

Inclusion of Energy Storage Resources

In the 2021 IRM Study

NYSRC – ICS Consultant Work Product

The ICS has been working with the NYISO and GE to institute a new version of the MARS software that would more fully model energy limited and energy storage resources in New York's resource adequacy studies.

With NY's initiatives to attain 70% of the energy produced from renewable resources by 2030, the importance of improved modeling is imperative.

At issue is whether the model and the data have advanced to the point where the ICS can attest that the software is behaving as expected and the data is reasonable and modeled in an appropriate manner.

From the NYSRC Policy 5-15;

“Before any proposed major enhancement of a model is accepted for use in the base case, it is given a thorough review. The review includes testing of the proposed enhancements and may include the preparation of a white paper. If it is found that a proposed model enhancement cannot be developed in time for the next IRM study, its implementation may be delayed to the following year's IRM study.”

During the study in 2019, GE delivered a new software version designed to accommodate the ICS's desire to implement a more robust energy limited and energy storage resource model. A first application was implemented by the NYISO's Planning Group for their 2020 Reliability Needs Analysis (RNA). A scenario was run where 3,000 MW of energy limited resources were modeled across the 11 zones with an hourly limit of 3,000 MWh and a total daily limit of 12,000 MWh. This is essentially modeling the resources with a four-hour duration each day.

On August 1st, the NYISO received energy limited resource elections. The NYISO stated it considers this information confidential and that no information, either specific or in aggregate, would be provided to the NYSRC. They indicated however that limited information could be shared with those NYSRC consultants that have an executed Non-Disclosure Agreement (NDA).

In order to meet the expectations of a modeling enhancement as put forth in Policy 5-15, a test plan needs to be developed and executed with results being shared with the ICS.

As part of this plan, an initial test would indicate the new software version and a comparison to previously accepted results when the new functionality is turned off. Subsequent testing would fall along the lines of the capabilities as described in NYISO's 9/16/2020 presentation to ICS on “Duration Limited Resource Modeling”¹:

¹ <http://nysrc.org/PDF/MeetingMaterial/ICSMeetingMaterial/ICS%20Agenda%20237/AI%209%20-%20Duration%20Limited%20Resource%20Modeling.pdf>

- Two unit types (EL3 and EL4) are available in MARS that could replicate the behavior of resources with energy and/or duration limitations; these models allow for:
 - Minimum and maximum hourly generation (MW)
 - Maximum energy injection per day and per month (MWh)
 - Maximum # of days the resource can be dispatched per month and per year
 - Maximum # of hours the resource can be effective per day, per month and per year
 - EL4 has the added feature to model charging which is specific to energy storage

Recommendations

1. Model the ELR elections, which become effective 5/1/2021, as a sensitivity case for the 2021 IRM Study using the GE MARS ELR modeling capability, as discussed at the 9/16/2020 NYSRC ICS meeting.
 - a. Continue to model the existing ELR resources as they are currently modeled for the base case.
 - b. NYISO to present these results at the 11/4/2020 NYSRC ICS meeting
2. NYISO and ICS develop a plan to test the GE MARS ELR functionality