

**System Operations Subcommittee**  
**PJM Operations Summary**  
**May 2016 Operations - Final**

**There were 7 PCLLRW and 7 High System Voltage events in May**

**CPS1: 144.6%, BAAL: 99.6% PJM (NERC: 100%)<sup>1</sup>, CPS2: (83.6%)<sup>2</sup>, DCS: 100%**

<sup>1</sup>PJM directly measures the total number of BAAL excursions in minutes compared to the total number of minutes within a month with a target value for this performance goal at 99% on a daily and monthly basis. NERC rules limit the recovery period to no more than 30 minutes for a single event.

<sup>2</sup>PJM is participating in the BAAL field trial which substitutes for CPS2 compliance.

**Spinning** (1 Event)

Date	Start Time	End Time	Duration	Region
5/11/2016	15:55	16:01	6	RTO
Tier 1 Estimate (MW)	Tire 1 Response (MW)	Tire 2 Assigned (MW)	Tier 2 Response (MW)	Tire 2 Penalty (MW)
218.4*	177.17*	923.8*	267.6*	656.2*
Description				
Spinning in PJM for Unit Trip Loss of Amos 3 loaded at 1155 MW.				

\* These are preliminary numbers and may change upon final review

**High System Voltage Action** (7 Events)

5/2/2016 23:55	5/3/2016 5:15	<p>- Issued High System Voltage for PJM-RTO-RTO As of 23:55 on 05.02.2016 , 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: Distribution Companies/Transmission Owners/Generation</p>
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5/6/2016 0:46	5/6/2016 4:36	<p>- Issued High System Voltage for PJM-RTO-RTO As of 00:46 on 05.06.2016 , 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: Distribution Companies/Transmission Owners/Generation</p>
5/7/2016 23:26	5/9/2016 5:30	<p>- Issued High System Voltage for PJM-RTO-RTO As of 23:26 on 05.07.2016 , 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: Distribution Companies/Transmission Owners/Generation</p>
5/14/2016 2:40	5/14/2016 8:33	<p>- Issued High System Voltage for PJM-RTO-RTO As of 02:40 on 05.14.2016 , 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: Distribution Companies/Transmission Owners/Generation</p>

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5/15/2016 0:25	5/16/2016 6:05	<p>- Issued High System Voltage for PJM-RTO-RTO As of 00:25 on 05.15.2016 , 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: Distribution Companies/Transmission Owners/Generation</p>
5/21/2016 1:37	5/21/2016 7:12	<p>- Issued High System Voltage for PJM-RTO-RTO As of 01:30 on 05.21.2016 , 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: Distribution Companies/Transmission Owners/Generation</p>
5/22/2016 0:15	5/22/2016 10:01	<p>- Issued High System Voltage for PJM-RTO-RTO As of 00:15 on 05.22.2016 , 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: Distribution Companies/Transmission Owners/Generation</p>

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**Manual Load Dump Warning** ( 0 Events)

**HLV Schedule Warning** (0 Events)

**HLV Schedule Action** (0 Events)

**Hot/Cold Weather Alert** (0 Events)

**Primary Reserve Warning** (0 Events)

**Voltage Reduction Warning** (0 Events)

**Voltage Reduction** (0 Events)

**Emergency Energy Request** (0 Events)

**Max Emergency Gen Alert** (0 Events)

**Max Emergency Generation** (0 Events)

**Shared Reserve** (4 Events)

<b>5/14/2016 16:27</b>	<b>5/14/2016 16:45</b>	-138 MW with NYISO - Loss of BRUCE unit - Regulation
<b>5/15/2016 6:47</b>	<b>5/15/2016 7:05</b>	-142 MW with NYISO - Millstone #3 @ 850MW - Regulation
<b>5/21/2016 10:28</b>	<b>5/21/2016 10:39</b>	-88 MW with NYISO - Phase 2 Sandy Pond, Loaded at 630 - Regulation
<b>5/30/2016 14:29</b>	<b>5/30/2016 14:50</b>	141 MW with NYISO - DARLINGTON UNIT 2 - Spinning

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**Min Gen Alert** (7 events)

<b>5/8/2016 22:24</b>	<b>5/9/2016 5:30</b>	- As of 22:24 on 05.08.2016 , a Minimum Generation Alert has been issued for the Midnight of 05.09.2016 . Expected generation level is within -2219 MW of normal minimum energy limits.
<b>5/12/2016 20:55</b>	<b>5/13/2016 5:44</b>	- As of 20:55 on 05.12.2016 , a Minimum Generation Alert has been issued for the Midnight of 05.13.2016 . Expected generation level is within -2284 MW of normal minimum energy limits.
<b>5/13/2016 19:19</b>	<b>5/14/2016 6:45</b>	- As of 19:19 on 05.13.2016 , a Minimum Generation Alert has been issued for the Midnight of 05.14.2016 . Expected generation level is within -1981 MW of normal minimum energy limits.
<b>5/17/2016 21:23</b>	<b>5/18/2016 5:00</b>	- As of 21:23 on 05.17.2016 , a Minimum Generation Alert has been issued for the Midnight of 05.18.2016 . Expected generation level is within -1580 MW of normal minimum energy limits.
<b>5/19/2016 20:17</b>	<b>5/19/2016 20:22</b>	- As of 20:11 on 05.19.2016 , a Minimum Generation Alert has been issued for the Midnight of 05.19.2016 . Expected generation level is within 8275 MW of normal minimum energy limits.
<b>5/21/2016 21:21</b>	<b>5/22/2016 8:10</b>	- As of 21:15 on 05.21.2016 , a Minimum Generation Alert has been issued for the Midnight of 05.22.2016 . Expected generation level is within -2081 MW of normal minimum energy limits.
<b>5/22/2016 22:39</b>	<b>5/23/2016 5:37</b>	- As of 22:35 on 05.22.2016 , a Minimum Generation Alert has been issued for the Midnight of 05.23.2016 . Expected generation level is within -84 MW of normal minimum energy limits.

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**Emergency Procedure** (4 Events)

<b>5/6/2016 8:00</b>	<b>5/9/2016 5:31</b>	<p>- Issued Min Gen Advisory for PJM-RTO-RTO PJM is issuing a Minimum Generation Advisory for the valley periods 05.07.2016 through 05.09.2016 . 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.</p>
<b>5/8/2016 2:08</b>	<b>5/8/2016 5:04</b>	<p>- Issued Geomagnetic Disturbance Warning for PJM-RTO-RTO As of 02:08 on 05.08.2016 hours, a GMD warning of K7 or greater is in effect beginning at 01:22 on 05.08.2016 and will continue until 05:00 on 05.08.2016 .</p>
<b>5/8/2016 20:21</b>	<b>5/9/2016 0:05</b>	<p>- Issued Geomagnetic Disturbance Warning for PJM-RTO-RTO As of 19:55 on 05.08.2016 hours, a GMD warning of K7 or greater is in effect beginning at 19:55 on 05.08.2016 and will continue until 23:59 on 05.08.2016 . Additional Comments: A GMD of K 7 intensity has been observed at 0259 UTC time (2259 EDT) The GMD warning is still scheduled to end as of 0400 UTC (2359 EDT).</p>
<b>5/20/2016 5:19</b>	<b>5/22/2016 15:33</b>	<p>- Issued Min Gen Advisory for PJM-RTO-RTO PJM is issuing a Minimum Generation Advisory for the valley periods 05.21.2016 through 05.23.2016 . 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.</p>

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**PCLLRW** (7 Events)

<b>5/13/2016 23:17</b>	<b>5/14/2016 1:43</b>	- As of 23:13 on 05.13.2016 a Post Contingency Local Load Relief Warning to maintain KENNEY-STOCKTON 6712-1 at 68 MVA in the DPL (Delmarva) area has been issued for Transmission Contingency Control. Additional Comments: Load -No Generation or Switching available
<b>5/23/2016 3:26</b>	<b>5/23/2016 5:05</b>	- As of 03:23 on 05.23.2016 a PCLLRW to maintain ASTON 138 KV at 127 KV in the AEP area has been issued for Transmission Contingency Control. Additional Comments: Post Contingency Switching available - Post contingency AEP will place Wayman 138kV cap in service. Pre-contingency voltages too high to fit cap.
<b>5/25/2016 18:31</b>	<b>5/25/2016 21:11</b>	- As of 18:28 on 05.25.2016 a PCLLRW to maintain CHESTNAE-MOSSMILL 0796-2 at 94 MVA in the AE (Atlantic Elec) area has been issued for Transmission Contingency Control. Additional Comments: Load -No Generation or Switching available - NA
<b>5/26/2016 14:55</b>	<b>5/26/2016 15:05</b>	- A PCLLRW has been issued to maintain LOUDOUN4 TX1 XFORMER at 966 MVA in the Dominion for Transmission Contingency Control. Additional Comments: Generation - slow response
<b>5/27/2016 16:01</b>	<b>5/27/2016 16:03</b>	- A PCLLRW has been issued to maintain Bristers at 2217 MVA in the Dominion for Transmission Contingency Control. Additional Comments: post contignecy switching available.
<b>5/27/2016 16:07</b>	<b>5/27/2016 20:49</b>	- A PCLLRW has been issued to maintain BRISTERS-OX4 539 at 2217 MVA in the Dominion for Transmission Contingency Control. Additional Comments: Post Contingency Switching available
<b>5/27/2016 17:41</b>	<b>5/27/2016 20:00</b>	- A PCLLRW has been issued to maintain CLINCHRI-LEBANON at 374 MVA in the AEP for Transmission Contingency Control. Additional Comments: Post Contingency Switching available

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**Non-PCLLRW** ( 8 events)

<b>5/5/2016 14:56</b>	<b>5/5/2016 16:22</b>	- As of 14:52 on 05.05.2016 , a Non-Market PCLLRW to maintain GREENCO 69 KV at 61.5 KV in the EKPC area has been issued for Transmission Contingency Control. Additional Comments: Post Contingency Switching available - Place capacitors in service
<b>5/6/2016 9:40</b>	<b>5/6/2016 9:49</b>	- As of 09:36 on 05.06.2016 , a Non-Market PCLLRW to maintain MOTTVILL 138 KV at 127 KV in the AEP area has been issued for Transmission Contingency Control. Additional Comments: Load -No Generation or Switching available - NA
<b>5/9/2016 9:22</b>	<b>5/12/2016 0:59</b>	- As of 09:18 on 05.09.2016 , a Non-Market PCLLRW to maintain JAY 138 KV at 127 KV in the AEP area has been issued for Transmission Contingency Control. Additional Comments: BES 2 Facility - 138KV cap at Jay post contingency available
<b>5/9/2016 10:19</b>	<b>5/10/2016 13:31</b>	- As of 10:15 on 05.09.2016 , a Non-Market PCLLRW to maintain FINDLAYC 138 KV at 127 KV in the AEP area has been issued for Transmission Contingency Control. Additional Comments: BES 2 Facility - NA
<b>5/17/2016 9:58</b>	<b>5/17/2016 23:37</b>	- As of 09:56 on 05.17.2016 , a Non-Market PCLLRW to maintain ANTHONYT-LINCOLN2 at 281 MVA in the AEP area has been issued for Transmission Contingency Control. Additional Comments: Load -No Generation or Switching available - NA
<b>5/26/2016 18:34</b>	<b>5/26/2016 20:17</b>	- A PCLLRW has been issued to maintain MONTICE3 69 KV at 61.5 KV in the EKPC for Transmission Contingency Control. Additional Comments: Load -No Generation or Switching available



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<b>5/27/2016 9:19</b>	<b>5/27/2016 10:44</b>	- A PCLLRW has been issued to maintain VALLEYIM 138 KV at 127 KV in the AEP for Transmission Contingency Control. Additional Comments: BES 2 Facility
<b>5/27/2016 12:12</b>	<b>5/27/2016 15:26</b>	- A PCLLRW has been issued to maintain BUCKHORN-TAZEWELL at 219 MVA in the AEP for Transmission Contingency Control. Additional Comments: BES 2 Facility