Redington Mountain Wind Farm Project

Interconnection System Impact Study
Summary Report

ISO New England Inc.
System Planning
July 13, 2006

This Summary Report is intended to provide a comprehensive report of the various analyses performed by ISO New England Inc. ("ISO-NE") and Central Maine Power Company ("CMP") as part of the Interconnection System Impact Study (the "Study") for the Redington Mountain Windpower Project (the "Project") under the Large Generator Interconnection Procedures of Schedule 22 of the ISO-NE Open Access Transmission Tariff.

Maine Mountain Power, LLC has completed an Interconnection Request to interconnect the Project to CMP's 115-kV Bigelow Substation located in Carabassett Valley, ME. The Request was deemed valid on June 21, 2005. The Project will consist of 30 wind turbines, each consisting of a 3.0 MW, 1,000-V line-to-line, variable-speed wound-rotor induction generator. The Project has an expected Commercial Operation Date of December 2007.

The objective of the Study was to determine the impacts on the New England Transmission System, and any other Affected Party's system that would result from the interconnection of the Project, any Network Upgrade requirements that may be necessary to mitigate any adverse impacts resulting from the interconnection of the Project, and the required Interconnection Facilities of the Project. The thermal, stability and short circuit studies were performed by CMP. Since CMP performed the analysis utilizing the General Electric PSLF software platform, ISO-NE performed some additional analysis to test the Redington Wind Turbine Generation stability performance and Low Voltage Ride Through capability using the Siemens PTI[1] PSS/E software platform.

The Project shall consist of 30 Vestas V90 VCRS wind turbine generators having an aggregate maximum combined net capability of 90 MW under all seasonal/temperature conditions with each of its generators having a 98% power factor (0.61 MVAR) lagging reactive capability and a 96% power factor (0.87) leading reactive capability under all seasonal/temperature conditions. The Project shall also have the following characteristics:

1. Each turbine shall a have an individual 400-V/1,000-V/34.5-kV step-up transformer.
2. 18 turbines shall comprise the Black Nubble turbine site that shall be interconnected with approximately 5.4 miles of 34.5-kV 345-kcmil solid dielectric underground cable that shall be interconnected to the Project's Electric Harvest Substation via 1.2 miles of overhead 795-kcmil ASCR conductor.
3. 12 turbines shall comprise the Redington Pond range turbine site that shall be interconnected with approximately 3.2 miles of 34.5-kV 345-kcmil solid dielectric underground cable that shall be interconnected to the Project's Electric Harvest Substation via 2.6 miles of overhead 795-kcmil ASCR conductor.

The following Network Upgrades and Interconnection Facilities are required for the Project:

1. The addition of a 115-kV bus, circuit breaker, and control house to the Bigelow 115-kV Substation.
2. Construction of a 115/34.5-kV Electric Harvest Substation located in Redington, ME that shall consist of two (2) 34.5/115-kV Delta-Wye[2] 37.5/50/62.5 MVA transformers with

[1] Siemens PTI refers to Siemens Power Transmission & Distribution Inc., Power Technologies International, LLC

[2] CMP's technical interconnection requirements for generation require a grounded wye configuration on the high side of a generator step-up transformer ("GSU") transformer. CMP and ISO-NE recognize that Maine Mountain Power, LLC may require the Project's wind turbine and/or collector system equipment to have a ground source on the 34.5-kV side of the Project's GSU transformer. Any determination of of the type of ground source that may be required shall

each having an impedance of 8.5% on a 37.5 MVA base. These transformers shall be provided with primary differential and backup high-side overcurrent protection.

3. Installation of a 115-kV line that shall connect the Bigelow Substation with the new Electric Harvest Substation that shall consist of 2,000 feet of 500-kcmil solid dielectric cable emanating from Bigelow Substation and 8.2 miles of 477-kcmil ASCR overhead conductor. This line shall terminate with the new circuit breaker (listed in the above item 2) at Bigelow Substation and provided with CMP's standard 115-kV primary and backup digital relaying.
4. The existing transfer trip carrier that trips the Stratton Energy plant for the opening of the Section 215 shall modified to include a trip of the Redington Mountain Windpower Project generation.
5. Modifications to the Section 215 transmission line that shall enable it to be re-rated with ratings that are based on a 212-degree F. conductor temperature.
6. Modification of the Section 215 transmission line termination at the Wyman Hydro station to include removal of circuit switcher K215-1 and elimination of its termination as tap to Section 63 and a new termination via a line circuit breaker at Wyman Hydro station. The backup overcurrent protection on the K63-1 circuit breaker shall be removed and K63-1 circuit breaker shall be required to not operate for normally cleared Section 215 faults. The Section 215 line protection shall be modified to have primary and backup digital protection relays.
7. Addition of a new 34.5-kV 10.8 MVAR capacitor bank at Lakewood Substation.
8. Expansion of the existing 34.5-kV 5.4 MVAR capacitor bank at Guilford Substation to 10.8 MVAR capacitor bank.
9. Addition of a 34.5-kV 5.4 MVAR capacitor bank at Sturtevant Substation.

The following Reliability Transmission Upgrades to the CMP system should be completed before the interconnection of the Project. Maine Mountain Power, LLC is not responsible for the cost of these upgrades.

1. Expansion of existing 34.5-kV 9 MVAR capacitor bank at Winslow Substation to a 16.2 MVAR capacitor bank.
2. Addition of a 34.5-kV 16.2 MVAR capacitor bank at Winslow Substation.
3. Circuit breaker K63-1 at Wyman station should be replaced with an improved maximum fault clearing time if determined to be required upon completion of a stability analysis of the Wyman Hydro and Harris Hydro units.

A comprehensive and complete summary of the results of the various analyses performed as part of Study is described below:

The thermal and stability analyses performed by CMP including the network upgrade and Interconnection Facility requirements for the Project and the estimated cost for the construction of those facilities that will be constructed by CMP are included in the report titled: **sis_redington_mtn_wind_final_rpt_k_kerr_cmp_052306.*pdf*.** The following appendices to this report are also included:

Appendix A_Vestas V90 Electrical Data
Appendix B_One Line Diagrams
Appendix C_Nesummaries

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be completed under either the Interconnection Facilities Study, the Engineering and Procurement Agreement, or the Interconnection Agreement for the Project.

Appendix D_Exception Reports
Appendix E_Trans Case Sum
Appendix F_Advanced Grid Option 2
Appendix G_Modeling Vestas V90 in PSLF
Appendix H_ Trans One Lines, V, A & GCX Plots
Appendix I_Phase I System Impact Study

ISO-NE performed additional analysis to test the Project's stability and Low Voltage Ride-Through performance with the PSS/E software platform. The documentation of the results of that analysis, which includes stability simulation plots of key system variables, is located in the document: ***Redington Wind Turbine Generation LVRT Model Testing in PSSE.***