

Manual 01 Revision 35 – 2nd Read

Bilge Derin
Engineer – Real-Time Data Management
Operating Committee
July 11, 2017



- Changes since 1st read:
 1. *Section 4.1.5, new section on communications for COM-001-3*
 2. Attachment B, deleted *TOP-006-2 R6*, EOP 003-1 R2 and EOP 003-1 R8
 3. Section 3.2.3, revised language to clarify EMS data communication methods to PJM during data link or RTU outages
- Other changes in this revision:
 4. Section 4.1, revised language to comply with COM-001-3
 5. Section 4.5.1, revised language to comply with TOP-001-3 (R1)
 6. Attachment A, B.4, added detail regarding AVR/PSS control

4.1.5 Member Communications with Field Personnel

Each Member shall have internal Interpersonal Communication capabilities for the exchange of information necessary for the Reliable Operation of the BES between the Member TO Control Center and field personnel.



Attachment B: Schedule of Data Submittals

In order for PJM to provide satisfactory evidence to demonstrate compliance, PJM members are required to provide the following information to PJM on a frequency noted below:

Standard Reference	To be Submitted	Frequency and Date
TOP-006-2R6	Tie line meter accuracy for each tie line. Submittal to be provided via PERCS website.	(Annual) Recommend September 30
EOP-003-1 R2	UFLS data (similar to current process for annual request of information). Submittal to be provided via PERCS website.	(Annual) Recommend May 1
EOP-003-1 R8	How each TO plans to implement load reduction in sufficient time and amount if directed by PJM. Submittal to be provided via PERCS website.	(Annual) Recommend March 1

New for 2nd Read:
Retired on 3/31/17.
Removed.

Retired on 3/31/17.
Removed.

When data communication outages occur, the following data must be kept manually (or electronically should manually prove impractical) updated:

- Megawatt line flows for 345 kV or higher lines and all tie lines. If megawatt values cannot be given, provide the best data available, i.e. MVA, state estimated data, etc.
- Bus voltages for all 345 kV or higher stations.

Affected data must be updated:

- After the loss of a major generator or transmission line;
- When the data value has a detected change of more than 100 MW on a 500 kV or higher line, or more than 50 MW on a 345 kV and below;
- At least every 30 minutes, and more frequently as determined by PJM.
- Whenever changes occur, 500/345/230 kV tap changes and 345 kV or higher breaker positions should be manually updated. MVAR values for the 345 kV or higher lines will be updated only when requested by PJM.

- Divide “data communication outages” into two subsections:
 - ICCP/DNP Link Outage
 - When the link between PJM and TO/GO is down (all data is lost)
 - RTU/Telemetry Device Outage
 - When TO/GO loses data from the RTU (a sub-set of data is lost)
- Clarify:
 - How to communicate data for each outage type
 - What type of data to communicate during an outage
 - How often the data should be updated.

- How to communicate data:
 - ICCP or DNP3 Data Link Outage
 - Member company should:
 1. Send email to DispatchData@pjm.com
 - Equipment name
 - Measurement description and Object ID (if applicable **available**)
 - Measured value with timestamp
 2. Send fax message or make a phone call to PJM control room to communicate data verbally

- How to communicate data (cont'd):
 - RTU/Telemetry Device Outage
 - Member company should:
 1. Manually replace values in member company EMS,
 - This will be transmitted to PJM EMS via the existing ICCP/DNP3 communication
 - No further action by member company required.
 2. Send an email to DispatchData@pjm.com
 3. Send fax message or make a phone call to PJM control room to communicate the data verbally.

- What to communicate:
 - Megawatt flows for 345 kV or higher equipment and all tie lines
 - Tie Line values to be called out specifically if email method is being used to communicate data to PJM
 - Bus voltages for all 345 kV or higher stations
 - MVAR values at 345 kV or higher equipment, if requested by PJM control room

- Frequency of communication:
 - At least every 30 minutes, or more frequently as requested by PJM Control Room
 - After the loss of a major line/generation
 - When the data value has a significant change
 - More than 100 MW on a 500 kV or higher equipment
 - More than 50 MW on a 345 kV or lower equipment
 - When 500/345/230 kV tap position changes occur
 - When 345 kV or higher breaker status changes occur

The dispatch voice system provides high-priority Interpersonal Communication (voice communications) capability between PJM and other parties, including PJM members, other internal entities and external entities as described below.

As required by **COM-001-3**, the dispatch voice system provides high-priority Interpersonal Communication (voice communications) capability between **the PJM Control Center at Valley Forge and Milford**, as well as between PJM and its Member **TOPs, TOs, GOs and GOPs**, other internal entities and external **RCs, BAs, TOPs and TOs**, as described below.

PJM also uses **Polycom video conferencing** units to enhance communications between the **Valley Forge and Milford Control Centers**.

Section 4.5.1. Purpose of Communication Protocols

PJM has developed these Communication Protocols in accordance with NERC Standard COM-002-4 and **TOP-001-3**. The purpose of these protocols is to improve communications for the issuance of Operating Instructions to reduce the possibility of miscommunication that could lead to action or inaction harmful to the reliability of the Bulk Electric System (BES).

- Clarification on methods of AVR/PSS Excitation Control:

	Information Services	PJM Member Regional Transmission Owner	PJM Member Generating Entity	PJM Member Load Serving Entity	PJM Member Marketer	Neighboring Control Areas
	<u>Inputs to PJM</u>					
B.4	AVR and PSS Excitation Control via eDart or SCADA		1			

- System Operations Subcommittee – **July 6**
- Operating Committee – **July 11**
- Markets & Reliability Committee – **July 27**

Ryan Nice

Ryan.Nice@pjm.com

610-666-4777

Bilge Derin

Bilge.Derin@pjm.com

610-666-3121

NERC COM-001-3:

<http://www.nerc.com/pa/Stand/Reliability%20Standards/COM-001-3.pdf>

NERC TOP-001-3:

<http://www.nerc.com/pa/Stand/Reliability%20Standards/TOP-001-3.pdf>