

2017 PJM Spring RTO Restoration Drill

Drill Date(s)	February 21 st – 22 nd , 2017
Alternate Date(s)	February 28 th – March 1 st , 2017
Key Pre-Drill Date(s)	February 17 th , 2017 Communications Testing & WebEx
Drill Summary	<p>General Information:</p> <p>PJM will conduct a two day Spring RTO Restoration Drill, commencing on Tuesday, February 21st, 2017 at 0800 hours EST. Drill activities will be suspended at 1400 hours EST on Day #1 and 1300 hours EST on Day #2.</p> <p>The Spring RTO Restoration Drill provides an opportunity for all applicable entities to comply with the various NERC Standards and requirements</p> <p>PJM will have experienced a large system disturbance with a majority of the footprint shutdown. The drill will utilize generation and transmission system conditions & outages that actually exist on the dates of the drill. Transmission that is out of service for maintenance will be assumed unavailable for use in the drill.</p> <p>PJM will utilize its OTS during the drill. A full complement of PJM system operators will participate in the training exercise. Detailed documentation of the restoration procedures, as well as black start generating units performing intended functions, will be logged and archived.</p> <p><u>PJM Drill Responsibilities:</u></p> <ol style="list-style-type: none"> 1. Coordinate activities with all participating Transmission Owners. Generation Operators are required to participate if they have assets listed in the Transmission Owners Restoration Plan. PJM will collect system status information and provide restoration status updates to participating members. 2. Be proactive in identifying opportunities to assist the TOs in the restoration process. 3. Direct the restoration of ALL available 765 / 500kV transmission facilities that had been interrupted by the end of the drill, provided an appropriate amount of load and generation had also been restored. 4. Facilitate all interactions and schedules with outside pools / control areas. 5. Coordinate the restoration process with fuel-limited, unavailable generation and / or possibly damaged transmission equipment. 6. Assume frequency control when appropriate. 7. Calculate an ACE, and return to a centrally coordinated or normal operation when appropriate. <p><u>TO Expectations:</u></p> <ol style="list-style-type: none"> 1. Each Transmission Owner is required to Identify two injects to be used in restoration scenario. Please notify PJM of the injects that will be used by February 1, 2017.

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<p>Drill Summary, Cont.</p>	<ol style="list-style-type: none"> 2. Correct and report any restoration plan deficiencies found during the simulated restoration exercise. If deviations to a restoration plan need to occur, please notify PJM. 3. Utilize both the top-down and bottom-up approach during the drill, understanding that initial actions would have to be bottom-up for companies that are blacked-out and isolated. The first portion of the drill will utilize bottom up restoration strategies. 4. Ensure that all nuclear units have been provided with off-site sources for safe shutdown power within 4 hours. Transmission Owners are required to notify the nuclear units within their transmission zone of expected arrival of safe shutdown power. 5. Utilize appropriate internal / external Communication Protocols. 6. Participants will be asked to evaluate the drill activities, tools and processes via coordinated debriefs and during PJM DTS & SRCS sub-committee meetings. <p>Drill Injects Examples:</p> <ul style="list-style-type: none"> • Major transmission line unavailable • Substation damaged • Cranking path unavailable • Unavailable generation • Communication issues with field personnel • Loss of battery power at a substation <p>GOP Expectations:</p> <ol style="list-style-type: none"> 1. Participate as needed with the TO during the restoration drill in the zone where your units are located 2. Provide requested information to the TO regarding unit availability and/or unit start-up times. 3. Document and send updated to PJM as requested (per Manual 36) with unit data in the requested TO zone. 4. During the drill, current day generation status will be what is used as the status of generation plants for the drill.
<p>Pre-Drill Information & Communications Testing</p> <p>Pre-Drill Information</p>	<p><u>Thursday February 16th, 2017</u> - SRCS Meeting:</p> <p>A System Restoration Coordinator Subcommittee Meeting will be held on February 16th from 10:00-11:30. PJM will discuss drill logistics and planning. Please register for the SRCS meeting at http://www.pjm.com/committees-and-groups/subcommittees/srcs.aspx</p> <p><u>Friday, February 17, 2017</u> - Communications Testing:</p> <p>PJM will conduct a test of the communication systems on February 17th, 2017 . The test will begin with an SOS conference call at 0900 hours EST in which all participants will review their responsibilities and discuss any communication issues. All phone and email systems utilized during the drill will be tested at this time. The communications testing is expected to be completed by 10:00 hours EST.</p>

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<p>& Communications Testing, Cont.</p>	<p>Friday, February 17, 2017 - Pre-Drill WebEx:</p> <p>A WebEx session, beginning at 1030 EST will be available for all participants during which time PJM will discuss:</p> <ul style="list-style-type: none"> • SOS Conference Calls • Drill WebEx information • Associated paperwork • PJM Roles • Member Company expectations <ul style="list-style-type: none"> ○ How to complete and submit reports ○ Items that need to be logged 	
	<p>Conference Call Number: 866-546-3377</p> <p>Access code: 832318</p> <p>Meeting Password: srd2017pjm</p>	<p>WebEx Link:</p> <p>https://pjm.webex.com/pjm/j.php?MTID=m59686e9ada42c4091ecd2b034a6ae83f</p>
<p>Conference Call Information</p>	<p>Actual Conference calls will be held as outlined below and as part of the drill progression. Members are requested to dial into these calls as appropriate. All times listed are in Eastern Prevailing Time (EPT). *Note: The conference call schedule may be adjusted during the drill to change the frequency of calls as needed.</p> <p>Tuesday, February 21st</p> <ul style="list-style-type: none"> 0730 SOS Pre-Drill Conference Call (All Participants) 0930 SOS Check- In & System Status Conference Call (TOs) 1100 SOS Check-In & System Status Conference Call (TOs) 1400 SOS- PJM Day 1 Drill De-brief Conference Call (All Participants) <p>Wednesday, February 22nd</p> <ul style="list-style-type: none"> 0730 SOS Pre-Drill Conference Call (All Participants) 0930 SOS Check- In & System Status Conference Call (TOs) 1100 SOS Check- In & System Status Conference Call (TOs) 1300 SOS- PJM Drill De-brief Conference Call (All Participants) <p>*There will not be a scheduled break for lunch.</p> <p>The information for all PJM Drill Conference Calls is as follows:</p>	
	<p>Conference Call Number: 866-546-3377</p> <p>Access code: 832318</p> <p>Meeting Password: srd2017pjm</p>	<p>WebEx Link:</p> <p>https://pjm.webex.com/pjm/j.php?MTID=m6ab1a53e38853c340f4374ca6d7ca8b8</p>
	<p>NOTE: The WebEx and conference call will begin at the start of the drill and will remain on throughout the drill. Participants will also have the option to “Chat” questions during the drill via WebEx.</p>	
<p>Forms</p>	<p>1. Drill Participation Form - http://pjm.com/~media/training/member-training-liaison-forms/att-d-app-4.ashx</p>	

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<p>Forms, Cont.</p>	<p>This form must be completed by all entities participating in the drill in order to receive CE credit. Please email to: trainingsupport@pjm.com</p> <ol style="list-style-type: none"> 2. Drill Evaluation Form – Please click here to access and complete the Drill Evaluation at the conclusion of the drill. 3. Company Initial Restoration Report – This form (Exhibit 12, M-36) should be completed within the first hour of the drill. 4. Log Sheets – At the conclusion of the drill, participants should submit any log sheets such as the <i>Company Transmission Restoration Report</i> with all relevant documentation including the following: Cranking paths used during restoration Black start units used during restoration Paths and times for shut-down power to nuclear plants 5. Company Transmission Restoration Report - This report (Exhibit 15, M-36) needs to be submitted <u>every 10 lines restored or every 30 minutes</u>. NOTE: You do not have to submit a form if you did not restore any transmission lines in the past 30 minutes. 6. Company Hourly Generation Restoration Report – This report (Exhibit 14, M-36) needs to be submitted on an hourly basis or sooner if more than 100 MWs were brought online since the last report was submitted. <i>*Please call PJM as black start units are brought online.*</i> <p>Drill Email Information</p> <p><i>Transmission</i> should submit drill related information to a TO designated drill email address. Please note these email addresses will be communicated via the SRCS.</p> <p><i>Generation</i> should submit information to: Restorationdrillgeneration@pjm.com</p>
<p>Drill CE Hours</p>	<p><u>TO</u> Participation: up to 11 CEHs*</p> <p><u>GOP</u> Participation: up to 11 CEHs*</p> <p>* CE hours earned will be based on the level of participation for each day - up to 6 hours for Day #1 and up to 5 hours for Day #2.</p>
<p>Online Training</p>	<p>System Restoration Online Drill Refresh - <i>The DTS will be notified once this is available in the LMS prior to the drill.</i></p>
<p>Drill Contacts/ Questions</p>	<p>For questions pertaining to the Drill please contact:</p> <p>Ryan Lifer - Ryan.Lifer@pjm.com (610) 680-6535</p> <p>Danny Restucci – Daniel.Restucci@pjm.com (610) 666-8236</p> <p>Ethan Porter – Ethan.Porter@pjm.com</p> <p>For questions pertaining to the restoration refresh online training, CE hours, participation form or evaluation form please contact:</p> <p>Anita Patel – Anita.Patel@pjm.com or Trainingsupport@pjm.com</p> <p>Clem Lovasik – Clem.Lovasik@pjm.com</p>