Summary of M-03A Changes

DMS/SOS-T
November 2014
Ronald DeLoach
Overview of Changes:

- Formatting changes made throughout document
- References Section: New table added for ‘Important Links’
- Section 1.5: Keeping the Steady-state Model Current section enhanced
- Section 2.2: Reference information added to Network Model Submissions section, Specific SVC Modeling Requirements added
- Section 2.4.2: Responsibilities of DMS Officers and format revisions made to Congestion Management Change Process
- Section 3.2: Exhibits 2, 3, & 5 updated, new Exhibit 4 added, GIS Data Submission detail added, additional mention of SVC Modeling Requirements
- Section 4.1: Text updated, Exhibit 6 updated
- Section 4.3: Exhibit 7 deleted (replaced with new Exhibit 4 in Sec. 3.2)
- Section 4.5: Cut-in Tracking/Review/Notification clarified, Exhibits 9, 10, & 11 updated
- Section 4.8: DMS section re-written/updated; new section 4.8.1 added re: new DMS SharePoint site
- Section 5: Section headings edited/streamlined
- Section 7: Removed (redundant information)
- Appendix C: New Exhibit C1 – Types of Monitored Equipment
- Appendix D: New Appendix added for ‘Acronyms & Descriptions’
Formatting changes made throughout Manual 3A to update and add consistency and improve readability for items such as:

- Footnotes
- Hyperlinks
- Acronyms (e.g., Transmission Owner to ‘TO’, Regional Transmission Owner to ‘RTO’)
- Bullets
At **References** section, new table added for ‘Important Links’:

<table>
<thead>
<tr>
<th>Subject</th>
<th>Link to Online Reference</th>
</tr>
</thead>
<tbody>
<tr>
<td>PJM</td>
<td><a href="http://www.pjm.com">www.pjm.com</a></td>
</tr>
<tr>
<td>PJM Calendar</td>
<td><a href="http://www.pjm.com/Calendar.aspx">http://www.pjm.com/Calendar.aspx</a></td>
</tr>
</tbody>
</table>
Section 1.5:

- Mention added of cut and parameterization method used for external models added
- Section entitled: ‘Maintaining the Steady-state Model Current’ now includes reference to the online build schedule document that identifies important timelines for:
  - Build Date
  - Data Close Date
  - Scheduled PRD Date
Section 2 Header:
  – Reference added to PJM Transmission Facilities Webpage

Section 2.2:
  – Reference added to support Network Model Submission process
  – Additional modeling parameters listed for TOs submitting Network Model tickets for dead band SVCs.

Section 2.3:
  – Concerning topology reconfigurations reference made to Manual 03 Section 4.2.3

Section 2.4.2:
  – Text revised to further explain process to change the PJM Congestion Management Control Facilities List; timelines and events for Congestion Management process now outlined in a table.
  – Role of DMS Officers outlined for Submission process *(see Sept 1 – Dec 1 Timeline)*.
Section 3.2:

- **Exhibit 2** (General Schedule for Submitting Modeling Data) updated to reference timelines for quarterly build schedule (*previous reference addressed only two builds per year*).
- SVC requirements: max / min MVAR capability – see section 2.2.
- Reference added to point TOs to DMS website and new DMS SharePoint site.
- Exhibit 3 title adjusted to identify example associated to summer build cycle
Section 3.2:

- New Exhibit 4 added to illustrate Network Model Data Submission & Model Validation Timeline

  - Note: Also serves as simplification and streamline to member needs of previous Exhibits 7 & 8 shown below
Section 3.2:
- Additional requirement details to be provided in network model submissions, including topology reconfigurations.
- PRD build Schedule changes posted on PJM.com web site.
- Fully complete network model submission before data close constitutes on time.
  - Title starts Station(company) - needs voltage level, ISD, brief summary (100 Char limit)
  - ISD can be best estimate, approximate dates.
  - Add files that show topology, switch names, overall area plan
  - Parameters need load estimate, line impedances, XFR voltages and taps
  - 6-12 months before cut-in
- Denote clearly if submission involves Tie Line
- New unit type: Battery Storage
- Review of PRD update modeling within 2 weeks
Section 3.2:

- New section added for: **Geographic Information System (GIS) Data Submission** to outline process for TOs to add GIS Coordinates for any new stations in their company model (Latitude/Longitude).

- **Exhibit 5** (formerly Exhibit 4)
  Site map updated to reflect current PJM EMS Model Details.

  ILL_EQ, WIS_EQ, TVA, DUKE, CPL areas increased one level in quality.
Section 4.1:
- Spelled out that PJM will follow confidential model sharing agreements dictated through member processes.
- Text updated throughout section referencing DMS and associated links.
- Exhibit 6 updated (Sample Model Update Build Summary):

<table>
<thead>
<tr>
<th>Network Model ID</th>
<th>Company</th>
<th>Project Title Description</th>
</tr>
</thead>
</table>

Section 4.3:
- Old Exhibit 7 deleted (eDART Network Model data submissions & model validation timeline). Replaced with Exhibit 4 (see slide 9).
Section 4.5:

- Exhibit 9 updated (eDART Outage Ticket with Cut-in Flag). Replaced screenshot of PJM version of transmission ticket with member version.
Section 4.5 (continued):

- Exhibit 10 image re-formatted to remove slide header and footer.
Section 4.5 (continued):

- Mention added to identify 3 day response time required for verification of cut-in report

- Exhibit 11 (Sample Format of 6-Week Look Ahead Cut-in Report) updated to display ‘dummy’ data:
Section 4.8:

- Revised to include updated information on DMS
- New Section 4.8.1 added to explain new DMS SharePoint site, with instructions for TOs to access new site.
Section 5:

- Raised bullet levels to better sectionalize information (e.g., text originally at old sub-section 5.1.1 is now part of Section 5.1, etc.).

Section 5.2.3:

- Clarified validation requirements and removed “worse anomaly in PJM footprint <50% of reading since not quantifiable

Section 5.3:

- Adjusted to summarized Contingency Analysis outage scenario (thousands instead of 4000-4500) and contingency (hundreds instead of 500 or so) counts
Section 6:

- Removed example of SA priorities and just pointed to definitions provided online in Transmission Facilities webpage help file:
  http://www.pjm.com/~/media/markets-ops/trans-service/trans-fac-help.ashx
Section 7:

- Entire section deleted, as information is redundant and appears in prior sections throughout Manual 3A.
Appendix B:

- Appendix B renamed to: **Appendix B: eDART Application Functionality Training (including Network Model and TERM Applications)**
  
  - *Old Heading: Appendix B: eDART Network Model Training*

- Text revised to include high level description of eDART and specifically the Network Model application

- Instructions added on how to access eDART via eSuite

- Reference link added for eDART User Training materials
Appendix C:

- Replaced Monitoring Priority bulleted title list with Exhibit C1: List of Monitoring Priorities which include definitions of each priority level

<table>
<thead>
<tr>
<th>Priority</th>
<th>Name</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>Not monitored, No status</td>
<td>Also referred to as Unmonitored, applies to facilities which may, or may not, be modeled in the PJM EMS. No significant impact on system loading is expected to result from outages on these facilities. PJM’s EMS does not maintain ratings limits for these facilities.</td>
</tr>
<tr>
<td>1</td>
<td>Reliability &amp; Markets</td>
<td>Applies to internal PJM facilities under Congestion Management. If actual or post-contingency violations occur on these facilities, operators follow appropriate procedures, including market re-dispatch, to remediate problems. PJM’s EMS maintains ratings limits for these facilities.</td>
</tr>
<tr>
<td>2</td>
<td>Reliability BES</td>
<td>Applies to facilities defined as part of the Bulk Electric System (BES) or facilities PJM is responsible for as NEERC Security/Reliability Coordinator. These facilities are not included in Reliability &amp; Markets. May also apply to internal PJM facilities impacted by switching/phase shifter operations on parallel PJM facilities which are under Congestion Management. If actual or calculated overloads occur, operators follow appropriate procedures to remediate the problem. Facility owners are responsible for any off-cost operation incurred. PJM’s EMS maintains ratings limits for these facilities.</td>
</tr>
<tr>
<td>3</td>
<td>Status Only</td>
<td>TOs are required to report outages on all facilities classified as priority 1, 2, 5, 6 &amp; 7. In addition, TOs are required to report outages on facilities that are not in Congestion Management but may impact the reliability and/or economics of the system. TOs are required to follow applicable outage reporting procedures for facilities classified as Reportable BES/PJM or Reportable Low. The primary difference in these classifications is that for Reportable BES/PJM facilities, TOs are required to call before and after taking outages whereas TOs are not required to call PJM before taking an outage on Reportable Low facilities. TOs are not required to report outages on facilities classified as Reportable Hi To PJM. PJM can require that any, or all, OATT facilities be Outage Reportable. PJM’s EMS does not maintain ratings limits for these facilities.</td>
</tr>
<tr>
<td>4</td>
<td>External</td>
<td>Similar to priority 2 but for non-PJM facilities. These external facilities could impact the PJM system as a part of Market to Market Congestion Management flow-gate coordination between adjacent RTOs. PJM’s EMS maintains ratings limits for these facilities.</td>
</tr>
<tr>
<td>5</td>
<td>External Status Only</td>
<td>Similar to priority 3 but applied to external, non-PJM facilities. PJM’s EMS does not maintain ratings limits for these facilities.</td>
</tr>
<tr>
<td>6</td>
<td>Reliability Non-BES</td>
<td>Similar to priority 2 but applies to facilities that may be modeled by PJM but are not included as Markets &amp; Reliability or BES facilities. Facilities are generally included in this category at the request of the transmission owner. If actual or calculated overloads occur, operators follow remedial procedures in cooperation with the facility owner. Corrective strategies are implemented as approved by the owner. Owners assume responsibility for off-cost operation. PJM’s EMS does maintain ratings limits for these facilities.</td>
</tr>
<tr>
<td>7</td>
<td>GSU</td>
<td>Similar to priority 2 but applies to generator step-ups. Facility owners are responsible for costs incurred to remediate problems. PJM’s EMS does not maintain ratings limits for these facilities.</td>
</tr>
<tr>
<td>8</td>
<td>Future</td>
<td>Applies to facilities that are candidates for, but not yet approved, inclusion in Reliability &amp; Markets or facilities that are modeled but not yet in service.</td>
</tr>
</tbody>
</table>

General Notes
Doc #331540

For Security Analysis, PJM the EMS is typically set to monitor all facilities with priority 1 through 5. As required, these settings are changed to include the remaining facility categories. These facility classifications are utilized in PJM planning and operations.
New Appendix D added to display table of Acronyms and Descriptions used throughout Manual 3A:

<table>
<thead>
<tr>
<th>Acronym</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>AGC</td>
<td>Automatic Generation Control</td>
</tr>
<tr>
<td>ATC</td>
<td>Available Transfer Capability</td>
</tr>
<tr>
<td>BES</td>
<td>Bulk Electric System</td>
</tr>
<tr>
<td>CA</td>
<td>Contingency Analysis Program</td>
</tr>
<tr>
<td>DMS</td>
<td>Data Management Subcommittee</td>
</tr>
</tbody>
</table>
Questions???