






# Manual 28 Biennial Review Summary of Changes

Susan Kenney

Manager, Market Settlement Development

Markets & Reliability Committee

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Action Required	Deadline	Who May Be Affected
Communicate Manual 28 updates to impacted staff 	10/23 	PJM Members and Market Participants 

- Grammar, Punctuation, Typos, Syntax Consistency, Reference Updates
- Addition of clarifying words and phrases
- Removal of terminated business rules
- Deletion of duplicate material
- Clarification of business rules for Direct Charging Energy (hybrids and ESRs)

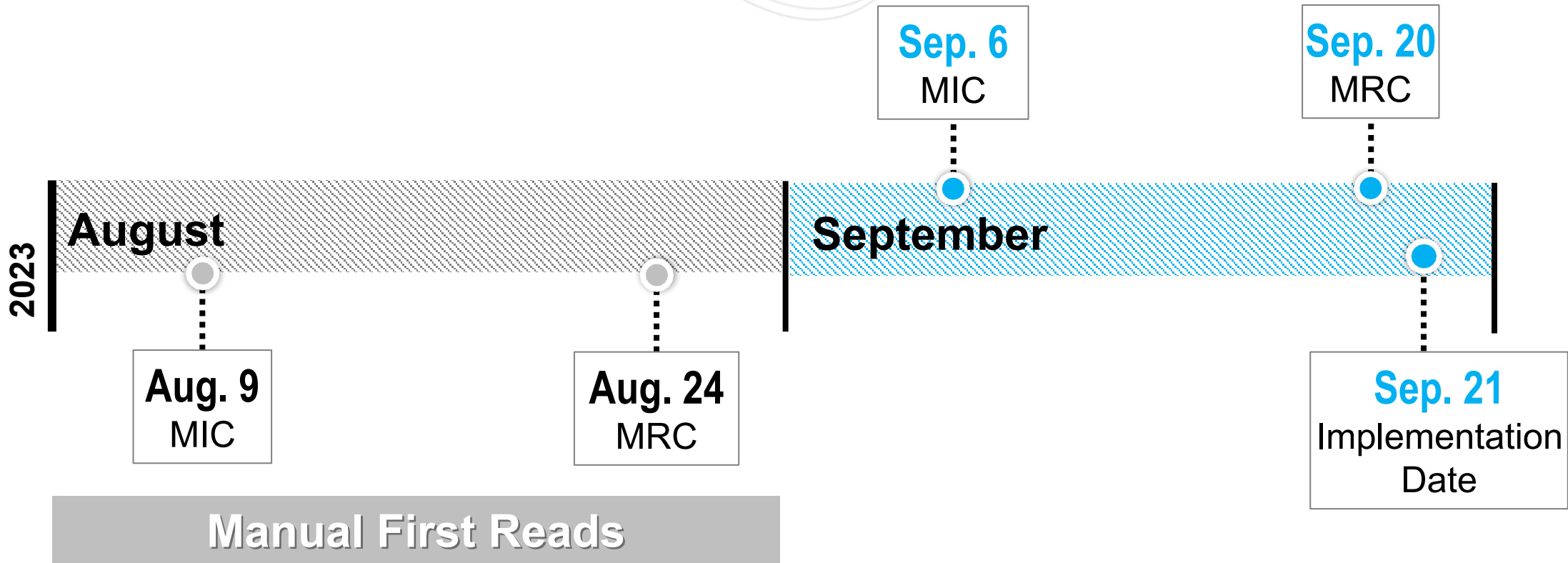
- Section 3 (Spot Market): Consistent use of fully metered EDC, day-ahead, and balancing terminology
- Section 4 (Regulation): Conforming changes for regulation mileage per order EL21-83-000
- Section 5 (Operating Reserves):
  - Replaced UDS basepoint MW with dispatch signal MW
  - Replaced UDS LMP desired MW with Dispatch Imp desired MW
  - Corrected Balancing Operating Reserve Target calculation
  - Including Nuclear unit eligibility description in Section 5.2.1
  - Updated submittal process for condense to generation costs (Submitted via Markets Gateway, not manually submitted)
  - Reformatted balancing energy market value for easier understanding

- Section 5 (Operating Reserves, continued):
  - Removed references to Demand Resources, calculations are covered in Section 11.
  - Added references to Secondary Reserves
  - Added up-to congestion transactions to DA Op Reserves charge denominator
  - Added Section 5.3.2.3A, Calculation of Ramp Limited Desired MW consistent with M11 (will be removed from M11 at a later date).
  - Reworded Section 5.3.5 Reactive Services
- Section 6 (Synchronized Reserves): Clarifications to shortfall MW and charge calculations (e.g. shortfall MW if multiple events during a day and corrected billing line item)

- Sections 6, 7, and 19 (SR, NSR, and SecR): Added obligation calculation details if RT assignments are zero.
- Section 8 and 9 (Transmission Congestion & Losses): Added explicit charge details for up-to congestion transactions.
- Section 9.4 (Transmission Loss Credits): Replaced specific non-firm export reduction factor percentage with calculation description
- Section 11 (Load Response): Replaced description of LM testing allocation ratio with formula
- Section 15 (Market Revenue Neutrality Offset): Corrected cost component of LOC Credit Due to Reduction for Non-Synchronized Reserve

- Section 16 (FTR Auction): Updated to reflect changes allowing self-scheduling by class type
- Section 16 (FTR Auction) and 17 (ARR Settlements): Clarified inclusion of long-term FTR auctions
- Section 17 (ARR Settlement): Added ARR allocation business rule for Direct Charging Energy
- Section 22 (Open-loop Hybrid & Energy Storage): Corrected placement of following dispatch within 10% business rule.
- Section 23: Fuel Cost Policy Penalty Settlements: New section describing settlements methodology consistent with Operating Agreement Schedule 2

## Second Reads/ Endorsements





Chair:  
Stu Bresler  
[Stu.Bresler@pjm.com](mailto:Stu.Bresler@pjm.com)

Secretary:  
Dave Anders  
[David.Anders@pjm.com](mailto:David.Anders@pjm.com)

Subject Matter Expert:  
Suzanne Coyne  
[Suzanne.Coyne@pjm.com](mailto:Suzanne.Coyne@pjm.com)



### Member Hotline

(610) 666-8980

(866) 400-8980

[custsvc@pjm.com](mailto:custsvc@pjm.com)

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(610) 666-2244 / [it\\_ops\\_ctr\\_shift@pjm.com](mailto:it_ops_ctr_shift@pjm.com)

