

System Operations Subcommittee
PJM Operations Summary
March 2015 Operations - Partial

There were 8 PCLLRWs and 9 High System Voltage events in February

Manual Load Dump Warning (0 Events)

HLV Schedule Warning (0 Events)

HLV Schedule Action (0 Events)

Hot/Cold Weather Alert (0 Events)

Max Emergency Gen Alert (0 Events)

Primary Reserve Warning (0 Events)

Voltage Reduction Warning (0 Events)

Voltage Reduction (0 Events)

Emergency Energy Request (0 Events)

Max Emergency Generation (0 Events)

Min Gen Declaration (0 Events)

Min Gen Event (0 Events)

Local Min Gen Event (0 Events)

Spinning (0 Events)

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High System Voltage (9 Events)

3/7/2016 23:44	3/8/2016 5:24	Emergency Procedure	- Issued High System Voltage for PJM-RTO-RTO As of 23:44 on 03.07.2016 , 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. TOs 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. 5. Generation Owners shall operate generators at the lower bandwidth of their voltage schedule when possible. 6. Generation Owners 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. Target: <u>Distribution Companies/Transmission Owners/Generation</u>
3/8/2016 23:08	3/9/2016 5:02	Emergency Procedure	- Issued High System Voltage for PJM-RTO-RTO As of 23:08 on 03.08.2016 , 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. TOs 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. 5. Generation Owners shall operate generators at the lower bandwidth of their voltage schedule when possible. 6. Generation Owners 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. Target: <u>Distribution Companies/Transmission Owners/Generation</u>
3/9/2016 23:52	3/10/2016 5:03	Emergency Procedure	- Issued High System Voltage for PJM-RTO-RTO As of 23:52 on 03.09.2016 , 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. TOs 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. 5. Generation Owners shall operate generators at the lower bandwidth of their voltage schedule when possible. 6. Generation Owners 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. Target: <u>Distribution Companies/Transmission Owners/Generation</u>

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3/11/2016 0:04	3/11/2016 5:06	Emergency Procedure	- Issued High System Voltage for PJM-RTO-RTO As of 00:04 on 03.11.2016 , 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. TOs 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. 5. Generation Owners shall operate generators at the lower bandwidth of their voltage schedule when possible. 6. Generation Owners 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. Target: <u>Distribution Companies/Transmission Owners/Generation</u>
3/11/2016 23:31	3/12/2016 7:00	Emergency Procedure	- Issued High System Voltage for PJM-RTO-RTO As of 23:31 on 03.11.2016 , 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. TOs 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. 5. Generation Owners shall operate generators at the lower bandwidth of their voltage schedule when possible. 6. Generation Owners 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. Target: <u>Distribution Companies/Transmission Owners/Generation</u>
3/12/2016 21:03	3/13/2016 12:25	Emergency Procedure	- Issued High System Voltage for PJM-RTO-RTO As of 22:03 on 03.12.2016 , 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. TOs 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. 5. Generation Owners shall operate generators at the lower bandwidth of their voltage schedule when possible. 6. Generation Owners 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. Target: <u>Distribution Companies/Transmission Owners/Generation</u>
03/14/16 01:00	3/14/2016 5:52	Emergency Procedure	- Issued High System Voltage for PJM-RTO-RTO As of 01:00 on 03.14.2016 , 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. TOs 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. 5. Generation Owners shall operate generators at the lower bandwidth of their voltage schedule when possible. 6. Generation Owners 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. Target: <u>Distribution Companies/Transmission Owners/Generation</u>

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03/19/16 00:07	3/19/2016 8:58	Emergency Procedure	- Issued High System Voltage for PJM-RTO-RTO As of 00:07 on 03.19.2016 , 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. TOs 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. 5. Generation Owners shall operate generators at the lower bandwidth of their voltage schedule when possible. 6. Generation Owners 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. Target: <u>Distribution Companies/Transmission Owners/Generation</u>
3/24/2016 0:08	3/24/2016 6:50	Emergency Procedure	- Issued High System Voltage for PJM-RTO-RTO As of 00:10 on 03.24.2016 , 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. TOs 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. 5. Generation Owners shall operate generators at the lower bandwidth of their voltage schedule when possible. 6. Generation Owners 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. Target: <u>Distribution Companies/Transmission Owners/Generation</u>

Min. Gen Advisory (1 Event)

03/11/16 10:01	3/14/2016 5:56	Emergency Procedure	- Issued Min Gen Advisory for PJM-RTO-RTO PJM is issuing a Minimum Generation Advisory for the valley periods 03.12.2016 through 03.14.2016 . This advisory is being issued to provide advanced warning that due to mild weather and light loads, PJM may be entering into Min Gen Alerts and possibly Min Gen Actions during these periods. No action is required from the members at this time. This is an informational notice only. As we approach these valley periods, PJM will implement Min Gen Alerts/Actions on an as needed basis.
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Shared Reserves (3 Events)

3/2/2016 2:56	3/2/2016 3:06	Shared Reserve	-193 MW with NYISO - Seabrook @ 1260 - Regulation
3/10/2016 2:14	3/10/2016 2:28	Shared Reserve	-100 MW with NYISO - 653 MW - Partial Loss of Sandy Pond - Regulation
3/15/2016 14:31	3/15/2016 14:43	Shared Reserve	-100 MW with NYISO - Loss of 700 MW Phase 2 of Sandy Pond - Regulation

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Min Gen Alert (2 Events)

3/8/2016 23:28	3/9/2016 5:03	Min Gen Alert	- <u>As of 23:28 on 03.08.2016 , a Minimum Generation Alert has been issued for the Midnight of 03.09.2016 . Expected generation level is within 445 MW of normal minimum energy limits.</u>
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03/09/16 21:01	3/10/2016 5:03	Min Gen Alert	- <u>As of 21:01 on 03.09.2016 , a Minimum Generation Alert has been issued for the Midnight of 03.10.2016 . Expected generation level is within -2443 MW of normal minimum energy limits.</u>
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Capacity Emergencies (Emergency Procedure) (1 Event)

3/6/2016 19:27	3/7/2016 3:30	Emergency Procedure	- <u>Issued Geomagnetic Disturbance Warning for PJM-RTO-RTO As of 19:27 on 03.06.2016 hours, a GMD warning of K-7 or greater is in effect beginning at 18:59 on 03.06.2016 and will continue until 00:01 on 03.07.2016 .</u>
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PCLLRW (2 Events)

3/17/2016 10:13	3/17/2016 11:15	Post Contingency Local Load Relief Warning	- <u>As of 10:10 on 03.17.2016 a PCLLRW to maintain SKIMMER 1 XFORMER at 61 MVA in the AEP area has been issued for Transmission Contingency Control. Additional Comments: Post Contingency Switching available - NA</u>
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03/18/16 10:44	3/18/2016 10:54	Post Contingency Local Load Relief Warning	- <u>As of 10:44 on 03.18.2016 a Post Contingency Local Load Relief Warning to maintain 230kv East Towanda-Scotch Hollow-Marshall line (Non-Converge) at above 212kv KV in the FE (PN) area has been issued for Transmission Contingency Control. Additional Comments: Issued as of 10:30 to maintain 230kv bus voltage above the emergency limits.</u>
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Non-PCLLRW (6 Events)

3/2/2016 9:52	3/2/2016 10:03	Non-Market Post Contingency Local Load Relief Warn	- As of 09:49 on 03.02.2016 , a Non-Market PCLLRW to maintain MULBERRY 138 KV at 127 KV in the AEP area has been issued for Transmission Contingency Control. <u>Additional Comments: Post Contingency Switching available</u> - Will put the EE 138 kv cap in service at Ross post contingency
3/3/2016 6:35	3/3/2016 8:12	Non-Market Post Contingency Local Load Relief Warn	- As of 06:32 on 03.03.2016 , a Non-Market PCLLRW to maintain CARROLL 138 KV at 127 KV in the APS area has been issued for Transmission Contingency Control. <u>Additional Comments: Load -No Generation or Switching available - NA</u>
3/21/2016 7:23	3/21/2016 7:30	Non-Market Post Contingency Local Load Relief Warn	- As of 07:23 on 03.21.2016 , a Non-Market Post Contingency Local Load Relief Warning to maintain Farley-LibCh at 71 MVA in the EKPC area has been issued for Transmission Contingency Control. <u>Additional Comments: Post-Contingency switching available. Issues with the PCLLRW tool. Time issued was actually 0721</u>
3/21/2016 7:27	3/21/2016 10:01	Non-Market Post Contingency Local Load Relief Warn	- As of 07:22 on 03.21.2016 , a Non-Market PCLLRW to maintain FARLEY2 -LIB CHUR TIE at 72 MVA in the EKPC area has been issued for Transmission Contingency Control. <u>Additional Comments: Post Contingency Switching available</u> - Switching available at Farley 69KV 624 CB Farley-Liberty Church
3/22/2016 6:34	3/22/2016 8:14	Non-Market Post Contingency Local Load Relief Warn	- As of 06:32 on 03.22.2016 , a Non-Market PCLLRW to maintain FARLEY2 -LIB CHUR TIE at 72 MVA in the EKPC area has been issued for Transmission Contingency Control. <u>Additional Comments: Post Contingency Switching available</u> - Remove from service the 69KV Farley-Liberty Church post-contingency.
3/22/2016 19:04	3/22/2016 20:49	Non-Market Post Contingency Local Load Relief Warn	- As of 19:02 on 03.22.2016 , a Non-Market PCLLRW to maintain WARTONHI 138 KV at 127 KV in the AEP area has been issued for Transmission Contingency Control. <u>Additional Comments: Load -No Generation or Switching available - NA</u>