



To: NEPOOL Markets Committee

From: ISO-NE System Operations

Date: May 13, 2019

Subject: Implementation of Economic Maximum Automatic Redeclaration Process for Intermittent Hydro Do Not Exceed Dispatchable Generators

The ISO-NE System Operations department is in the process of modifying the existing methodology for the performance of Economic Maximum (EcoMax) redeclarations for intermittent hydro Do Not Exceed (DNE) Dispatchable Generators (DDGs) to increase the timeliness and accuracy of redeclarations for these resources and improve the accuracy of the economic dispatch process for all resources. This modification is scheduled to be implemented on July 1, 2019.

Background

The EcoMax of a DDG is a key input to the real-time dispatch as it provides a forecast of the DDG's uncurtailed expected generation levels. The intermittent nature of a DDG resource means that there is a high potential for frequent updates to the EcoMax value. Additionally, the accuracy of the EcoMax value is important in order to ensure a reliable and economic dispatch of the system's resources. Operating experience has been gained since the initial implementation of the DNE project in 2016 and it has been observed that improvements can be made to the existing process to ensure timely and accurate updates of an intermittent hydro's EcoMax.

The existing protocol for the performance of an intermittent hydro DDG's EcoMax redeclarations relies on frequent verbal communication from the Designated Entity (DE) operator to the ISO-NE System Operator. Upon receiving a redeclaration request, the ISO-NE System Operator then manually enters the redeclaration into the ISO-NE Energy Management System (EMS). The manual redeclaration is limited to whole number MW values.

In contrast, EcoMax redeclarations for wind-powered DDG resources are performed in a highly automated fashion based on a wind power forecast and telemetered values, and typically involve no interaction between DE and ISO-NE System Operators. This process for wind DDG EcoMax redeclarations occurs frequently and is more precise (granularity of 0.1MW) than what is possible when relying on verbal communication.

Methodology Modification

ISO-NE has developed a new process for intermittent hydro DDG EcoMax redeclarations that is similar in nature to that which has been successfully utilized by wind-powered DDGs since implementation of the DNE project in 2016. This new process, utilized only in the real-time dispatch, is designed to redeclare the EcoMax for intermittent hydro DDG resources by using smoothed resource output values which will more accurately predict expected output levels when the DDG's DNE is not being constrained by a transmission

constraint. In the event that the DNE limit is being reduced as a result of a transmission constraint, the EcoMax will be restored to the offered EcoMax value to avoid negative impacts to the continued calculation of DNE limits and prevent the resource from being inadvertently curtailed. The DE will still be able to call in redeclarations; however, the instances where this would be necessary will be greatly reduced with the new process. It should be noted that intermittent hydro DDGs are still expected to offer an hourly EcoMax value consistent with their forecasted or anticipated level of generation.

Benefits

This automatic EcoMax redeclaration process for intermittent hydro DDG units will result in the following benefits:

1. Decreased reliance on manual redeclaration phone calls between DE operators and ISO-NE System Operators.
2. Increased timeliness and accuracy of intermittent hydro DDG EcoMax limit redeclarations.
3. Improved energy accounting of intermittent hydro DDG units in the real-time dispatch which will allow for a more reliable and economic real-time dispatch of all resources system-wide.

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