Hybrids III Conforming Revisions to Manual 21B

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Planning Committee

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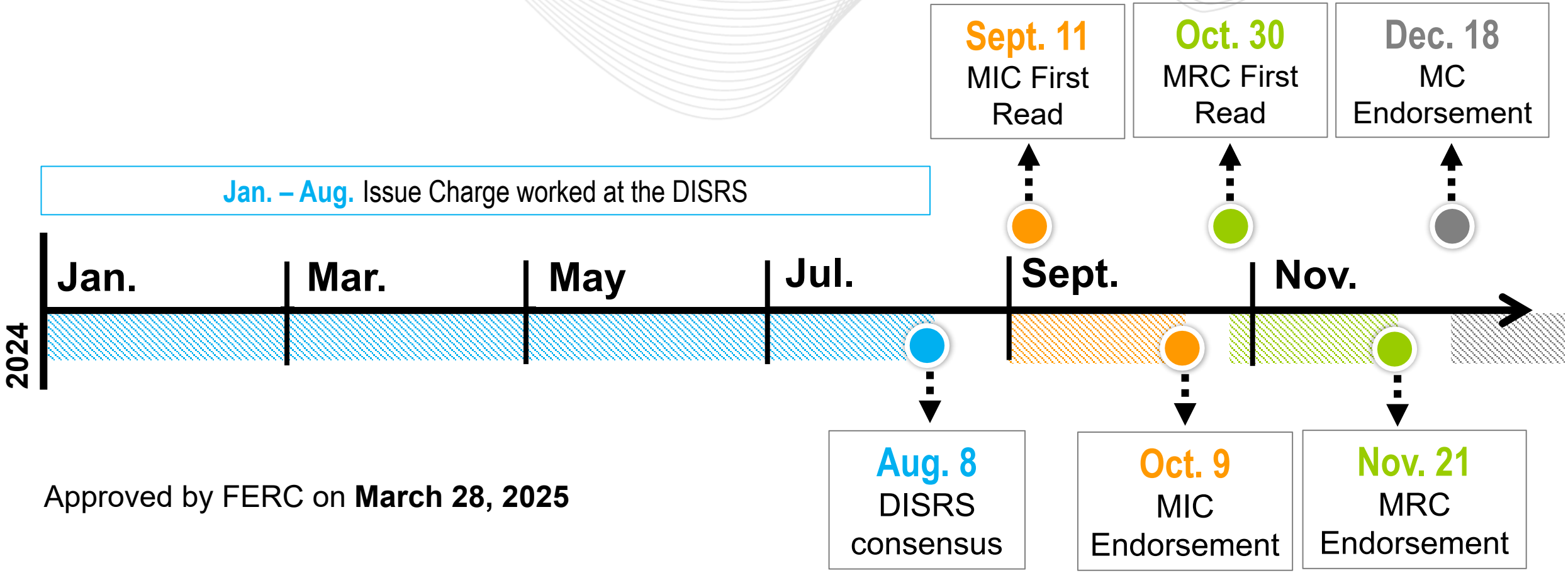
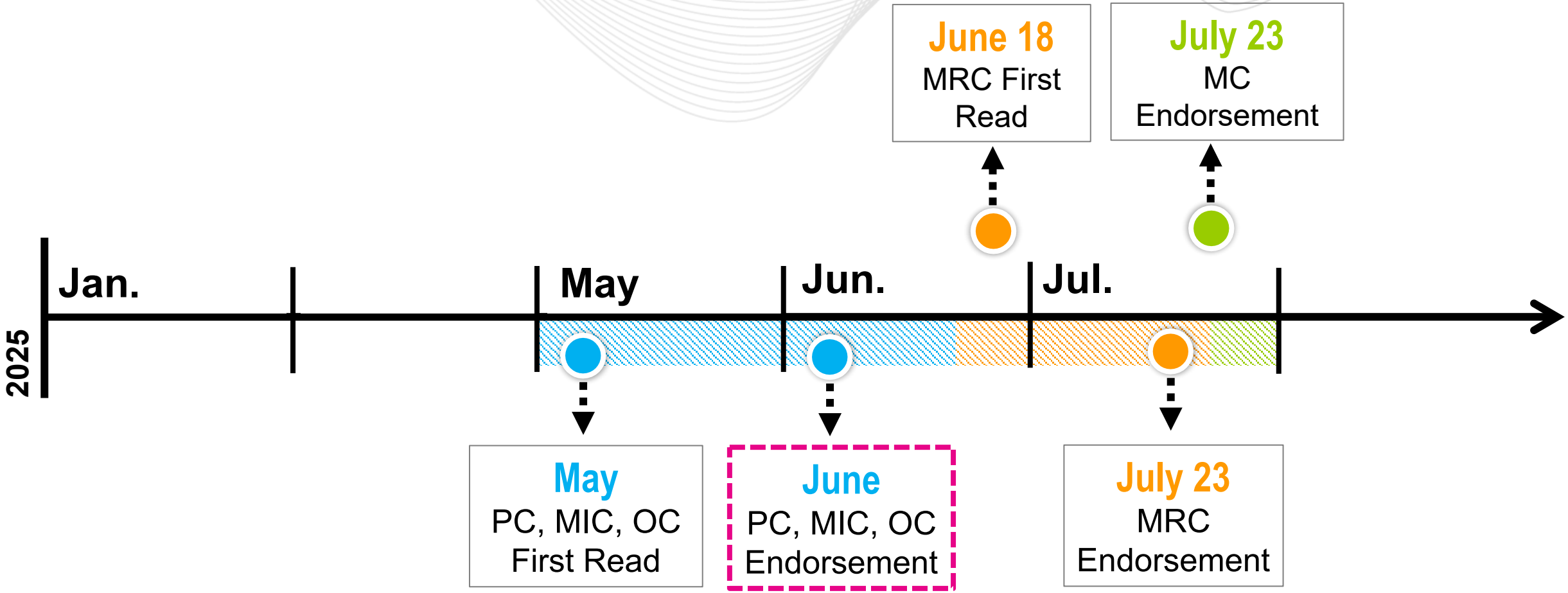
Hybrids 3 Timeline



Approved by FERC on **March 28, 2025**

Hybrids 3 Manual Revisions Timeline



Summary

FERC Docket ER25-1095:

- Expands the Hybrid Resources market model to permit a non-inverter component to pair with a storage component, e.g., gas plus storage, located behind the same POI to form one integrated market unit.
- Revises definitions of Open-Loop and Closed-Loop Hybrid Resources to permit market participants to determine and indicate to PJM the Hybrid Resource's classification based on whether the facility operates by charging its storage component from the grid.
- Provides additional information regarding how a Hybrid Resource can meet its energy must offer requirement.
- Makes certain non-substantive corrections and clarifications around existing market rules.

Hybrid Resource Classes

"Hybrid Resource Class" shall mean the ELCC Classes specified in RAA Schedules 9.2 Section B. Each Hybrid Resource Class has a specified combination of two components, whereby, absent being part of a Combination Resource, the individual~~one~~ components would be in a Capacity Storage Resource Class, ~~and the other component would be in~~ a Variable Resource Class or would be an Unlimited Resource. A resource that is a member of a Hybrid Resource Class has a single Point Of Interconnection, unless the resource is controlled in an integrated fashion, is at a single site, and is approved by PJM to be considered a single resource in accordance with **PJM Manual 14-D**: Generator Operational Requirements.

There are Hybrid Resource Classes for all "open-loop" combinations of each Capacity Storage Resource class and each Variable Resource class or Unlimited Resource class, as well as all "closed-loop" combinations of each Capacity Storage Resource class and each Variable Resource class or Unlimited Resource class. An "open-loop" resource operates by ~~is physically and contractually capable of~~ charging the storage component from the grid, while a "closedloop" resource does~~is~~ not. An example of a Hybrid Resource Class is "Tracking Solar plus 4-hour Storage—Open Loop".

Sec 2: ELCC Classes
2.6 Administration of ELCC Classes

The following business rules apply to each mixed-technology resource:

- A mixed-technology resource comprised of components that have significant interaction must participate as a single Combination Resource (or, if the components would all be Variable Resources, then as a single Variable Resource)
- A mixed-technology resource comprised of components that do not have significant interaction are eligible to participate as either a single Combination Resource or as separate resources
- A mixed-technology resource with a non-inverter generation component and an intermittent component is eligible to participate as Co-Located Resources only
- A mixed-technology resource that indicated its intent to charge the storage component from on-site generation only during the interconnection process can only participate as a Closed-Loop Hybrid Resource
- The Generation Capacity Resource Provider of a mixed-technology resource eligible to participate as either a single ELCC Resource or as multiple stand-alone resources shall elect, for a term of five consecutive Delivery Years, whether PJM is to model it as a single ELCC Resource or as multiple stand-alone resources.
- ….

8.1.4 Combination Resources (other than Hydropower with Non-Pumped Storage)

Combination Resources (other than Hydropower with Non-Pumped Storage) must provide the following data and information:

- All data required for the equivalent standalone components (e.g., solar data listed in Section 8.1.1 above)
- Maximum Output Facility (MFO) in MW
- Power rating capability associated with each component (in MW)
- Storage inventory capacity for energy storage resource component in MWh
- Operates by ~~Contractually and physically capable of~~ charging its storage component from the grid (yes/no)
- Components are DC-coupled (that is, they share inverters) (yes/no)
- Duration class of Limited Duration Resource component (including storage) (e.g., 4 hours, 6 hours, 8 hours, etc.)
- Black Start commitments in MW
- Any other firm commitments in MW and MWh
- Charging/discharging roundtrip efficiency of storage component (%)

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