Performance Impact of multi-schedule model in Market Clearing Engine (MCE) in nGEM Enhanced Combined Cycle (ECC) and Energy Storage Resource (ESR) models

Issue Source

Issue charge being brought forth by PJM.

Issue Content

Address the performance impact due to multi-schedule model in the MCE with nGEM ECC and ESR model.

Key Work Activities and Scope

1. KWA#1: Review previous education~~, as needed,~~ on existing multi-schedule model treatment and impact to performance in MCE. (completed on 10/20/2022 as part of Combined Cycle Modeling Education Workshop)
2. KWA#2: PJM to publish a paper with technically feasible solution options to ~~Review proposed solutions and timelines~~perform the preferred/cheapest schedule selection process outside of the MCE to reduce performance impact due to multi-schedule model in MCE.
3. KWA#3: Review and discuss proposed solutions as described in KWA#2.
4. KWA#~~4~~3: Refine proposed solutions defined in KWA#2 ~~or develop a potential solution to reduce the performance impacts of multi-schedule model in MCE~~.

Areas in scope:

a. ~~Method by which commitment software determines~~Perform the preferred/cheapest schedule selection process for commitment and dispatch for Day-ahead and Real-time energy market for all ~~types of~~ resource~~s~~ types outside of the MCE.
~~b. Offer structures in PJM's Day-ahead and Real-time energy markets.~~
~~c. Market Power Mitigation, if required, based on solution.~~

Areas not in scope:

a. Detailed ECC~~, model and~~ ESR, and Hybrid model requirements.
b. Hardware as well as enhanced optimization methods to address performance impacts as PJM and GE evaluate these areas on a regular basis.
c. Increase in Day-ahead market clearing time window.
d. Offer structures in PJM's Day-ahead and Real-time energy markets.
~~a.~~e. Changes to Three Pivotal Supplier (TPS) test.

Expected Deliverables

1. Determine a process to perform the preferred/cheapest schedule selection outside of the MCE such that only one schedule will be passed to the MCE for commitment and dispatch purposes ~~Changes to multi-schedule model in MCE~~ to address~~reduce~~ the performance impact.

2. Changes to manual and governing document revisions for approved solution as necessary.

Decision-Making Method

Tier 1, consensus

Stakeholder Group Assignment

MIC – Special Sessions if needed

Expected Duration of Work Timeline

~~It is estimated that effort could take~~ 6 months. The work will~~would~~ begin as soon as the Issue Charge is approved. A solution is needed by the end of Q2 2023 in order to develop the detailed requirements for nGEM ECC model and implement coincident with the Real-time nGEM MCE production deployment.

Start Date	Priority Level	Timing	Meeting Frequency
2/1/2023	☒High	☒ Immediate	☐ Weekly
	☐ Medium	☐ Near Term	☒ Monthly
	☐ Low	☐ Far Term	☐ Quarterly

Charter

(check one box)

☐	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).

More detail available in M34; Section 6