Tools Refresh – Emergency Procedures Application

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Training – 01/15
Background
- Timeline
- Changes to User Interface
- Application Access
- Browserless XML Changes
- Application Demo
- Scheduled Future Enhancements
The Emergency Procedures application was created to make everyone aware of emergency conditions currently occurring in PJM.

- First posting created in 1999.
- PJM members also notified of emergency conditions via All Call messages.

PJM Manual 13 (Emergency Operations) defines the emergency conditions and expected responses.
Guest login access granted to non-PJM personnel via:

- eSuite.
- Emergencies button on eData.
- OASIS ➔ System Information ➔ Emergency Procedures.
- eDART ➔ PJM Status Report ➔ SSR Report
• Background
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• January 2015
  – Online training demo.
• February to March 2015
  – Parallel Operations planned.
  – Sandbox version of new tool available.
• March 2015
  – Production release of initial enhancements.
• June 2015
  – Production release of Phase 2 enhancements.
• Quarterly releases of enhancements as needed.
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Postings

Drill
As of 10:35 on 01.14.2015 a Heavy Load Voltage Schedule Action has been issued. Additional Comments: This is a drill. Refer to Winter drill instructions for next steps.

Warning
As of 11:00 on 01.14.2015 a Heavy Load Voltage Schedule Warning has been issued. Additional Comments: Refer to operating guides for more information.

Special Notice
As of 15:30 on 01.14.2015 hours, on 15-Jan-2015 SOT will conduct cycle training on the EP application.

Special Notice
As of 07:45 on 01.14.2015 hours, SOT EP Training will take place on 15-Jan-2015.

TLR
As of 08:15 on 01.14.2015 hours, a TLR Level 1 has been issued for control of flowgate 203, Anton-Darielle 128 kV (1) 660 Jacksons Ferry-Antioch 500 kV.

Emergency Load Management
As of 09:27 on 01.13.2015 hours (Notification Time), a NERC Level EEA2 and Emergency Load Management have been issued. Load reductions should be implemented by end of Notification Time plus lead time and remain in place until released by PJM. Mandatory DR reduction time periods are based on product specific requirements. CSPs should review eUPS for specific registration details. Load time(s) dispatched: LONG_120, Product(s) dispatched: Limited DR.

Cold Weather Alert
As of 14:29 on 01.12.2015 hours, a Cold Weather Alert has been issued for the 01.12.2015 Operating Day. As indicated in M-13, members are expected to perform the following actions:

- Generation (Gen) dispatchers review and update their unit parameters in eMkt through the Cold Weather Alert period paying particular attention to accurate Start-up and Notification, Min Run Time, Max Run Time, Eco Min/Max and Emergency Min/Max information.
- Gen dispatchers with dual fuel units confirm the equipment is functional & amount of alternate fuel available.
- Outages to the alternate fuel capability will be submitted to PJM via eMkt.
- Alternate fuel restrictions will also be communicated via eMkt.
- Gen dispatchers review fuel supply/delivery schedules in anticipation of greater than normal operation of units.
- Transmission/Gen dispatchers review plans to determine if any maintenance/testing, scheduled/being performed, on any monitoring, control, transmission/generating equipment can be deferred/canceled.
• General look of page changed to match updated PJM page style format.
• Buttons on left hand side replaced with tabs.
• By default, all active postings and postings for today + last 2 days are displayed.
• Posting History now available to users.

• Drill postings indicated by colored banner and ‘DRILL’ in Message Type.
• Advance filtering options:
  – Filter for desired postings by checking/unchecking applicable Regions and Message Types.
  – Filter postings by entering keyword in the text boxes below column headers.
• Click the double arrows to sort by column:
  – Click once to sort in ascending order.
  – Click twice to sort in descending order.
  – Click Reset to reset all filters and sorting.
• Click on the XML button to download a copy of the postings in XML.

```xml
<?xml version="1.0" encoding="UTF-8" standalone="true"?>
<emergencyProcedures xmlns="http://ep.pjm.com/"
-<emergencyMessage>
  <messageId>59</messageId>
  <timestamp>2015-01-14T16:23:56.130Z</timestamp>
  <message_type>TLR</message_type>
  <pjm_drill>false</pjm_drill>
  <message>As Of 11:23 on 01.14.2015 hours, a TLR Level 3a has been issued for control of flowgate 552, Cherry Valley-Silver Lake 345 kV (15616 line) Additional Comments: Notify PJM RE if 15616 line will be outaged as long as this posting is up.</message>
  <priority>Informational</priority>
 - <region>
   <regionName>ComEd</regionName>
   <regionType>Control Zone</regionType>
 </region>
</emergencyMessage>
```
• Click on Message Type hyperlink to display associated Message Definition.
<table>
<thead>
<tr>
<th>Message Type</th>
<th>Definition</th>
<th>Priority</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cold Weather Alert</td>
<td>Is to prepare personnel and facilities for expected extreme cold weather conditions.</td>
<td>Alert</td>
</tr>
<tr>
<td>Curti Bldg Load</td>
<td>PJM and Member facilities may be implemented at the same time.</td>
<td>Action</td>
</tr>
<tr>
<td>Emergency Energy Request</td>
<td>This is a request by PJM for emergency purchases of energy. PJM will select which offers are accepted based on price and expected duration of the need. This request is typically issued at the Max Emergency Generation emergency procedure stage. The Emergency Energy Bid Form can be found on the webpage for Emergency Conditions.</td>
<td>Warning</td>
</tr>
<tr>
<td>Emergency Load Mgmt Reduction Action</td>
<td>The purpose of the Load Management Reduction Action is to provide additional load relief by using PJM controllable load management programs.</td>
<td>Action</td>
</tr>
<tr>
<td>Emergency Voluntary Energy Only Demand Response</td>
<td>The purpose is to request end-use customers registered in PJM’s Emergency Voluntary Energy Only Demand Response to reduce load. These reductions are voluntary.</td>
<td>Action</td>
</tr>
<tr>
<td>High System Voltage</td>
<td>All companies shall take the following actions on the Bulk Electric System: 1. All switchable capacitors are out of service. 2. All reactors are in service. 3. Transmission Owners (TOs or TO) are requested to review and adjust LTC settings as appropriate. All LTC (230 kV and above) and voltage schedule adjustments shall be coordinated with PJM Dispatch. 4. All SVCs are absorbing reactive power. (FE Fermont will implement the Black Oak SVC System High Voltage settings and change the voltage Vmax set point from 550kV to 548kV and the VDlmax from 548kV to 535kV.) 5. Generation Owners [GOs or GO] shall coordinate reactive power adjustments with TOs. 6. GOs shall communicate with PJM and the TO, restrictions to their generator’s ability to absorb MVARs if that capability varies from the existing D-Curve. 7. GOs will operate generators at the lower bandwidth of their voltage schedule when possible.</td>
<td>Action</td>
</tr>
<tr>
<td>HLV Action</td>
<td>Is issued to members (Generation and Transmission) at peak load periods via the ALL-CALL system to request maximum support of voltages on the bulk power system and increase reactive reserves on the 500kV system.</td>
<td>Action</td>
</tr>
<tr>
<td>HLV Warning</td>
<td>Is issued to members via the ALL-CALL system (Generation and Transmission) to request members to prepare for maximum support of voltages on the bulk power system.</td>
<td>Warning</td>
</tr>
<tr>
<td>Hot Weather Alert</td>
<td>Is to prepare personnel and facilities for extreme hot and/or humid weather conditions which may cause capacity requirements/unit unavailability to be substantially higher than forecast and expected to persist for an extended period.</td>
<td>Alert</td>
</tr>
<tr>
<td>Load Shed Directive</td>
<td>This Emergency Procedure Action is a directive around the shedding of firm load in a local area in order to address an uncontrollable overload(s) on a local transmission facility(ies).</td>
<td>Action</td>
</tr>
<tr>
<td>Local MinGen Event</td>
<td>A Local Minimum Generation Event is implemented when there is an excess generation situation in a localized area or set of areas, which has the potential to result in stability issues or constrained operations.</td>
<td>Informational</td>
</tr>
</tbody>
</table>
### Message Priorities

<table>
<thead>
<tr>
<th>Text</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Action</td>
<td>Requires PJM and/or Member response.</td>
</tr>
<tr>
<td>Advisory</td>
<td>Typically issued days in advance of the operating day for elevated awareness.</td>
</tr>
<tr>
<td>Alert</td>
<td>Issued in advance of the operating day for elevated awareness.</td>
</tr>
<tr>
<td>Informational</td>
<td>General Notices.</td>
</tr>
<tr>
<td>Warning</td>
<td>Issued real-time, typically preceding, and with an estimated time/window for a future ACTION.</td>
</tr>
</tbody>
</table>
• Hyperlink is provided to open the Emergency Bid Form.
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• Similar to eData in eSuite, Emergency Procedures will have a Guest Login and a User Login.
• Users will be able to request access to Emergency Procedures (Production and Sandbox) via eSuite CAM.
  – These require separate CAM authorizations.

• With an account, users can set up profiles:
  – Set up email and email-to-text notifications for specific message types and regions.
Email Notifications

• Multiple email addresses allowed per user.
  – Phone numbers can be set up in email format. E.g. 1234567890@messaging.sprintpcs.com.
  – User can select whether to receive full text or abbreviated text via email.
  – Emails will be sent from ep_support@pjm.com.
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Browserless XML Changes

- Browserless interface replaced with Command Line interface.
- New XML Schema (XSD) and sample file will be available on information page.

```xml
<?xml version="1.0" encoding="UTF-8" standalone="true"?>
<xs:schema xmlns:xs="http://www.w3.org/2001/XMLSchema"
    targetNamespace="http://ep.pjm.com/"
    xmlns:tns="http://ep.pjm.com/">
    <xs:schema name="EmergencyProcedures">
        <xs:element type="tns:EmergencyMessage" name="emergencyMessage">
            <xs:complexType name="EmergencyMessage">
                <xs:sequence>
                    <xs:element type="xs:string" name="messageId"/>
                    <xs:element type="xs:dateTime" name="timestamp"/>
                    <xs:element type="xs:boolean" name="pjm_drill"/>
                    <xs:element type="xs:dateTime" name="canceledTimestamp" minOccurs="0" maxOccurs="unbounded"/>
                    <xs:element type="xs:dateTime" name="loadManagementDetail" minOccurs="0" maxOccurs="unbounded"/>
                    <xs:element type="xs:string" name="regionName"/>
                    <xs:element type="xs:string" name="region"/>
                    <xs:element type="xs:string" name="product"/>
                    <xs:element type="xs:dateTime" name="loadTime"/>
                    <xs:element type="xs:dateTime" name="canceledTimestamp"/>
                </xs:sequence>
            </xs:complexType>
        </xs:element>
    </xs:schema>
</xs:schema>
```
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➤ Scheduled Future Enhancements
Future Enhancements

- Mobile-friendly text alerts.
- Region/Zone/Subzone hierarchy & Company to State mapping.
- User configurable settings retention between user-sessions:
  - Region(s)
  - Message Type(s)
- Electronic submission of Emergency Bid Form.
Contact

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