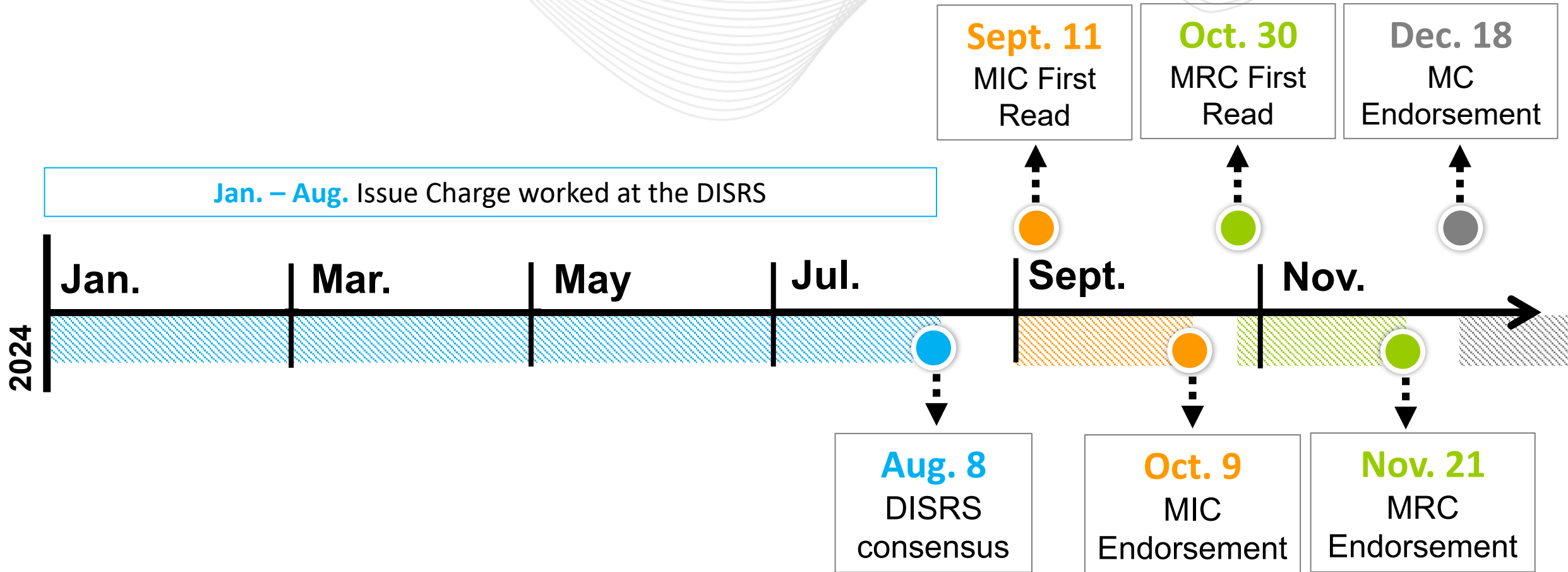


# Hybrids Phase 3: Enhancements to the Hybrid Resources Model

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Market Design & Economics

Members Committee  
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- 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

# Proposed Changes to Governing Documents

- 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

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