



# Manual 3A, Revision 18

## 2019 Cover-to-cover Periodic Review

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TO/TOP Matrix Subcommittee  
09/20/2019

- **2019 Cover-to-cover Periodic Review**
- **Phase I effort:**
  - update
  - reorganize
  - streamline
- *New Title*: **Modeling Philosophy**



## Summary of Content Moved

Topic	Section Moved From	Section Moved To
Timelines for Telemetry, ICCP data dump, & SCADA file submissions	3.2	1.6
BES Facility Modeling	4.9	2.2.1
Sub-transmission Modeling	4.9	2.2.1
Sub-transmission Modeling Criterion & Responsibilities	4.9	2.2.2
External Modeling	4.9	2.2.3
Pseudo-Tie Eligibility and Pseudo-Tie Modeling	4.9	2.2.3
Naming & Modeling Standards	3.5	2.2.4
Prepare Initial BES Data to Denote BES Elements of the System	4.9	2.3.1
TO Staff Responsibilities – To Address BES Definitions	4.9	3.2.1
PJM Staff Responsibilities – To Address Revised BES Definitions	4.9	3.2.1
PJM Staff Responsibilities – Ongoing Sub-transmission Modeling Considerations	4.9	3.2.1
PJM's SA Program & RTCA Data Quality	5.5	5.3
Examples of EMS Sub-transmission Modeling	4.9	Appendix G <i>New</i>

Gen Data Descriptions Removed

“Three Concentric Model”  
Updated

Timelines for Telemetry & Data

From  
Section 3.2

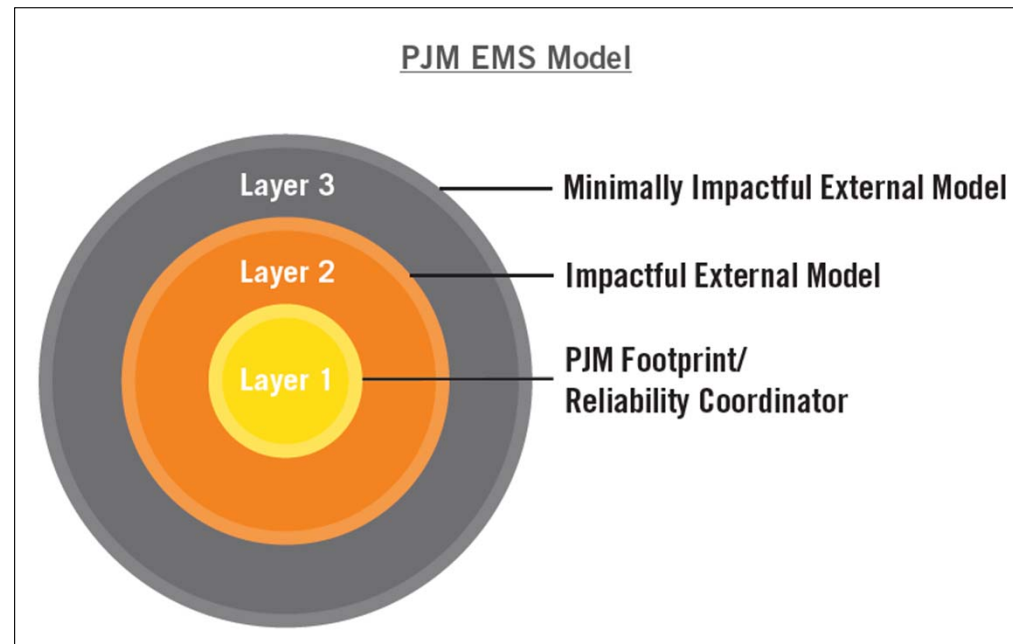
**Note:**

Telemetry information must be received by PJM no later than two (2) weeks prior to the scheduled cut-in.

PJM members with an ICCP connection to the PJM EMS shall provide a full SCADA file in addition to an ICCP data dump to PJM at least every 6 months, or upon PJM's request.

- **Section 1.7:**
  - **PJM's Real-Time Operations Transient Stability Model**

- **Exhibit 1: Re-designed and replaced**



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*New Title*  
**Internal World Modeling Philosophy**

*New Title*  
**PJM External World Modeling**

## 2.2.5 Unique Device Consideration in the PJM Model

## Added reference to Compliance Bulletin 14

### 2.3.1 Prepare Initial BES Data to Denote BES Elements of the System

- TOs staff perform an initial review of existing systems to assess what is to be included or excluded to the current list of BES elements and provide necessary documentation to NERC.<sup>3</sup>

<sup>3</sup> Refer to **Compliance Bulletin 14: Definition of Bulk Electric System (BES) – PJM Member Requirements** at <https://pjm.com/-/media/library/whitepapers/compliance/cb014-bulk-electric-system-definition-pjm-member-requirements.ashx?la=en>

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TO Staff Responsibilities – To Address BES Definitions	4.9	3.2.1
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## Section 3.4: Revised procedures when changing transformers & shunts

Changes can still be made outside model build process

Submit Transmission Outage Ticket for all permanent or temporary changes





# Section 3

## Exhibit 10: Current screenshot of Sample TO Facilities List

PJM Interconnection, L.L.C

Last Updated on 5/31/2019

PJM Transmission Providers FACILITIES LIST

The following list includes, but is not limited to, facilities of the regional transmission owners that are included in PJM's EMS model. FERC Form-1 or equivalent facilities are so noted under the column headed PJM OAT Tariff Facility. This list will be updated when transmission facilities managed by PJM are added to, or deleted from, the electrical network.

[PJM Transmission Providers Facilities List On-Line Help\(PDF\)](#)

Equipment Code:

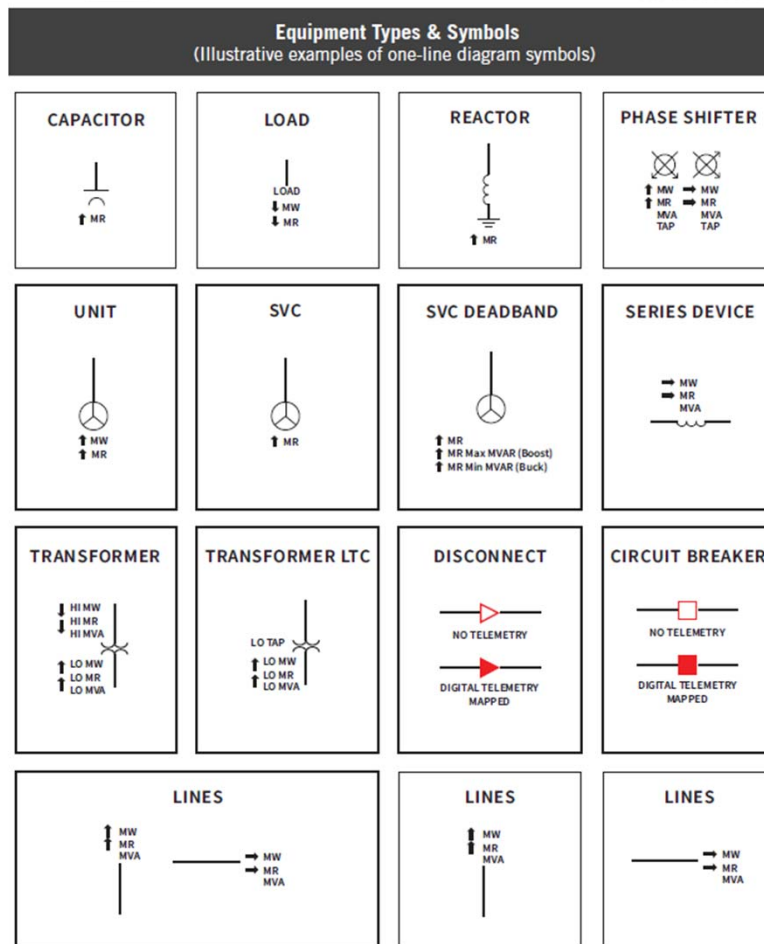
- 1 - Transmission Line
- 2 - Transformer or Phase Shifter
- 3 - Shunt Capacitor or Reactor
- 4 - Series Reactor or Capacitor
- 5 - SVC Device
- 6 - Other Substation Equipment-Busses, Bus Sections, or Breakers
- 7 - Tie-line
- 8 - Generator Step Up (GSU) transformer  
(List by Station and Voltage Level or Device Name)
- 9 - Flow CB
- 10 - Equipment

Company ABC

Mark column K as:  
 Yes = Reportable and Call in  
 Low = Reportable, status available will not call in unless unusual circumstances  
 No = No call and no status

(A)	(B)	(C)	(D)	(E)	(F)	(G)	(H)	(I)	(J)	(K)	(L)	(M)
Equip Code	ID	Facility Identification by Transmission Prov	B1_NAME	B2_NAME	B3_NAME	B3 TEXT	Voltage	PJM OAT Tariff Facility (Y1/L1/N1)	Included in EMS Model (Y1/N1)	Reportable Transmission Facility (Y1/L1/N1)	PJM Monitored Facility Status	BES Flag
1	1234	Happy - Gloomy 138KV	HAPPY	138KV	HAP-GLOO	HAPPY - GLOOMY 1234	138	Yes	Yes	Yes	Reliability & Markets	True
1	567	Land - Sky 500KV	LAND	500KV	LAN-SKY	LAND - SKY 567	500	Yes	Yes	Yes	Reliability & Markets	True
1	8910	Broad Tap - Street Rd 230KV	BRODTAP	230KV	BRO-STR	BRODAD TAP - STREET RD 8910	230	Yes	Yes	Yes	Reliability & Markets	True
1	1111	Sun - Shine 230KV	SUN	230KV	SUN-SHI	SUN - SHINE 1111	230	Yes	Yes	Yes	Reliability & Markets	True

## Exhibit 6: One-line Diagram Symbols refreshed



**Section 4.8:**  
Data Management Subcommittee section updated per recent Charter changes

**Section 4.9:**  
Removed

**5.2: SE Solution Quality & ICCP Links - Updated**

**5.3: SA Program & RTCA Data Quality (*from Section 5.5*)  
Real-time Contingency Analysis (RTCA) & Solution Quality (*from Section 5.4*)**

**5.4: New EMS Models Validation & Benchmarking (*from section 5.3*)**

**5.5: Removed**

- **Appendix F: DER: Distributed Energy Resources** added to Acronyms
- **Appendix G: *New* - Examples of EMS Sub-transmission Modeling** (*from Section 4.9*)



# The Road to Publication Effective 10/31/2019

