5kV Main Transformer, normal clear loss of Z1-035	6
P1.01	3ph @ Z1-035 POI – LR 138kV line, normal clear loss of Z1-035	6
P1.02	3ph @ LR 138/69kV Tx, normal clear	8
P1.03	3ph @ LR – Lakeshore 138kV line, normal clear	6
P1.04	3ph @ LR – DV 138kV line, normal clear loss of LR capbanks	6
P1.05	3ph @ WF – Ridge Rd 138kV line, normal clear	6
P1.06	3ph @ LR – East Industrial 138kV line, normal clear	6
P1.07	3ph @ Lakeshore – Inland 138kV line, normal clear	6

P4: SLG Stuck Breaker (SB) Faults at Backup Clearing

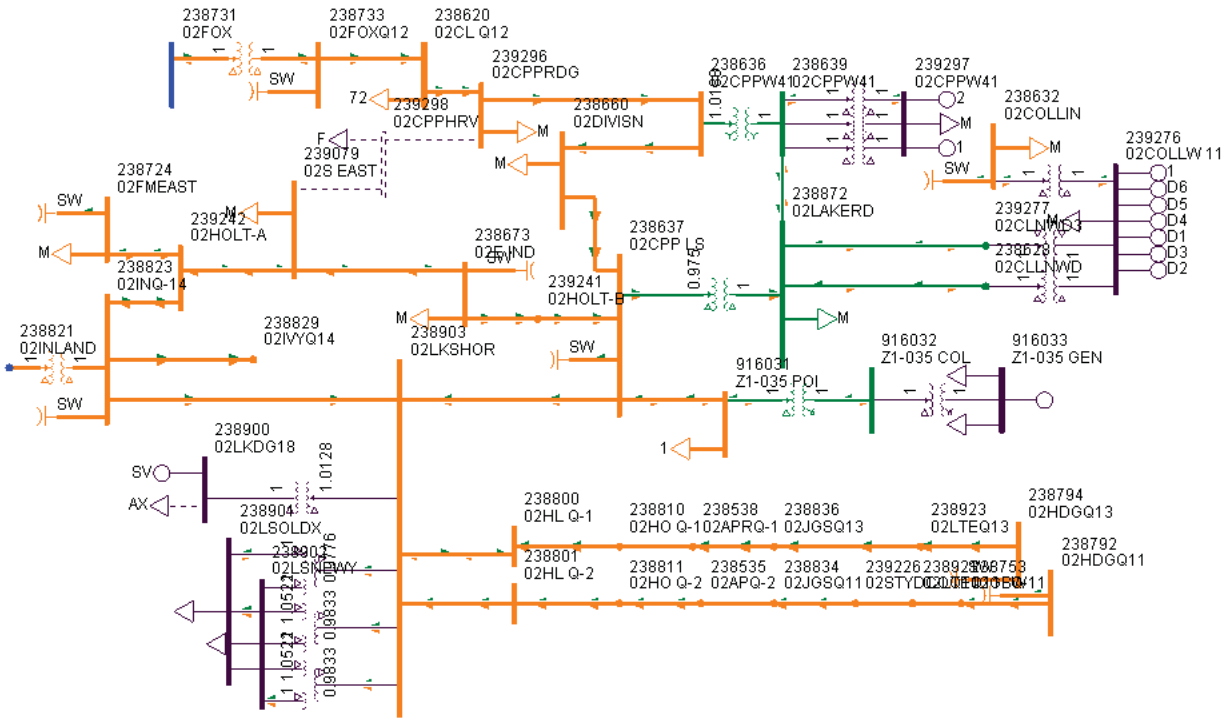
Fault ID	Fault description	Clearing Time Normal/Delayed (Cycles)
P4.01	SLG @ Lake Road 138 kV on Lake Road 138/69 kV transformer. Breaker LR CB1 stuck. Fault cleared with loss of Lakeshore 138 kV circuit.	6/23
P4.02	SLG @ Lake Road 138 kV on Lakeshore circuit. Breaker LR CB3 stuck. Fault cleared with loss of Division 138 kV circuit and LR 138kV capbanks.	6/23
P4.03	SLG @ Lake Road 138 kV on Division circuit. Normal clear loss of LR 138kV capbanks. Breaker LR CB4 stuck. Fault cleared with loss of East Industrial circuit.	6/23
P4.04	SLG @ Lake Road 138 kV on East Industrial circuit. Breaker LR CB2 stuck. Fault cleared with loss of Z1-035 POI circuit. Loss Z1-035.	6/23
P4.05	SLG @ Lake Road 138 kV on Lake Road 138/69 kV transformer. Breaker LR CB5 stuck. Fault cleared with loss of Z1-035 POI circuit. Loss Z1-035.	6/23

Fault ID	Fault description	Clearing Time Normal/Delayed (Cycles)
P4.06	SLG @ Lake Road 69 kV bus section on Collinswood 69 kV circuit (Collinswood T2). Lake Road 69 kV breaker stuck. Fault cleared with loss of Lake Road 69 kV Bus. (More severe than real system configuration)	8/27
P4.07	SLG @ Lakeshore 138kV bus section, breaker failure caused loss of the whole 138kV switchyard. (More severe than the real system configuration)	6/23

P5: SLG Fault with Delayed (Zone 2) Clearing

Fault ID	Fault description	Clearing Time Normal/Delayed (Cycles)
P5.01	SLG at 80% of Lakeshore 138 kV on the Lake Road circuit. Delayed clearing at Lakeshore.	6/30
P5.02	SLG at 80% of Lake Road 138 kV on the Lakeshore circuit. Delayed clearing at Lake Road.	6/30
P5.03	SLG at 80% of East Indutrial 138 kV on Lake Road circuit. Delayed clearing at East Indutrial.	6/30
P5.04	SLG at 80% of Lake Road 138 kV on East Indutrial circuit. Delayed clearing at Lake Road.	6/30
P5.05	SLG at 80% of Division 138 kV on Lake Road circuit. Delayed clearing at Division.	6/30
P5.06	SLG at 80% of Lake Road 138 kV on Division circuit. Delayed clearing at Lake Road.	6/30
P5.07	SLG at Lake Road 69 kV on Lake Road 138/69 kV autotransformer. Delayed clearing at Lake Road 138 kV.	/30
P5.08	SLG at Ridge Rd 138kV on the WF circuit, Delayed clearing at WF.	6/30

Attachment 1. PSS/E Model One Line Diagram



Attachment 2. Z1-035 PSS/E Dynamic Model

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/ Created by: tsgra
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/ The lines below must be repeated for each wind generator or
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/ Terms in <angle brackets> must be replaced as follows:
/ <bus> with the generator bus number
/ <mach> with the machine ID.
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0.0125 0.1100

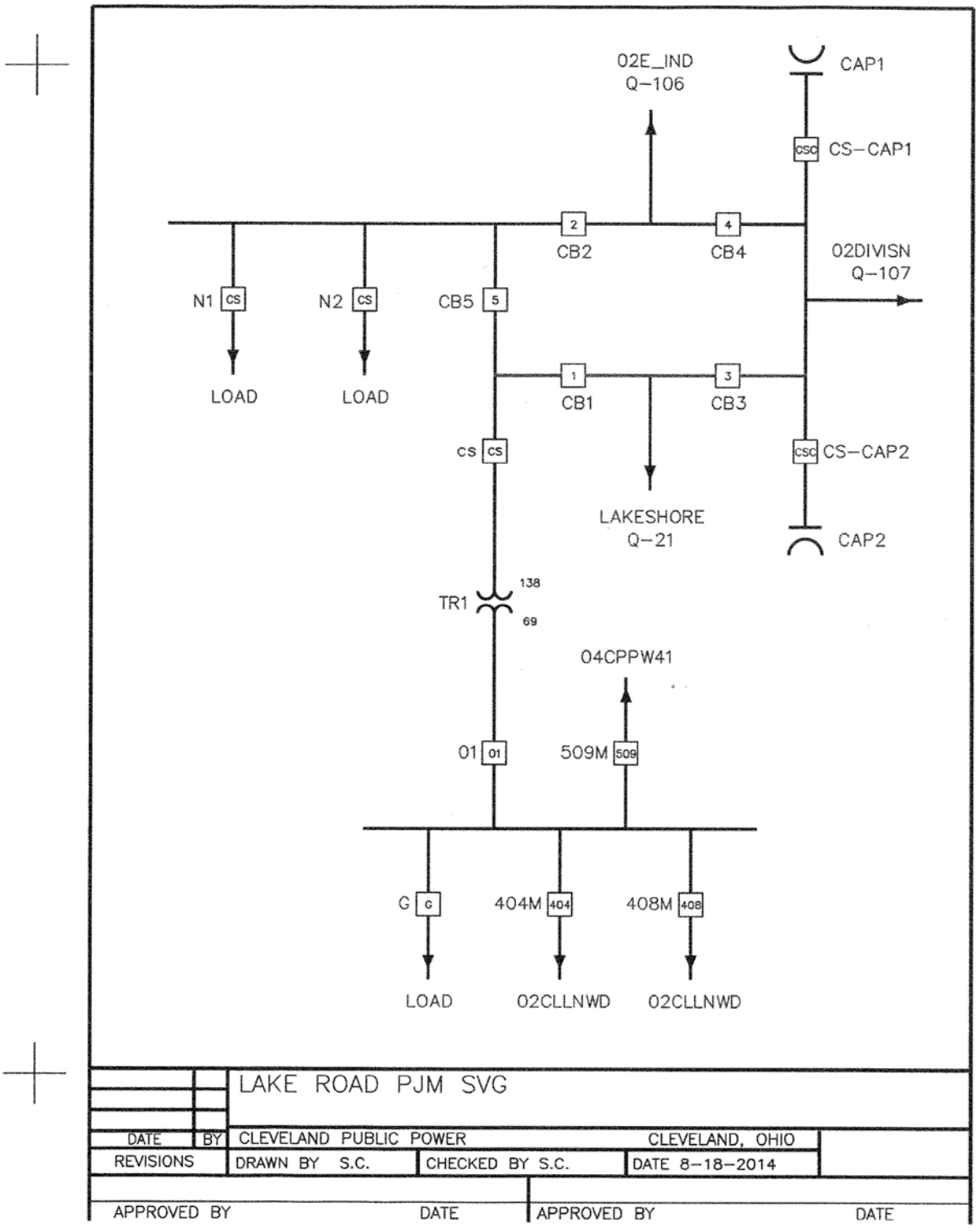
0.3000 0.2000 0.0000 0.4000 0.0000
1.0000 0.1200/

Attachment 3. Z1-035 PSS/E Case Dispatch

Bus Number	Bus Name	Id	In Service	PGen (MW)	PMax (MW)	PMin (MW)	QGen (Mvar)	QMax (Mvar)	QMin (Mvar)
238555	02AVONG9 20.000	9	1	672.1	672.1	0	41.41	308.5	-263
238679	02EASTG1 18.000	S1	1	0	0	0	-1.27	124	-80
238680	02EASTG2 18.000	S2	1	0	0	0	-1.27	124	-80
238681	02EASTG3 18.000	S3	1	0	0	0	-1.27	124	-80
238682	02EASTG4 18.000	S4	1	0	0	0	-7.05	268	-140
238683	02EASTG5 24.000	S5	1	0	0	0	31.94	519	-150
238813	02HOYTDL 138.00	SV	1	0	0	0	-65.6	150	-75
238900	02LKDG18 18.000	SV	1	0	0	0	-93.8	260	-150
238965	02MNFDG1 18.000	1	1	906	906	400	156.1	260	-435
238966	02MNFDG2 18.000	2	1	907	907	400	156.1	250	-435
238967	02MNFDG3 18.000	3	1	892	892	400	156.1	270	-435
239035	02PERRG1 22.000	1	1	1331	1331	1294	5.973	600	-270
239203	02EASTG6 13.200	6	1	24	24	5	-5	16	-5
239276	02COLLW 11 11.500	1	1	17.2	17.2	0	0	8	0
239276	02COLLW 11 11.500	D1	1	1.9	1.9	0	0	1	0
239276	02COLLW 11 11.500	D2	1	1.9	1.9	0	0	1	0
239276	02COLLW 11 11.500	D3	1	1.9	1.9	0	0	1	0
239276	02COLLW 11 11.500	D4	1	1.9	1.9	0	0	1	0
239276	02COLLW 11 11.500	D5	1	1.9	1.9	0	0	1	0
239276	02COLLW 11 11.500	D6	1	1.9	1.9	0	0	1	0
239297	02CPPW41 11.500	1	1	17.2	17.2	0	3.68	8	0
239297	02CPPW41 11.500	2	1	17.2	17.2	0	3.68	8	0
253900	15BVRVL1 22.000	1	1	999	999	998	217.6	412	37.8
253901	15BVRVL2 22.000	2	1	999	999	999	217.6	411	38.2
916033	Z1-035 GEN 0.6500	1	1	20.7	20.7	0	8.096	8.7	-8.7

Attachment 4. Plots from Dynamic Simulations (See separated .PDF file)

Attachment 5. Lake Road one line



Summary: Notice of Supplement to Responses to Second Set of Interrogatories from Staff of the Ohio Power Siting Board electronically filed by Christine M.T. Pirik on behalf of Icebreaker Windpower Inc.