

# Manual 01 Revision 36

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Section	Change to/Updated	Impact
2.3.1	NERC references updated	Minor
2.7	NERC references updated	Minor
3.2	Com methods during outages changed	Moderate
3.8	Transfer of M13 text on outages to M01	Minor
Attach. A	New info service for system restoration planning	Minor

*\*\*\*No changes since MRC 1<sup>st</sup> Read*

Updated references to NERC Standards. See appendix for details.

### *Section 2.3.1, Transmission Monitoring Capability*

- Reference to TOP-007-1 is removed, no replacements.

Updated references to NERC Standards. See appendix for details.

*Section 2.7: PJM Member Back Up Capability Required to Support PJM in its TOP Role*

- The following references are updated.

Old NERC Standard Reference	New NERC Standard Reference
TOP-004-2 R4	TOP-010(i)-1R3.2
TOP-004 R1	TOP-001-3 R12, R14
TOP-006 R1 R2 R5-7	TOP-003-3 R19 R20
TOP-008 R1-4	TOP-001-3 R12 R14
TOP-004 R6	n/a – no replacements

Updated references to NERC Standards. See appendix for details.

### *Section 2.7: PJM Member Back Up Capability Required to Support PJM in its TOP Role*

- TO EMS backup capability, changed from **1-hour** to **2-hour** response, per **EOP-008-1 R1.5**
- PJM to monitor TO Transmission system during TO EMS outage, per **EOP-008-1 R1.6.2**

### *Section 3.2.3: EMS Data Exchange*

#### *Summary:*

- Member actions during EMS datalink outages restructured (cont'd from R35).
- Clarified requirements for verbal and electronic data communication during outages.
  - 2 new subsections created listing requirements for each.
- **Email** is replaced with **secure file transfer** as an electronic alternate communication method.
  - Email is still acceptable alternate communication method.
  - More changes to come in the next revisions as PJM solidifies procedures and format for the secure file transfer method.
- Thresholds for types of data to be sent have been lowered from **345 kV** to **100 kV**.
- Generator data is specifically called out as a type of data to be sent during outages.

## *Section 3.8: Planning, Coordination and Notification of System Changes and Events*

### *Summary:*

- Language in M13 Section 1.3 has been transferred to M01 Section 3.8.
  - Emergency Operations, EMS/ICCP Link Outages
- This section defines PJM and PJM member (TOs and GOs) responsibilities and actions in the case of both planned and unplanned outages.
  - The requirements that existed in M13 did not change.
- Important notes on outage scheduling and restrictions included.

A: Generation Scheduling Services						
	Information Services	PJM Member Regional Transmission Owner	PJM Member Generating Entity	PJM Member Load Serving Entity	PJM Member Marketer	Neighboring Control Areas
A.13	System restoration planning data, e.g. unit start times, ramp rates, start-up loads, low load operating capabilities		8			
8 - Mandatory data to be shared with Transmission Owners for Generators that are, or will be, included in a TO restoration plan						

- New line being added to M01, Attachment A, Table A
- Covers additional outputs from PJM created by the TO restoration planning changes



- Second Read
  - 12/7 – SOS Joint
  - 12/12 – OC
  - 12/21 – MRC
  
- Effective Date: 1/2/2018

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# Appendix



# NERC Standard Reference Changes (Section 2)



*M01: Control Center and Data Exchange Requirements*

*Section 2: Member Control Center Requirements*

*Section 2.3: Computer System Requirements*

*Section 2.3.1: Transmission Monitoring Capability*

*Edits (1/1):*

PJM relies on Transmission Owners to serve as a backup to PJM, monitoring BES facilities, when the PJM EMS is inoperable (~~TOP-007-1~~). PJM Transmission Owners shall notify PJM dispatch within 15 minutes when their TO analysis packages are unavailable (~~TOP-004-2 R4~~TOP-010(i)-1 R3.2). In general, PJM may be in an unknown state when both PJM and TO analysis packages are unavailable.

## *M01: Control Center and Data Exchange Requirements*

### *Section 2: Member Control Center Requirements*

#### *Section 2.7: PJM Member Back Up Capability Required to Support PJM in its TOP Role*

##### *Edits (1/6):*

If a PJM member primary EMS capability becomes unavailable, PJM will need back up capability (may include backup EMS or backup functionality or staffing critical substations, etc.) from the Transmission Owner to be available (within ~~1-hour~~ 2 hours per EOP-008-1 R1.5) from that member so that PJM can continue to perform its obligations as the TOP during such interruptions.

## *M01: Control Center and Data Exchange Requirements*

### *Section 2: Member Control Center Requirements*

#### *Section 2.7: PJM Member Back Up Capability Required to Support PJM in its TOP Role*

##### *Edits (2/6):*

NERC Standard ~~TOP-004, R1~~TOP-001-3 R12, R14 requires the TOP to operate within the limits of its IROLs and SOLs. If the data for monitoring the IROLs and SOLs passes through the PJM member EMS and that capability becomes lost, then the PJM member is required to have a backup capability to ensure that the necessary data continues to be provided to PJM.

## *M01: Control Center and Data Exchange Requirements*

### *Section 2: Member Control Center Requirements*

#### *Section 2.7: PJM Member Back Up Capability Required to Support PJM in its TOP Role*

##### *Edits (3/6):*

During the TO transition to its back up facility, PJM will continue to monitor the TO Transmission System to the extent data quality permits [per EOP-008-1 R1.6.2](#).



## *M01: Control Center and Data Exchange Requirements*

### *Section 2: Member Control Center Requirements*

#### *Section 2.7: PJM Member Back Up Capability Required to Support PJM in its TOP Role*

##### *Edits (4/6):*

~~NERC Standard TOP-004, R6 requires the TOP to have formal policies and procedures to ensure transmission reliability. If the PJM member is unable to execute operating procedures that may be implemented by PJM, such as switching or load shedding, due to the unavailability of its EMS or other operational tools, then the PJM member is required to have a backup capability to be able to execute these actions.~~

## *M01: Control Center and Data Exchange Requirements*

### *Section 2: Member Control Center Requirements*

#### *Section 2.7: PJM Member Back Up Capability Required to Support PJM in its TOP Role*

##### *Edits (5/6):*

NERC Standard ~~TOP-006, R1, R2, R5-7~~, TOP-003-3 R19, R20 requires data to be provided to PJM to ensure reliability. If such data is interrupted by unavailability of the PJM member EMS, then the PJM member is required to have a backup capability to ensure that the necessary data continues to be provided to PJM.

## M01: Control Center and Data Exchange Requirements

### Section 2: Member Control Center Requirements

#### Section 2.7: PJM Member Back Up Capability Required to Support PJM in its TOP Role

##### *Edits (6/6):*

NERC Standard ~~TOP-008, R1-4~~ TOP-001-3 R12, R14 requires PJM to take immediate action to mitigate potential and actual IROL or SOL violations. Many of those actions require the PJM member to execute actions requested by PJM. If the unavailability of the PJM member EMS or other tools prevents the execution of those actions, then the PJM member is required to have back up capability to ensure that it can execute PJM requested actions.

# EMS Data Exchange During Outages (Section 3.2.3)



**IF** an RTU/Telemetry device fails (a subset of data is lost)

**THEN**

1. Member **manually replaces values** on the existing datalink.
2. If not feasible, Member **calls PJM dispatch** to report significant events.
3. If not feasible, Member begins **file transfer** based communications.
  - A file with required data to be sent at least every 30 minutes

**IF** the ICCP/DNP Link fails (all of the data from the member is lost)  
**THEN**

1. Member begins **file transfer** based communications.
  - A file with required data to be sent at least every 30 minutes
2. If not feasible, Member **calls PJM dispatch** to report significant events.

- The following significant events require verbal communication to PJM Dispatch immediately (regardless of the communication method used during outages)
  - The loss of any equipment  $\geq 100\text{kV}$
  - A change of  $\geq 25\text{ MW}$  of any generator MW flow
  - A change of  $\geq 100\text{ MW}$  flow at  $\geq 500\text{kV}$
  - A change of  $\geq 50\text{ MW}$  flow at  $< 500\text{kV}$
  - A transformer tap position change at  $\geq 230\text{kV}$
  - A breaker status change at  $\geq 100\text{kV}$

- New section describing the requirements for **electronic** method.
  - Applies to the Manual Replacements and Secure File Transfer
- This section explains:
  - The type of data to be sent at least every 30 minutes:
    - Tie Line Flows, both internal and external
    - Transmission MW and MVAR flows and bus voltages at  $\geq 100$  kV
    - Generation MW and MVAR flows at  $\geq 25$  MW capacity
  - If using secure file transfer, required meta-data to be included



- New section describing the requirements for **verbal** method.
  - Applies to the situations where the member is unable to send a secure data file or perform manual replacements
- This section explains:
  - Member to check at least every 30 minutes for significant changes (defined) compared to last communicated value to PJM
  - Member to verbally communicate only the changed values