ATTENTION: Update to Clean Net Short Calculator for IRP

June 21, 2018

As of June 21, 2018, the Clean Net Short (CNS) Calculator for IRP has been updated with new dispatch profiles for battery storage, pumped storage, and hydro to account for sub-hourly charging and discharging behavior associated with providing regulation and load following reserves.

LSEs preparing IRP Plans for submission by the August 1st deadline should download and use the new version (v1.4.5) of the CNS Calculator available here. Alternatively, LSEs may simply copy/paste the new hydro, battery, and pumped storage dispatch profile tables from the new version (v1.4.5) into their working version of the CNS calculator (v1.4.4).

Background

It recently came to staff's attention that there were unusual patterns in the dispatch profiles for battery storage, pumped storage, and hydro in the previous version (v1.4.4) of the CNS Calculator. For example, in some years/months (e.g., June 2018), it appeared that battery storage was providing power throughout the day without ever charging. Conversely, in later years/months (e.g., June 2030), it appeared that battery storage demanded much more power from the grid than it released in a single day, implying a very low round trip efficiency.

The reason for these unusual profiles is that battery storage (and pumped storage, to some extent) frequently provides regulation and load following reserves, which changes its state of charge at the sub-hourly level. The effect of sub-hourly dispatch on the hydro profiles is much smaller, because hydro tends to provide relatively less sub-hourly reserves than storage in RESOLVE, and the reserve provision tends to be more energy neutral. Although RESOLVE accounts for all of these sub-hourly behaviors, the profiles in CNS Calculator v1.4.4 did not.

The CNS Calculator v1.4.5 contains new dispatch profiles for battery storage, pumped storage, and hydro that account for sub-hourly dispatch from providing reserves. The dominant effect of this update is that in earlier years (e.g., 2018), storage will demand more power from the grid, whereas in later years (e.g. 2030) storage will discharge more power to the grid, especially during early evening hours. For an LSE with storage in its portfolio, the update will likely result in a slight reduction in its total clean net short and GHG emissions in 2030, relative to the previous version of the calculator. The hydro update has very minor impacts.