



Working to Perfect the Flow of Energy

PJM Interconnection

2020 Winter Emergency Procedures Drill

Revision: 2.0

Effective Date: November 18, 2020



2020 WINTER EMERGENCY PROCEDURES DRILL

November 18, 2020

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1.0 PURPOSE

The PJM Regional Transmission Organization (RTO) monitors the operation of the PJM Control Area. The PJM RTO is responsible for determining and declaring that an emergency is expected to exist, exists, or has ceased to exist in any part of the PJM Control Area. The PJM RTO directs the operations of the Local Control Centers (LCCs) and Market Operations Centers (MOCs) as necessary to avoid emergency operations, if possible, or to manage emergencies. PJM also coordinates with neighboring RTOs, ISOs, and RCs to obtain or give assistance as dictated by system conditions.

The PJM RTO and its member companies are required to plan, prepare, and train for system emergencies as outlined in various NERC Reliability Standards.

The PJM RTO conducts system-wide drills to assess the readiness of system operations personnel during emergency conditions. The objectives of these drills are to ensure that the following occurs:

- PJM personnel, LCCs and MOCs understand emergency procedures.
- PJM RTO, LCC and MOC communication facilities are adequate.
- Market participants can obtain the necessary transmission, generation and load information to complete the emergency procedures forms.
- PJM dispatchers and operations staff will use the submitted forms to provide adequate advanced notifications.
- PJM provides critical operating information to neighboring Reliability Coordinators and maintains situational awareness regarding neighboring systems.
- PJM RTO, LCCs and MOCs provide adequate information to the appropriate governmental agencies.
- PJM personnel are postured to collect and process information for after the fact analysis.
- PJM and member company personnel demonstrate effectiveness of corporate / governmental affairs communications.

Coordination is very important in system operations, but is magnified during emergency system conditions. Each Control Area is required to control its generation so as not to create a burden on interconnected systems. Failure to provide adequate control can result in deviations in frequency and inadvertent power flow. For the PJM Control Area to meet its commitment during peak load periods, it may be necessary to deviate from normal operating procedures.

The PJM RTO has documented, and directs, emergency procedures to ensure reliable system operations. The PJM RTO identifies peak load and light load capacity shortage / excess conditions, and projects and communicates the extent to which emergency operating procedures are required.

The Market participants are responsible for understanding their role and responsibilities under emergency conditions and responding to PJM RTO directives. The PJM RTO,

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LCCs and MOCs practice emergency operating procedures through periodic drills to ensure reliable operations during extreme operating conditions.

2.0 OVERVIEW

2.1 General

The Winter Emergency Procedures Drill will be **conducted on Wednesday, November 18, 2020 from 0730 hrs through 1430 hrs EPT**. The drill will test established procedures for capacity shortages in accordance with conservative operations as described in Sections 2, 3, 4, 5 and 6 of the PJM Manual for Emergency Operations (M-13).

The PJM RTO will contact government agencies as identified in emergency procedures documentation. SOS members will release Statements W1 through W2 for Cold Weather Emergencies to exercise communications channels within their respective companies.

2.2 Postponement Drill Date

December 1, 2020

2.3 Emergency Energy Bid Process

MOCs and Market Participants are encouraged to email in emergency energy bids as per Attachment D of the Emergency Operations Manual (M-13) on November 18, when requested via the All Call.

2.4 Conference Calls

November 17, 2020

1500 hrs EPT - SOS Transmission (**SIMULATED**)

1600 hrs EPT - Corporate Communications (**SIMULATED**)

1700 hrs EPT - Inter-RTO Natural Gas Coordination Group (**SIMULATED**)

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0800 hrs EPT - MISO System Status Call (**ACTUAL**)

0900 hrs EPT - SOS Transmission (**ACTUAL**)

0930 hrs EPT - NPCC System Status Call (**ACTUAL**)

1500 hrs EPT - DTS debrief (**ACTUAL**)

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3.0 SIMULATED DRILL STAGE

3.1 Assumed Initial System Conditions

Weather forecasts received Tuesday, November 17, 2020 indicate the need to implement emergency procedures in advance. Analysis indicating a potential capacity shortage condition during the afternoon peak load period results in a Cold Weather Alert being issued and Maximum Generation Emergency called into the capacity for the operating day of Wednesday, November 18, 2020 for the entire PJM RTO.

System Status Reports indicate that approximately 89% of Long-Lead Time and Short-Lead Time Emergency Mandatory Load Reductions as well as Emergency Voluntary Energy Only Demand Response, will be needed for Tuesday's peak load period. An SOS conference call (**SIMULATED**) is scheduled for 1500 hours to coordinate the release of advisories for a Potential Cold Weather Emergency (W1 Statement) to SOS-T and Corporate Communications. The committee agrees that the warning will be released for broadcast on the evening, late evening and morning news reports.

The following Emergency Procedures have been implemented in the Simulation Stage: Cold Weather Alert, Low Voltage Alert, Maximum Generation Emergency Alert, Unit Startup Notification Alert, Primary Reserve Alert, and a Voltage Reduction Alert. All Emergency Procedure Warnings and Actions will be issued as part of the drill to ensure participants properly notify government agencies and to exercise internal communications for each member company.

3.2 Security Conditions

As a result of NTAS and current DOE Information PJM is currently at the following Security Levels:

Electricity Sector Physical:	No current alerts issued.
Electricity Sector Cyber:	No current alerts issued.
Homeland Security:	No current alerts issued.
DOE Security Condition:	No current alerts issued.
NRC Security Level:	No current alerts issued.
PJM Security Level:	No current alerts issued.

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3.3 Sequence of Events:

The following Emergency Procedures are assumed to have been implemented on Tuesday, November 17:

1500 SOS conference call resulting in the issue of a Cold Weather Alert and for Potential Cold Weather Emergency **(SIMULATED)**.

1600 SOS-T Corporate Communications conference call to discuss situation, coordinate messages, inform group of call for conservation and issue W1 Statement **(SIMULATED)**.

1700 Inter-RTO Natural Gas Coordination Group conference call with NYISO and ISO New England **(SIMULATED)**.

1700 PJM Corporate Communications releases W1 Statement-Call for conservation. PJM completes and submits Department of Energy Form OE-417 in accordance with PJM manual M-13: Emergency Operations, Attachment J **(SIMULATED)**.

1900 Maximum Generation Emergency/Load Management Alert, Primary Reserve Alert, NERC Energy Emergency Alert 1 (EEA 1), Unit Startup Notification Alert, Low Voltage Alert, Voltage Reduction Alert, issued for the Day and Evening periods of Tuesday, November 17th **(SIMULATED)**.

4.0 ACTUAL DRILL STAGE

4.1 General

The actual drill stage will begin at 0730 hrs EPT on Wednesday, November 18, 2020 with PJM dispatchers notifying the appropriate government agencies. An All Call message will be made to all entities to summarize system conditions and required actions.

During the drill stage, PJM will issue a Primary Reserve Warning, Voltage Reduction Warning, Reduction of Non-Critical Plant Load, Manual Load Dump Warning, and all emergency actions. An SOS Transmission Conference Call **(Actual)** will be held at 0900 hrs EPT to discuss system conditions and the release of Public Notification Statements.

The SOS will agree to release Statements for Cold Weather Emergency W1-W3 to Corporate Communications as system conditions worsen. Unit losses because of gas delivery problems and high loads will result in 2500 MWs of Manual Load Shed (system wide).

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All emergency procedure actions will be issued as part of the drill to ensure participants properly notify government agencies and to exercise internal communications within each member company.

All appropriate messages will be posted to Emergency Procedures Postings in Data Viewer.

The drill will be terminated at 1430 hrs EPT.

4.2 Assumptions

It is assumed that all actions prior to 0730 hrs EPT, November 18, 2020 have occurred in simulation.

LCCs, MOCs, and Load Serving Entities (LSE) will report actual generation to the PJM Dispatcher as it exists on the day of the drill at the time it is requested. PJM will adjust the company data to ensure that each of the emergency procedures is exercised.

Drill participants will input unit limitation information into the Markets Gateway system. Information will be submitted so that an analysis can be performed to ensure company personnel understand drill forms and data requirements; this will also ensure that communication capabilities are adequate.

The amount of load shed during Manual Load Dump (**SIMULATED**) will be phoned to the PJM Power Director unless the PJM dispatchers indicate otherwise. Load dump allocations will be based on those provided in Attachment E, of PJM Manual 13, Emergency Operations.

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4.3 Communications

Conference Call (Bridge)	(800) 244 9194
Pass Code: 046336#	
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Scheduling & GD	610-728-4827
Power Dispatcher	610-728-4826 (East) 610-728-4825 (West)
Supervisor	610-728-4829
Fax Phone #	(610) 666 4287
Fax Secondary	(215) 541 2372

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4.4 Sequence of Events (All times in Eastern Prevailing Time (EPT),

November 18, 2020

- 0700 PJM Notifies NERC and Reliability Coordinators via the Reliability Coordinator Information System (RCIS) network. PJM will also contact the Department of Energy (DOE) via telephone.
- 0730 PJM announces start of drill, requests all companies report generation resource limitations into Markets Gateway, and issues a Heavy Load Voltage Schedule Warning for the entire PJM Control Area (PJM CA) via All Call.
- 0735 PJM Leadership conducts Operational Event Response Team (OERT) Conference Call to inform them of the Drill.
- 0800 Reliability Engineer conducts – MISO System Status Conference call.
- 0830 PJM issues Maximum Generation Emergency Action without loading any steam or CT generation.
- PJM requests emergency energy bids via All Call, Emergency Procedures, and RCIS.
- 0845 PJM requests a Reactive Reserve Check and implements the Heavy Load Voltage Schedule via All Call.
- PJM Issues All Call to State Agencies.
- 0900 SOS Transmission Conference Call is held.
- 0915 PJM Dispatcher requests implementation of Pre-Emergency (Step 1) and Emergency Mandatory Load Management Reduction Actions (Step 2), 30, 60, and 120 minute timeframe, via All Call. (Note that for the purpose of the drill Load Management is being issued outside of normal business rules.)
- PJM issues NERC EEA 2 via RCIS.
- 0945 Reliability Engineer conducts – NPCC System Status Conference call.
- 1000 PJM Dispatcher issues a Primary Reserve Warning (Step 3) via All Call.
- 1010 PJM Notifies VACAR and NPCC that PJM is unable to participate in Shared Reserves.
- 1015 PJM Dispatcher issues Maximum Generation Emergency Action for loading of CTs only (Step 4 A).
- 1030 Drill inject event.
- 1045 PJM Issues Voltage Reduction Warning and Reduction of Non-Critical Plant Load (Step 5) via All Call.
- 1100 PJM requests the loading of Maximum Generation Emergency Action steam via All Call.

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- 1115 PJM issues a Deploy All Resources Action (Step 7) for the entire PJM RTO.
- 1125 PJM Dispatcher issues Manual Load Dump Warning (Step 8) for the entire PJM RTO.
- 1145 PJM Dispatcher directs participants to load Limited Fuel Generation and suspend regulation via All Call.
- 1200 PJM Dispatcher Implements Voltage Reduction Action and Curtailment of Non-Essential Building Load (Steps 9 and 6).
- PJM completes Department of Energy Form OE-417 in accordance with PJM manual M-13: Emergency Operations, Attachment J.
- 1205 PJM Corporate Communications releases W2 Statement to SOS-T Corporate communicators.
- 1245 PJM Dispatcher implements 2500 MW Manual Load Dump Action (Step 10) via All Call.
- PJM issues NERC EEA 3 via RCIS.
- PJM completes Department of Energy Form OE-417 in accordance with PJM manual M-13: Emergency Operations, Attachment J.
- PJM Corporate Communications releases W3 Statement for Cold Weather Emergency to Governmental Agencies and the Media.
- 1300 Company Corporate Communicators Group conference call with PJM Corporate Communications.
- 1345 PJM cancels the Manual Load Dump Action and restores 2500 MW of load dumped.
- PJM cancels NERC EEA 3 via RCIS (issues EEA 2).
- 1430 PJM announces completion of drill via All Call.
- PJM notifies DOE via telephone.
- PJM notifies NERC and RCs via RCIS.
- PJM Corporate Communications notifies SOS-T Corporate Communicators via email that drill has ended.
- 1500 DTF Conference Call is held to debrief drill activities. PJM Member Training Liaisons should email Debrief and Log sheets to the PJM Drill Coordinator at epdrill@pjm.com prior to this conference call. As a backup method, the sheets may be faxed to 610-666-4287.

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PJM will simulate backing out of Emergency Procedures after the end of the drill. The simulated cancellation of emergency procedures is as follows:

- 2000 PJM directs the unloading of Maximum Generation Emergency steam and CT units.
- 2040 PJM cancels Voltage Reduction and Curtailment of Non-Essential Building Load, and EEA 2 (issues EEA 1).
- 2130 PJM cancels all Load Management curtailments.
- 2145 PJM cancels Maximum Generation Emergency Action.
- 2215 PJM cancels Manual Load Dump Warning, Voltage Reduction Warning and Reduction of Non-Critical Plant Load, Primary Reserve Warning, Voltage Reduction Alert, Primary Reserve Alert, and EEA 1 (issues EEA 0).
- 2245 PJM cancels Maximum Generation Emergency/Load Management Alert and Cold Weather Alert.

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ATTACHMENT A

DEBRIEF AND LOG SHEET

In order to better evaluate the effectiveness of the Emergency Procedures Drill and help identify potential training needs, please log any challenges you encountered during the drill.

Please email the completed form to the Drill Coordinator at epdrill@pjm.com. As a backup method, the sheets may be faxed to 610-666-4287.

Company Name:

Contact Name:

Phone Number:

ISSUES