Hybrid Resources Enhancements (Hybrids Phase 3)

Issue Source

PJM Staff

Issue Content

Over the past three years, PJM and stakeholders have worked to define business rules for hybrid resources participating in PJM's markets. The first phase of this work focused on solar-storage hybrids. The second phase expanded the hybrids participation model to all types of inverter-based hybrid resources. The third phase of this work will focus on enhancements and/or clarifications to the existing market rules for these resources, as well as the definition of additional market rules for non-inverter based hybrid configurations (e.g., gas plus storage).

Key Work Activities and Scope

The scope of this work will focus primarily on enhancements and clarification to the existing business rules for inverter-based hybrid resources and, in a limited instance, Eenergy Sstorage Rresources (ESR) Model Participants. Stakeholders will also consider what changes may be required to the hybrids market model to enable the participation of non-inverter based hybrids such as gas plus storage.

1. Enhancements to existing rules for inverter-based open and closed-loop hybrid resources.
    a. Determine whether clarifications and/or further enhancements are necessary to existing rules and requirements around the participation of hybrid resources in PJM Markets.
        i. Areas for further enhancements may include: modifications to the existing definitions of open and closed-loop hybrid resources for resources that can be both, specification of storage and hybrids resources' must offer requirements, definition of rules to differentiate between station service and charging MW, among others.
    b. Discuss areas in the Tariff and Manual(s) that may benefit from additional detail or clarification.
        i. Areas of discussion would include: non-substantive clarifications of rules around hybrid and ESR resourcesModel Participants' eligibility for and calculation of make-whole and lost opportunity cost when in charge mode, business rules around switching between open and closed-loop models, NITSA requirements for different types of hybrids, among others.

2. Development of new rules and requirements for non-inverter based hybrid resources (e.g., gas plus storage):
    a. Determine whether existing rules and requirements for hybrid resources, which are based on intermittent components, apply to non-inverter based hybrids, and where they do not develop business rules for the non-inverter based hybrids. This includes, but is not limited to:
        i. Capacity accreditation and energy must offer rules (e.g., applicability of intermittent rules to a gas-storage hybrid)
        ii. Market modeling options and energy/ancillary services market rules
        iii. Provisions for settlement (e.g., applicability of existing eligibility requirements and settlement rules for uplift and lost opportunity cost)

Out of scope

- PJM implementation of compliance with FERC Order 845

Expected Deliverables

1. Proposed revisions to PJM business manuals
2. If needed, proposed revisions to PJM governing documents

Decision-Making Method

Tier 1 consensus

Stakeholder Group Assignment

Distributed Resources Subcommittee (DISRS)

Expected Duration of Work Timeline

Given that this work will primarily focus on relatively narrow set of enhancements to the existing market rules for hybrid resources, PJM staff recommends a nine-month timeline, with a target completion date in Q3 of 2024.

Start Date	Priority Level	Timing	Meeting Frequency
12/1/2023	☐ High	☐ Immediate	☐ Weekly
	☒ Medium	☒ Near Term	☒ Monthly
	☐ Low	☐ Far Term	☐ Quarterly

Charter

☐	This document will serve as the Charter for a new group created by its approval.
☒	This work will be handled in an existing group with its own Charter (and applicable amendments).