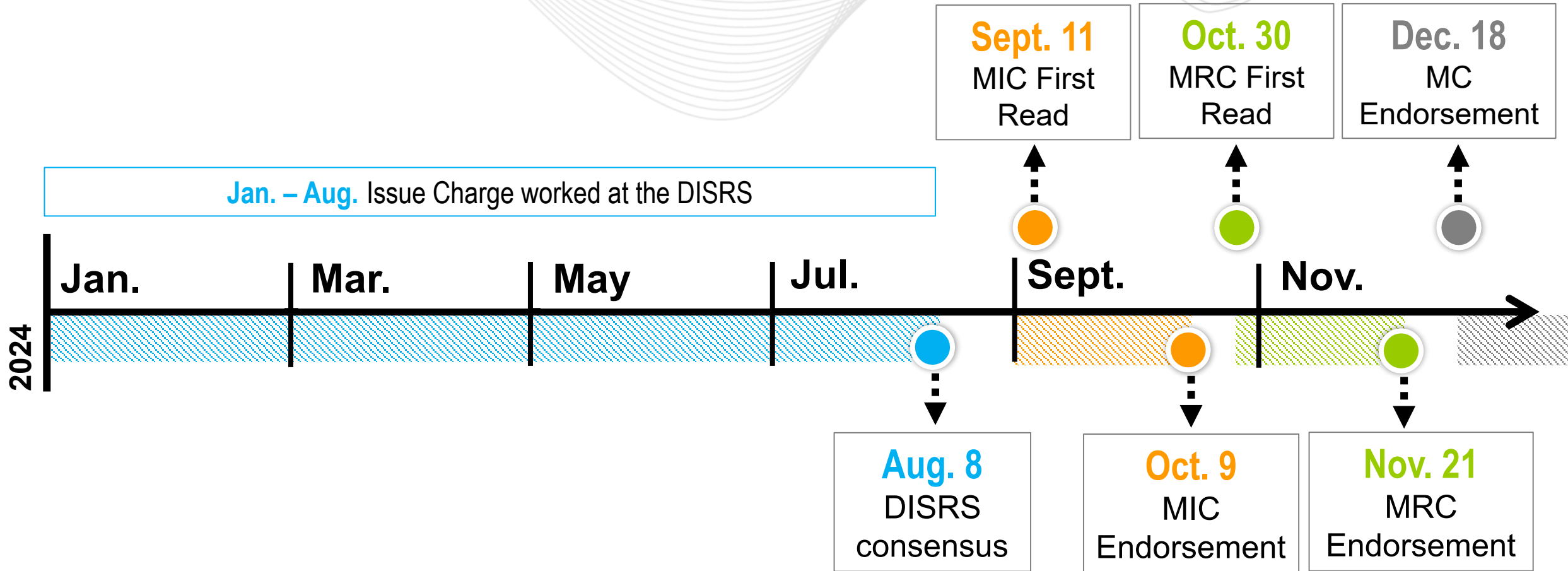


Hybrids Phase 3: Enhancements to the Hybrid Resources Model

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November 21, 2024



- Ensure that the rules and requirements for Hybrid Resources in PJM's governing documents are clear and complete.
- Ensure that definitions properly capture hybrid resources' operational characteristics.
- Ensure alignment between Tariff and Manual language regarding all aspects of the Hybrid Resources participation model.
- Expand the existing market participation model for Hybrid Resources to non-inverter hybrids.

- OATT, Definitions C-D/ OA, Definitions C-D:
 - Revised definition of “Closed-Loop Hybrid Resource” to remove reference to physical/contractual inability to charge from the grid
 - Removed reference to “solar-storage” hybrids
- OATT, Definitions L-M-N/ OA, Definitions I-L:
 - Revised definition of LOC Deviation to specify that the separate reference is to wind, solar, hybrids, and ESR “Model Participants”
- OATT, Definitions O-P-Q/ OA, Definitions O-P:
 - Revised definition of “Open-Loop Hybrid Resource” to remove reference to physical/contractual ability to charge from the grid
- OATT, Att K-Appx, Sec 1.4C/ OA, Schedule 1, Section 1.4C:
 - Revised language to reflect new definitions of open- and closed-loop hybrids
 - Removed reference to “inverter-based” hybrids to reflect expanded model
- OATT, Att K-Appx, Sec 1.4D/ OA, Schedule 1, Section 1.4D:
 - Added specificity with respect to the classification election process
- OATT, Att K-Appx, Sec 1.7/ OA, Schedule 1, Section 1.7:
 - Specified that wind + solar hybrids are not eligible to provide reserves unless an exception is requested approved

- OATT, Att K-Appx, Sec 1.10/ OA, Schedule 1, Section 1.10:
 - Added Hybrid Resources as a resource type that can meet the energy must offer by offering MWs that vary hour to hour from the capacity commitment
- OATT, Att K-Appx, Sec 3.2/ OA, Schedule 1, Section 3.2:
 - Corrected referenced section for uplift payments for Hybrid Resource/ESR Model Participant to Section 3.2.3 (e) and inserted parallel language to the provision of reactive services in 3.2.3B.
 - Added “Hybrid Resource” to Section 3.2.3 (f-5)
 - Clarified language around the uplift rules for the provision of reactive services
- OATT, Att F-2:
 - Revised to reflect that all hybrids capable of charging from the grid must execute a NITSA
- RAA, Article 1 Definitions:
 - Corrected definition of “Hybrid Resource Class” to reflect expansion of model beyond resources with one generation and one storage component
- RAA, Schedule 9.2:
 - Revised language to reflect new definitions of open- and closed-loop hybrids



PJM Friendly Amendment: Classification Timeline

Current package: A *planned* resource must inform PJM of its intent to participate as a hybrid resource vs. co-located resources/open- vs. closed-loop by the Notice of Intent deadline for the upcoming auction. All changes in classification made by an *existing* capacity resource must follow the status quo deadline for ELCC class changes, which is August 1 prior to the calendar year in which the auction is held.

Proposed changed: Existing *and planned* capacity resources must notify PJM of their intent to participate as a hybrid resource vs. co-located resources/open- vs. closed-loop by August 1 prior to the calendar year in which an auction is held. This change:

1. Aligns the notification schedules for planned and existing resources
2. Aligns the notification requirements for Mixed Technology Facilities with other resource types

OATT, Att K-Appx, Sec 1.4D/ OA, Schedule 1, Section 1.4D:

For a Mixed Technology Facility that has components that participate in the capacity market, and that is eligible to participate in the capacity market as either a Hybrid Resource or as multiple Co-Located Resources, the modeling classification election must be indicated in the binding notice of intent pursuant to the timelines and processes set out in Tariff, Attachment DD, Section 5.5 for Planned Generation Capacity Resources, and may be changed pursuant to the rules outlined in RAA, Schedule 9.2.

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