



Effective Date	12/05/2019
Impacted Manual #(s)/Manual Title(s):	
Manual 3A: Energy Management system (EMS) Model Updates and Quality Assurance (QA) Revision 18	
Conforming Order(s):	
None	
Associated Issue Tracking Title:	N/A
Committee Approval Path - What committee(s) have already seen these changes?	
Planned committee reviews/endorsements: DMS: 09/04/2019, 09/30/2019 RSCS: 09/20/2019 TTMS: 09/20/2019 SOS: 09/05/2019, 10/10/2019, 11/7/2019 (Endorsement) OC: 09/09/2019, 10/15/2019, 11/12/2019 (Endorsement) MRC: 09/26/2019, 12/5/2019 (Endorsement)	
MRC 1st read date:	09/26/2019
MRC voting date:	12/05/2019
Impacted Manual sections:	
Sections 1.2, 1.5, 1.6, 1.7 Section 2 (overall) Sections 3.2, 3.5 Sections 4.3, 4.8, 4.9 Section 5 (overall) Exhibits 1, 10 Appendices: F, G	
Reason for change:	
The overall purpose and intent of changes included in Revision 18 of Manual 03A is to address: <ul style="list-style-type: none"> • 2019 Cover-to-cover Periodic Review for M03A <ul style="list-style-type: none"> – Adopting new timeline for future revisions • New Title (Section 2): Modeling Philosophy • Phase I of an overall effort to update, reorganize, and streamline content 	
Summary of the changes:	

- Overall: Corrected all references to Pseudo-Ties to align with Tariff reference.
- Section 1.2: Formatting changes; generator data descriptions removed; outdated procedure removed.
- Section 1.5: Overall description of PJM's use of 'three concentric model' revised and updated.
- Exhibit 1: Replaced with updated version; layers renamed for clarity.
- Section 1.6: Formatting changes; updates made to text to reflect current procedures. New note added to specify PJM timelines for TOs to provide telemetry and, for members with ICCP connection, a full SCADA file.
- Section 1.7: The words 'Real-Time' removed from title (now reads: PJM's Operations Transient Stability Model); section updated to reflect current procedures.
- Section 2: Opening paragraph revised to reflect updated content. Entire section redesigned to reflect PJM's overall modeling philosophy. New sections added:
 - 2.2.1 Internal World Modeling Philosophy (BES Facility Modeling, Sub-transmission Modeling)
 - 2.2.2 Sub-transmission Modeling Criterion and Responsibilities
 - 2.2.3 PJM External World Modeling (External World Modeling, Model Exchange and Extraction, Pseudo Tie Modeling, Pseudo Tie Eligibility, Pseudo Tie EMS Modeling)
 - 2.2.4 Naming and Modeling Standards
 - 2.2.5 Unique Device Consideration in the PJM Model.
- Section 2.2.3.1: Removed criteria to the extent of external BES equipment to be considered for modeling.
- Section 3.2: The following content is moved from Section 4.9 to Section 3.2:
 - Prepare Initial BES Data to Denote BES Elements of the System
 - TO and PJM Staff Responsibilities:
 - TO Staff Responsibilities – To Address BES Definitions
 - PJM Staff Responsibilities – To Address Revised BES Definitions
 - PJM Staff Responsibilities – Ongoing Sub-transmission Modeling Considerations
 - Exhibit 10: Updated screen shot added for Sample TO Facilities List
- Section 3.4: Text revised to reflect updated procedures when changing transformers and shunts.
- Section 3.5: Section removed; content moved to new Section 2.2.4 Naming and Modeling Standards
- Section 4.3: Exhibit 6: One-line Diagram Symbols updated with clearer version (no change to content)
- Section 4.8: DMS section updated to remove stipulation of SOS appointment of DMS members (per revised DMS Charter); requirements for access to DMS SharePoint added (active, signed NDA on file in eDART); content streamlined.
- Section 4.9: Content relocated to Sections 2.2, Section 3.2, and (new) Appendix G (Examples of EMS Sub-transmission Modeling); Section removed
- Section 5: Section updated, reorganized, and consolidated to reflect updated processes and procedures

- Section 5.1: Formatting and updates made to content
- Section 5.2: Text moved, updated, or deleted to reflect current procedures
- Section 5.3:
 - Heading changed from 'New EMS Models Validation and Benchmarking' to 'Real-time Contingency Analysis (RTCA) and Solution Quality'
 - Text addressing PJM's Security Analysis (SA) Program and RTCA Data Quality moved to this section from existing Section 5.5
- Section 5.4:
 - Title changed from 'Real-time Contingency Analysis (RTCA)' to 'New EMS Models Validation and Benchmarking'
 - Added text addressing changes to PJM EMS and 'soak test' prior to moving changes to production (moved from Section 5.3)
 - Added bullet list of criteria and note addressing readiness for installing new model added (moved from Section 5.3)
- Section 5.5:
 - Text realigned to Section 5.3 (at section addressing PJM's Security Analysis (SA) Program and RTCA Data Quality)
 - Section removed
- Appendix F: New entry added for DER: Distributed Energy Resources
- Appendix G: New appendix added for Examples of EMS Sub-transmission Modeling