UNITED STATES OF AMERICA
BEFORE THE
FEDERAL ENERGY REGULATORY COMMISSION

Review of Generator Interconnection Agreements and Procedures	**)**	**Docket No.**	**RM16-12-000**
American Wind Energy Association	**)**	**Docket No.**	**RM15-21-000**

WRITTEN COMMENTS OF ALAN MCBRIDE DIRECTOR OF TRANSMISSION STRATEGY AND SERVICES ISO NEW ENGLAND INC.

ISO New England Inc. (the "ISO") provides these written comments in advance of the Federal Energy Regulatory Commission's ("Commission") Technical Conference scheduled on May 13, 2016 to discuss issues relating to the petition for rulemaking submitted by the American Wind Energy Association in Docket No. RM15-21-000 (the "AWEA Petition"),[1] and other generator interconnection issues, including interconnection of electric storage resources. The ISO appreciates the opportunity to speak at the Technical Conference, and share its experience in implementing the generator interconnection procedures for New England. These written comments focus on the key considerations for the assigned panels, and we look forward to discussing them further during the panel discussions at the conference.

The Current State of Generator Interconnection Issues

ISO New England has been working on interconnection issues with its stakeholders. The ISO's recent filing of interconnection improvements was approved by the Commission on April 15,

[1] *See American Wind Energy Association*, Comments of ISO New England Inc.; Docket No. RM15-21-000 (Sept. 8, 2015).

2006.[2] The ISO's filing contained important clarifications of data modeling requirements for new generation, in particular for inverter-based generation. It also included clarifications of the ISO's material modification review procedure as well as the establishment of a dynamic reactive power factor requirement for wind generation.

The ISO is continuing to work with stakeholders on further interconnection process improvements. We are currently undertaking a discussion of different approaches to clustering, and we are investigating the identification of new transmission infrastructure that could be used to interconnect multiple interconnection requests.

Our considerations include a survey of the clustering approaches used by Transmission Providers, including ISOs and RTOs, throughout North America. This survey has identified some useful features and practices. It has also highlighted the importance of regional differences in the appropriate design of interconnection practices, as there are different needs driving their development. For example, in New England, the interconnection process is integrated with the Forward Capacity Market. The ISO also noted meaningful differences in approaches to ratepayer support for network upgrades in the different regions.

Within New England, the ISO has identified differences in the rate of progress of interconnection requests depending on the local technical challenges in the given part of the system. In the state of Maine, there have been a large number of interconnection requests (mostly wind) that are geographically concentrated in an oversubscribed area of the system that is at its performance limit with no remaining margin, and where the curtailment of existing generation (mostly wind) is already experienced in actual operations. The current stakeholder discussions are intended to

[2] *See ISO New England Inc. and Participating Transmission Owners Administrative Committee*, 155 FERC ¶ 61,031 (2006) (the "April 15 Order").

identify potential improvements to these interconnection challenges. Interconnection process changes alone will not solve the issues; significant transmission infrastructure is needed to interconnect the proposed new wind generation in that area of the system.

Certainty of Cost Estimates and Construction Time

The identification of the cost and schedule estimates for interconnection upgrades is an important part of the overall interconnection process. The ISO, however, does not produce these estimates. This work is performed by New England Transmission Owners. Once an upgrade has been identified, the ISO notes that there is a clear trade-off between the desire for cost and schedule accuracy and the time and cost taken to prepare the estimate. It would seem appropriate that, in order to keep the study process moving, estimates should not be highly accurate during the study phase.

It may be worth considering whether different study management designs contribute to cost and schedule uncertainty. As noted in the AWEA Petition, some clustering designs can result in significant restudy and re-estimation of costs, especially when earlier queued projects withdraw. In New England, energy interconnections are studied serially. In addition, generators do not receive capacity interconnection service until they have achieved a commitment in the Forward Capacity Market. As a result of these features, New England appears to incur less uncertainty from an upgrade cost perspective.

Interconnection of Electric Storage Resources

ISO New England is currently processing interconnection requests for the addition of storage devices to the New England system. These requests include the addition of storage devices to existing generation facilities and the inclusion of storage devices along with other types of

generation at new generation facilities. While the ISO believes that the existing interconnection procedures are adequate to manage these interconnections, we will continue to monitor progress and take up discussions with our stakeholders if it appears that enhancements may be needed.

The ISO would like to note that most new storage proposals make use of inverter-based technology. The efficient processing of these interconnection requests is dependent on the provision of appropriately robust equipment designs. The equipment needs to meet the established performance requirements, such as power factor, ride through and frequency response. The power system models need to perform well in the network study analysis.

The ultimate asset registration, metering and telemetry for a storage facility will be dependent on the markets in which the resource has chosen to participate.