



22 September 2006

David Forrest  
ISO-NE  
1 Sullivan Road  
Holyoke MA 01040

**via pdf/e-mail & US Mail**

Re: Interconnection Studies for the UPC Sheffield Wind Farm

Dear David,

On behalf of UPC Wind, we would like to provide ISO-NE with the following information. As we have discussed, the UPC Sheffield Wind Farm (aka the Hardscrabble Project) is undergoing some modifications. These modifications include using Clipper 2.5 MW turbines rather than the originally planned Gamesa G87 2.0 MW turbines.

We understand from the Sheffield SIS Draft Final Report that the former array of 26 turbines (for a total name plate power of 52 MW) did not pose any negative reliability impacts to the system nor require any modifications of the system. The only expected impact was a possible throttling of the turbine output if transmission line interruption occurs elsewhere in the system.

Our understanding is that, while it will need to be confirmed via a follow-up SIS study, the revised system that decreases the name plate capacity to 40 MW would yield the qualitatively same results: no negative impacts to the reliability of the transmission system and no required modifications of the transmission system.

We also understand from discussions with you, that GE is potentially looking for voltage regulation equipment to be associated with the new turbine array. We have reviewed the draft SIS study completed on the previous layout of the project and find that the transmission grid in the area of the project exhibits stable voltage characteristics without any substantial reactive power compensation from the project, at least for the base case data that is provided in Appendix A of the report. Further, we have discussed the presumed need for this voltage regulation equipment with Clipper Wind Power. They question whether voltage regulation equipment would be necessary given that their turbine design utilizes a full power electronic conversion topology that can be set to provide for unity power factor operation at the point of interconnection, essentially how

the operation of the Gamesa array of turbines may be characterized in Appendix A. Therefore, we would like to have this aspect of the project studied to determine conclusively whether supplemental voltage regulation is necessary to ensure system safety or reliability.

In regards to the need to redo the modeling with the Clipper units, if the Clipper units are found to have the same electrical characteristics as the Gamesa units as discussed above, a revised thermal analysis may not be necessary. Please review the Clipper information provided and notify us in regards to the need to perform this aspect of the study. Further, we have instructed Clipper to provide you with an updated model suitable to determine the impacts of the turbines no later than Monday. While this data transmittal should complete the information necessary to re-run the model and make positive finding on the revised layout of this project, we have also requested that Clipper make their electrical consultants available to GE as necessary to answer any questions that arise during their review.

We appreciate you working with us on this project and look forward to rapid conclusion of the necessary interconnection studies. Thanks again for your assistance.

Best regards,

The Greatwood Management Company, LLC

By: 

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cc: Matt Kearns, UPC Wind  
Scott Rowland, UPC Wind