



*Working to Perfect the Flow of Energy*

PJM Interconnection, LLC

## 2011 Summer Emergency Procedures Drill

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# 2011 SUMMER EMERGENCY PROCEDURES DRILL

## May 24, 2011

- 1.0 PURPOSE..... 3**
- 2.0 DRILL OVERVIEW ..... 4**
  - 2.1 General..... 4
  - 2.2 Drill Postponement Date..... 4
  - 2.3 Emergency Energy Bid Process ..... 4
  - 2.4 Conference Calls ..... 4
- 3.0 SIMULATED DRILL STAGE..... 5**
  - 3.1 Assumed Initial System Conditions ..... 5
  - 3.2 Security Conditions..... 5
  - 3.3 Sequence of Events (Simulated) ..... 6
- 4.0 ACTUAL DRILL STAGE ..... 6**
  - 4.1 General ..... 6
  - 4.2 Assumptions..... 7
  - 4.3 Communications ..... 8
  - 4.4 Sequence of Events..... 9
- Attachment A: Debrief and Log Sheet ..... 11**

# PJM 2011 Summer Emergency Procedures Drill

## 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.

The PJM RTO and its member companies are required to plan, prepare, and train for system emergencies as outlined in NERC Reliability Standards EOP-001-1 Emergency Operations Planning, EOP-002-2 Capacity and Energy Emergencies, EOP-003-1 Load Shedding Plans, PER-002-0 Operating Personnel Training, and COM-001-1 Telecommunications.

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 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.

## PJM 2011 Summer Emergency Procedures Drill

The Market participants are responsible for understanding their role and responsibilities under emergency conditions and responding to PJM RTO directives. The PJM RTO, 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 Summer Emergency Procedures Drill will be **conducted on Tuesday, May 24, 2011 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 and 5 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 for Hot Weather Emergencies H1 through C4 to exercise communications channels within their respective companies.

#### 2.2 Postponement Drill Date

June 01, 2011

#### 2.3 Emergency Energy Bid Process

MOCs and Market Participants are encouraged to fax in emergency energy bids as per Attachment D of the Emergency Operations Manual (M-13) on May 24, when requested via the All Call and eDATA posting.

#### 2.4 Conference Calls

##### May 23, 2011

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

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

##### May 24, 2011

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

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

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

0930 hrs EPT - Transmission Owner Communicators (**ACTUAL**)

1300 hrs EPT - Transmission Owner Communicators (**ACTUAL**)

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

### 3.0 SIMULATED DRILL STAGE

#### 3.1 Assumed Initial System Conditions

Weather forecasts received Monday, May 23, 2011 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 Hot Weather Alert being issued and Maximum Emergency Generation called into the capacity for the operating day of Tuesday, May 24, 2011 for the entire PJM RTO.

System Status Reports indicate that approximately 50% 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 Level 1 & Level 2 Advisories for a Potential Hot Weather Emergency (H1 & H2) 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: Hot Weather Alert, Low Voltage Alert, Maximum Emergency Generation 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 NIPC intelligence and current DOE Information PJM is currently at the following Security Levels:

Electricity Sector Physical:	Elevated (Yellow)
Electricity Sector Cyber:	Elevated (Yellow)
Homeland Security:	Heightened level of vigilance.
DOE Security Condition:	SECON 3, Threat Medium
NRC Security Level:	Elevated (yellow)
PJM Security Level:	Elevated (yellow)

**Note:** Advisory systems are currently under review due to recent changes in the National Terrorism Advisory System.

## PJM 2011 Summer Emergency Procedures Drill

### 3.3 Sequence of Events (SIMULATED):

The following Emergency Procedures are assumed to have been implemented on Monday 23<sup>rd</sup>:

- 1500 SOS conference call resulting in the issue of a Hot Weather Alert and Level 1 & 2 Advisories for Potential Hot Weather Emergency (H1 & H2) **(SIMULATED)**.
- 1600 SOS-T Corporate Communications conference call to discuss situation, coordinate messages, inform group of call for conservation **(SIMULATED)**.
- 1700 Inter-RTO Natural Gas Coordination Group conference call with NYISO and ISO New England **(SIMULATED)**.
- 1700 PJM Corporate Communications releases Level 2 Advisory for Potential Hot Weather Emergency (H2). PJM completes and submits Department of Energy Form OE-417 in accordance with PJM manual M-13: Emergency Operations, Attachment J **(SIMULATED)**.
- 2130 Maximum Emergency Generation Alert, Primary Reserve Alert, Low Voltage Alert, Voltage Reduction Alert and NERC Energy Emergency Alert 1 (EEA 1) issued for the Day and Evening periods, Tuesday, May 24 **(SIMULATED)**.

### 4.0 ACTUAL DRILL STAGE

#### 4.1 General

The actual drill stage will begin at 0730 hrs EPT on Tuesday, May 24, 2011 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 and Reduction of Non-Critical Plant Load, a 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 Hot Weather Emergency H3 and H4 to Corporate Communications as system conditions worsen. Unit losses and high loads will result in 1200 MWs of Manual Load Shed (system wide).

## PJM 2011 Summer Emergency Procedures Drill

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 eData.

The drill will be terminated at 1430 hrs EPT.

### **4.2 Assumptions**

**It is assumed that all actions prior to 0730 hrs EPT, May 24, 2011 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.

Specific units will not be used, thus the LCCs, MOCs and LSEs need not adjust the current actual values. **In other words, when completing Supplemental Status Reports, LCCs, MOCs and LSEs will use real-time numbers reflecting current system conditions.**

Drill participants will input SSR information into the PJM eDART system unless the PJM Dispatcher directs otherwise (fax shall be used as the primary back-up). 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.

## PJM 2011 Summer Emergency Procedures Drill

### 4.3 Communications

<b>Conference Call (Bridge)</b>	<b>(800) 244 9194</b>
<b>Pass Code: 046336#</b>	
<b>PJM Drill Coordinator</b>	<b>(610) 666 8293</b>
<b>PJM Mid-Atlantic &amp; Dominion Regions</b>	
<b>Scheduling</b>	<b>(610) 666 8809</b>
<b>Power Dispatcher</b>	<b>(610) 666 8808</b>
<b>Generation Dispatcher</b>	<b>(610) 666 8807</b>
<b>Supervisor</b>	<b>(610) 666 8806</b>
<b>Interchange</b>	<b>(610) 666 4510</b>
<b>Fax Phone #</b>	<b>(610) 666 4287</b>
<b>PJM Western Region</b>	
<b>Power Dispatcher</b>	<b>(610) 878 5575</b>
<b>Generation Dispatcher</b>	<b>(610) 878 5573</b>
<b>Fax Secondary</b>	<b>(215) 541 2372</b>

## PJM 2011 Summer Emergency Procedures Drill

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

#### May 24, 2011

- 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 a Supplemental Status Report (SSR) and issues a Heavy Load Voltage Schedule Warning for the entire PJM Control Area (PJM CA) via All Call.
- 0735 PJM Drill Coordinator notifies the PJM IRT (Incident Response Team) and Corporate Communications of drill status via IRT All Call.
- 0800 PJM conducts IRT Conference Call.  
Reliability Engineer conducts – MISO System Status Conference call.
- 0830 PJM posts SSR data via eDart.  
PJM requests emergency energy bids via All Call, eData 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.
- 0850 PJM Corporate Communications issues All-Call to SOS-T member corporate communications for a 0930 hrs coordination conference call.
- 0900 SOS Transmission Conference Call is held.
- 0915 PJM Dispatcher requests implementation of Emergency Mandatory Load Management Reductions Long-Lead Time and Short Lead Time (Step 1 & 2) via All Call. (Note that for the purpose of the drill Load Management is being issued outside of normal business rules of 12:00 to 20:00 June through September.)  
PJM issues NERC EEA 2 via RCIS.
- 0930 Reliability Engineer conducts – MISO System Status Conference call.  
SOS-T member corporate communications conference call with PJM Corporate Communications to verify email and All Call notifications were received and follow-up with members not on the call.
- 0945 PJM Dispatcher issues a Primary Reserve Warning (Step 3) via All Call.
- 1000 PJM Notifies VACAR and NPCC that PJM is unable to participate in Shared Reserves.

## PJM 2011 Summer Emergency Procedures Drill

- 1015 PJM Dispatcher issues Maximum Emergency Generation (Step 4 A).  
PJM Dispatcher implements Scarcity Pricing for the entire PJM RTO.
- 1030 PJM Dispatcher requests implementation of the Energy Voluntary Energy Only Demand Response Reductions (Step 4 B) via All Call.
- 1045 PJM Issues Voltage Reduction Warning and Reduction of Non-Critical Plant Load (Step 5) via All Call.
- 1100 PJM requests the loading of Max Emergency CTs via All Call.
- 1115 PJM Dispatcher issues Manual Load Dump Warning (Step 6) for the entire PJM RTO.  
PJM Contacts State Agencies via All Call.
- 1130 PJM Dispatcher directs participants to load Limited Fuel Generation and suspend regulation via All Call.
- 1200 PJM Dispatcher Implements Voltage Reduction and Curtailment of Non-Essential Building Load (Steps 7 A & B).  
PJM notifies State Agencies via All Call.  
PJM completes Department of Energy Form OE-417 in accordance with PJM manual M-13: Emergency Operations, Attachment J.
- 1205 PJM Corporate Communications issues advance notice of H3 message to SOS-T member corporate communications.
- 1215 PJM Corporate Communications release Level 3 Statement for Hot Weather Emergency (H3) to Governmental Agencies and the Media.
- 1245 PJM Dispatcher implements 1200 MW Manual Load Dump (Step 8) via All Call.  
PJM issues NERC EEA 3 via RCIS.  
PJM Corporate Communications release Level 4 Statement for Hot Weather Emergency (H4) to SOS-T member corporate communications.  
PJM completes Department of Energy Form OE-417 in accordance with PJM manual M-13: Emergency Operations, Attachment J.
- 1300 SOS-T Corporate Communications Groups conference call with PJM Corporate Communications.
- 1345 PJM Dispatcher restores 1200 MW Load Dump via the **Satellite Phone System**. NOTE: Those companies without satellite phone capability will be notified via land-line.  
PJM cancels NERC EEA 3 via RCIS (issues EEA 2).

## PJM 2011 Summer Emergency Procedures Drill

- 1430 PJM announces completion of drill via All Call.
- PJM notifies DOE via telephone.
- PJM notifies NERC and RCs via RCIS.
- PJM notifies State Agencies via All Call.
- PJM Corporate Communications notifies SOS-T member corporate communications via email that drill has ended.
- 1500 DTTF 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](mailto:epdrill@pjm.com) prior to this conference call. As a backup method, the sheets may be faxed to 610-666-4287.

### **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 Emergency Generation.
- 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 Emergency Generation and Scarcity Pricing.
- 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 Emergency Generation Alert and Hot Weather Alert.

PJM 2011 Summer Emergency Procedures Drill

**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](mailto:epdrill@pjm.com). As a backup method, the sheets may be faxed to 610-666-4287.

Company Name:

Contact Name:

Phone Number:

**ISSUES**