



Manual M14D Revision 41 Generator Operational Requirements



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Markets and Reliability Committee
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M14D Revision 41 – Administrative Changes

- Changed the references to PJM Manual M-3, Transmission Operations, Section 3.3.3, to Manual M-3, Section 3.11 at several locations
 - The Generator Voltage Schedules section of M-3 will be transferred from Section 3.3.3 to a stand alone Section 3.11 in Revision 51 of M-3. (M-3 changes to be covered separately.)
- Section 2.1 – Generator Owners’ Responsibilities and Attachment L: Jointly Owned Resource Communication Model
 - Changed references from Generation System Operator to Generation Dispatcher for consistency with PJM Manual, M-40, Training and Certification Requirements



M14D Revision 41 – Administrative Changes Continued

- Section 5.4.4 Grid Accounting
 - changed name of PARs from Ramapo to NY-NJ
- Section 5.6.2 Data Requirements
 - corrected end of re-bid period to 1415 hours



M14D Revision 41 – Clarifying Changes

- Section 4.1.5 EMS Data Exchange – revised Exhibit 2 to include requirement for two second generation MW telemetry data for all units participating in the PJM regulation market
 - Two second scan rate (fast scan) required for all PJM generation resources participating in the regulation market



M14D Revision 41 – Clarifying Changes Continued

- Section 7.1.1 Generator Real-Power Control – added clarification that governor outages must be reported for all resource types via eDART
 - The term “governor” includes any type of electronic speed control device that is intended to be responsive to frequency

- Section 7.1.2 Voltage and Reactive Control:
 - Added the requirement that newly connected generator facilities be provided a voltage schedule per PJM Manual M-3, Section 3.11 (Also referenced in Section 6.3.4)
 - Included a chart describing Automatic Voltage Regulator (AVR) operating modes and clarified when exemptions from following a voltage schedule or operating the AVR in automatic controlling voltage are required
 - Added specifics for notifications of Power System Stabilizer outages

- Section 7.3 Critical Information and Reporting Requirements
 - Added requirement for Generation Owners that own transmission equipment to notify the affected Transmission Owner who must then submit outage requests to PJM via eDART for this generation-owned equipment.
 - Required to properly record outages on generation owned transmission equipment such as circuit breakers, capacitor banks, transformers, etc.
 - eDART currently does not provide this functionality for generation owners



M14D Revision 41 – Clarifying Changes Continued

- Section 7.3.4 Generating Unit Reactive Capability Reporting
 - Clarified that these requirements are applicable only for units physically located within the PJM RTO Footprint
 - Clarified language for Pre-Summer and Pre-Winter eDART reactive capability review
- Wind Farm Requirements - Sections 8.2.1 Initial Data Requirements & 8.2.3 Real Time Meteorological Tower
 - Clarified that longitude and latitude are required to be supplied in decimal degrees for wind farms
- Attachment A: Added voltage schedule and reactive capability curve requirements to New Generator Checklist.



M14D Revision 41 – Clarifying Changes Continued

- Attachment D - PJM Generating Unit Reactive Capability Curve Specification and Reporting Procedures:
 - Clarified that these requirements are applicable only for units physically located within the PJM RTO Footprint
 - Included guidelines for selecting points on the D-curve to be submitted via eDART
 - Included a reference document “hot linked” to the manual providing examples of the development of eDART “D” curves for several types of units



M14D Revision 41 – Clarifying Changes Continued

- Attachment E: PJM Generator and Synchronous Condenser Reactive Capability Testing
 - E2 General Requirements - Clarified that reactive testing is not required for capacity and energy resources located outside the PJM RTO footprint
 - E.4.1 – MOC Actions
 - Clarified that maintenance work on the facility that may affect the reactive capability of the units must be completed prior to contacting PJM to initiate the study process.
 - Added clarification to Note 1 regarding adjusting the transmission system to mitigate an external condition

- Section 7.1.1 Generator Real-Power Control – deleted the qualifier “larger than 20 MW” from the requirements to meet the frequency guidelines listed in Manual M36, System Restoration, Section 2.3
 - [Reference FERC Docket No. RM16-8-000; Order No. 828](#), Requirements for Frequency and Voltage Ride Through Capability of Small Generating Facilities issued July 21, 2016



M14D Revision 41 – Substantive Changes Continued

- Attachment D - PJM Generating Unit Reactive Capability Curve Specification and Reporting Procedures
 - Reactive Reserve Check (RRC) - relocated details and generator owner responsibilities to PJM Manual M-3, Transmission Operations, Section 3.12
 - eDART functionality enhanced for Transmission Owners to provide RRC data
 - Additional details to be provided during the M-3 agenda item



M14D Revision 41 – Substantive Changes Continued

- Attachment E: PJM Generator and Synchronous Condenser Reactive Capability Testing
 - Changes due to adding Reactive Test Ticket process to eDART
 - E3 - Testing Requirements – removed link to Reactive Capability Testing Form
 - E.4.1 - Revised test submittal process to include entering Reactive Test Results via eDART
 - E.9 Test Tracking – deleted section. No longer required due to test tracking capability in eDART
 - E.10 – renumbered to E.9 and revised to remove sample test submission forms and included eDART screenshot of Reactive Result Ticket



M14D Revision 41 – Solar Park Requirement Changes (Separate presentation)

- Section 4.2.2 Metering Plan
 - Consolidated real-time telemetry requirements in chart format
 - Added requirement for solar farms
- Section 12 – added new section for Solar Park Requirements
 - This section will be effective pending approval of the associated tariff filing
 - Additional details to follow in separate agenda item



- First Reads, Second Reads, Endorsements:
 - SOS: April 5, 2017, April 26, 2017
 - OC: April 11, 2017, May 2, 2017 (Endorsement)
 - RSCS: April 21, 2017
 - MRC: April 27, 2017, May 25, 2017 (Endorsement)