

Fundamentals of Transmission Operations

Communications

PJM State & Member Training Dept.

The student will be able to:

- List the requirements for use of 3-part communication
- State the function and use of the PJM All-Call System
- Identify what PJM considers a Directive
- Identify company member responsibilities once PJM has issued a Directive

3-Part Communication

- NERC Standard COM-002 requires mandatory use of 3-part communication
- Expectations include use of this process in any and all internal and external communications

NERC Standard COM-002-2 : Communication & Coordination

Purpose: “To ensure Balancing Authorities, Transmission Operators, and Generator Operators have adequate communications and that these communications capabilities are staffed and available for addressing a real-time emergency condition. To ensure communications by operating personnel are effective”

3-Part Communication

NERC Standard COM-002-2 : Communication & Coordination

- R2. “Each Reliability Coordinator, Transmission Operator, and Balancing Authority shall issue directives in a clear, concise, and definitive manner; shall ensure the recipient of the directive repeats the information back correctly; and shall acknowledge the response as correct or repeat the original statement to resolve any misunderstandings”



3-Part Communication

Generation Operations Requiring 3-Part Communication:*

- Unit starts
- Unit trips or releases
- Requests from PJM for additional generation
- eDART ticket numbers
- Synchronized Reserve or Regulation assignments
- Manual dispatch of generation
- Emergency operations related information

*Partial list - Manual M1, Section 4

3-Part Communication

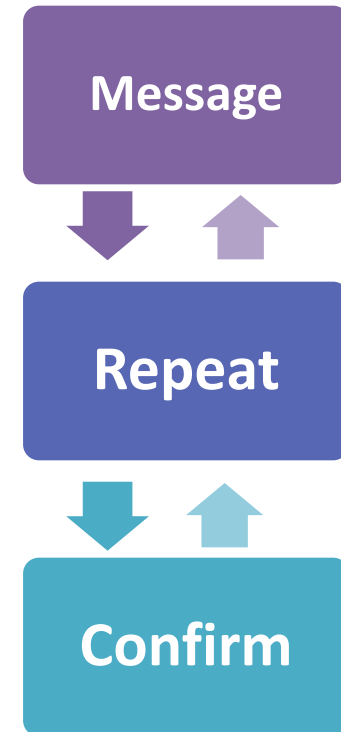
Transmission Operations Requiring 3-Part Communication:*

- Transmission switching
- Capacitor switching
- Outages (eDART ticket number and line numbers, not every circuit breaker)
- PCLLRW issuance and cancellation
- TLR cuts in transactions
- Market to Market redispatch
- Emergency operations related information

*Partial list - Manual M1, Section 4

3-Part Communication

- “Directives” as defined by PJM require use of 3-Part Communication
- Internal audits are performed to verify use of 3-Part Communication
- **Best practice:**
 - Use of 3-Part Communication for all exchanges (per M-1)



3-Part Communication

Message



- ✓ Clear & Concise
- ✓ Speak Slowly
- ✓ Re-start communication process when signs of confusion are present

3-Part Communication

Repeat



- ✓ Ask for clarification if necessary
- ✓ *Understand* information
- ✓ Repeat back information correctly and thoroughly

Note: Provider/Sender of information should prompt repeat of information if not done voluntarily

3-Part Communication

Confirm

- ✓ Repeat message if necessary
- ✓ Correct receiver of information if repeated incorrectly
- ✓ Provide proper confirmation

Acceptable	Unacceptable
Yes, that is correct	Yeah, man
Ok, that is correct	OK
Correct	Alright, yeah, bye

3-Part Communication

How do we handle All-Call Messaging and 3-Part Communication?

- Since the All-Call messaging is a form of **1-way communications**, 3-part communication is not required
- Verification or clarification of All-Call messages are *the responsibility of the Operator*
 - Contact PJM – Shift Supervisor or other appropriate individual

3-Part Communication

Examples of what would result in “red flag” during a NERC Audit:

- Repeating back information incorrectly
- Failing to be thorough in repeat-back (ie. not naming stations/lines/devices)
- “Sender” failing to correct the “Receiver” of information



Directives

NERC Standard COM-002-2: Communication & Coordination

R2. “Each Reliability Coordinator, Transmission Operator, and Balancing Authority shall issue directives in a clear, concise, and definitive manner; shall ensure the recipient of the directive repeats the information back correctly; and shall acknowledge the response as correct or repeat the original statement to resolve any misunderstandings”



PJM Directives

PJM defines a “Directive” as the following:

Instructions from PJM to its members to take actions to control their [Interconnection] Inter Regional Reliability Operating Limit (IROL) or initiate load dump measures for capacity or transmission emergencies

Full Definition Found In: PJM Manual 1
Section 4: Control Center & Data Exchange Requirements

PJM Directives

How are PJM Directives issued?

- A Directive may be issued through the PJM All-Call System or via a direct phone call to the Member Company
- Directives are always issued by PJM
 - NERC's stance is that PJM needs to direct any load shed actions (capacity shortage load shed, PCLLRW, IROL load shed)

PJM Directives

What are the requirements of a Member Operator when issued a Directive?

- The use of 3-part communication is required
- PJM Member Operators are required to follow all operational instructions based on the Directive
- Member Operators should be mindful of time constraints associated with PJM issued Directives

PJM Directives

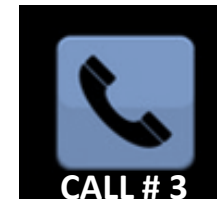
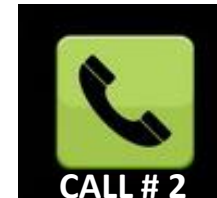
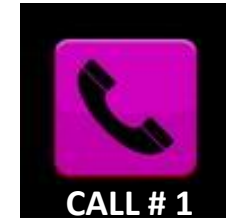
What are the requirements of a Member Operator when issued a Directive? (cont.)

- PJM Members who are unable to comply with a Directive should communicate this to PJM immediately
- Restrictions based on *safety, loss of life, or damage to equipment* would fall into this category
- If a Member Operator is unable to comply with a Directive, it is important for them to provide their reasoning as soon as possible (PJM may need to implement alternative actions)

Communications Review

“You Be The Auditor”

1. Listen to 3 calls (re-recorded)
2. Review transcripts
3. Discuss call debrief questions in groups
4. Full classroom debrief

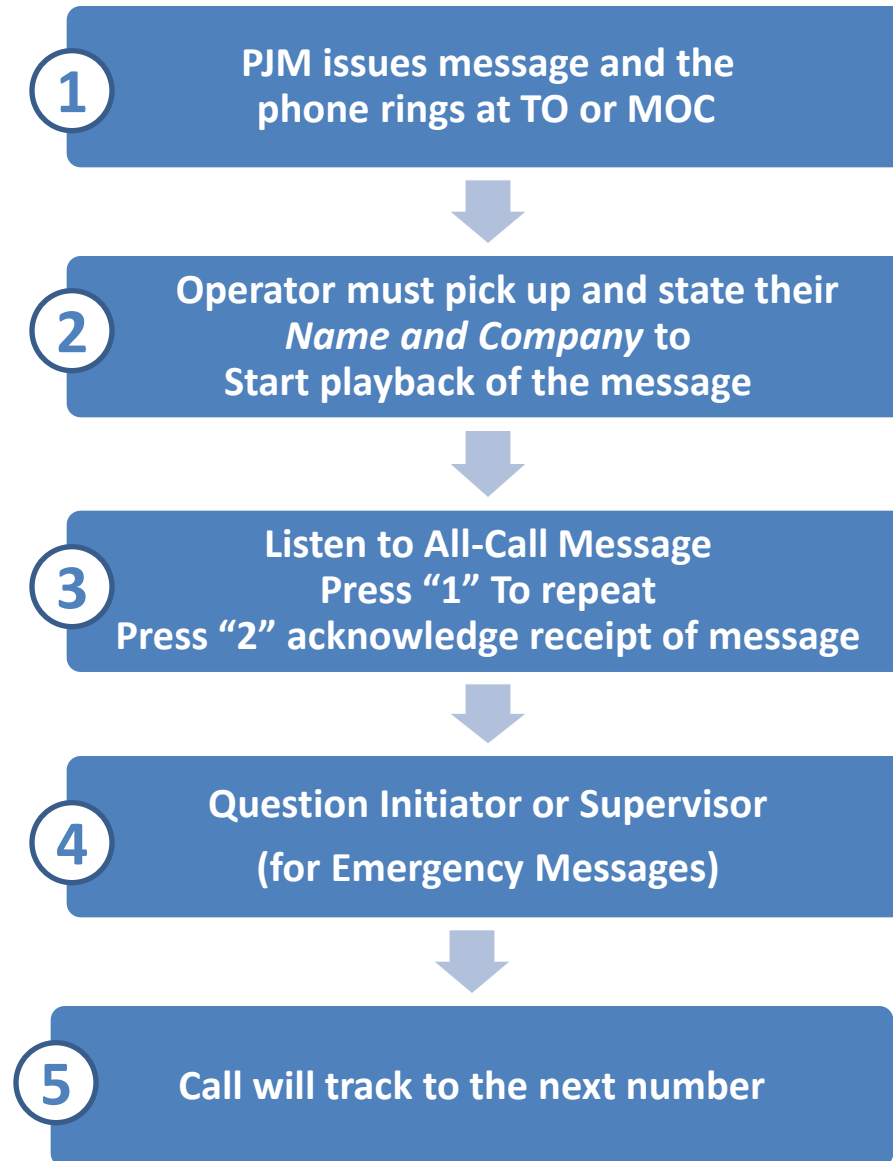


PJM All-Call Process

PJM All-Call Process

- The PJM All-Call process is a one-way communication system used to send messages to member companies
- PJM All-Call messages are issued during both normal and emergency conditions
- PJM Member Control Centers are required to have a dedicated line for the primary All-Call number

Receiving PJM All-Call Messages



Message Categories

There are 3 categories for All-Call Messages:

- Operational
- Informational
- Emergency Procedures

Message Categories

OPERATIONAL MESSAGES

General Information	GD, PD, MC or SS depending on message
General Dispatch	Generation Dispatcher
Instantaneous Reserve Checks	Generation Dispatcher
Off-cost Operations	Power Dispatcher
Geo-Magnetic Disturbance Information	Generation Dispatcher
Time Correction Information	Power Dispatcher/Gen Dispatcher
500 kV and Above Switching	Power Dispatcher
Regulation Information	Master Coordinator

Message Categories

INFORMATIONAL MESSAGES

Scheduling Information

Master Coordinator

Message Categories

EMERGENCY MESSAGES

Emergency Alerts, Warnings, and Actions	GD, PD, MC or SS depending on message
Minimum Generation Information	Master Coordinator or Generation Dispatcher
Synchronized Reserve Activations	Generation Dispatcher
Supplementary Status Report	Master Coordinator

Summary

- *NERC Standard COM-002* requires the use of 3-part communications
- “*Directives*” as defined as an IROl or load dump measures
- *All-Call Communications* is a form of one-way communication used at PJM

Resources and References

- PJM Interconnection. (2013). *PJM Manual 1: Control Center & Data Exchange Requirements (Section 4)*. Retrieved from <http://www.pjm.com/~media/documents/manuals/m01.aspx>
- NERC. (2007). *Standard Com-002-2 – Communication & Coordination*. Retrieved from <http://www.nerc.com/files/COM-002-2.pdf>

Disclaimer:

PJM has made all efforts possible to accurately document all information in this presentation. The information seen here does not supersede the PJM Operating Agreement or the PJM Tariff both of which can be found by accessing:

<http://www.pjm.com/documents/agreements/pjm-agreements.aspx>

For additional detailed information on any of the topics discussed, please refer to the appropriate PJM manual which can be found by accessing:

<http://www.pjm.com/documents/manuals.aspx>