

250 West Main Street
Suite 2300
Lexington, KY 40507-1758
(859) 226-2300
(859) 253-9144 FAX

May 1, 2026

Kenneth J. Gish
(859) 226-2293
kgish@stites.com

VIA E-MAIL TRANSMISSION PSCED@KY.GOV

Linda C. Bridwell
Executive Director
Public Service Commission
211 Sower Boulevard
P.O. Box 615
Frankfort, KY 40602-0615

RECEIVED

MAY 01 2026

**PUBLIC SERVICE
COMMISSION**

RE: **Administrative Case No. 345**

Dear Ms. Bridwell:

Kentucky Power Company files herewith the following documents:

- (a) The public version of the AEP East/PJM Emergency Operating Plan Rev. 27. It is being filed Pursuant to the Commission's March 1, 1993 Order in Administrative Case No. 345;
- (b) Kentucky Power Company's motion for confidential treatment for certain portions of the AEP East/PJM Emergency Operating Plan; and
- (c) The affidavit of David L. Browning in support of the motion for confidential treatment.

This report is being filed by email transmission in accordance with the Commission's March 16, 2020 and April 16, 2020 Orders in Case No. 2020-00085. The confidential portions of the AEP East/PJM Emergency Operating Plan will be transmitted separately by email to the Commission. Please do not hesitate to contact me if you have any questions.

Very truly yours,

STITES & HARBISON PLLC



Kenneth J. Gish, Jr.

COMMONWEALTH OF KENTUCKY
BEFORE THE PUBLIC SERVICE COMMISSION

In the Matter of:

Investigation Into Electric Utilities
Emergency Response Plans

Administrative Case No. 345

* * * * *

MOTION FOR CONFIDENTIAL TREATMENT

Kentucky Power Company moves the Public Service Commission of Kentucky pursuant to 807 KAR 5:001, Section 13 for an Order granting confidential treatment to the identified confidential information and documents (“Confidential Information”) filed in connection with Kentucky Power’s Emergency Operations Plan submitted for its update with the Commission pursuant to the Commission’s order in Administrative Case No. 345. This motion is supported by the Affidavit of David L. Browning (“Browning Affidavit”). Mr. Browning’s affidavit is attached hereto and incorporated herein by reference.

The Emergency Operations Plan is sensitive as a whole but there are portions of the filing that include Critical Energy Infrastructure Information (“CEII”). This information is declared by the Federal Energy Regulatory Commission (“FERC”) to be exempt from public disclosure. Specifically, Kentucky Power is seeking confidential treatment for the information identified as “Confidential Information” in Paragraph 5 of the Browning Affidavit, as well as the identified portions in the Table of Contents on pages 15-17¹ of the Emergency Operations Plan.

Pursuant to 807 KAR 5:001, Section 13, Kentucky Power is filing under seal those portions of the Emergency Operations Plan containing confidential information with the confidential

¹ Note that the Figures in the “Table of Figures” section of the Table of Contents on page 17 of the Emergency Operations Plan are mis-numbered. The figure labeled “Figure 2: Operating Time Limits” in the Table of Figures section is actually Figure 1: Operating Time Limits in the plan. Figure 3 from the Table of Figures is actually Figure 2 in the plan, and Figure 4 from the Table of Figures is actually Figure 3 in the plan.

portions highlighted in yellow or otherwise indicated as being confidential. Kentucky Power is also filing a public version with the confidential information redacted.

A. The Statutory Standard.

KRS 61.878(1)(m)(1)(f) exempts records from public inspection that would have a reasonable likelihood of threatening the public safety by exposing a vulnerability in preventing, protecting against, mitigating, or responding to a terrorist act, including:

Infrastructure records that expose a vulnerability referred to in this subparagraph through the disclosure of the location, configuration, or security of critical systems, including public utility critical systems. These critical systems shall include but not be limited to information technology, communication, electrical, fire suppression, ventilation, water, wastewater, sewage, and gas systems;

KRS 61.878(1)(k) further exempts "all public records or information the disclosure of which is prohibited by federal law or regulation" from disclosure under the Open Records Act. FERC Rule 18 C.F.R. § 388.113(c) states that CEII:

means specific engineering, vulnerability, or detailed design information about proposed or existing critical infrastructure that:

- (i) Relates details about the production, generation, transportation, transmission, or distribution of energy;
- (ii) Could be useful to a person in planning an attack on critical infrastructure;
- (iii) Is exempt from mandatory disclosure under the Freedom of Information Act, 5 U.S.C. 552; and
- (iv) Does not simply give the general location of the critical infrastructure. 18 C.F.R. § 388.112 exempts such information from mandatory disclosure under the Freedom of Information Act.

1. The Confidential Information in the Emergency Operations Plan.

The Confidential Information in the Emergency Operations Plan is treated by the Federal Energy Regulatory Commission as CEII and is exempt from public disclosure in accordance with FERC rules. All of the information for which confidential treatment is requested constitutes CEII

under the FERC rule. The Confidential Information includes specific engineering, vulnerability, and detailed design information about existing critical infrastructure. The information relates to details about the production, generation, transportation, and transmission of energy, and is critical to the safety and security of the region. The Confidential Information does not simply give the general location of critical infrastructure; it is information that could be useful to a person in planning an attack on critical infrastructure. The Confidential Information is exempt from mandatory disclosure under 5 U.S.C. 552.

The specific basis for confidential treatment of the Confidential Information is identified in paragraph 5 of Mr. Browning's affidavit. In addition, the identified Table of Contents listings on pages 15-17 provide information regarding the existence of certain plant-specific CEII.

Kentucky Power seeks confidential treatment of the Confidential Information in the Emergency Operations Plan for the life of the identified facilities. Once the facilities are retired the information will no longer be CEII.

B. The Identified Information is Generally Recognized As Confidential and Not Generally Known or Readily Ascertainable by Third Parties through Proper Means.

The Confidential Information in the Emergency Operations Plan is highly confidential. The Confidential Information is not available or ascertainable by other parties through normal or proper means. No reasonable amount of independent research could yield this information to other parties. The information reflects the internal planning efforts of AEPSC and Kentucky Power and information necessary to ensure a safe and reliable management of the transmission system.

Dissemination of the information for which confidential treatment is being requested is restricted by Kentucky Power, its parent, AEP, and its affiliates (including AEPSC). The Company, AEP, and its affiliates take all reasonable measures to prevent its disclosure to the public as well as persons within the Company who do not have a need for the information. The Company restricts

access to the Confidential Information to those employees and representatives of the Company who have a need to know such information due to their job and management responsibilities. The Company limits public access to buildings housing the Confidential Information by use of security guards, and persons not employed by the Company who are allowed past security guards at buildings where Confidential Information is kept are not permitted to walk within such buildings without an escort. The Company's files containing the Confidential Information are maintained separately from the Company's general records and access to those files is restricted. Within the Company, access to this information has been and will continue to be disclosed only to those employees and representatives of the Company who have a need to know about such information due to their job and management responsibilities. Outside the Company, this information is only provided to certain persons who have a legitimate need to review the information.

C. The Identified Information Is Required To Be Disclosed To An Agency.

The identified information is by the terms of the Commission's Order required to be disclosed to the Commission. The Commission is a "public agency" as that term is defined at KRS 61.870(1). Any filing should be subject to a confidentiality order and any party requesting such information should be required to enter into an appropriate confidentiality agreement.

WHEREFORE, Kentucky Power Company respectfully requests the Commission to enter an Order:

1. According confidential status to and withholding from public inspection the identified information for the life of the identified facilities; and

2. Granting Kentucky Power Company all other relief to which it may appear entitled.

Respectfully submitted,

A handwritten signature in blue ink, appearing to be "K. J. Gish, Jr.", enclosed within a large, loopy blue oval.

Kenneth J. Gish, Jr.
Harlee P. Havens
STITES & HARBISON PLLC
250 West Main Street, Suite 2300
Lexington, Kentucky 40507-1758
Telephone: (859) 226-2300
Fax: (859) 253-9144
kgish@stites.com
hhavens@stites.com

COUNSEL FOR KENTUCKY POWER COMPANY

AFFIDAVIT OF DAVID L. BROWNING

David L. Browning, first being duly sworn, deposes and states:

1. I am employed by American Electric Power Service Corporation (“AEPSC”). AEPSC is a wholly-owned subsidiary of American Electric Power Company, Inc. (AEP) and is an affiliate of Kentucky Power Company (the “Companies”). I am responsible for support of the efficient and reliable operation and coordination of the AEP subsidiaries’ transmission network in PJM and SPP; for the development of operational standards, and real time system studies, normal and emergency operating plans and procedures. I also assist with the development and delivery of training in support of system control center and dispatching activities and in support of operations engineering practices; with providing operational input to the transmission asset management process; with Transmission Operations compliance with all NERC and Regional Reliability Council operational and reliability requirements; with updating the annual revision and improvement of the AEP Transmission Emergency Operating Plan and ensuring the Plan conforms to the latest NERC requirements. I have also been involved in several NERC Standards Authorization Request and Standard Drafting Teams.

2. I am of the age of majority and competent to make this Affidavit. The statements in this Affidavit are based on my personal knowledge or knowledge gained through my investigation with other AEPSC and Kentucky Power employees of the matters set forth in this Affidavit.

Description of the Confidential Information for Which Protection is Sought

3. Kentucky Power is requesting that certain confidential Critical Energy Infrastructure Information (“CEII”) included in Kentucky Power’s Emergency Operation Plan be exempted from public disclosure pursuant to KRS 61.878(1)(k) and KRS 61.878(1)(m).

4. The Confidential Information contained in this emergency response plan (as indicated in the table below) is treated by the Federal Energy Regulatory Commission as CEII and is exempt from public disclosure in accordance with FERC rules. 18 C.F.R. § 388.113(c). All of the information for which confidential treatment is requested constitutes CEII under the FERC rule. The CEII includes specific engineering, vulnerability, and detailed design information about existing critical infrastructure. The information relates details about the production, generation, transportation, and transmission of energy. The CEII is critical to the safety and security of the region. The information does not simply give the general location of critical infrastructure; it is information that could be useful to a person in planning an attack on critical infrastructure. The CEII is exempt from mandatory disclosure under 5 U.S.C. 552.

5. More specifically, Kentucky Power seeks confidential treatment for engineering, vulnerability, and detailed design information about existing critical infrastructure related to the generation and transmission system of the AEP subsidiaries. The following table details the nature of the information and how it relates to the critical nature of the information in emergency situations.

Section(s)/Pg #(s)	Confidential Information
Compliance/14 7.4/26-35, 9.5/46-49	Contact names and information of personnel involved in the emergency response operations. Public disclosure of this list would provide persons seeking to harm the generation and transmission system a list of individuals both within Kentucky Power and APESC and contacts at other companies who are responsible for securing the system and ensuring its continued operation and could be used to interfere with the performance of their duties.

Section(s)/Pg #(s)	Confidential Information
9.3.1/45, 9.4/45	Internal web address/documentation location. Public disclosure of this information would provide persons seeking to harm the generation and transmission system potential access to AEP's intranet/document storage locations.
9.4/45	Specific description of units equipped with a Remedial Action Scheme (RAS).
9.9/50	Specific description of units equipped with a certain power stabilizer.
11.6.4/53, Figure 3/53	Communication channel specifics. Public disclosure of this information would provide persons seeking to harm the generation and transmission system a list of individuals both within Kentucky Power and APESC and contacts at other companies who are responsible for securing the system and ensuring its continued operation and could be used to interfere with the performance of their duties.

The Information Contained in Confidential Information is Critical Energy Infrastructure Information and is Not Generally Known, Readily Ascertainable by Proper Means by Other Persons

6. The CEII is not available or ascertainable by other parties through normal or proper means. No reasonable amount of independent research could yield this information to other parties. The information reflects the internal planning efforts of AEPSC and Kentucky Power (the "Companies") and information necessary to ensure a safe and reliable management of the transmission system.

The Information is the Subject of Reasonable Efforts to Maintain Its Secrecy

7. The Confidential Information has been the subject of reasonable efforts to maintain its secrecy. The Companies restrict access to the CEII to those employees and representatives of the Companies who have a need to know such information due to their job and management responsibilities. The Companies limit public access to buildings housing the CEII by use of

security guards. Persons not employed by the Companies who are allowed past security guards at buildings where Confidential Information is kept are not permitted to walk within such buildings with an escort. The Companies' files containing the Confidential Information are maintained separately from the Companies' general records and access to those files is restricted. Within the Companies, access to this information has been and will continue to be disclosed only to those employees and representatives of the Companies who have a need to know about such information due to their job and management responsibilities. Outside the Companies, this information is only provided to certain persons who have a legitimate need to review the information.

Further the Affiant sayeth naught



Transmission – Real-time Operations

AEP East/PJM Emergency Operating Plan

Effective Date: 9/25/2025

Supersedes AEP East/PJM Emergency Operating Plan, Rev. 27.0, Effective Date 10/1/2024

Description: Plan to maintain reliable power system operation associated with the bulk power supply system. The document focuses on preventing major power outages of wide extent involving generating plants, transmission lines, and Bulk Electric System (BES) substations who collectively deliver the power to major points of distribution.

Note: Printed copies of this document are uncontrolled and may be obsolete. This document has been prepared by, and is the property of, American Electric Power Company, Inc., is intended for AEP use only, is not to be used for any purpose detrimental to AEP's interest, and is not to be furnished to, or copied or reproduced by, parties not affiliated with the AEP System without the express written consent of AEP, and is to be returned upon request.			
Subject Matter Experts: Christopher R. Shaffer Linda L. Lopez Roselyn N. McAuley	© 1999, 2001–2016, 2018–2025 American Electric Power Company, Inc.	Rev. 28.0	TOPS.01.007.00_GUI
			Page 1 of 57

Document Control

Preparers

Prepared By:	Title
Greg Young	NERC Compliance Spec Sr, TSOS Compliance And Process
Logan D. Lacy	Real Time Operations Lead, Trans Dispatch Columbus
Tyler A. Gasteiger	Dist Dispatching Supv, Ft Wayne Distrib Dispatch
Marcia B. Roberts	Trans Technical Writer Prin, TSOS Compliance And Process

Reviewers

Reviewed By:	Title	Signature	Date
Al Reed	Transmission NERC Compliance Mgr, TSOS Compliance And Process		
Brian R. Martin	Eng Del System Ops Mgr, Trans Dispatch Roanoke		
Ed Strouse	Eng Del System Ops Mgr, Trans Dispatch Columbus		
Elliott W. Thaxton	Eng Del System Ops Mgr, Trans Dispatch Columbus		
Chris Martin	Dist Dispatching Mgr, Roanoke Dist Dispatch		
Eric A. Miller	Dist Dispatching Mgr, AEP Ohio Distr Dispatch Admin		
Jarrod M. Wilson	Dist Dispatching Mgr, Ft Wayne Distrib Dispatch		
Ryan S. Lucas	Eng Del System Ops Mgr, Trans Dispatch Roanoke		
Aaron T. Shaw	Realtime Reliability Eng Mgr, Trans Operation Engineering		
Ryan M. Cox	Trans Opers Reliability Mgr, Trans Operation Reliability		



Approvers

Approved By:	Title	Signature	Date
Christopher R. Shaffer	Director Energy Delivery RealTime Reliability, Trans Operation Reliability		
Linda L. Lopez	Dir Energy Delivery System Ops, Transmission Dispatch		
Rosalyn N. McAuley	Dir Energy Delivery System Ops, Transmission Dispatch		

Implementation

Effective Date	9/25/2025
Review Frequency	1 Year
Retention Period	10 Years
Audience	Real-time Operations

Revision History

Rev.	Description of Change(s)	By	Date
1.0	Annual Review		June 1999
2.0	Annual Review		February 2001
3.0	Annual Review		May 2001
3.1	Minor Revisions		June 2001
4.0	Annual Review		June 2002
5.0	Annual Review		June 2003
6.0	Annual Review		March 2004
7.0	Major Revisions		October 2004
8.0	Annual Review		June 2005

Rev.	Description of Change(s)	By	Date
9.0	Annual Review		February 2006
9.1	Minor Revisions		March 2006
9.2	Minor Revisions		April 2006
9.3	Minor Revisions		September 2006
10.0	Annual Review		March 2007
10.1	<ol style="list-style-type: none"> 1. Updated Implementation with some revised names and corrected some phone numbers. 2. Updated the following Sections based on recommendations from the NERC Readiness and RFC audit teams. Section I, II, III, V, VIII, X 		May 2007
11.0	Annual Review		April 2008
11.1	Minor edits, and classification of document as AEP Confidential Special Handling		August 2008
12.0	Annual Review		April 2009
12.1	<p>Added Document Control, updated Section VI-Rockport SPS and Section VIII-Black</p> <p>Start test dates</p>		August 2009
12.2	<p>Updated Implementation phone numbers</p> <p>Updated Section VIII-Black Start - AEPW/SPP test dates and backup agreement with METC for Cook</p> <p>Updated Appendix VII Emergency Contact phone numbers</p>		September 2009
13.0	<p>Annual Review</p> <ul style="list-style-type: none"> • Implementation names/phone numbers • Section III - Capacity Deficiency Program consistent with PJM 		April 2010



Rev.	Description of Change(s)	By	Date
	<ul style="list-style-type: none"> • Section V - Fuel Limitations added reference to SPP Criteria, update Figure V-1 • Section VI – Transmission Emergency Procedures SPS, UVLS, PJM procedures, PSS updates • Section IX -DOE and NERC Reporting clarified reporting times • Section X – Emergency Communications phone numbers • Section XI – Training hours • Appendix III – Under Frequency Guidelines • Appendix V – Manual Load Shedding Guidelines loads • Appendix VII Emergency Contact phone numbers 		
13.1	<p>Updated</p> <ol style="list-style-type: none"> 1. Section III Capacity Deficiency Program <ul style="list-style-type: none"> • Minor edits to PJM portion 2. Section VI Transmission Emergency Procedures <ul style="list-style-type: none"> • Indiana – Rockport Plant Special Protection System 3. Section VIII System Restoration <ul style="list-style-type: none"> • Unit Test dates • TDC Name changes • System Restoration dB <p>4.) Appendix VII</p> <ul style="list-style-type: none"> • AEP internal contacts due to reorganization 		December 2010

Rev.	Description of Change(s)	By	Date
14.0	Annual Review		June 2011
15.0	Annual Review. Correct Date typo		June 2012
15.1	<p>Update</p> <ul style="list-style-type: none"> • Section III – Load updates Section VI – Load shedding updates • Section VIII – ALR test dates updates • Restoration frequency range update • Section IX – NERC form update Section X – Satellite phone # update • Appendix VI – Added PER-003-1 • Appendix VII – Added new contact 		December 2012
16.0	<p>Annual Review</p> <ul style="list-style-type: none"> • Section III – Update PJM and SPP sections to be consistent with respective RC requirements • Section V – Update reference to NERC standards, PJM manuals, and SPP Criteria. • Section VI – Updated PJM manual references SPP Criteria references. • SPP IROL Relief Guide dated 06/28/13 • Rockport Operating Procedure • Columbus Southern Under Voltage Load Shed Scheme • Added Plant Fault Duty Procedures • Operating in an Unknown State 		August 2013



Rev.	Description of Change(s)	By	Date
	<ul style="list-style-type: none"> • Section VIII – This section contains highlights of the AEP System Restoration Plans approved by PJM and SPP RC. Refer to the approved plans on TOPs Sharepoint for additional information. • Section IX – Update NERC fax #, email address, and links to NERC’s reorganized web site. • Section X – Update NERC, PJM manual references, TDC communication references. • Section XI – Update System Operator Training objectives 		
17.0	<p>Annual review</p> <ul style="list-style-type: none"> • Section III – Update PJM and SPP sections to be consistent with respective RC requirements • Section V – Update SPP section to be consistent with SPP Emergency Operating Plan • Section VI – Update to reflect AEP / PJM / SPP Emergency Procedures • Section VIII - This section contains highlights of the AEP System Restoration Plans approved by PJM and SPP RC. Refer to the approved plans on TOPs Sharepoint for additional information. • Section IX – Updated to be consistent with AEP Reporting Operating Plan. Sorted Attachment 1 table by reporting time. • Appendix II – Updated high voltage limits in Table AIII-4 to reflect Mike Skidmore’s recommendations. 		September 2014

Rev.	Description of Change(s)	By	Date
	<ul style="list-style-type: none"> • Appendix III – Updated AEP East, PSO, SWEPCO peak load tables. • Appendix IV – Update load relief number • Appendix V – Update Tables AV-1, AV-2, PSO, and SWEPCO tables • Appendix VI – Added NERC IRO-001-1.1 R8 and IRO-004-2 R1 • Appendix VII – Updated contact list and associated phone numbers 		
18.0	<p>Annual Review</p> <ul style="list-style-type: none"> • Implementation – Update contact information • Section III – Update PJM and SPP sections to be consistent with respective RC requirements. Updated load management, unit retirements. • Section IV – Updated to reflect unit retirements. • Section V – Updated to reflect changes in PJM and SPP requirements. • Section VI – Updated to reflect changes in PJM m03, m13, m14, m37, and SPP Emergency Operating Plan. • Emergency Actions dealing with voltage control. • PCLLRW and PCAP additions. Updated UVLS schemes • Updated Plant Fault Duty Procedures. • Section VII – Updated to align with the AEP Emergency Response Plan. 		November 2015



Rev.	Description of Change(s)	By	Date
	<ul style="list-style-type: none"> • Section VIII – Refers the reader to the Reliability Coordinator approved system restoration plan for the PJM / SPP areas. • Section X – Updated to reflect NERC COM standard, PJM M01, and SPP Criteria 10 changes. Updated phone numbers. • Section XI – Updated to reflect NERC PER-005 requirements. • Appendix V – Updated load shed MW. • Appendix VI – Incorporates updated AEP Operator to Act Policy document. • Appendix VII – Updated internal / external contacts 		
19.0	<p>Annual Review</p> <ul style="list-style-type: none"> • Updated contacts in Implementation section • Section II – Updated policies and guidelines by referencing Appendix VI AEP’s Operator Authority to Act Policy • Section III – Updated to line up with PJM and SPP BA plans. • Section VI – Updated to reflect PJM / SPP manual updates, AEP procedure updates, and NERC standards. • Section IX – Event Reporting Operating Plan updated • Section X – Updated to reflect PJM / SPP manual updates, and NERC COM 001-2.1. 		November 2016

Rev.	Description of Change(s)	By	Date
	<ul style="list-style-type: none"> • Appendix V – Updated load shed MW. • Appendix VI – Incorporates updated AEP Operator to Act Policy document. • Appendix VII – Updated internal / external contacts 		
20.0	<p>Annual Review</p> <ul style="list-style-type: none"> • Implementation Section- Updated contacts • Section II- Updated policies to reflect updates in NERC Standards • Section III- Streamlined by referencing the PJM/SPP detailed capacity deficiency procedures. Kept the table highlighting AEP’s response to the RC requests. Removed the EEA description which is in the NERC standards. • Section IV – Abnormal Frequency, Removed Gavin • Section V – Fuel • TOP is not responsible for fuel per NERC EOP 011. • Section VI –Transmission Emergency Procedures Updated to reflect PJM / SPP manual references, AEP procedure updates, and NERC standards. • Section VIII – References AEP Restoration Plans approved by the Reliability Coordinators • Section IX – Incorporated AEP Event Reporting rev5 document. • Section X –Emergency Communications 		January 2018



Rev.	Description of Change(s)	By	Date
	<ul style="list-style-type: none"> • Updated PJM /SPP manual references, AEP satellite phones • Section XI – Updated training requirements. • Appendix V – Updated load shed MW. Screen dumps of AEP East ADX • Appendix VII – Updated internal / external contacts 		
21.0	Updated format to current standard. Links to external sources References to internal documentation	Mike Richardson	1/15/2019
22.0	Annual Review	Mike Richardson	4/15/2020
23.0	Annual Review. Minor edits/updates throughout. As of 01/01/2021, Transmission Operations (TOps) is now Energy Delivery Operations (EDOps). Changed instances of Transmission Operations/TOps to Energy Delivery Operations/EDOps where appropriate.	EDOps	4/9/2021
24.0	Annual review. Converted to new guideline template. Updated names in Review table. Updated References table and the Terms and Definitions. Updated the Procedure for Implementing Capacity Deficiency of the Emergency Operating Plan section. Replaced "TOPS_ENGCA" email with "OpsEng PJM-MISO" throughout document. Replaced "NATOC" with "NATCC" throughout document. Added final sentence in Purpose section regarding new requirement to submit to MISO at least 30 calendar days prior to the anticipated effective date.	EDOps	4/14/2022

Rev.	Description of Change(s)	By	Date
	<p>Updated the Management Group section.</p> <p>Removed “Isolation of Coal-Fired Steam Turbine Generation Units” through “AEP PJM Turbine Generator Units” sections.</p> <p>Updated sections 5.5; 5.6.3; 8.2; 9.2; 9.3.1</p> <p>Section 11.4 – updated NATOC and Tulsa event folder locations to the Conservative Operations Guideline.</p>		
25.0	<p>Content review. Updated Preparation, Review, and Approval tables. Updated Executive Team and Management Group. Added Compliance Information section per template update. Corrected SCCRC acronym throughout document to SCC RC along with minor grammatical updates throughout document. Updated last sentence in fifth paragraph of section 3.0.</p> <p>Updated section 6.0.</p> <p>Section 5.6.2 Hot Weather Alert – updated last paragraph.</p> <p>Section 9.3.1 – deleted last four sentences of last paragraph regarding Kremlin databases.</p> <p>Section 11.3 – updated second paragraph with Conservative Ops Guideline language.</p> <p>Section 14.0 – updated third paragraph.</p>	EDOps	3/31/2023
26.0	<p>As of 1/20/2024, Energy Delivery Operations (EDOps) is now Real-time Operations (Real-time Response and Real-time Reliability). Updated Document Control sections.</p> <p>Minor updates in sections 3.0 (final bullet), 4.0, 5.0, 6.0, 7.5, 9.1.2, 9.3.1, 9.5.1, 9.5.2, 9.5.3.1 corrected SCC Actions bullets), 11.6.2, and 14.1.</p>	Real-time Operations	4/19/2024



Rev.	Description of Change(s)	By	Date
	<p>Updated headings in section 7.4 from <i>Capacity Deficiency Summary Table</i> to <i>Emergency Operations Summary Table</i>, 8.1.1 from <i>Procedures</i> to <i>AEP/PJM Procedures</i>; and 13.3 from <i>Communication Failures</i> to <i>Network Communication Failures</i>.</p> <p>Removed old sections due to outdated or duplicated info- 5.5 <i>Communications During a Capacity Deficiency Event</i>; 5.6.1 <i>Cold Weather Alert</i>; 5.6.2 <i>Hot Weather Alert</i>; 5.6.3 <i>Guidance for Deferring or Canceling Maintenance or Testing</i>; 5.7 <i>Emergency Messages from AEP to the Public</i>; 7.5 <i>Geomagnetic Disturbance Operating Procedure</i>; 7.5.1 <i>Highlights of Procedure</i>; 7.6 <i>NERC Transmission Loading Relief Procedure</i>; 7.16 <i>Emergency Messages</i>; 8.6.3 <i>Communications</i>; 10.1.1 <i>800 MHz Radio and Fiber Optics System</i>; 10.1.2 <i>Audinet System</i>; 10.1.3 <i>TDC to Plant Communication</i>; 10.1.4 <i>Satellite Communications</i>; 10.1.5 <i>SCADA Communications</i>; 10.4 <i>Testing</i>.</p> <p>Removed old storm language from 11.1; updated sections 11.2; 11.3; 11.4; 11.5; 11.6; 11.6.3; 13.0; 13.1.1; 14.1.1; and 14.1.2.</p> <p>Added new section 10.0 and 14.2.</p>		
27.0	<p>Updated Document Control section; updated <i>Congestion Management Guideline</i> to <i>SOL Exceedance Methodology Guideline</i>; updated in sections 5.0 and 14.0 – 14.1.2 for edits resulting from Real-time Operations' OSI/EMS project (removed old ALS screenshots and now to refer to Load Shed documents).</p> <p>Updated to comply with EOP-011-4.</p>	Real-time Operations	9/26/2024
28.0	<p>Annual Review</p> <p>As of 3/20/2025, Energy Delivery is now Transmission System Operations</p>	Real-time Operations	9/25/2025

Rev.	Description of Change(s)	By	Date
	(TSO). Real-time Operations is a group under TSO and encompasses Real-time Response and Real-time Reliability. Energy Delivery Support is now Transmission System Operations Support (TSOS) Removed all references to The Outage Tracking System (OTS).		

Compliance Information

Compliance Documentation Required by a NERC Standard	
Required Per Standard	NERC Mandated Review Date
EOP-011	Annually

Name or Dept	Title	Entity	Submittal Information	Required Submittal Date	Comments
Greg Young	NERC Compliance Spec Sr, TSOS Compliance & Process	PJM	PJM - AEP posts the Emergency Operating Plan (EOP) on the PJM Connect site /PERCS/AEP.	None Indicated	
Greg Young	NERC Compliance Spec Sr, TSOS Compliance & Process	MISO	MISO - AEP submits the Emergency Preparedness and Operations Plan (EPOP) via the [REDACTED]	Submission should occur AT LEAST 30 days (if possible) prior to the plan's anticipated effective date.	



Table of Contents

Document Control	2
Preparers.....	2
Reviewers.....	2
Approvers.....	3
Implementation	3
Revision History.....	3
Compliance Information	14
Table of Contents	15
Table of Figures	17
1.0 Purpose.....	18
2.0 Procedure for Implementing Capacity Deficiency of the Emergency Operating Plan.....	18
3.0 Introduction.....	18
4.0 Policies and Guidelines	19
5.0 References	21
6.0 Terms and Definitions.....	22
7.0 Capacity Deficiency Program	24
7.1 Purpose	24
7.2 Criteria.....	24
7.3 AEP East/PJM Procedures.....	25
7.3.1 Overview	25
7.4 [REDACTED]	26
7.5 Severe Weather Conditions.....	38
8.0 Procedures During Abnormal System Frequency	38
8.1 Underfrequency Program.....	38
8.1.1 AEP/PJM Procedures.....	38
8.2 Automatic Load Shedding Program Specifications	39
9.0 Transmission Emergency Procedures	41
9.1 SOL/IROL Definitions.....	41
9.1.1 System Operating Limit.....	41
9.1.2 Interconnection Reliability Operating Limit	41
9.2 Introduction and Conditions.....	42

9.3 Actions for Transmission System Emergencies..... 44

 9.3.1 Emergency Actions..... 44

9.4 AEP/PJM – [REDACTED]..... 46

 9.4.1 System Description – [REDACTED]..... 46

9.5 Additional PJM Emergency Procedures..... 46

 9.5.1 PJM – Thermal Operating Guides..... 46

 9.5.2 Voltage Limit Violations 46

 9.5.3 Heavy Load, Low Voltage Conditions 46

 9.5.3.1 Low Voltage Alert 47

 SCC Actions..... 47

 9.5.3.2 Heavy Load Voltage Schedule Warning 47

 SCC Actions..... 47

 9.5.3.3 Heavy Load Voltage Schedule Action..... 48

 SCC Actions..... 48

 9.5.4 Light Load, High Voltage Conditions 48

 9.5.4.1 Minimum Generation Advisory and Minimum Generation Alert 48

 SCC Actions..... 48

 9.5.4.2 Minimum Generation Emergency Declaration 49

 SCC Actions..... 49

 9.5.4.3 Minimum Generation Event 49

 SCC Actions..... 49

 9.5.4.4 High System Voltage Action..... 50

 SCC Actions..... 50

9.6 Post Contingency Local Load Relief Warning..... 50

9.7 Post-Contingency Load Dump Limit Exceedance Analysis..... 51

9.8 PJM Reactive Reserve Check 51

9.9 Units Equipped [REDACTED]..... 51

9.10 Conservative Operations 51

10.0 Emergency Message Communications 52

11.0 Major Storm Restoration 52

 11.1 Introduction..... 52

 11.2 AEP Emergency Response Plan – Overview..... 52

 11.3 AEP ERP – Declaration of Transmission Emergency 53



- 11.4 AEP ERP – Real-time Operations Overview..... 53
- 11.5 AEP ERP – Training Personnel..... 53
- 11.6 Storm Restoration Plan..... 53
 - 11.6.1 Restoration Priority 53
 - 11.6.2 Staffing 53
 - 11.6.3 Storm Organization Responsibilities..... 53
 - 11.6.4 Storm Emergency Communications 54
- 12.0 DOE and NERC Event Reporting Requirements 55
- 13.0 Emergency Communications 55
 - 13.1 Types of Communication Systems..... 55
 - 13.1.1 AEP Satellite Telephones..... 55
 - 13.2 Decision Making/Collaboration 55
 - 13.3 Network Communication Failures 56
- 14.0 Appendix A: AEP PJM Manual Load Shedding Guidelines 57
 - 14.1 Load Shedding Criteria..... 57
 - 14.1.1 Priority 57
 - 14.1.2 Load Shedding Considerations 58
 - 14.2 Municipality/Cooperative Load Shed Criteria 58

Table of Figures

- Table 5-A: Capacity Deficiency Summary AEP/PJM 37
- Table 6-A: Restoration Blocks – Time Delay Settings..... 40
- Figure 2: Operating Limit Timeline 42
- Figure 3: SOL Performance Summary for Facility Ratings..... 42
- Figure 4: [REDACTED] 54
- Table 12-A: Feeder Prioritization 57

1.0 Purpose

If the American Electric Power (AEP)/PJM footprint experiences a Capacity Deficiency Event, which requires implementation of AEP's Capacity Deficiency plan, or if a portion of the PJM region experiences a widespread area outage or becomes separated from the interconnected system, the System Control Center (SCC) and/or Commercial Operations – Market Operations (MO) emails their Executive Team representative, explains the system emergency, and begins taking actions to implement the Emergency Operating Plan (EOP).

PJM is the Balancing Authority (BA) for AEP East/PJM. The following procedures help clarify section [7.0 Capacity Deficiency Program](#), of AEP's plan.

This document and the *TOP and BA Emergency Operations Plan Submittal SO-P-EOP-00-008* worksheet must be submitted to MISO at least 30 calendar days prior to the anticipated effective date of the Emergency Operating Plan or Operating Process.

2.0 Procedure for Implementing Capacity Deficiency of the Emergency Operating Plan

PJM is responsible for monitoring the operation of the PJM Regional Transmission Organization (RTO). As the BA, PJM is responsible for declaring the existence of a capacity deficiency and for directing the operations of the PJM members as necessary to manage, alleviate, or end a capacity emergency event. PJM decides when to implement the provisions of EOP section [7.0 Capacity Deficiency Program](#), and the SCC makes notifications as required.

Whenever PJM declares a capacity alert/warning/action for the AEP/PJM footprint, the SCC emails their Executive Team representative as well as the Market Operations representative responsible for notifying their Executive Team representative. The SCC also takes actions for each capacity alert/warning/action in accordance with the [Emergency Operations Summary Table](#) in section [7.4](#).

3.0 Introduction

This plan is aimed at maintaining reliable power system operation associated with the Bulk Electric System (BES). The main focus is on preventing major power outages of wide extent involving generating plants, transmission lines, and BES substations who collectively deliver the power to major points of distribution.

While localized power interruptions are considered beyond the scope of this plan, it is important to recognize that some of the plan's features are of benefit in those situations.

The EOP is primarily directed toward providing concepts, recommendations for facilities (communications, displays, alarms, etc.) and basic data which, together with trained personnel, will permit a sound approach to the handling of any emergency situation that may arise. This approach keeps the plan dynamic and also avoids the impractical approach of trying to define every condition that may arise.

Should conditions arise that are beyond any reasonable expectations, including multiple outages caused by either weather or equipment failures, refer to the NERC Reliability Coordinator (RC) approved System Restoration Plan. The System Restoration Plan contains general procedures for restoring the system as quickly as possible. Every effort is made to avoid the need to use restoration procedures.

DOE form OE-417, which is mandatory pursuant to section 13(b) of the Federal Energy Administration Act of 1974 (Public Law 93-275), places an added emphasis on the need for formal procedures to follow in emergencies related to the BES. The AEP Event Reporting Operating Plan summarizes the NERC Standard EOP-004 reporting requirements and describes the program to address those requirements.

Personnel receiving copies of this plan need to become familiar with its contents; furthermore, all employees who are involved in the various procedures need to have sufficient training to perform the intended tasks.

AEP considers all elements of EOP-011, EOP-005-3, PJM Manuals, MISO Operating Guides and Operating Procedures, in the development of AEP's EOP.

AEP provides the AEP EOP to neighboring entities per RC requirements. Information that is designated as Federal Energy Regulatory Commission (FERC) Critical Energy Infrastructure Information (CEII) is removed from the Plan unless a signed confidentiality agreement is returned by the neighboring entity.

This plan is updated annually. In accordance with NERC EOP-011 R1, AEP submits the plan(s) to the RC for review.

- Section 7 of PJM Manual 13 states the plan(s) need to be submitted to PJM RC using the email address EOP-011forms@pjm.com.
- MISO requires submitting a completed *TOP and BA Emergency Operations Plan Submittal SO-P-EOP-00-008* worksheet.

4.0 Policies and Guidelines

Reliability Entities must operate power systems within limits that ensure adequate generation and transmission capacity to avoid Cascading for actual or N-1 contingency overloads. While power system Load grows more or less on a continual basis, transmission and generation equipment is added in finite blocks. This method results in operating margins that not only are changing but may result in constraints that alternate in severity both in generation and transmission.

In developing a set of operating limits for the AEP System, it is important to do so within a general framework to ensure that the operating objectives are met. Accordingly, a set of general guidelines is presented below:

1. AEP's primary focus in carrying out these emergency procedures is clearly stated in the Environment, Safety & Health Philosophy:
"No aspect of operations is more important than the health and safety of people. Our customers' needs are met in harmony with environmental protection."
2. Each Transmission Operator has the responsibility and clear decision-making authority to take whatever actions are needed to ensure the reliability of its area and shall exercise specific authority to alleviate operating Emergencies, including the shedding of firm Load.
3. Maintaining the integrity of the Transmission System without planned internal separation is necessary. Actual thermal overloads or voltage constraints must be alleviated immediately using identified transmission procedures.
4. AEP's Operator Authority to Act Procedure outlines the responsibilities and authorities of the Real-time Operations SCC Reliability Coordinators (RCs) and Transmission Dispatch Center (TDC) System Operators in performing various actions to alleviate operating Emergencies and/or ensure stable and reliable operation of the AEP Transmission System. Compliance with all Operating Instructions as

outlined in the procedure is required, unless such actions cannot be physically implemented or would violate safety, equipment, regulatory, or statutory requirements. AEP will give maximum reasonable assistance to adjacent systems having trouble. However, AEP will terminate such assistance, without opening interconnection circuits, if possible, when the reliable operation of the AEP System is impaired. This practice assumes the following:

- a. The requesting Transmission Operator has implemented its comparable Emergency procedures.
 - b. The request is consistent with AEP's Operator Authority to Act Procedure.
5. The AEP System should be operated so that the occurrence of any single contingency (circuit, transformer, or unit) does not result in instability, uncontrolled separation, or Cascading outages that adversely impact the reliability of the Interconnection. The single contingency analysis is geared to the current state of the System, which reflects maintenance and forced outage events as they occur. Operating Plans ensure prompt action to prevent or mitigate identified adverse System impacts. Operation of the AEP System takes into consideration any effects on facilities outside of the AEP System. Other systems are advised of known conditions that may present a hazard to their operation or could result in an Emergency. Events and conditions affecting regional or national BES reliability must be reported to the U.S. Department of Energy (DOE) and NERC.
 6. By following Operating Instructions issued by the applicable BA, the principles of sound interconnected operation are maintained when the AEP System experiences a generation Load imbalance. The only exception would be if physical implementation of Operating Instructions is not possible, or it would violate safety, equipment, regulatory, or statutory requirements.
 7. Generating plant, substation, and transmission equipment maintenance and testing should be held to a minimum prior to and during System Emergency conditions. When such conditions are expected to exist, the SCC notifies each TDC and MO, so any work that could jeopardize generation or transmission capabilities can be postponed.
 8. The SCC RC notifies the RC of current and projected conditions when experiencing an operating Emergency. The SCC RC informs its RC, known impacted BAs, and known impacted Transmission Operators of its actual or expected operations that result in, or could result in, an Emergency.
 9. The SCC RC coordinates the Emergency actions for facilities in the AEP area with the associated PJM RC.

5.0 References

Document ID	Document Title
	PJM Manuals: <ul style="list-style-type: none"> • PJM Manual Manual 03: Transmission Operations • PJM Manual M10: Pre-Scheduling Operations, section 2, Generation Outage Reporting • PJM Manual M13: Emergency Operations • PJM Manual M14D Generator Operational Requirements • PJM Manual M37: Reliability Coordination
	NERC Reliability Standards: <ul style="list-style-type: none"> • EOP-005-3 – System Restoration from Blackstart Resources • EOP-011-4 Emergency Operations • TOP-001-6 - Transmission Operations • TOP-002-4 Operations Planning
TOPS.01.001.00_PRO TOPS.01.001.00_POL	Congestion Management: <ul style="list-style-type: none"> • Congestion Management: Constraint Mitigation Action Plan Procedure • Congestion Management Policy
TOPS.01.021.00_GUI	Conservative Operations Guideline
EDOPS.01.115.00_GUI	Voltage and Reactive Guidelines
EDOPS.01.104.00_PRO	Operator Authority to Act Procedure
TOPS.01.008.00_PRO	Real-time Assessment Methodology Procedure
TOPS.01.048.00_PRO	IROL Relief Procedure – AEP PJM/MISO
TOPS.01.102.00_STN	Ratings and Limit Standard
TOPS.01.019.00_PRO	AEP Event Reporting Operating Plan
EDOPS.01.042.00_GUI	Substation Data Outage Response Guide
TOPS.01.015.00_GUI	Real-time Data Integrity Guideline
EDOPS.01.157.00_STN	Enhanced Communications Standard
TOPS.01.081.00_GUI	Interpersonal Communication Capabilities Guide

Document ID	Document Title
TOPS.01.081.04_LIST	<ul style="list-style-type: none"> • Interpersonal Communications Contact List: Corpus Christi TDC • Interpersonal Communications Contact List: ERCOT SCC • Interpersonal Communications Contact List: New Albany TDC • Interpersonal Communications Contact List: PJM/MISO SCC • Interpersonal Communications Contact List: Roanoke TDC • Interpersonal Communications Contact List: SPP TDC • Interpersonal Communications Contact List: SPP SCC
TOPS.01.081.05_LIST	
TOPS.01.081.01_LIST	
TOPS.01.081.03_LIST	
TOPS.01.081.02_LIST	
TOPS.01.081.06_LIST	
TOPS.01.081.07_LIST	
TOPS.01.044.00_PRO	Underfrequency Load Shedding (UFLS) Procedure
EDOPS.01.137.00_GUI	Rockport Operating Guidelines
TOPS.01.001.00_GUI	SOL Exceedance Methodology Guideline
EDOPS.01.154.00_PRO	Load Shed Procedure
EDOPS.01.154.01_MAP	SCC/TDC/DDC Load Shed Process Map
	AEP Emergency Response Plan (ERP website)

6.0 Terms and Definitions

Term	Description
AEP	American Electric Power
ALL-CALL	The PJM ALL-CALL process is a one-way communications system used to send messages to member companies.
APCO	Appalachian Power Company
Automatic Generation Control (AGC)	Equipment that automatically adjusts generation in a Balancing Authority Area from a central location to maintain the Balancing Authority's interchange schedule plus Frequency Bias. AGC may also accommodate automatic inadvertent payback and time error correction.
BA	Balancing Authority
BAA	Balancing Authority Area
BES	Bulk Electric System
CEII	Critical Energy Infrastructure Information

Term	Description
Control Zone	One or more transmission zones or multiple contiguous Zones as defined in PJM manuals.
DDC	Distribution Dispatching Center
DOE	Department of Energy
eDART	Electronic Dispatcher and Reporting Tool
EEA	NERC Energy Emergency Alert
EERT	Emergency Event Response Team
EHV	Extra-high voltage
EMS	Energy Management System
EUT	Emergency Unit Tripping
FEMA	Federal Emergency Management Agency
FERC	Federal Energy Regulatory Commission
GIC	Geomagnetically Induced Currents
GMD	Geomagnetic Disturbance
I&M	Indiana Michigan Power Company
ICS	Incident Command System
Interruptible Customer (Interruptible Load)	Demand that the end-use customer makes available to its Load-Serving Entity via contract or agreement for curtailment. Source: NERC Glossary of Terms
IPP	Independent Power Producer
IROL	Interconnection Reliability Operating Limit
LCC	Local Control Center (synonymous with SCC)
LMP	Locational Marginal Pricing
LSE	Load Serving Entity
MISO	Midcontinent Independent Transmission System Operator
MO	Market Operations

Term	Description
PCLLRW	Post Contingency Local Load Relief Warning
RAS	Remedial Action Scheme
RC	Reliability Coordinator
Regional Entity	A company authorized by NERC to monitor and enforce compliance in an assigned geographic area. AEP has Bulk Electric System assets located within Reliability First, Midwest Reliability Organization, and the Texas Reliability Entity.
RF	Reliability First
RRC	Reactive Reserve Check
RTA	Real-time Assessment
RTO	Regional Transmission Organization
RTU	Remote Terminal Unit
SCADA	Supervisory Control and Data Acquisition
SCC	System Control Center
SDG	Station Data Gateway
SOL	System Operating Limit
TDC	Transmission Dispatch Center
TFS	Transmission Field Services

7.0 Capacity Deficiency Program

7.1 Purpose

The purpose is to provide a plan for full utilization of emergency capacity resources and for orderly reduction in the aggregate customer demand on the AEP East/PJM system in the event of a capacity deficiency.

7.2 Criteria

The goals of AEP are to safely and reliably operate the BES in order to avoid widespread system outages as a consequence of a major disturbance. Precautionary procedures, including maintaining Daily Operating Reserves, as specified in *ReliabilityFirst Standard BAL-002-RFC-02* and *PJM Manual M13*, assist in avoiding serious emergency conditions such as system separation and operation at abnormal frequency.

However, adequate Daily Operating Reserves cannot always be maintained, so the use of additional emergency measures may be required. A capacity deficiency is a shortage of generation versus Load and can be caused by generating unit outages and/or extreme internal Load requirements. In the event that a report needs to be filed with the Department of Energy, NERC, or an RC, the Transmission System Operations Support Emergency Event Response Team (EERT) can assist in preparing those reports.

The NERC Standard EOP-011 requires the BA to have an emergency plan to mitigate Capacity Emergencies and Energy Emergencies within its Balancing Authority Area (BAA). PJM is the registered BA in the AEP East area.

7.3 AEP East/PJM Procedures

The following section contains excerpts from the *PJM Manual M13, Section 2*. PJM maintains the complete version of M13 on the PJM website. Consult the PJM M13 for specific details about the PJM plan.

7.3.1 Overview

From the *PJM Manual 13, section 2 revision*:

PJM 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 RTO or in any other Control Area that is interconnected directly or indirectly with the PJM RTO. PJM directs the operations of the PJM Members as necessary to manage, allocate, or alleviate an emergency.


- PJM RTO Reserve Deficiencies — If PJM determines that PJM-scheduled resources available for an Operating Day in combination with Capacity Resources operating on a self-scheduled basis are not sufficient to maintain appropriate reserve levels for the PJM RTO, PJM performs the following actions:
- Recalls energy from Capacity Resources that otherwise deliver to loads outside the Control Area and dispatches that energy to serve load in the Control Area.
- Purchases capacity or energy from resources outside the Control Area. PJM uses its best efforts to purchase capacity or energy at the lowest prices available at the time such capacity or energy is needed. The price of any such capacity or energy is eligible to determine Locational Marginal Prices in the PJM Energy Market. The cost of capacity or energy is allocated among the Market Buyers as described in the PJM Manual for Operating Agreement Accounting (M-28).

In this section, the AEP System Control Center is referred to as SCC and the AEP Market Operations is referred to as MO.

7.4 Emergency Operations Summary Table

Alerts	Alert Name	Member Actions from Manual 13	SCC Actions	Other Actions
	Unit Startup Notification Alert	<ul style="list-style-type: none"> Transmission/Generation dispatchers notify management of the Alert. Transmission/Generation dispatchers advise all stations and key personnel. Generation dispatchers order unit(s) to be in the state of readiness (i.e., able to be online within 48 hours) in the lesser of (submitted notification time + startup time or 6 days) minus 48 hours. Generation dispatchers report to PJM Dispatch any and all resource limited facilities as they occur via Markets Gateway, as described in Section 6.4, and update PJM Dispatch as appropriate. 	<ul style="list-style-type: none"> SCC email notifications: <ul style="list-style-type: none"> [Redacted] [Redacted] [Redacted] [Redacted] [Redacted] [Redacted] Use template: PJM Unit Startup Notification Alert Verbally notify TDC 	<ul style="list-style-type: none"> MO notifies management TDC advises station MO orders units to be in a state of readiness
	Maximum Generation Emergency/ Load Management Alert EEA 1	<ul style="list-style-type: none"> Transmission/Generation dispatchers notify management of the Alert. Transmission/Generation dispatchers advise all stations and key personnel. Transmission/Generation dispatchers review plans to determine if any maintenance or testing, scheduled or being performed, on any monitoring, control, transmission, or generating equipment can be deferred or cancelled. Generation dispatchers report to PJM Dispatch any and all resource limited facilities as they occur via Markets Gateway, as described in section 6.4, and update PJM Dispatch as appropriate. 	<ul style="list-style-type: none"> SCC reviews scheduled or active maintenance/ testing of transmission equipment that could affect generation or transmission to determine if it can be restored or cancelled. SCC email notifications: <ul style="list-style-type: none"> [Redacted] [Redacted] [Redacted] [Redacted] [Redacted] [Redacted] 	<ul style="list-style-type: none"> MO review scheduled or active maintenance/ generation affecting capacity or critical transmission to determine if it can be deferred or cancelled MO reports any fuel/ environmental issues to PJM MO management of the alert SCC notifies SCC leadership SCC leadership initiates Enhanced Communications



		<ul style="list-style-type: none"> • Transmission/Generation dispatchers suspend any high risk testing of generating or transmission equipment. • Generation dispatchers will update the “early return time” for any Planned generator outages as indicated in PJM’s Manual for Pre-Scheduling Operations (M-10), Section 2.2. 	<ul style="list-style-type: none"> • Use Template: PJM Maximum Emergency Generation Alert • Verbally notify TDC 	
	<p>Primary Reserve Alert</p>	<ul style="list-style-type: none"> • Transmission/Generation dispatchers notify management of the alert. • Transmission/Generation dispatchers advise all stations and key personnel. • Transmission/Generation dispatchers review plans to determine if any maintenance or testing, scheduled or being performed, on any generating equipment or critical monitoring, control, or bulk power transmission facility can be deferred or cancelled. • Generation dispatchers report to PJM Dispatch any and all resource limited facilities as they occur via Markets Gateway, as described in Section 6.4, and update PJM Dispatch as appropriate. • Generation Dispatchers are to inform PJM of any environmentally restricted units and may consider the need to obtain a temporary variance from environmental regulators for specific generators in accordance with Attachment M to assist in preventing load shed. PJM is not responsible for obtaining a temporary variance from environmental regulations but will assist the member company if requested. 	<ul style="list-style-type: none"> • SCC email notifications:  • Use template: PJM Primary Reserve Alert • SCC reviews scheduled or active maintenance / testing of transmission equipment that could affect generation or transmission to determine if it can be restored or cancelled • SCC request MO to evaluate the impact of current environmental constraints and start the process to lift those constraints identified • Verbally notify TDC 	<ul style="list-style-type: none"> • MO notifies management of the alert • MO review scheduled or active maintenance/ generation affecting capacity or critical transmission to determine if it can be deferred or cancelled • MO inform PJM of any environmentally restricted units

	<p>Voltage Reduction Alert</p>	<ul style="list-style-type: none"> • Transmission/Generation dispatchers notify management of the alert. • Transmission/Generation dispatchers advise all stations and key personnel. • Transmission dispatchers/DPs proceed on the basis that a Voltage Reduction Warning will be issued during this future period and take steps that could expedite implementation of a Voltage Reduction Action, should one become necessary. • SOS members/PJM Management consider issuing the appropriate system-wide or Control Zone-specific Public/Media Notification Message See Attachment A. • PJM marketers remain on heightened awareness regarding PJM system conditions and the potential need for Emergency Energy Purchases. 	<ul style="list-style-type: none"> • <u>***AEP does not have a voltage reduction program***</u> • SCC email notifications: <ul style="list-style-type: none"> █ [Redacted] █ [Redacted] █ [Redacted] █ [Redacted] █ [Redacted] █ [Redacted] • Use template: PJM Voltage Reduction Alert • Verbally notify TDC 	
Step	Name of Emergency Procedure	Member Actions from Manual 13	SCC Actions	Other Actions
1	Pre-emergency Load Management Reductions	<ul style="list-style-type: none"> • Member Curtailment Service Providers implement load management reductions as requested by PJM dispatchers. 	<ul style="list-style-type: none"> • SCC email notifications: <ul style="list-style-type: none"> █ [Redacted] █ [Redacted] █ [Redacted] █ [Redacted] █ [Redacted] █ [Redacted] • Use template: PJM (Step 1) Pre-Emergency Load Management Reduction Action • Verbally notify TDC 	<ul style="list-style-type: none"> • For steps 1 and 2: PJM notifies the Curtailment Service Providers directly via the DRHub (Demand Response Hub) • email recipients notify appropriate government agencies



<p>2</p>	<p>Emergency Load Management Reductions Action EEA 2</p>	<ul style="list-style-type: none"> Member Curtailment Service Providers implement load management reductions as requested by PJM dispatchers. Member dispatchers notify management of the emergency procedure and that they should consider the use of public appeals to conserve electricity usage. Member dispatchers notify governmental agencies, as applicable. 	<ul style="list-style-type: none"> SCC email notifications: [Redacted] Use template: PJM (Step 2) Emergency Load Management Reduction Actions Verbally notify TDC 	<ul style="list-style-type: none"> For steps 1 and 2: PJM notifies the Curtailment Service Providers directly via the DRHub (Demand Response Hub) email recipients notify appropriate government agencies EEA 2 Requires a DOE OE-417 Report (PJM will complete the report) SCC notifies SCC leadership SCC leadership initiates Enhanced Communications
<p>3</p>	<p>Primary Reserve Warning</p>	<ul style="list-style-type: none"> Transmission/Generation dispatchers notify management of the warning. Transmission/Generation dispatchers advise all stations and key personnel. Generation dispatchers prepare to load all available primary reserve, if requested. Transmission/Generation dispatchers ensure that all deferrable maintenance or testing affecting capacity or critical transmission is halted. Any monitoring or control maintenance work that may impact operation of the system is halted. Generation dispatchers report to PJM Dispatch any and all resource limited facilities as they occur via Markets Gateway, as described in Section 6.4, and update PJM Dispatch as appropriate. 	<ul style="list-style-type: none"> SCC email notifications: [Redacted] Use template: PJM (Step 3) Primary Reserve Warning Verbally notify TDC SCC reviews scheduled or active maintenance / testing of transmission equipment that could affect generation or transmission to determine if it can be restored or cancelled 	<p>Generation Operators take necessary actions regarding the availability and capability of generating units</p>

		<ul style="list-style-type: none"> • Generation Dispatchers are to inform PJM of any environmentally restricted units and may consider the need to obtain a temporary variance from environmental regulators for specific generators in accordance with Attachment M to assist in preventing load shed. PJM is not responsible for obtaining a temporary variance form environmental regulations but will assist the member company if requested. • PJM marketers remain on heightened awareness regarding PJM system conditions and the potential need for Emergency Energy Purchases. 		
<p>4A</p>	<p>Maximum Emergency Generation Action</p>	<ul style="list-style-type: none"> • Transmission/Generation dispatchers notify management of the emergency procedure. • PJM Marketers recall off-system capacity sales that are recallable as directed by PJM dispatchers. • Generation dispatchers report to PJM Dispatch any and all resource limited facilities as they occur via Markets Gateway, as described in Section 6.4, and update PJM Dispatch as appropriate. • Generation dispatchers suspend regulation, as requested, and load all units to the • Maximum Emergency generation level, as required. • Generation dispatchers notify PJM dispatching of any Maximum Emergency generation loaded prior to PJM requesting Maximum Emergency generation is loaded. 	<ul style="list-style-type: none"> • SCC email notifications: <ul style="list-style-type: none"> █ [REDACTED] █ [REDACTED] █ [REDACTED] █ [REDACTED] █ [REDACTED] █ [REDACTED] • Use template: PJM (Step 4A) Maximum Generation Emergency Action • Verbally notify TDC 	<ul style="list-style-type: none"> • Generation Operators take necessary actions regarding the availability and capability of generating units • TDC notify non-retail behind the meter generation for availability



<p>4B</p>	<p>Emergency Voluntary Energy Only Demand Response Reduction Action</p>	<ul style="list-style-type: none"> • Curtailment Service Providers with Demand Resource(s) registered in the Energy Only Option of Emergency Load Response reduce load. • Transmission/Generation dispatchers notify management of the emergency procedure. 	<ul style="list-style-type: none"> • SCC email notifications: <ul style="list-style-type: none"> █ [Redacted] █ [Redacted] █ [Redacted] █ [Redacted] █ [Redacted] █ [Redacted] • Use template: PJM (Step 4B) Emergency Voluntary Energy Only Demand Response Reductions • Verbally notify TDC 	<ul style="list-style-type: none"> • Email recipients contact the necessary parties to curtail services or reduce load • PJM alerts the Curtailment Service Providers directly via the DRHub (Demand Response Hub)
<p>5</p>	<p>Voltage Reduction Warning and Reduction of Non-Critical Plant Load</p>	<ul style="list-style-type: none"> • Transmission/Generation dispatchers notify management of the warning. • Transmission/Generation dispatchers notify governmental agencies, as applicable. • Transmission/Generation dispatchers advise all stations and key personnel. • Generation dispatchers order all generating stations to curtail non-critical station light and power. • Transmission dispatchers/DPs prepare to reduce voltage, if requested. • Transmission dispatchers/DPs and Curtailment Service Providers notify appropriate personnel that there is a potential need to implement load management programs, in addition to interrupting their interruptible/curtailable customers in the manner prescribed by each 	<ul style="list-style-type: none"> • <u>***AEP does not have a voltage reduction program***</u> • SCC email notifications: <ul style="list-style-type: none"> █ [Redacted] █ [Redacted] █ [Redacted] █ [Redacted] █ [Redacted] █ [Redacted] • Use template: PJM (Step 5) Voltage Reduction Warning & Reduction of Non-Critical Plant Load • Verbally notify TDC 	<ul style="list-style-type: none"> • Email recipients contact the necessary parties to reduce non-essential loads • Email recipients notify appropriate government agencies • PJM alerts the Curtailment Service Providers directly via the DRHub (Demand Response Hub)

		<p>policy, if it has not already been implemented previously. PJM marketers remain on heightened awareness regarding PJM system conditions and the potential need for Emergency Energy Purchases.</p>		
6	<p>Curtailment of Non-Essential Building Load</p>	<ul style="list-style-type: none"> Transmission/Generation dispatchers notify management of the emergency procedure and to consider the use of public appeals to conserve electricity usage. Transmission dispatchers notify governmental agencies, as applicable. Transmission/Generation dispatchers/DPs switch off all non-essential light and power in DP-owned commercial, operations, and administration offices. 	<ul style="list-style-type: none"> SCC email notifications: <ul style="list-style-type: none"> [Redacted] [Redacted] [Redacted] [Redacted] [Redacted] [Redacted] Use template: PJM (Step 6) Curtailment of Non-Essential Building Load Verbally notify TDC 	<ul style="list-style-type: none"> Email recipients contact the necessary parties to make public appeals Email recipients notify appropriate government agencies Email recipients contact the necessary parties to reduce non-essential loads
7	<p>Deploy All Resources Action</p>	<ul style="list-style-type: none"> Member Generation Dispatchers raise all available online generating units to full output (Emergency Maximum). Member Generation Dispatchers start up all offline generation and ramp to full output (Emergency Maximum), utilizing the communication methods below: <ul style="list-style-type: none"> Generators that can be online in less than 30-minutes should start immediately upon receipt of the ALL-CALL and then notify PJM Dispatch when they are on-line. Generators that require more than 30-minutes to be on-line should call the PJM dispatcher prior to initiating the start sequence. 	<ul style="list-style-type: none"> SCC email notifications: <ul style="list-style-type: none"> [Redacted] [Redacted] [Redacted] [Redacted] [Redacted] [Redacted] Use template: PJM (Step 7) Deploy All Resources Action Verbally notify TDC 	<ul style="list-style-type: none"> PJM notifies the Curtailment Service Providers directly via the DRHub (Demand Response Hub) email recipients notify appropriate government agencies EEA 2 Requires a DOE OE-417 Report (PJM will complete the report) email recipients contact the necessary parties to make public appeals email recipients contact the necessary parties to reduce non-essential loads



		<ul style="list-style-type: none"> Member Curtailment Service Providers with Load Management (Pre-Emergency and/or Emergency) reduce load immediately when dispatched. Transmission/Generation Dispatchers notify management of the emergency procedure and that they should consider the use of public appeals to conserve electricity usage. Member dispatchers notify governmental agencies, as applicable. Upon cancellation of this procedure: <ul style="list-style-type: none"> Units that have not started should abort their start if possible. Online units should return to following SCED basepoints as well as any regulation or reserve assignments. Deploy All Resource Action is identified as a trigger to load Non-Retail Behind the Meter Generation 		<ul style="list-style-type: none"> PJM alerts the Curtailment Service Providers directly via the DRHub (Demand Response Hub) email recipients contact the necessary parties to curtail services or reduce load MO take necessary actions regarding the availability and capability of generating units SCC notifies SCC leadership SCC leadership initiates Enhanced Communications
<p>8</p>	<p>Manual Load Dump Warning</p>	<ul style="list-style-type: none"> Transmission/Generation dispatchers notify management of the warning. Transmission dispatchers notify governmental agencies, as applicable. Transmission/Generation dispatchers advise all station and key personnel. Transmission dispatchers/DPs review local procedures and prepare to shed load in the amount requested. 	<ul style="list-style-type: none"> SCC email notifications: <ul style="list-style-type: none"> [Redacted] [Redacted] [Redacted] [Redacted] [Redacted] [Redacted] [Redacted] 	<ul style="list-style-type: none"> Email recipients notify appropriate government agencies TDC prepare for the Manual Load Dump Action TDC notifies DDC

		<ul style="list-style-type: none"> • Transmission dispatchers/DPs reinforce internal communications so that load shed can occur with minimum delay. • PJM marketers remain on heightened awareness regarding PJM system conditions and the potential need for Emergency Energy Purchases. • Transmission Owner may coordinate with BtMG facility interconnected to the transmission system, or through the relevant electric distribution utility, during expected prolonged emergency load dump/shed or as otherwise necessary to help mitigate a grid emergency. As BtMG facilities do not participate in the wholesale energy market, any request to operate for the purpose of helping to mitigate a wholesale market issue is on a voluntary basis at the discretion of the BtMG owner, other than the existing Non-Retail BtMG provisions. Any request to operate to mitigate a wholesale market issue will be communicated to the BtMG as a voluntary request at the discretion of the BtMG owner, other than the existing Non-Retail BtMG provisions. Refer to Manual 14D Appendix A for more information regarding BtMG. 	<ul style="list-style-type: none"> • Use template: PJM (Step 8) Manual Load Dump Warning • Enter load shed information into the AEP Load Shed Allocation Table to determine anticipated amount of load shed for each operating company • Verbally notify TDC load dump allocations 	
<p>9</p>	<p>Voltage Reduction Action</p>	<ul style="list-style-type: none"> • Transmission/Generation dispatchers notify management of the emergency procedure and to consider the use of public appeals to conserve electricity usage. • Member Transmission dispatchers notify governmental agencies, as applicable. • Member Transmission dispatchers/DPs take steps to implement the voltage reduction. 	<ul style="list-style-type: none"> • ***AEP does not have a voltage reduction program*** • SCC email notifications: Notify_Management Team [Redacted] [Redacted]; [Redacted] [Redacted] 	<ul style="list-style-type: none"> • Email recipients contact the necessary parties to make public appeals • Email recipients notify appropriate government agencies



			<ul style="list-style-type: none"> • [Redacted] • [Redacted] • [Redacted] • [Redacted] <ul style="list-style-type: none"> • Use template: PJM (Step 9) Voltage Reduction Action • Verbally notify TDC 	
<p>10</p>	<p>Manual Load Dump Action EEA 3</p>	<ul style="list-style-type: none"> • Generation dispatchers suspend remaining regulation, when directed by PJM prior to shedding load. • Transmission dispatchers/DPs shed an amount of load equal to or in excess of the amount requested by PJM dispatcher (Mid-Atlantic Region operators refer to Attachment E for specific allocation) within 5 minutes of the issued directive. The load shed plan should consider/recognize priority/critical load. • Transmission/Generation dispatchers notify management of the emergency procedure. • Transmission dispatchers/DPs consider the use (or continued use) of public appeals to conserve electricity usage and consider the use of public announcements of the emergency. • Transmission dispatchers notify governmental agencies, as applicable. • Transmission dispatchers/DPs maintain the requested amount of load relief until the load shed order is cancelled by PJM dispatcher. • Transmission Owner may coordinate with BtMG facility interconnected to the 	<ul style="list-style-type: none"> • SCC email notifications: <ul style="list-style-type: none"> • [Redacted] • [Redacted] • [Redacted] • [Redacted] • [Redacted] • [Redacted] • Use template: PJM (Step 10) Manual Load Dump • Enter load shed information into the AEP Load Shed Allocation Table to determine anticipated amount of load shed for each operating company. (If necessary) • Verbally instruct TDC to shed load per allocations 	<ul style="list-style-type: none"> • EEA 3 Requires a DOE OE-417 Report. PJM will complete the report • Email recipients notify appropriate government agencies • SCC notifies SCC leadership • SCC leadership initiates Enhanced Communications

		<p>transmission system, or through the relevant electric distribution utility, during expected prolonged emergency load dump/shed or as otherwise necessary to help mitigate a grid emergency. As BtMG facilities do not participate in the wholesale energy market, any request to operate for the purpose of helping to mitigate a wholesale market issue is on a voluntary basis at the discretion of the BtMG owner, other than the existing Non-Retail BtMG provisions. Any request to operate to mitigate a wholesale market issue will be communicated to the BtMG as a voluntary request at the discretion of the BtMG owner, other than the existing Non-Retail BtMG provisions. Refer to Manual 14D Appendix A for more information regarding BtMG.</p>		
--	--	---	--	--

Table 7-A: Capacity Deficiency Summary AEP/PJM

Note: DOE Report required for Public Appeals/Voltage Reduction called in an EEA 2.

7.5 Severe Weather Conditions

Refer to PJM Manual 13 for Cold Weather Alert and Hot Weather Alert information. Refer to the Conservative Operations Guideline for guidance for deferring or canceling maintenance or testing.

8.0 Procedures During Abnormal System Frequency

Note: A DOE Report is required if Load is shed.

8.1 Underfrequency Program

Precautionary procedures are required to meet emergency conditions such as system separation and operation at subnormal frequency. In addition, the coordination of these emergency procedures with neighboring companies is essential. In the event that a report needs to be filed with the Department of Energy (DOE), NERC, or an RC, the SCC prepares those reports, and the Transmission System Operations Support (EERT) reviews them.

For more information, see the Underfrequency Load Shedding (UFLS) Procedure.

8.1.1 AEP/PJM Procedures

1. From 59.8 – 60.2 Hz to the extent practicable, use all operating and emergency reserves. The manner in which these reserves are used depends on the behavior of the System during the emergency. A deficient BA shall only use the assistance provided by the Interconnection's frequency bias for the time needed to implement corrective actions. The BA shall not unilaterally adjust generation in an attempt to return Interconnection frequency to normal beyond that supplied through frequency bias action and Interchange Schedule changes. Such unilateral adjustment may overload transmission facilities.
2. At 59.75 Hz
 - a. Suspend Automatic Generation Control (AGC).
 - b. Notify Interruptible Customers to drop Load.
3. At 59.5 Hz automatically shed 5% System internal Load by relay action.
4. At 59.3 Hz automatically shed an additional 5% of System internal Load by relay action.
5. At 59.1 Hz automatically shed an additional 5% of System internal Load by relay action.
6. At 58.9 Hz automatically shed an additional 5% of System internal Load by relay action.
7. At 58.7 Hz automatically shed an additional 5% of System internal Load by relay action.
8. At 58.2 Hz automatically trip the D.C. Cook Nuclear Units 1 and 2.
9. At 58.0 Hz or at generator minimum turbine off-frequency value, isolate the generating unit without time delay.

8.2 Automatic Load Shedding Program Specifications

1. Load shedding relays should be accurate to +/- .01 Hz with contact provisions for tripping and automatic restoration. They can be static relays or digital devices, and the automatic restoration can be by timer or supervisory control.
2. General guidelines for relay installation are:
 - a. A feeder Load of 3 MW or a total station load of 6 MW should be controlled by each static relay or digital device.
 - b. Total Load to be controlled by Load shedding relays should equal a minimum of 25% of System internal Load.
 - c. Underfrequency relays should only be installed on generators or Tie Lines where necessary. An example is the D.C. Cook Nuclear Plant.
3. The System is to be designed to provide for manually directed or automatic restoration as follows:
 - a. PJM directs the return to 60 Hz via emergency procedures such as Load shed.
 - b. Restoration blocks are determined by:
 - i. Automatic Restoration – Time delay elements in series with relay reclose contact settings. Both the straight time and integrating timers must complete their sequences before a Load block can be restored.
 - ii. Supervisory Control – Underfrequency trip only, no automatic restoration, meaning the underfrequency relay trips when shedding the Load. However, the operator needs to restore the Load manually as system conditions improve.
 - c. Each restoration block should represent one percent of system internal Load. If a station does not have supervisory control but is located in a metropolitan area, the automatic restoration feature can be disabled and the feeder can be set for an underfrequency trip only.
 - d. The restoration frequency should be 59.95 Hz. The time delay settings are shown in the table below:

Load Restored	Integrated Time at or above 59.95 Hz	Straight Time at 59.95 Hz
1st Block - 1%	4 minutes	1 seconds
2nd Block - 1%	4 minutes	2 seconds
3rd Block - 1%	4 minutes	3 seconds
4th Block - 1%	6 minutes	4 seconds
5th Block - 1%	6 minutes	5 seconds
6th Block - 1%	6 minutes	6 seconds
7th Block - 1%	8 minutes	7 seconds



Load Restored	Integrated Time at or above 59.95 Hz	Straight Time at 59.95 Hz
8th Block - 1%	8 minutes	8 seconds
9th Block - 1%	8 minutes	9 seconds
10th Block - 1%	8 minutes	10 seconds
11th Block - 1%	10 minutes	11 seconds
12th Block - 1%	10 minutes	12 seconds
13th Block - 1%	10 minutes	13 seconds
14th Block - 1%	10 minutes	14 seconds
15th Block - 1%	10 minutes	15 seconds
16th Block - 1%	12 minutes	16 seconds
17th Block - 1%	12 minutes	17 seconds
18th Block - 1%	12 minutes	18 seconds
19th Block - 1%	12 minutes	19 seconds
20th Block - 1%	12 minutes	20 seconds
21st Block - 1%	14 minutes	21 seconds
22nd Block - 1%	14 minutes	22 seconds
23rd Block - 1%	14 minutes	23 seconds
24th Block - 1%	14 minutes	24 seconds
25th Block - 1%	14 minutes	25 seconds

Table 8-A: Restoration Blocks – Time Delay Settings

Note: An additional 30-second integrated timer setting is normally applied to the older style mechanical relays.

4. Management of the data and information system relative to the continuing status of the load shedding program is the responsibility of Real-time Operations.

If at any time in the above procedure the decline in area frequency is arrested below 59.5 Hz, an evaluation is made as to whether the area should manually shed an additional 5% of its initial load. If after five minutes, this action does not return the area frequency to 59.5 Hz or above, the area shall manually shed

an additional 5% of its remaining Load and continue to repeat in five-minute intervals until 59.5 Hz is reached.

It is important that units not be tripped prematurely when the frequency is declining, as such action causes the system frequency to decline further.

During any System disturbance involving a declining frequency, the power plant operator establishes communication with MOs. This recommendation is intended to assure coordinated restoration procedures. If this attempt with the MO is not successful, communication with the assigned TDC is established or with the SCC should TDC communication fail.

Nothing in the above noted points is intended to alter normal safe operating procedures and good operating judgment.

9.0 Transmission Emergency Procedures

9.1 SOL/IROL Definitions

NERC Standards TOP-001 and TOP-002 outline specific requirements and identify accountability for developing and implementing Operating Plans to alleviate System Operating Limits (SOLs) and Interconnection Reliability Operating Limits (IROLs). The definitions of a SOL and IROL are as follows:

9.1.1 System Operating Limit

SOL is the value (MW, MVAR, Amperes, Frequency, or Volts) that satisfies the most limiting of the prescribed operating criteria for a specified system configuration to ensure operation within acceptable reliability criteria. SOLs are based upon certain operating criteria. These include but are not limited to:

- Facility Ratings (Applicable pre- and post-Contingency equipment or facility ratings)
- Transient Stability Ratings (Applicable pre- and post-Contingency Stability Limits)
- Voltage Stability Ratings (Applicable pre- and post-Contingency Voltage Stability)
- System Voltage Limits (Applicable pre- and post-Contingency Voltage Limits)

9.1.2 Interconnection Reliability Operating Limit

An IROL is an SOL that, if violated, could lead to instability, uncontrolled separation, or Cascading outages that adversely impact the reliability of the BES.

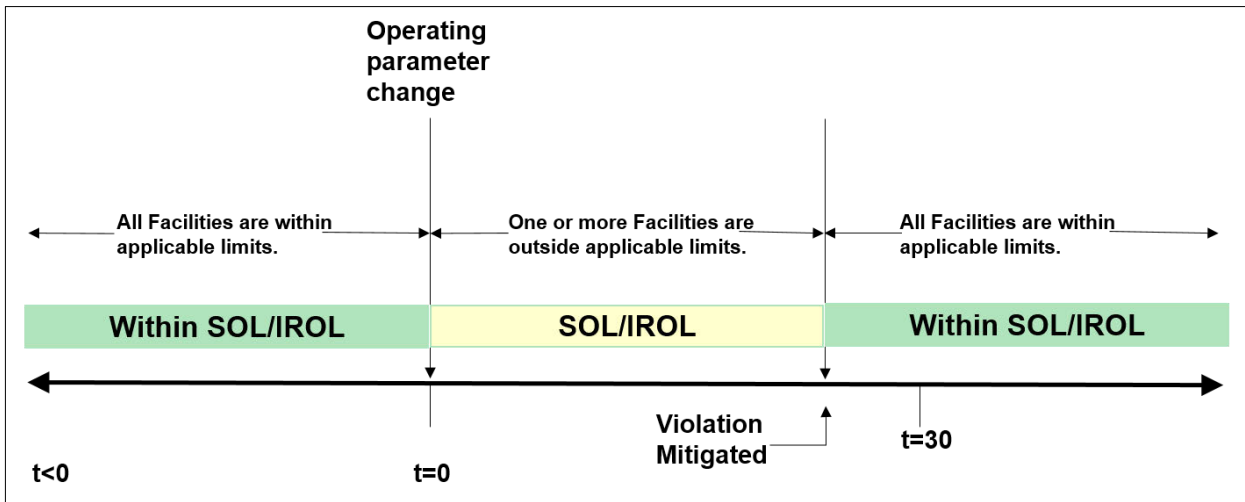


Figure 1: Operating Limit Timeline

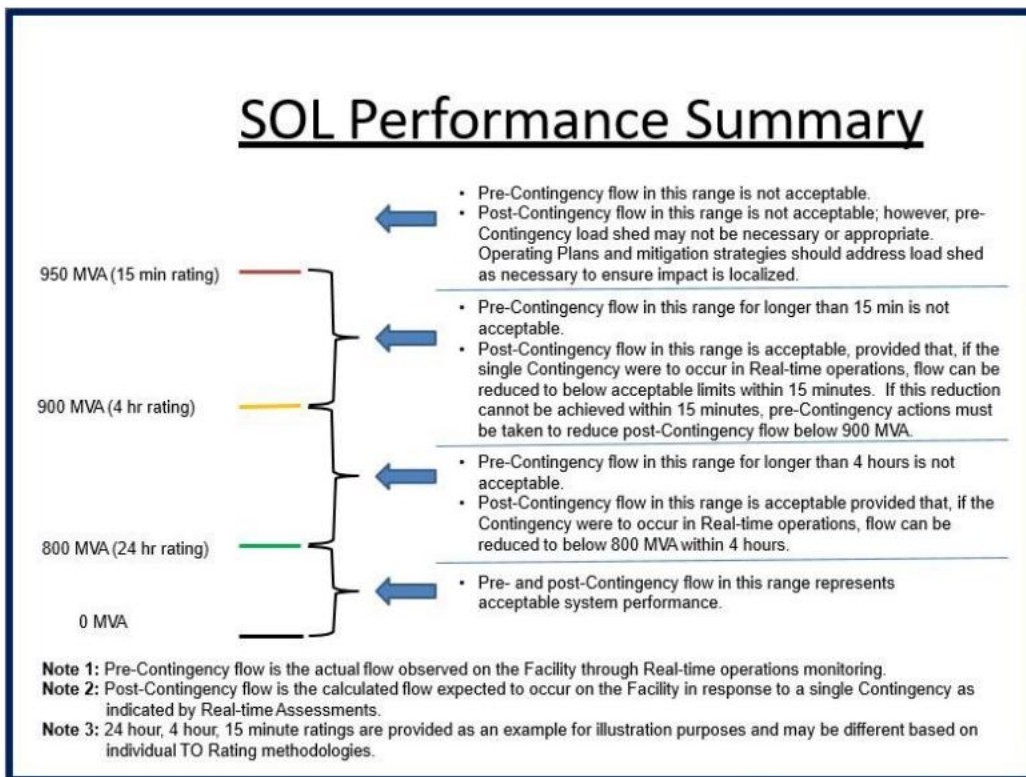


Figure 2: SOL Performance Summary for Facility Ratings

9.2 Introduction and Conditions

The AEP Transmission System may be subject to transmission overloads or excessively low voltages during abnormal conditions. Internal loads can exceed forecasts during very hot or very cold conditions when Load growth exceeds system design and new facilities are not yet in place. Capacity deficiencies in one part of the Eastern Interconnected Network can stress AEP Transmission facilities between the deficient areas and

areas of excess generation. Likewise, economic interconnected operation can result in AEP Transmission facilities being overloaded between available economic generation and high-cost generation areas. The result of any one of these conditions or other reasons, separately or in combination, could cause unacceptable operating conditions for the AEP Transmission System.

With these variables in mind, AEP must operate so that instability, uncontrolled separation, or Cascading outages will not occur as a result of the most severe single contingency. AEP works in conjunction with the applicable RC to mitigate any transmission emergencies on the AEP system, and should an emergency occur, makes every effort to remain connected to the Interconnection unless such actions would violate safety, equipment, regulatory, or statutory requirements.

The SCC shall comply with all Operating Instructions issued by the applicable RC as outlined in the Operator Authority to Act Procedure. In instances where there is a difference in derived operating limits, the AEP Transmission System shall always be operated to the most limiting parameter. An overview of the mechanisms to mitigate transmission emergencies is outlined below.

Should an event occur that requires filing a report with the DOE, NERC, or an RC, the SCC prepares those reports with assistance from the Real-time Operations Engineering group and/or the applicable TDC personnel.

There are four types of conditions that require action:

1. Contingency Thermal Overloads

The outage of one facility loads a transmission element to or above its emergency capability. Loadings must be controlled to less than the emergency ratings in advance of the contingency occurring unless the overload can be controlled within a short time after the contingency.

Additional measures need to be taken upon the loss of a critical facility.

2. Contingency System Stability Over Limits

The system is transmitting power at a level at which a critical outage of one facility will cause a virtually instantaneous separation across the path over which the power is being transmitted, possibly resulting in Cascading outages. Path flows must be reduced immediately to safe levels or maintained below the stability limits.

3. Contingency Voltage Under/Over Limits

The voltage level is at a level at which the loss of a critical facility will result in unacceptably low voltages. If the voltage is not increased within a matter of a few seconds to a few minutes after the contingency occurs, Cascading outages, equipment damage for customers and AEP, and/or loss of customer Load occurs. Loading levels must be reduced or other measures must be taken to immediately raise voltages before a critical contingency occurs. Also, during light Load conditions, system voltages may become unacceptably high.

4. Actual Thermal Overloads and/or Actual Voltage Under/Over Limits

Transmission thermal loadings are above rated capabilities and/or voltage levels are at, below, or above levels that result in equipment damage and/or Cascading outages. Action must be taken immediately to reduce facility loadings and/or raise or lower voltages.

9.3 Actions for Transmission System Emergencies

If a Transmission Emergency exists or is anticipated, the SCC takes actions to alleviate the impacted area. In some cases, station or transmission maintenance, testing, or construction work that was scheduled or is in progress is reviewed to determine if such work should be canceled or deferred to safeguard system reliability. Also, transmission facilities scheduled out of service are reviewed and returned to service if returning the facility can alleviate the emergency condition. Generation scheduled/opportunity outages and maintenance work also are reviewed to determine if returning the units alleviates the emergency condition.

The SCC notifies the RC of the current and projected conditions for the emergency.

9.3.1 Emergency Actions

This plan reflects these basic principles:

1. All possible actions are taken before Load shedding is implemented.
2. Load shedding is used under emergency conditions to prevent Cascading outages and the spread of customer outages.
3. The transmission and generation system must be maintained as intact as possible in order to restore the system and customer Loads as quickly as possible.
4. Load shedding is targeted to minimize the amount shed by choosing Loads that effectively help the emergency condition(s).

When action is required because of transmission overloads or low voltages, a variety of measures can be used for relief. The order of application of transmission relief measures depends on the specific problem that exists, and the time required to implement each measure. The SCC works with the RC, using NERC guidelines to achieve an effective and timely resolution of each problem. The following key points relate to Transmission Loading Relief (TLR) and voltage criteria.

- The NERC TLR procedures are found in the SOL Exceedance Methodology Guideline.
- It is important to maintain adequate pre- and post-Contingency voltage levels on the Transmission System to prevent loss of Load because of:
 - Low voltage conditions.
 - Maximizing the amount of power that can be transmitted over the power system.
 - Preventing high voltage conditions.

The Voltage and Reactive Guidelines list the AEP PJM/MISO Baseline Voltage Limits.

In addition, the Voltage and Reactive Guidelines provide guidance on monitoring, controlling, and maintaining system voltages, reactive flows, and reactive resources.

The transmission measures that are used for transmission emergencies include any or all of the following:

1. Series/shunt capacitors and reactors whose insertion or removal from service diverts power from a loaded facility and/or optimizes area voltage are used to improve system conditions.
2. Capacity resources that may be useful are used. These may include:

- a. Curtailment of generating station use.
- b. Curtailment of nonessential building use.
3. Reconfigure the Transmission System by removing (or returning to service if possible) facilities that make a significant improvement to the problem area without causing uncontrollable problems elsewhere.
4. PJM Locational Marginal Pricing (LMP) to control congestion.
5. Curtailment of Non-Firm Transmission Service, beginning with the lowest priority reservation, in accordance with NERC Standard IRO-006. Transactions are curtailed that have a response factor of at least 5% on the overloaded facility or have a significant impact on the voltage problem. Coordination with adjacent systems ensures that all transactions that meet these criteria are canceled whether or not AEP is directly involved in a given transaction.
6. Re-dispatch generation by reducing units that have large response factors that load the overloaded facility and increasing units with large response factors to unload the overloaded facility.
7. Contact major industrial/commercial customers to reduce Load in specific regional areas that help alleviate the emergency condition.
8. Voluntary load curtailment in the specific regional areas that alleviate the emergency condition.
9. Purchase power from Independent Power Producers (IPPs), Co-Gens, or other Market Entities, regardless of cost, and in a direction that helps alleviate the emergency condition.
10. Curtailment of Firm Transmission Service in accordance with NERC Standard IRO-006, on a pro-rata basis with native and network loads that have a response factor of 5% or more on the overloaded facility or a significant positive impact on the low voltage area. It is curtailed after preceding steps have been implemented or if the preceding steps are not anticipated to provide adequate relief.
11. If an overload or abnormal voltage or reactive condition persists on a transmission facility and equipment is endangered, the affected facility shall be disconnected. In doing so, AEP shall notify the applicable RC and all neighboring Transmission Operators impacted by the disconnection prior to switching if time permits or immediately following.
12. If the above steps prove to be inadequate, then all other available emergency procedures are implemented including Load shedding.

Additionally, some customer Loads connected to AEP's transmission and sub-transmission network, such as municipalities and various cooperatives (co-ops), are served in whole or in part by non-AEP generation and have transmission service agreements with AEP. FERC open transmission access regulations require that AEP treat these transmission customers in a manner comparable to the service provided to AEP's own internal customers. In addition, a few large industrial customers cannot be shed at AEP supply points without fractionalizing the transmission or sub-transmission network and reducing reliability. AEP requests that these municipalities, co-ops, and industrial customers develop plans for shedding of their Load when directed by the SCC.

Supervisory controlled Loads are capable of shedding Load within 15 minutes of a critical contingency unless otherwise noted. While it is recognized that municipalities, co-ops, and large industrials do not have this capability, they are asked and expected to shed Load within 15 minutes of notification that a critical contingency has occurred. A DOE report may be required for voluntary Load curtailment (PJM responsibility) and manual Load shedding over 100 MW.



Copies of the Transmission Emergency Plans and documentation for specific transmission emergency procedures are located on the Real-time Operations SharePoint as noted below.

The SOL Exceedance Methodology Guideline for the AEP PJM/MISO areas have specific actions to be taken by the SCC RC and Reliability Coordinator (RC) for congestion events.

The Congestion Management: Constraint Mitigation Action Plan Procedure outlines processes for contingency Load relief, including local Load shedding. The PJM pull-down menu under the Switching tab on the AEP URL [redacted] (access required) documents the switching and Load shed solutions for potential Post Contingency Local Load Relief Warning (PCLLRW) contingencies.

Per the PJM *Manual 37*, section 3.1, PJM performs IROL analysis in the Planning and Operating Horizons. PJM defined several AEP facilities as IROL facilities in the *PJM Manual 03*. The IROL Relief Procedure – AEP PJM/MISO contains specific actions to be taken by the System Control Center Operator and Reliability Coordinator (RC) for IROL events. The document is on the Real-time Operations Document Repository for the East area.

PJM Manual 03, section 5 lists a potential IROL facility that is managed by PJM/MISO via Conservative Operations.

The Ratings and Limits Standard document outlines a process for communicating AEP facility ratings. AEP Real-time Operations is responsible for maintaining accurate ratings within the Energy Management System (EMS) and communicating rating changes to the applicable RC.

9.4 AEP/PJM – [redacted]

9.4.1 System Description – [redacted]

[redacted]
[redacted]
[redacted]
[redacted]
[redacted]

9.5 Additional PJM Emergency Procedures

9.5.1 PJM – Thermal Operating Guides

PJM Transmission Operations Manual 03 and PJM Manual M13: Emergency Operations have times to correct thermal SOL exceedances. PJM has these times posted on their website. The SOL Exceedance Methodology Guideline also addresses the time-to-correct limitations.

9.5.2 Voltage Limit Violations

PJM *Transmission Operations M03* and *Emergency Manual 13* have times to correct voltage SOL exceedances. PJM has these times posted on their website. The SOL Exceedance Methodology Guideline also addresses the time-to-correct limitations.

9.5.3 Heavy Load, Low Voltage Conditions

Refer to *PJM Manual 13*, Section 5 for details on their procedure.

The following may be used to supplement other existing procedures when system Loads are heavy and bulk power voltage levels are at or approaching undesirable low levels whether on an anticipated or actual basis. These procedures consist of the following:

- Low Voltage Alert
- Heavy Load Voltage Schedule Warning
- Heavy Load Voltage Schedule Action

9.5.3.1 Low Voltage Alert

The purpose of the Low Voltage Alert is to heighten awareness, increase planning, analysis, and preparation efforts when heavy Loads and low voltages are anticipated in upcoming operating periods. PJM issues this alert to members (Generation and Transmission) when projections show these conditions are expected. This Alert can be issued for the entire PJM RTO, specific Control Zone(s), or a subset of Control Zone(s).

SCC Actions

- SCC email notifications:

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

- SCC works with Real-time Operations Engineering/TDCs to review plans to determine if any maintenance or testing can be deferred or canceled.
- SCC responds to PJM Reactive Reserve Check (if issued).
- Notify TDCs to ensure status and availability of reactive devices.

9.5.3.2 Heavy Load Voltage Schedule Warning

A Heavy Load Voltage Schedule Warning 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. This warning can be issued for the entire PJM RTO, specific Control Zone(s), or a subset of Control Zone(s).

SCC Actions

- SCC email notifications:

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]



[Redacted]

- SCC will notify TDCs, while observing established limits to ensure all underlying shunt reactors are out of service, and underlying capacitors are in service.

9.5.3.3 Heavy Load Voltage Schedule Action

A Heavy Load Voltage Schedule 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 at the extra-high voltage (EHV) level. This action can be issued for the entire PJM RTO, specific Control Zone(s), or a subset of Control Zone(s).

SCC Actions

- SCC email notifications:

[Redacted]

- SCC will notify TDCs, while observing established limits, to ensure all underlying shunt reactors are out of service and capacitors are in service.
- SCC will coordinate with TDCs/PJM to remove 765 kV reactors as needed to support voltage.
- SCC will verify AEP Generation has moved all units connected to the Transmission System at 138 kV or lower to the high side of their voltage schedule for AEP owned units.
- SCC will verify IPPs connected to the Transmission System at 138 kV or lower to the high side of their voltage schedule.
- SCC will verify EHV units are in the normal voltage schedule.

9.5.4 Light Load, High Voltage Conditions

9.5.4.1 Minimum Generation Advisory and Minimum Generation Alert

The purpose of the Minimum Generation Advisory and Minimum Generation Alert are to provide and early alert that System conditions may require the use of PJM Emergency Procedures. They are implemented when the expected generation level is within 2,500 MW of the normal minimum energy limits.

The actions are carried for a Minimum Generation Advisory and Minimum Generation Alert are carried out by Generation Dispatchers.

SCC Actions

- SCC email notifications:

[Redacted]

9.5.4.2 Minimum Generation Emergency Declaration

Minimum Generation Emergency Declaration is to notify members of Min Gen survey results and strategy, including the anticipated amount of reducible generation and forecasted time of the reduction.

The actions are carried for a Minimum Generation Emergency Declaration are carried out by Generation Dispatchers.

SCC Actions

- SCC email notifications:

[Redacted]

9.5.4.3 Minimum Generation Event

Minimum Generation Emergency Event is implemented when PJM Dispatch can no longer match the decreasing load and utilization of emergency reducible generation is necessary. PJM shall not differentiate between resource types during a Minimum Generation Emergency Event. All resources are expected to reduce proportionally based on the percentage Emergency Reducible Generation declared.

The actions are carried for a Minimum Generation Emergency Event are carried out by Generation Dispatchers.

SCC Actions

- SCC email notifications:

[Redacted]



9.5.4.4 High System Voltage Action

The purpose of the High System Voltage Action is to proactively take steps to control high voltage prior to entering a light load period.

SCC Actions

- SCC email notifications:



- SCC will notify TDCs, while observing established limits, to ensure all shunt reactors are in service, and capacitors are out of service (765 kV reactors will be coordinated through PJM).
- SCC will verify that static VAR compensators (SVCs) are operating in the lead.
- SCC will verify AEP Generation has moved all units connected to the Transmission System to the low side of their voltage schedule for AEP owned units.
- SCC will verify IPPs connected to the Transmission System to the low side of their voltage schedule.

9.6 Post Contingency Local Load Relief Warning

PJM Manual 13 – section 5.4

The purpose of the Post Contingency Local Load Relief Warning (PCLLRW) is to provide advance notice to a transmission owner(s) of the potential for load shed in their area(s). It is issued after all other means of transmission constraint control have been exhausted or until sufficient generation is online to control the constraint within designated limits and timelines as identified in PJM Manual 03 Transmission Operations, Section 2 –Thermal Operating Guidelines.

The Congestion Management: Constraint Mitigation Action Plan Procedure has specific procedures to determine the course of action to mitigate the overloads/undervoltage if the identified outage occurs for a PCLLRW. The actions could include system reconfiguration and/or Load shed. The AEP procedures follow the PJM Member Actions in section 5.4 of *Manual 13*.

Please refer to Congestion Management: Constraint Mitigation Action Plan Procedure for detailed information.

9.7 Post-Contingency Load Dump Limit Exceedance Analysis

From the *PJM Manual 13 – section 5.4.1*:

If the post-contingency flow were to exceed the 15-minute Load Dump rating, there is a concern that the facility may trip before actions could be implemented to reduce the flow within limits. To prepare for this potential N- 2 (initial contingency plus the overloaded facility) and prevent a cascade, PJM will perform up to an N-5 analysis on facilities over 115% of their 15-minute Load Dump rating.

More details are located in *PJM Manual 13: Emergency Operations*.

Complete details of the switching solution process are available in *PJM Manual 03: Transmission Operations*.

For AEP Real-time Operations’ specific response to PCLLRWs issued by PJM, see the Congestion Management Constraint Mitigation Action Plan Procedure.

9.8 PJM Reactive Reserve Check

Per *PJM Manual 03 section 3.12*, upon the request of PJM, the SCC provides a Reactive Reserve Check (RRC) data to PJM. This information is documented in the PJM eDART interface.

9.9 Units Equipped [REDACTED]

The Voltage and Reactive Guidelines document contains the list of [REDACTED].

9.10 Conservative Operations

The need to operate the PJM RTO and the AEP East Control Zone more conservatively can be triggered by any number of weather, environmental, terrorist, or computer events, including:

- Transmission facilities impacted by a weather-related event (extreme heat, extreme cold, fire-related conditions, etc.)
 - Security threat (physical or cyber; disruption to physical access to facility)
 - Storm declaration (hurricane, tornado, derecho, severe storms)
 - Capacity Deficiency Event
 - Islanding/Blackstart/System Restoration event
 - Large Scale Communication Failures
 - Widespread Supervisory Control and Data Acquisition (SCADA) outages and/or loss of Energy Management Systems
- Note:** Conditions warranting action are duration dependent.
- Geomagnetic disturbances

During conservative operations, the PJM RC may reflect conservative transfer limit values, select double-contingencies for review, and/or evaluate maximum credible disturbances.

- The PJM RC has the authority to reduce transfers into, across, or through the PJM RTO or to take other actions, such as cost assignments to increase reserves and reduce power flows on selected facilities.
- It is the PJM RC's responsibility to analyze the reliability of the PJM RTO and determine if it is in jeopardy. If required, operations planning branch staff are called upon to develop revised limitation curves.
- SCC RCs, MO generation dispatchers, and MO/PJM marketers respond, as required, to specific requests and Operating Instructions of the PJM RC subject to the constraints noted in the Operator Authority to Act Procedure.

AEP Real-time Operations Engineering personnel are to provide support to the SCC RCs and TDC Systems Operators.

AEP continuously monitors facility operating limits to ensure reliability following the next anticipated contingency. Various applications, tools, and studies are used for performing Real-time Assessments (RTAs). These applications, tools, and studies are critical for use in monitoring actual conditions and for developing operating plans for anticipated post-Contingency conditions on AEP facilities to ensure reliable operation within facility operating limits. Actions must be taken for conditions noted in the Real-time Assessment Methodology Procedure.

For more information, see the Conservative Operations Guideline.

10.0 Emergency Message Communications

Real-time Operations will work with Corporate Communications and/or Operating Companies' communication teams to provide emergency messages to the public.

11.0 Major Storm Restoration

"No aspect of operations is more important than the health and safety of people. Our customers' needs are met in harmony with environmental protection." ~AEP Health and Safety Manual

11.1 Introduction

As a result of frequent large storm events, AEP developed the Emergency Response Plan, Enhanced Communications Standard, and Conservative Operations Guideline to improve emergency response efforts.

11.2 AEP Emergency Response Plan – Overview

The AEP Emergency Response Plan (ERP) aligns AEP storm restoration efforts to FEMA's Incident Command structure. The ERP adheres to Incident Command System (ICS) principles for clear roles, responsibilities, and processes across the enterprise to ensure AEP is prepared to respond to and recover from major restoration events. The ERP is a standard set of roles and processes Transmission System Operations and Operating Companies follow.

The ERP is described in detail on the ERP website.

11.3 AEP ERP – Declaration of Transmission Emergency

Refer to the Conservative Operations Guideline and Enhanced Communications Standard for more information.

11.4 AEP ERP – Real-time Operations Overview

Upon declaration of a Transmission Emergency, Real-time Operations uses processes outlined in the ERP and in the Conservative Operations Guideline. These plans establish roles and responsibilities, notification, and communication requirements during a major restoration transmission event. Objectives include assessing the event, prioritizing restoration efforts to stabilize the grid, communicating with Transmission Field Services (TFS) and Operating Companies, and restoring the grid to its original configuration. The SCC and TDC representatives have assigned roles within the ERP response organization.

11.5 AEP ERP – Training Personnel

TDC personnel, as well as applicable personnel throughout Transmission System Operations, are trained in the ERP process. Find additional ERP training manuals and links to the online training on the ERP website as needed. In addition, TSO leaders are responsible for ensuring personnel understand their ERP role and are prepared when a major restoration event occurs.

11.6 Storm Restoration Plan

11.6.1 Restoration Priority

When a major outage occurs, there is usually damage to the company facilities at a number of locations. The removal of hazardous conditions is the highest priority. Maximum effort is then placed on stabilizing the transmission grid to prevent the spread of outages to other areas not directly impacted by the storm. Once the transmission grid is stabilized, service to stations and customers proceeds as quickly and safely as possible with the primary effort being placed where the largest number of customers are impacted.

Communicating accurate information in a timely manner during a major event is a critical component in the expedient restoration of the Transmission System.

11.6.2 Staffing

The TDC and SCC Unit Leaders are responsible for allocating appropriate staff to manage the event. Additional staffing information is included in the Conservative Operations Guideline, which also includes staffing responsibilities for Real-time Operations Engineering and Energy Management System (EMS) Support personnel. Real-time Operations management also continually evaluates the staffing needs as the event progresses.

11.6.3 Storm Organization Responsibilities

Refer to the ERP for storm organization roles and responsibilities.



11.6.4 Storm Emergency Communications

Storm radios exist for use by AEP East Real-time Operations during major storms.

The TDC System Operator determines when their assigned storm radio will be used during transmission emergencies to increase communications within their dispatching area. It is the responsibility of the TDC System Operator to inform both the transmission crew supervisors working in the area and TFS when storm channels are to be used.

Each AEP East transmission vehicle can communicate via the radios in the normal area of use plus as many radio sites as possible in the adjacent area(s).

New Albany Transmission Control Center (NATCC) has access to [REDACTED] for all of I&M and AEP Ohio.

Roanoke TDC has access to [REDACTED] for all of APCO.



[REDACTED]

12.0 DOE and NERC Event Reporting Requirements

The AEP Event Reporting Operating Plan consolidates both the NERC and DOE requirements into one cohesive plan along with the critical reporting timelines.

13.0 Emergency Communications

Refer to the Interpersonal Communication Capabilities Guide for emergency communication information.

13.1 Types of Communication Systems

13.1.1 AEP Satellite Telephones

Refer to the Interpersonal Communication Capabilities Guide and the following Lists to view all AEP satellite telephone numbers:

- Interpersonal Communications Contact List: Corpus Christi TDC
- Interpersonal Communications Contact List: ERCOT SCC
- Interpersonal Communications Contact List: New Albany TDC
- Interpersonal Communications Contact List: PJM/MISO SCC
- Interpersonal Communications Contact List: Roanoke TDC
- Interpersonal Communications Contact List: SPP TDC
- Interpersonal Communications Contact List: SPP SCC

13.2 Decision Making/Collaboration

It is important to be aware and to determine when the Transmission System is in a stressed or abnormal state. RCs, SCC RCs, and TDC System Operators have the authority to implement emergency procedures to remedy emergency or abnormal conditions. These conditions should be reported and discussed with the SCC RCs, RCs, and local Engineering support staff as necessary, to help determine the nature and severity of the emergency or abnormal system and to further determine and agree on actions to take.

The urgency of a situation must be clearly communicated to assure timely decisions on actions to relieve the emergency or abnormal condition and to return the system to a normal or secure state. If an emergency state, or near emergency state exists, then the necessary emergency communication contacts are made by the system experiencing the abnormal conditions. The notifications are made to those systems most affected by the abnormal conditions, and the RC can use the Reliability Coordinator Information System (RCIS) and the NERC Hot Line to inform other RCs of the situation.

In some instances, a Hot Line may be set up between RCs, or a conference call may be initiated between the RCs and Transmission Control Areas or Operating Authorities affected by the abnormal system to discuss the nature of the emergency, what corrective actions are being taken to return the system to a normal state, and how long the system will be in the abnormal state.

13.3 Network Communication Failures

When encountering problems with either the IT systems or Telecom infrastructure, the SCC RCs and TDC System Operators are trained to contact the on-call support personnel, and/or the Network Operations Center (NOC) and/or the SCC IT support group. Once that call is made, the NOC and SCC IT support group are charged with the following responsibilities:

- Troubleshooting the issue
- Making appropriate support callouts as required if they are not able to correct the problem
- Keeping all concerned parties apprised of the conditions as appropriate

The NOC monitors AEP's internal communications system functions 24 hours a day/7 days a week (24/7) and advises the SCC and TDCs by email about planned or emergency outages that could affect telecommunications or SCADA facilities.

When a critical Transmission RTU is lost, the TDC System Operator may request that field personnel physically staff the station. The decision to staff the station must be coordinated with the SCC. The SCC notifies the regional RC about the loss. The SCC, the On-Call Engineer, and the RC evaluate the impact of the RTU loss to their respective EMS systems. Refer to the Substation Data Outage Response Guide.

Refer to the Real-time Data Integrity Guideline for additional information about the detailed corrective actions the SCC follows.

14.0 Appendix A: AEP PJM Manual Load Shedding Guidelines

The Manual Load Shedding Program is part of the EOP, as AEP may need to shed Load to preserve the integrity of the interconnected system. This plan is usually activated for a capacity deficiency or a Transmission Emergency event. The AEP-Dominion Interface IROL procedure also includes Load shedding as an option. Refer to the IROL Relief Procedure – AEP PJM/MISO document for additional details.

Manual Load shedding is performed in the AEP East/PJM footprint by arming the OpenLSR program, which opens a pre-defined set of distribution feeder breakers to achieve a desired Load shed objective. Once the objective is achieved, the program cycles through the breaker list by closing an open breaker followed by opening up another breaker. The program also monitors the total Load shed against the Load shed objective in order to continuously maintain the requested amount of Load shed.

In a capacity deficiency event, PJM may issue an Operating Instruction to AEP to shed Load. The Excel spreadsheet, Load Shed Allocation Spreadsheet, allocates the amount of Load to shed from the total Load in each of the Operating Companies area based on the area peaks. The Load shed allocation is updated periodically based on rolling 12-month peak Load data from Transmission Settlements.

Refer to the Load Shed Procedure for details.

14.1 Load Shedding Criteria

The circuits are prioritized by the following guidelines. These guidelines have been approved by the AEP Legal department and meet the state requirements for the definition of Priority Use. AEP sheds Priority 3 circuits first, then Priority 2, and if more Load is needed, Priority 1 Load is shed. Stations that have at least 2 feeders where each feeder has at least 3,000 kW of Load are selected. Stations with supervisory control and that meet the above criteria should be selected because they can be used in a computer program. Refer to the SCC/TDC/DDC Load Shed Process Map for details.

14.1.1 Priority

The feeders selected for use in controlled rotating blackouts are prioritized as follows:

Priority 1	Hospitals, which shall be limited to major institutions providing critical care to patients, as well as critical natural gas infrastructure loads.
Priority 2	Police, fire, communication services, water and sewer services, government, transportation, emergency medical services, alternate energy, and food services.
Priority 3	All other customers

Table 14-A: Feeder Prioritization

Due to the vast number of distribution circuits with life support, if a circuit only has life support on it, it should be classified as a Priority 3. The life support equipment is required to have a backup power supply and will ride through any of the abnormal circuit outages experienced every day. As such, the planned rotation does not pose a problem.

The amount of Load to be shed in each district should be in the same proportion as the district Load is to the Operating Company’s peak summer/winter internal Load. An estimate of what percentage the

District Load is to the Operating Company's peak summer/winter internal Load needs to be determined and must be non-discriminatory.

14.1.2 Load Shedding Considerations

Feeder priorities are identified through ad hoc requests to the regional DDC during feeder commissioning or significant capital work. P2 and P3 feeders are used to fulfill the Load shed requirements as stipulated in PRC-006, all remaining SCADA enabled P2 and P3 feeders are added into the OpenLSR program. All P1 feeders are excluded that have been identified from the DDCs from the OpenLSR program and only included in UFLS if necessary, in order to meet Load shed obligations.

NERC EOP-011-4 requirement R1.2.5 states in part:

- 1.2.5. Operator-controlled manual Load shed, undervoltage load shed (UVLS), or underfrequency load shed (UFLS) during an Emergency that accounts for each of the following:
 - 1.2.5.1. Provisions for manual Load shedding capable of being implemented in a timeframe adequate for mitigating the Emergency;
 - 1.2.5.2. Provisions to minimize the overlap of circuits that are designated for manual Load shed, UVLS, or UFLS and circuits that serve designated critical loads which are essential to the reliability of the BES;
 - 1.2.5.3. Provisions to minimize the overlap of circuits that are designated for manual Load shed and circuits that are utilized for UFLS or UVLS;
 - 1.2.5.4. Provisions for limiting the utilization of UFLS or UVLS circuits for manual Load shed to situations where warranted by system conditions

14.2 Municipality/Cooperative Load Shed Criteria

For longer duration capacity events, municipalities/co-ops may be requested to shed Load on a pro-rata basis. Municipalities/co-ops are expected to prepare emergency plans in preparation for such a request from AEP and implement as expeditiously as possible.