

***PJM Generator Interconnection  
Z1-073 Mendota Hills  
Feasibility/System Impact Study***

**March 2014  
Revised July 2015**

## ***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.

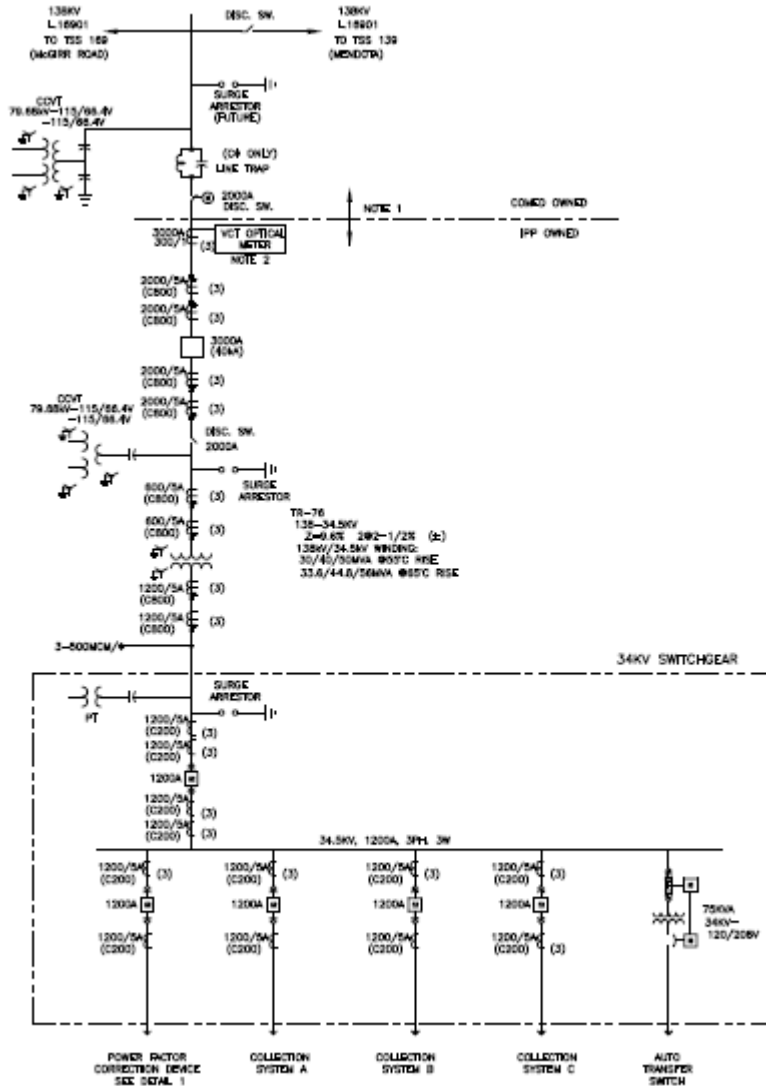
The System Impact Study estimates do not include the feasibility, cost, or time required to obtain property rights and permits for construction of the required facilities. The project developer is responsible for the right of way, real estate, and construction permit issues. For properties currently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

## ***General***

Queue Z1-073 Mendota Hills is a Mendota Hills LLC (“Interconnection Customer”) request to receive 6 MW of Capacity Interconnection Rights (“CIRs”) for their existing energy only windfarm. Due to operational history data, the facility can only be granted 5.2MW of CIRs and the final Interconnection Service Agreement will reflect this value. The Customer Facility is located in Lee County, IL.

## ***Direct Connection Requirements***

Queue Z1-073 is connected to Commonwealth Edison’s 16901Line at the customer owned TSS 979 Mendota Hills Substation as shown on the single line diagram below.



**Interconnection Customer Scope of Direct Connection Work**

None.

**Transmission Owner (Com Ed) Scope of Direct Connection Work**

None.

***Network Impacts***

The queue Z1-073 project was studied as a 6.0 MW capacity injection into ComEd’s system at the TSS 979 Mendota Hills 138kV substation. Project Z1-073 was evaluated for compliance with reliability criteria for summer peak conditions in 2017. Potential network impacts were as follows:

**Generator Deliverability**

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

No issues identified.

**Light Load Analysis**

Not required for this existing facility.

**Multiple Facility Contingency**

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

Not required for this existing facility.

**Steady-State Voltage Requirements**

Not required for this existing facility.

**Stability and Reactive Power Requirement**

Not required for this existing facility.

**Short Circuit**

Not required for this existing facility.

**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)*

No issues identified.

**Contribution to Previously Identified System Reinforcements**

None.

**Delivery of Energy Portion of Interconnection Request**

Not Applicable

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*DMS # 783781v1*

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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.

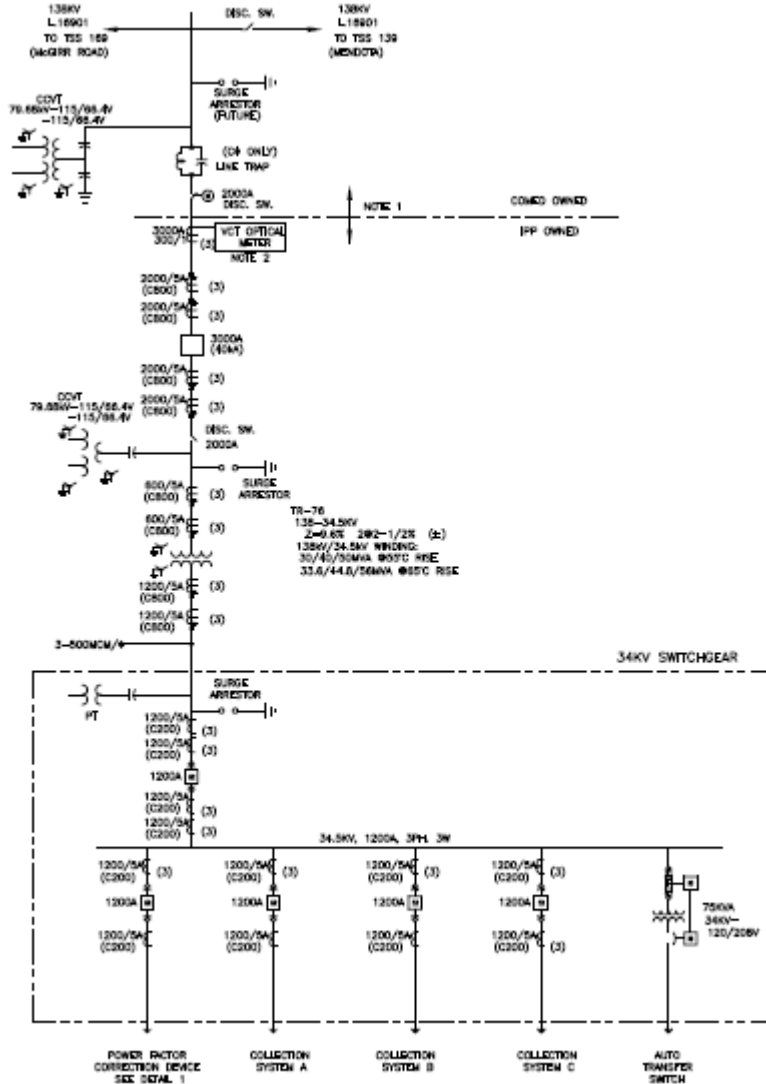
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## ***General***

Queue Z1-073 Mendota Hills is a Mendota Hills LLC (“Interconnection Customer”) request to receive 6 MW of Capacity Interconnection Rights (“CIRs”) for their existing energy only windfarm. The Customer Facility is located in Lee County, IL.

## ***Direct Connection Requirements***

Queue Z1-073 is connected to Commonwealth Edison’s 16901Line at the customer owned TSS 979 Mendota Hills Substation as shown on the single line diagram below.



**Interconnection Customer Scope of Direct Connection Work**

None.

**Transmission Owner (Com Ed) Scope of Direct Connection Work**

None.

***Network Impacts***

The queue Z1-073 project was studied as a 6.0MW capacity injection into ComEd’s system at the TSS 979 Mendota Hills 138kV substation. Project Z1-073 was evaluated for compliance with reliability criteria for summer peak conditions in 2017. Potential network impacts were as follows:

**Generator Deliverability**

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

No issues identified.

**Light Load Analysis**

Not required for this existing facility.

**Multiple Facility Contingency**

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

Not required for this existing facility.

**Steady-State Voltage Requirements**

Not required for this existing facility.

**Stability and Reactive Power Requirement**

Not required for this existing facility.

**Short Circuit**

Not required for this existing facility.

**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)*

1. The City of Rochelle H440 ;RT-H440 ; R 138 kV line (from bus 272365 to bus 272363 ckt 1) loads from 136.2% to 138.44% (AC power flow) of its emergency rating (109 MVA) for the single line contingency outage of '186-L16914\_\_'. This project contributes approximately 2.47 MW to the thermal violation.

CONTINGENCY '186-L16914\_\_'  
TRIP BRANCH FROM BUS 272365 TO BUS 272516 CKT 1 / H440 ;RT 138 STEWA; B 138  
END

Please refer to Appendix 1 for a table containing the generators having contribution to this flowgate.

### **Contribution to Previously Identified System Reinforcements**

1. The H440 ;RT-H440 ; R 138 kV line:

The violation is on equipment owned by the City of Rochelle; this violation will be further analyzed in the Facilities Study phase.

### **Delivery of Energy Portion of Interconnection Request**

Not Applicable

## **Appendices**

The following appendices contain additional information about each flowgate presented in the body of the report. For each appendix, a description of the flowgate and its contingency was included for convenience. However, the intent of the appendix section is to provide more information on which projects/generators have contributions to the flowgate in question. Although this information is not used "as is" for cost allocation purposes, it can be used to gage other generators impact.

It should be noted the generator contributions presented in the appendices sections are full contributions, whereas in the body of the report, those contributions take into consideration the commercial probability of each project.

## Appendix 1

(CE - CE) The H440 ;RT-H440 ; R 138 kV line (from bus 272365 to bus 272363 ckt 1) loads from 136.2% to 138.44% (AC power flow) of its emergency rating (109 MVA) for the single line contingency outage of '186-L16914\_\_'. This project contributes approximately 2.47 MW to the thermal violation.

CONTINGENCY '186-L16914\_\_'

TRIP BRANCH FROM BUS 272365 TO BUS 272516 CKT 1

/ H440 ;RT 138 STEWA; B 138

END

Bus Number	Bus Name	Full Contribution
292535	CE23CL12	1.65
292536	CE23EL12	6.59
274855	GSG-6;RU	0.36
274900	P-018 C	0.21
295103	P-024 C	1.65
295106	P-025 C	1.65
295110	SUBLETTE C	0.91
905471	W4-084	0.01
295108	WESTBROOK C	2.11
Y2-068	Y2-068	12.94
916281	Z1-073	2.47