



Flexible resource adequacy criteria and must offer obligation phase 2 discussion

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Overview

- Provide update of ISO plan of action to address downward flexible capacity needs
- Seek MSC input on:
 - Requirements and offer-obligations for flexible capacity from intertie resources
- Provide explanation of ISO's proposed treatment of pump hydro resources in the flex RA framework.

The ISO proposes to continue current policy of limiting flexible product definition to upward flexible capacity

- The ISO proposes to address forecast oversupply conditions through
 - Providing LSEs and LRAs information on forecast operational needs, including downward flexible capacity needs, and
 - Review of existing market rules to identify enhancements to provide clear economic signals to guide investment and market participant behavior to support operational needs.
 - Lowering the bid floor
 - Reassessing current self-schedule priorities
 - Extending short-term unit (STUC) commitment horizon

The ISO proposes to allow qualified 15-minute inertia resources to provide flexible capacity

- 15-minute inertia resources can provide reliability benefits,
- Still significant variability after dispatch instructions for 15-minute inertia resources
 - Benefits are not comparable to 5-minute dispatchable capacity
 - A measured approach is warranted
- ISO proposes to cap flexible capacity from qualified inertia flexible capacity resources to no more than 50 percent of the total flexible capacity showing
 - ISO can reassess benefits of raising this limit at a later time

15-minute intertie resources must meet basic criteria to provide flexible resource adequacy capacity

- Must economically bid into day-ahead and real-time markets
- Must be resource specific
- LSE must have sufficient Maximum Import Capability (MIC) allocation for the resource
- Firm energy schedule

The ISO is currently exploring the potential for exports to provide flexible capacity

- The potential benefits of pursuing such a product (i.e. Would this product be procured and/or needed)
- Qualifying criteria for providing the product

The ISO will apply RAIM to all import flexible capacity resources

- The ISO will hold an import flexible capacity resource to the must offer obligation of the highest quality of flexible capacity for which it is shown
- Intertie flexible capacity resources on outage must provide substitute capacity from either an internal flexible capacity resource or another qualified flexible import resource
 - Able to provide the same level of flexible capacity for the duration of the outage

The ISO seeks MSC input on the following questions:

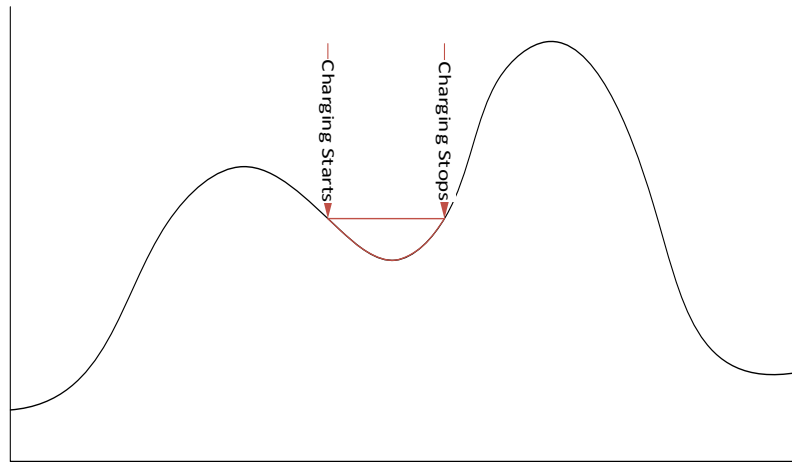
- Has the ISO properly identified the requirements and obligations for intertie flexible capacity?
- How can the ISO ensure that the flexible capacity sold by 15-minute intertie resource is actually made available for use by the ISO?
- Should the ISO develop an export flexible capacity product?
- Are there other concerns regarding the RAAIM, or any other aspect of allowing flexible capacity from intertie resources?

The ISO committed to reassess pumped-storage hydro unit model for EFC as part of the current initiative

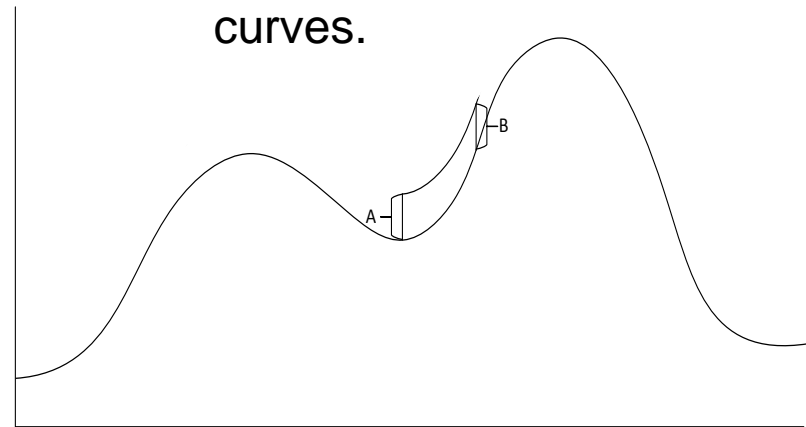
- The ISO's assessment focused on two attributes of pumped-hydro storage resource:
 - Discrete, or blocky, dispatch volumes both on and off
 - Transition time
 - Does not create a reliability basis for disqualifying pumped-storage hydro resources from providing flexible capacity from their pumping load

EFC based on a resource's ability to address the ISO's three hour net load ramp, *not simply lifting the net load*

- NGRs transition smoothly from charge to discharge.
 - Smooth transition from the charging to a zero output state allows NGRs to reduce the net load ramp



- When the resource then stops pumping, load drop means that new net load *drops* immediately back to the old net load curve.
 - In short, the actual ramp, in terms of MW, between A and B is the same on both curves.



ISO proposes not to provide an EFC for pumping load that is subject to discrete dispatches to reduce pumping load