

Kentucky Power Company
KPSC Case No. 2021-00129
Attorney General's First Set of Data Requests
Dated March 26, 2021

DATA REQUEST

AG 1_1 Please provide all work papers, in electronic spreadsheet format with formulas intact, where available, supporting each of the figures, tables, and exhibits accompanying the Companies' filing and supporting testimony to the extent those have not already been provided.

RESPONSE

All such information has been provided. The Company will comply with the request with respect to any subsequently developed information.

Witness: Brian K. West

Kentucky Power Company
KPSC Case No. 2021-00129
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DATA REQUEST

AG 1_2 Discuss whether Kentucky Power has investigated the availability of funds to cover the costs of the storm under the American Rescue Plan Act of 2021. If so, discuss (1) whether funds are available, (2) the process Kentucky Power must pursue to obtain those funds, (3) how those funds will be allocated if the request for regulatory asset treatment is granted, (4) whether Kentucky Power intends to pursue those funds, and, (5) if not, why not.

RESPONSE

Yes. The Company has been evaluating the American Rescue Plan Act of 2021 since that legislation's passage in mid-March 2021. To the best of the Company's knowledge, the American Rescue Plan Act of 2021 does not contemplate or make funding for storm recovery available to investor owned utilities.

Witness: Brian K. West

Kentucky Power Company
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DATA REQUEST

AG 1_3 Discuss whether Kentucky Power is eligible to receive funding as referenced in the article found at <https://spectrumnews1.com/ky/lexington/news/2021/03/20/beshear-requests-major-disaster-declaration-from-biden-february-ice-storm>. If so, discuss (1) whether funds are available, (2) the process Kentucky Power must pursue to obtain those funds, (3) how those funds will be allocated if the request for regulatory asset treatment is granted, (4) whether Kentucky Power intends to pursue those funds, and, (5) if not, why not.

RESPONSE

The Company has only recently recovered from the devastating February 2021 ice and snow storms that ravaged the Company's distribution and transmission systems causing widespread outages and damage. On March 1, 2021, just after restoring service from the February 2021 storms, the Company experienced additional service interruptions from flooding caused by significant rainfall during the final two days of February 2021. With the critical importance of restoring service to its customers at the forefront, the Company is still investigating whether funds may be available at the state or federal level that may remunerate the Company for significant and historic damages from the February 2021 ice and snow storms. To the best of the Company's knowledge, neither FEMA nor any other federal or state agency has made available funding to investor-owned utilities in connection with the February 2021 storm recovery efforts.

Witness: Brian K. West

Kentucky Power Company
KPSC Case No. 2021-00129
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DATA REQUEST

AG 1_4 Discuss whether Kentucky Power has investigated the availability of funds to cover the costs of the storm under Programs administered by FEMA or any other state or federal agency beyond those referenced in the article above. If so, discuss (1) whether funds are available, (2) the process Kentucky Power must pursue to obtain those funds, (3) how those funds will be allocated if the request for regulatory asset treatment is granted, (4) whether Kentucky Power intends to pursue those funds, and, (5) if not, why not.

RESPONSE

Please see the Company's response to AG 1-3.

Witness: Brian K. West

Kentucky Power Company
KPSC Case No. 2021-00129
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DATA REQUEST

AG 1_5 Confirm that the request for regulatory asset treatment of the storm costs at issue does not guarantee that the costs will be recovered by the company from ratepayers and that the Commission and stakeholders will have an opportunity to review the costs in a future proceeding to determine whether recovery is appropriate.

RESPONSE

Confirmed. The amount of the regulatory asset authorized in this case that will be amortized and included in rates will be determined in Kentucky Power's next base rate case.

Witness: Brian K. West

Kentucky Power Company
KPSC Case No. 2021-00129
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DATA REQUEST

AG 1_6 Precisely identify the starting date(s) and ending date(s) for when the extraordinary events occurred for which you are seeking establishment of the regulatory asset.

RESPONSE

The first ice storm event began around 10:00 p.m., Wednesday, February 10, 2021, when portions of the Company's service territory received 0.25"-0.50" of ice accumulation. The second ice storm event began around 7:00 p.m., Monday, February 15, 2021, when portions of the Company's service territory received another 0.25"-0.50" of ice accumulation. Following the second ices storm, the total ice accumulation measured approximately 0.50"-1.00" across much of the Company's service territory. The Ashland District sustained the greatest damage.

In addition, a snowstorm event occurred on the morning of Wednesday, February 17, 2021, when many areas also received four to six inches of snow. This snow further hampered restoration efforts due to hazardous road conditions.

Service to all Kentucky Power Company residential customers who could receive service was restored by 7:38 p.m., Monday, March 1, 2021. Restoration times and dates for the Company's three districts were:

- a. Pikeville District – Wednesday, February 24, 2021 at 3:18 p.m.
- b. Hazard District – Wednesday, February 24, 2021 at 4:11 p.m.
- c. Ashland District – Monday, March 1, 2021 at 7:38 p.m.

Witness: Stephen D. Blankenship

Kentucky Power Company
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DATA REQUEST

AG 1_7 Describe the efforts taken to limit expenses during the response to the emergency that was created by the three major storm events.

RESPONSE

Kentucky Power's first objective was to restore service to its customers, many of whom had been without power for days in sub-freezing temperatures. The Company implemented its Incident Command System (ICS) to facilitate incident management and avoid to the extent possible duplicative or unnecessary expenses. Multiple Incident Management Team calls occurred daily included the AEP Meteorologist, along with section team calls, to coordinate the Company's response. Efforts to limit costs included moving material, lodging, fuel, and food closer to its hardest hit areas to reduce travel time for trucks during treacherous driving conditions. The Company also utilized drones to provide assessment of damage where foot patrol would have taken longer (and incurred additional labor costs) because of the icy ground conditions. Lastly, the Company demobilized its resources, returned unused material to stock, released rooms and basecamps as soon as practicable to limit further storm restoration expenses.

Witness: Gregory A. Bell

Kentucky Power Company
KPSC Case No. 2021-00129
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DATA REQUEST

AG 1_8 Describe the decision making process undertaken by the company in response to the three major storm events, identify those persons in the company who participated and were responsible for the decisions made and what their respective role and responsibilities entailed.

RESPONSE

AEP's meteorologist team notified Kentucky Power of the impending storm forecast on February 8, 2021. Kentucky Power's management team held a conference call at 9 AM on February 9 to make plans for storm restoration efforts, including determining the number of contract full time employees that would be requested to arrive before the weather did. The management team consisted of the three district managers, the director of risk and project management, the region support manager, distribution dispatch center supervisor and the Vice President of Distribution Region Operations along with others. The incident command system structure was activated at 9:30 AM on February 10. The persons assigned to each role and responsibility are shown on KPCO_R_AG_1_8_Attachment1.

Similar notifications and steps were received and taken prior to the February 15 and February 17 storms.

Witness: Everett G. Phillips

| Incident Name | | Operational Period | | Date/Time From | Date/Time To |
|--|-------------------------|--------------------|---|---------------------|---------------------|
| 02-10-2021 KPSCO Severe Ice | | | | 2021-02-11T10:38:47 | 2021-02-12T10:38:47 |
| Incident Command | | | Logistics Section | | |
| Incident Commander | Everett Phillips | 606-923-1139 | Logistics Section Chief | Ron Canfield | 606-923-7473 |
| Safety and Environmental | | | Facilities Branch Director | | |
| Safety and Environmental Officer | Bill Meester | 740-416-8751 | Shelia Hall | 606-794-0302 | |
| Public Information | | | Telecom Branch Director | | |
| Public Information Officer | Cindy Wiseman | 606-585-6847 | Greg Hedrick | 304-544-0710 | |
| Internal Communication Coordinator | Michelle Strickland | 606-327-2608 | Supply Chain and Fleet Branch Director | Kim Maynard | 304-634-6136 |
| Liaison | | | Supply Unit Leader | | |
| Liaison Officer | TJ Meadows | 304-633-4554 | Randy Hamilton | 606-465-8708 | |
| Liaison Officer Deputy | Bob Shurtleff | | Ground Support Unit Leader | Brenda Christian | 740-744-3184 |
| State Assistant Liaison | Amy Elliott | 502-395-3061 | Operations Section | | |
| Customer Assistant Liaison | Barry Nolen | 606-923-5279 | Deputy OSC Transmission | John Rayburn | 304-546-7367 |
| Planning Section | | | Air Ops Branch Director | Jeff Everidge | 606-616-1979 |
| Planning Section Chief | Greg Bell | 606-465-7449 | Branch Director Distribution Ashland | Phil Tolliver | 606-547-5392 |
| Resource Unit Leader | Bobby Tackett | 606-213-0509 | Division Supervisor Distribution Ashland | Vernon Mullins | 606-585-5384 |
| Distribution Check In/Out Manager | Ashland Todd Rademachir | 606-929-1409 | Branch Director Distribution Pikeville | Carolyn Thacker | 606-794-5598 |
| Transmission Check In/Out Manager | Rene Bocanegra | 540-562-7223 | Branch Director Distribution Hazard | Greg Sparkman | 606-438-0448 |
| Situation Unit Leader | Steve Blankenship | 606-465-9339 | Branch Director Stations 1 | Tony Paragon | 304-543-4972 |
| Transmission Situation Manager | Barry Jones | 540-562-7029 | Branch Director T Line #1 | Craig Walters | 606-794-3828 |
| Transmission GIS and Mapping Coordinator | Keshia Butler | 304-807-7170 | Finance/Administration Section | | |
| Transmission ETR Coordinator | Charles Perrotta | 540-761-9604 | Finance and Administration Section Chief | Ashley Livingood | 606-254-5031 |
| Distribution Situation Manager | Larry Kersey | 606-465-7568 | | | |
| DDC Unit Leader | Ken Porter | 606-465-7897 | | | |
| Distribution System Modeling Coordinator | Justin Holsinger | 606-547-8760 | | | |
| Documentation Unit Leader | Michelle Caldwell | 606-465-0811 | | | |
| Assessment Unit Leader | Mike Lewis | 606-233-0770 | | | |
| Transmission Assessment Manager | Tyler Smith | 304-206-8545 | | | |
| Transmission Damage Assessment Unit Leader | Austin Harris | 304-922-1072 | | | |
| Transmission Work Packet Coordinator | Engineer Support | | | | |
| Prepared by | | | | | |
| Name Michelle Caldwell | | | Position/Title Documentation Unit Leader | | |
| Signature _____ | | | Date/Time 02/10/2021 10:52:57 | | |

| | | | | | | | | |
|---|-----------------------------------|---|---|--------------------------------|---|-------------------------------|------------------|--------------|
| Incident Name 02-10-2021 KPCO Severe Ice | Operational Period | Date/Time From 2021-02-11T10:38:47 | Date/Time To 2021-02-12T10:38:47 | | | | | |
| Incident Management Team | | | | | | | | |
| <table border="1" style="margin:auto; border-collapse: collapse;"> <tr> <td style="background-color:#cccccc; padding: 2px;">Incident Commander</td> </tr> <tr> <td style="padding: 2px;">Everett Phillips</td> </tr> <tr> <td style="padding: 2px;">606-923-1139</td> </tr> </table> | | | | | | Incident Commander | Everett Phillips | 606-923-1139 |
| Incident Commander | | | | | | | | |
| Everett Phillips | | | | | | | | |
| 606-923-1139 | | | | | | | | |
| Safety and Environmental Officer | Public Information Officer | Liaison Officer | Planning Section Chief | Logistics Section Chief | Finance and Administration Section Chief | | | |
| Bill Meester | Cindy Wiseman | TJ Meadows | Greg Bell | Ron Canfield | Ashley Livingood | | | |
| 740-416-8751 | 606-585-6847 | 304-633-4554 | 606-465-7449 | 606-923-7473 | 606-254-5031 | | | |
| <table border="1" style="margin:auto; border-collapse: collapse;"> <tr> <td style="background-color:#cccccc; padding: 2px;">Liaison Officer Deputy</td> </tr> <tr> <td style="padding: 2px;">Bob Shurtleff</td> </tr> <tr> <td style="padding: 2px;">(No Phone)</td> </tr> </table> | | | | | | Liaison Officer Deputy | Bob Shurtleff | (No Phone) |
| Liaison Officer Deputy | | | | | | | | |
| Bob Shurtleff | | | | | | | | |
| (No Phone) | | | | | | | | |
| Prepared by Name Marilyn Caldwell | | | Position/Title Documentation Unit Leader | | | | | |
| Signature _____ | | | Date/Time 02/10/2021 19:04:51 | | | | | |

| | | | | | | | |
|--|---|---|---|---|--------------|-------|--------------|
| Incident Name 02-10-2021 KPCO Severe Ice | Operational Period | Date/Time From 2021-02-11T10:38:47 | Date/Time To 2021-02-12T10:38:47 | | | | |
| Safety and Environmental Section | | | | | | | |
| <hr/> | | | | | | | |
| <table border="1"><tr><td>Safety and Environmental Officer</td></tr><tr><td>Bill Meester</td></tr><tr><td><hr/></td></tr><tr><td>740-416-8751</td></tr></table> | | | | Safety and Environmental Officer | Bill Meester | <hr/> | 740-416-8751 |
| Safety and Environmental Officer | | | | | | | |
| Bill Meester | | | | | | | |
| <hr/> | | | | | | | |
| 740-416-8751 | | | | | | | |
| Prepared by Name Marilyn Caldwell | Position/Title Documentation Unit Leader | | | | | | |
| Signature _____ | Date/Time 02/10/2021 19:04:51 | | | | | | |

| | | | |
|--|---------------------------|---|---|
| Incident Name 02-10-2021 KPCO Severe Ice | Operational Period | Date/Time From 2021-02-11T10:38:47 | Date/Time To 2021-02-12T10:38:47 |
|--|---------------------------|---|---|

Public Information Section

Public Information Officer

Cindy Wiseman

606-585-6847

Internal Communication Coordinator

Michelle Strickland

606-327-2608

| | |
|--|---|
| Prepared by Name Marilyn Caldwell | Position/Title Documentation Unit Leader |
| Signature _____ | Date/Time 02/10/2021 19:04:51 |

| | | | |
|--|---------------------------|---|---|
| Incident Name 02-10-2021 KPCO Severe Ice | Operational Period | Date/Time From 2021-02-11T10:38:47 | Date/Time To 2021-02-12T10:38:47 |
|--|---------------------------|---|---|

Liaison Section



| | |
|--|---|
| Prepared by Name Marilyn Caldwell | Position/Title Documentation Unit Leader |
| Signature _____ | Date/Time 02/10/2021 19:04:51 |

| | | | |
|--|---------------------------|---|---|
| Incident Name 02-10-2021 KPCO Severe Ice | Operational Period | Date/Time From 2021-02-11T10:38:47 | Date/Time To 2021-02-12T10:38:47 |
|--|---------------------------|---|---|

Planning Section



| | |
|--|---|
| Prepared by Name Marilyn Caldwell | Position/Title Documentation Unit Leader |
| Signature _____ | Date/Time 02/10/2021 19:04:51 |

| | | | | | | | |
|--|---|---|---|---|------------------|-------|--------------|
| Incident Name 02-10-2021 KPCO Severe Ice | Operational Period | Date/Time From 2021-02-11T10:38:47 | Date/Time To 2021-02-12T10:38:47 | | | | |
| Finance/Administration Section | | | | | | | |
| <hr/> | | | | | | | |
| <table border="1"><tr><td>Finance and Administration Section Chief</td></tr><tr><td>Ashley Livingood</td></tr><tr><td><hr/></td></tr><tr><td>606-254-5031</td></tr></table> | | | | Finance and Administration Section Chief | Ashley Livingood | <hr/> | 606-254-5031 |
| Finance and Administration Section Chief | | | | | | | |
| Ashley Livingood | | | | | | | |
| <hr/> | | | | | | | |
| 606-254-5031 | | | | | | | |
| Prepared by Name Marilyn Caldwell | Position/Title Documentation Unit Leader | | | | | | |
| Signature _____ | Date/Time 02/10/2021 19:04:51 | | | | | | |

| | | | |
|--|--|--|---|
| Incident Name 02-10-2021 KPCO Severe Ice | Operational Period | Date/Time From 2021-02-11T10:38:47 | Date/Time To 2021-02-12T10:38:47 |
| Logistics Section | | | |
| <div style="border: 1px solid black; padding: 5px; margin: 10px auto; width: 60%;"> <p style="text-align: center; background-color: #cccccc; margin: 0;">Logistics Section Chief</p> <p style="text-align: center; margin: 0;">Ron Canfield</p> <hr style="width: 50%; margin: 0 auto;"/> <p style="text-align: center; margin: 0;">606-923-7473</p> </div> | | | |
| <div style="border: 1px solid black; padding: 5px; margin: 10px auto; width: 20%;"> <p style="text-align: center; background-color: #cccccc; margin: 0;">Facilities Branch Director</p> <p style="text-align: center; margin: 0;">Shelia Hall</p> <hr style="width: 50%; margin: 0 auto;"/> <p style="text-align: center; margin: 0;">606-794-0302</p> </div> | <div style="border: 1px solid black; padding: 5px; margin: 10px auto; width: 20%;"> <p style="text-align: center; background-color: #cccccc; margin: 0;">Telecom Branch Director</p> <p style="text-align: center; margin: 0;">Greg Hedrick</p> <hr style="width: 50%; margin: 0 auto;"/> <p style="text-align: center; margin: 0;">304-544-0710</p> </div> | <div style="border: 1px solid black; padding: 5px; margin: 10px auto; width: 20%;"> <p style="text-align: center; background-color: #cccccc; margin: 0;">Supply Chain and Fleet Branch Director</p> <p style="text-align: center; margin: 0;">Kim Maynard</p> <hr style="width: 50%; margin: 0 auto;"/> <p style="text-align: center; margin: 0;">304-634-6136</p> </div> | <div style="border: 1px solid black; padding: 5px; margin: 10px auto; width: 20%;"> <p style="text-align: center; background-color: #cccccc; margin: 0;">Ground Support Unit Leader</p> <p style="text-align: center; margin: 0;">Brenda Christian</p> <hr style="width: 50%; margin: 0 auto;"/> <p style="text-align: center; margin: 0;">740-744-3184</p> </div> |
| <div style="border: 1px solid black; padding: 5px; margin: 10px auto; width: 20%;"> <p style="text-align: center; background-color: #cccccc; margin: 0;">Supply Unit Leader</p> <p style="text-align: center; margin: 0;">Randy Hamilton</p> <hr style="width: 50%; margin: 0 auto;"/> <p style="text-align: center; margin: 0;">606-465-8708</p> </div> | | | |
| Prepared by Name Marilyn Caldwell | | Position/Title Documentation Unit Leader | |
| Signature _____ | | Date/Time 02/10/2021 19:04:51 | |

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AG 1_9 Did Kentucky Power have an emergency plan document in place regarding storm weather emergency response procedures prior to the three major storms? If so, please provide a copy of the emergency plan document. If not, explain why not.

RESPONSE

Please see KPCO_R_AG_1_9_Attachment1 for the Company's incident command system procedures.

Please see KPCO_R_AG_1_9_Attachment2 which provides the public portions of the Company's emergency operating plan relevant to the request.

Witness: Everett G. Phillips



An **AEP** Company

Emergency Response Plan

*“No aspect of operations is more important than the health and safety of people.
Our customers' needs are met in harmony with environmental protection”.*

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AEP Emergency Response Plan

The purpose of this plan is to establish procedures for the restoration of electrical service in a systematic and efficient manner by utilizing all of AEP's available human and physical resources, and; if necessary, by securing and utilizing outside resources.

The primary objective of this plan is to define an emergency management strategy, organization, roles and responsibilities to effectively accomplish the safe, rapid and orderly repair of electric facilities and the restoration of service to all customers within a timely manner. The protection of public health and safety during service restoration is paramount.

The secondary objective of the plan is to provide for the collecting and reporting of accurate information to management, employees, the appropriate regulatory commission, and the general public. This information would include the extent of the damage to the distribution and transmission systems and the progress being made in restoring service. Establishing the necessary liaisons between AEP emergency management personnel, state, local, federal agencies and the media will enhance the ability to accomplish this objective.

The following is a summary of these objectives:

- Safely restore electric service to customers within a timely manner
- Provide timely and accurate information to customers impacted by service interruptions.
- Provide an orderly, coordinated approach to electric service restoration.
- Streamline the decision-making process.
- Maintain customer, shareholder and regulatory confidence.
- Effectively manage restoration costs.
- Identify individuals throughout each District and Operating Company organization who by experience and/or training can perform tasks assigned to them.
- Design and implement a uniform training/refresher program for each position to assure that each person on the list can perform the position's tasks.
- Utilize post-storm critiques for continuous process improvement.

Safety

Our Safety Philosophy

“No aspect of operations is more important than the health and safety of people. Our customer’s needs are met in harmony with environmental protection”.

American Electric Power (AEP) is committed to the safety and health of its employees, external crews, contractors and the general public. Our goal in every storm recovery event is “Zero Harm” - no injuries or vehicle accidents.

AEP expects the following behavior during service restoration:

- A heightened sense of awareness regarding the hazards associated with working in adverse conditions while on or in close proximity to damaged/abnormal equipment and on a foreign utility system. **You must be on guard for the unexpected at all times.**
- A continual commitment to safeguard the public from hazards associated with AEP’s electrical system.
- Conscientious observance of AEP-mandated safety precautions and at a minimum all applicable local, state and OSHA safety regulations.

Should there be a difference between the work practices stated in this document and those established by your company, the more stringent of the two shall apply. There are the following exceptions:

Responding mutual assistance IOU company (not contract) employees who in accordance with our mutual assistance agreements shall follow their own company safety rules provided they meet the OSHA minimum requirements,

All responders shall follow AEP switching and tagging procedures which will be managed as AEP designates, provided the procedures do not violate the safety rules of the responding company.

AEP expects the following from all company, contractor or other IOU employees.

- Qualified & Trained Employees – all employees shall be qualified and trained to perform the assigned work. This information shall be provided upon request.

- Housekeeping – All waste shall be kept in proper containers & disposed of properly.
- Personal Protective Equipment (PPE) – All employees shall wear approved hard hats, safety glasses with side shields, appropriate work boots, and appropriate gloves at all times while at work site. Additional PPE shall be worn according to the hazard assessment and at the direction of the AEP Operating Company.
- Job Briefings – A job briefing shall be completed for all jobs performed on AEP property prior to any work commencing. All line and tree job briefings shall be documented. Job Briefings shall be revised as tasks or scope of work changes throughout the day.
- Incident Reporting – All events (injuries, vehicle accidents, near-misses (near-hits), electrical flashes, and incidents involving the public and customer outages), regardless of severity shall be reported immediately to AEP via the local representative.
- Grounding – all circuits and equipment shall be considered energized at full voltage until de-energized, tested and grounded.
- Verification of Energized Equipment – Before grounding, it is required to verify the conductor(s) or circuit(s) being grounded is de-energized using an approved voltage detection device. The use of hand tools, etc. for “fuzzing” is strictly prohibited. Verification that the voltage detection device is properly functioning shall be made prior to each use.
- Work Zone Protection – When work is conducted along public streets or highways, pedestrian and vehicular traffic shall be warned in compliance with applicable government and/or company standards.
- Switching & Tagging – When working on the AEP system, all work will be directed by the AEP Distribution Dispatch Center (DDC) or designated Operating Company employee using AEP Switching & Tagging procedures.
- Environmental – All oil spills, leaks, etc. shall be reported immediately to the Region Environmental Coordinator.
- Cover-Up – When working on energized conductors or equipment, except for the conductor or equipment being worked on, all other conductors and equipment shall be covered or the worker shall maintain proper clearance.
- Regulatory Compliance – All employees shall comply with all local, state, and federal regulations (including OSHA, EPA and DOT regulations). An effort will be made to advise responding companies of local regulations, and company policies and procedures.

AEP operating companies may have additional safety expectations that will be communicated to all responding companies assisting in restoration. All responding company employees shall be briefed before beginning work on AEP property.

Before any task is started, use **Stop Think Act Review** to ensure that you are ready to safely begin. If there is any doubt, **STOP**. Do not proceed until you are certain about the result.

AEP Emergency Response Plan

Introduction

This manual contains American Electric Power's Emergency Response Plan. It also reflects the transition from normal day to day service restoration to large scale service restoration following significant events or emergencies. It is a reflection of the experience and knowledge gained from dealing with past emergency situations and outages.

The plan will accomplish the following strategic objectives:

Specify those courses of action and responsibilities required of management and supervision that ensure the **safe** and expeditious restoration of service to our customers.

Coordinate response activities with state and local governments, area communities, and Emergency Management officials during restoration efforts.

Keep our customers informed during restoration by maintaining open lines of communication with individuals and organizations within and outside the Company, and communicating to them the status and progress of our restoration effort.

Provide an analysis and review of our restoration effort to identify plan elements that work well or require improvement.

Overview

The resources needed to restore service during an outage are unique to each situation and are dependent on several factors including the extent (outage footprint), severity of damage, weather conditions, terrain, etc.

This manual is intended to be a guideline and reference tool for resource management; it outlines the tactics to be used by management and supervision to meet the strategic objectives.

Event Category/Organization

Event levels and the responding organization, as defined in this plan, are event-driven. The matrix below is a guideline in determining event category. This is not an inclusive list of variables that may influence establishing the event category.

EVENT CATEGORY MATRIX GUIDANCE ON DETERMINING THE EVENT CATEGORY

| Event Category | Weather Event Type | Expected Restoration Duration | Number of Customers Affected (1) |
|----------------|--|-------------------------------|--|
| V | Isolated T-Storm Wind gusts > 40 MPH | 4-12 hrs. | >5% in service center |
| IV | Isolated to widespread T-Storms Sustained winds > 40 MPH | 12-24 hrs. | 2.5-10% of district affected |
| III | Multiple bands or widespread T-Storms Sustained winds > 60 MPH Ice accumulation up to 1/2" Wet snow accumulation 3-5" | 24-48 hrs. | 5-20% of district affected |
| II | Ice accumulation > 1/2" Wet snow accumulation 5-10" Winds up to 75 MPH | 3-6 days | 20-60% of district or 10%-50% of OpCo affected |
| I | Ice accumulation > 3/4" Wet snow accumulation > 10" Winds > 75 MPH | >7 days | >40% of OpCo affected |

Planning P

AEP will utilize the “Planning P” process within the Incident Command System (ICS) to facilitate incident management.

Incident Action Plan

The Incident Action Plan (IAP) contains the incident objectives and the plans to achieve those objectives.

Pre-Storm Plans

This section outlines plans required to be completed prior to an event.

Service Restoration Procedures

Whenever outages occur, appropriate Company resources must be assembled to investigate the cause, determine the resource requirements, and implement restoration procedures.

As the event severity increases, the Incident Command System (ICS) should be activated and expanded to scale as necessary based upon the severity of the event. This section provides additional detail regarding the degree of involving additional personnel as outage severity increases.

In addition, Company personnel must give priority in the restoration effort to the resolutions of hazardous conditions, to essential services/critical customers (public safety, health, etc.), and to circuits based on the number of customers affected.

All restoration organization personnel shall complete the appropriate Emergency Response Plan and Incident Command System training appropriate for their assigned role in order to be considered qualified for the role assignment per the Emergency Response Plan (ERP).

Damage and/or Hazard Assessment Procedure

This section details: (a) assessment procedures, and (b) identification of special needs.

Knowing the footprint, severity, and cause(s) of an outage allows the Company to restore service in an efficient manner. Assessing the damage may be as simple as dispatching a 1st responder crew to a suspected location, or it may require deployment of office and field assessment teams augmented with helicopter support.

Resolution of reported hazardous conditions requires careful consideration being given to utilizing appropriate resources for this aspect of the overall restoration. Resolution of reported hazardous conditions includes simultaneous focus on addressing the actual hazards and on managing information related to orders in the Outage Management System that contain reports of hazardous conditions.

External Resources

External Resource Assistance Procedures include the use of AEP employees, contractors, and other utilities in the restoration process. Mutual assistance among utilities to restore service as rapidly as possible after a storm or other adverse situation is an important step to underwrite the reliability of service by the individual utilities and the industry. The benefits derived are not only to the affected customers and utility, but the general reputation of the entire industry.

Storm Outage Reporting Procedures

The Public Information Officer (PIO) and the Liaison Officer (LNO) have the overall responsibility for the communication of relative information to the public. It is important to our customers and the company that accurate information on the status of the outage and restoration effort is provided in a timely manner. In addition, the partnership with local, county, state and federal agencies provides not only benefits to the Company, but strengthens the public awareness of our restoration efforts and involvement in the communities which we serve.

Customer Notification

Outages to some types of customers affect the lives of many individuals. These customers need to know the status of our restoration effort. The Liaison Officer (LNO) and staff are responsible for contacting commercial centers, governmental agencies, and emergency facilities.

Media Communications

The Public Information Officer (PIO) and staff will coordinate the dissemination of information to the public through AEP's One Voice process with the assistance of the Incident Commander (IC) and Incident Management Team (IMT)

Logistics

The Logistics Section Chief has the overall responsibility for arranging lodging, meals, transportation and security for event responders. The Logistics Section Chief will interface with the Facilities Branch Director and Supply Chain and Fleet Branch Director to make certain that these needs are being met.

The Telecom Branch Director has the overall responsibility for the communications infrastructure.

Most vehicles in the Distribution Fleet have 800 MHz radios installed. These radios contain programming information to allow them to communicate across broad expanses of the AEP service territory.

The IT Support Branch Director has the overall responsibility for maintaining AEP's computer systems that are utilized during the outage response.

Revisions

AEP's Director of Crisis Response is responsible for updating and maintaining this Emergency Response Plan. They are responsible for managing the review process which includes input from all Operating companies. Each Operating Company Storm Coordinator will coordinate any recommended changes and submit those to the Director of Crisis Response. The Emergency Response Plan will be reviewed annually. The review process will include input and participation from all Operating Companies. Once final edits are approved the Director of Crisis Response and the Operating Company Storm Coordinator are responsible for acquiring the required approval.

Glossary of Abbreviations and Acronyms

| | |
|------|-------------------------------------|
| DDC | Distribution Dispatching Center |
| EEI | Edison Electric Institute |
| EMA | Emergency Management Agency |
| ERP | Emergency Response Plan |
| ERT | Estimated Repair Time |
| ETA | Estimated Time to Assess |
| ETR | Estimated Time of Restoration |
| FETR | Field Estimated Time of Restoration |
| ICS | Incident Command System |
| MHz | Megahertz |
| NGO | Non-government organization |

| | |
|-------|--|
| NOC | Network Operations Center |
| OMS | Outage Management System |
| OpCo | Operating Company |
| PORD | PowerOn Remote Dispatching |
| PUC | Public Utility Commission |
| RMAG | Regional Mutual Assistance Group |
| SCADA | Supervisory Control and Data Acquisition |
| ERP | Emergency Response Plan |
| TDC | Transmission Dispatching Center |

Definitions

The following are definitions that have been defined in order to ensure proper interpretation of this process and procedure. Many of the terms defined in this Plan are derived from the glossary listed in the Federal Emergency Management Agency's ICS Resource Center.

BASE CAMP: A location at which primary Logistics functions for an incident are coordinated. It is equipped and staffed to provide sleeping, food, water and sanitary services, as needed, to incident personnel.

CHAIN OF COMMAND: A series of management roles in order of authority.

CHECK-IN: The process whereby resources first report to an incident.

CHIEF: The ICS title for individuals responsible for command of functional sections: Operations, Planning, Logistics, and Finance & Administration.

COMMAND: The act of directing and/or controlling resources by virtue of explicit legal, agency, or delegated authority. May also refer to the Incident Commander.

COMMAND STAFF: The Command Staff consists of the Public Information Officer, Safety & Environmental Officer, and Liaison Officer. They report directly to the Incident Commander. They may have an assistant or assistants, as needed.

COORDINATION: The process of systematically analyzing a situation, developing relevant information, and informing appropriate command authority of viable alternatives for selection of the most effective combination of available resources to meet specific objectives. The coordination process (which can be either intra- or inter-agency) does not involve dispatch actions. However, personnel responsible for coordination may perform command or dispatch functions within the limits established by specific agency delegations, procedures, legal authority, etc.

CREW: A team of individuals with an identified work supervisor that can be used on an incident. See also Single Resource.

DELEGATION OF AUTHORITY: A statement provided to the Incident Commander by the delegating authority and assigning responsibility. The Delegation of Authority can include objectives, priorities, expectations, constraints, and other considerations or guidelines, as needed. This may require written Delegation of Authority to be given to Incident Commanders prior to their assuming command on larger incidents.

DEPUTY: A fully qualified individual who, in the absence of a superior, could be delegated the authority to manage a functional operation or perform a specific task. In some cases, a Deputy could act as relief for a superior and therefore must be fully qualified in the role. Deputies can be assigned to the Incident Commander, General Staff, and Branch Directors.

DIRECTOR: The ICS title for individuals responsible for supervision of a Branch.

DISPATCH CENTER: A facility from which resources are assigned to an incident.

DIVISION: Divisions are used to divide an incident into geographical areas of operation. A Division is located within the ICS organization between the Branch and the Task Force/Strike Team. (See Group.) Divisions are identified by alphabetic characters for horizontal applications and, often, by floor numbers when used in buildings.

DOCUMENTATION UNIT: Functional unit within the Planning Section responsible for collecting, recording, and safeguarding all documents relevant to the incident.

EMERGENCY OPERATIONS CENTER (EOC): A pre-designated facility established to coordinate the overall response and support to an emergency.

EMERGENCY RESPONSE PLAN (ERP): The plan that each OpCo has and maintains for responding to appropriate incidents.

EVENT: A planned, nonemergency activity. ICS can be used as the management system for a wide range of events (e.g., parades, concerts, or sporting events).

FUNCTION: In ICS, function refers to the five major activities in the ICS; i.e., Command, Operations, Planning, Logistics, and Finance & Administration. The term “function” is also used when describing the activity involved; e.g., the planning function.

FINANCE & ADMINISTRATION SECTION: The Section responsible for developing cost analyses; developing contracts and paying for resources.

GENERAL STAFF: The group of incident management personnel reporting to the Incident Commander. They may each have a deputy, as needed. The General Staff consists of:

- Operations Section Chief
- Planning Section Chief
- Logistics Section Chief
- Finance & Administration Section Chief

INCIDENT: An occurrence either human caused or by natural phenomena, that requires action by emergency service personnel to prevent or minimize loss of life or damage to property and/or natural resources.

INCIDENT ACTION PLAN (IAP): Contains objectives reflecting the overall incident strategy and specific tactical actions and supporting information for the next operational period. The Plan may be oral or written. When written, the Plan may have a number of forms as attachments (e.g., safety plan, communications plan, and map).

INCIDENT COMMAND SYSTEM (ICS): A standardized on-scene emergency management concept specifically designed to allow its user(s) to adopt an integrated organizational structure equal to the complexity and demands of single or multiple incidents without being hindered by jurisdictional boundaries.

INCIDENT COMMANDER (IC): The individual responsible for the management of all incident operations at the incident site.

INCIDENT MANAGEMENT TEAM (IMT): The Incident Commander and appropriate Command and General Staff personnel assigned to an incident.

INCIDENT OBJECTIVES: Statements of guidance and direction necessary for the selection of appropriate strategy(s), and the tactical direction of resources. Incident objectives are based on realistic expectations of what can be accomplished when all allocated resources have been effectively deployed. Incident objectives must be achievable and measurable, yet flexible enough to allow for strategic and tactical alternatives.

LIAISON OFFICER (LNO): A member of the Command Staff responsible for coordinating with representatives from cooperating and assisting agencies.

LOGISTICS SECTION: The section responsible for providing facilities, services, and materials for the incident.

LOGISTICS SECTION CHIEF (LSC): The Logistics Section Chief is responsible for providing facilities, services, and material in support of the incident.

MANAGEMENT BY OBJECTIVES: In ICS, this is a top-down management activity that involves a three-step process to achieve the incident goal. The steps are establishing the incident objectives, selection of appropriate strategy(s) to achieve the objectives, and the tactical direction associated with the selected strategy. Tactical direction includes selection of tactics, selection of resources, resource assignments, and performance monitoring.

MANAGERS: Individuals within ICS organizational units that are assigned specific managerial responsibilities; e.g., Base Camp Manager or Hazard Assessment Manager.

MOBILIZATION: The process and procedures used by all organizations for activating, assembling, and transporting all resources that have been requested to respond to or support an incident.

MUTUAL ASSISTANCE AGREEMENT: Written set of guiding principles which, promotes the safety of employees and customers; strengthens relationships among electric utilities; provides a means for electric utilities to receive competent, trained employees and contractors from other experienced utilities; Provides a predefined mechanism to share industry resources expeditiously; Mitigates the risks and costs of member utilities related to major incidents; Proactively improves resource-sharing during emergency conditions; Shares best practices and technologies that help the electric power industry improve its ability to prepare for, and respond to, emergencies; Promotes and strengthens communication among RMAGs; and enables a consistent, unified response to emergency events.

OFFICER: The ICS title for the personnel responsible for the Command Staff roles of Safety & Environmental, Liaison, and Public Information.

OPERATIONAL PERIOD: The period of time scheduled for execution of a given set of operation actions as specified in the Incident Action Plan. Operational Periods can be of various lengths, although usually not more than 24 hours.

OPERATIONS SECTION: The Section responsible for all tactical operations at the incident and can include Branches, Divisions and/or Groups, Task Forces, Strike Teams, and Single Resources.

OPERATIONS SECTION CHIEF (OSC): The Operations Section Chief is responsible for the management of all tactical operations.

PLANNING MEETING: A meeting held at intervals as needed throughout the duration of an incident to select specific strategies and tactics for incident control operations and for service and support planning. On larger incidents, the planning meeting is a major element in the development of the Incident Action Plan.

PLANNING SECTION: Responsible for the collection, evaluation, and dissemination of information related to the incident and for the preparation and documentation of Incident Action Plans. The Section also maintains information on the current and forecasted situation, and on the status of resources assigned to the incident. Includes the Situation, Resource, Documentation, and Demobilization Units, as well as Assessment units.

PLANNING SECTION CHIEF (PSC): The Planning Section Chief (PSC) oversees all incident-related data gathering and analysis regarding incident operations and assigned resources, conducts planning meetings, and prepares the IAP for each operational period.

PUBLIC INFORMATION OFFICER (PIO): A member of the Command Staff responsible for interfacing with the public and media or with other agencies requiring information directly from the incident. There is only one Public Information Officer per incident. The Public Information Officer may have assistants.

REGIONAL ENVIRONMENTAL COORDINATOR (REC): The REC reports to the Safety and Environmental Officer (SEO) and is responsible for monitoring and addressing environmental issues at the region level.

REGIONAL MUTUAL ASSISTANCE GROUPS (RMAGs): Voluntary partnerships of investor-owned electric utilities, located regionally across the country, committed to helping restore power whenever and wherever assistance is needed. There are currently 7 Regional Mutual Assistance Groups of which AEP is a member of 4.

RESOURCES: Personnel and equipment available, or potentially available, for assignment to incidents. Resources are described by kind and type; e.g., ground, water, or air, and may be used in tactical support or overhead capacities at an incident.

RESOURCE UNIT LEADER (RESL): The Resource Unit Leader is responsible for maintaining the status of all assigned resources at an incident.

SAFETY & ENVIRONMENTAL OFFICER (SEO): A member of the Command Staff responsible for the monitoring and assessing of safety hazards or unsafe situations, and for developing measures for ensuring personnel safety. Responsible for environmental issues related to the restoration effort. The Safety & Environmental Officer may have assistants.

SECTION: That organization level with responsibility for a major functional area of the incident; e.g., Operations, Planning, Logistics, Finance & Administration.

SINGLE RESOURCE: An individual, a piece of equipment and its personnel complement, or a crew or team of individuals with an identified work supervisor that can be used on an incident.

SITUATION UNIT LEADER (SITL): The Situation Unit Leader is responsible for keeping the Planning Section Chief updated on the status of events impacting the response efforts.

SPAN OF CONTROL: The supervisory ratio ranging from one supervisor per three to seven individuals.

STAGING AREA: A location set up at an incident where resources can be placed while awaiting a tactical assignment.

STRATEGY: The general plan or direction selected to accomplish incident objectives.

TACTICAL DIRECTION: Direction given by the Operations Section Chief, which includes the tactics appropriate for the selected strategy, the selection and assignment of resources, tactics implementation, and performance monitoring for each operational period.

TELECOM BRANCH UNIT: An organizational unit in the Logistics Section responsible for providing communication services at an incident.

UNIT: The organizational element having functional responsibility for a specific incident planning, logistics, or finance & administration activity.

UNITY OF COMMAND: The concept by which each person within an organization reports to one and only one designated person.

Event Levels

A service restoration is any event affecting the electric delivery system that results in a disruption to customers. The electric system recovery should commence as soon as safely possible. Emphasis should be placed on early assessment of the cause of the service disruption. Escalation may be required to meet the recovery level guidelines listed below. It is intended that the number of resources dedicated to service restoration would expand as the workload increases.

Level V - A Level V service restoration event is one which can generally be recovered utilizing existing crews from one service center. Restoration expected to take 4-12 hours. This is considered to be our everyday normal operating level.

Level IV - A Level IV service restoration event is one which can be recovered utilizing all available crews within a district (including active on-site contract crews). Restoration expected to take 12-24 hours. .

Level III - A Level III service restoration event is one that can be recovered utilizing all available crews within an Operating Company (this includes active on-site contract crews). Restoration expected to take less than 48 hours.

Level II - A Level II service restoration event is one which can be recovered utilizing AEP company crews, and crews from external sources (activating additional contract crews and/or bringing in crews from other utilities and AEP operating companies) Restoration expected to take 3-6 days.

Level I - A Level I service restoration event is one which can be recovered utilizing AEP company crews, and crews from external sources (activating additional contract crews and/or bringing in crews from other utilities and AEP operating companies). Restoration expected to take in excess of 7 days.

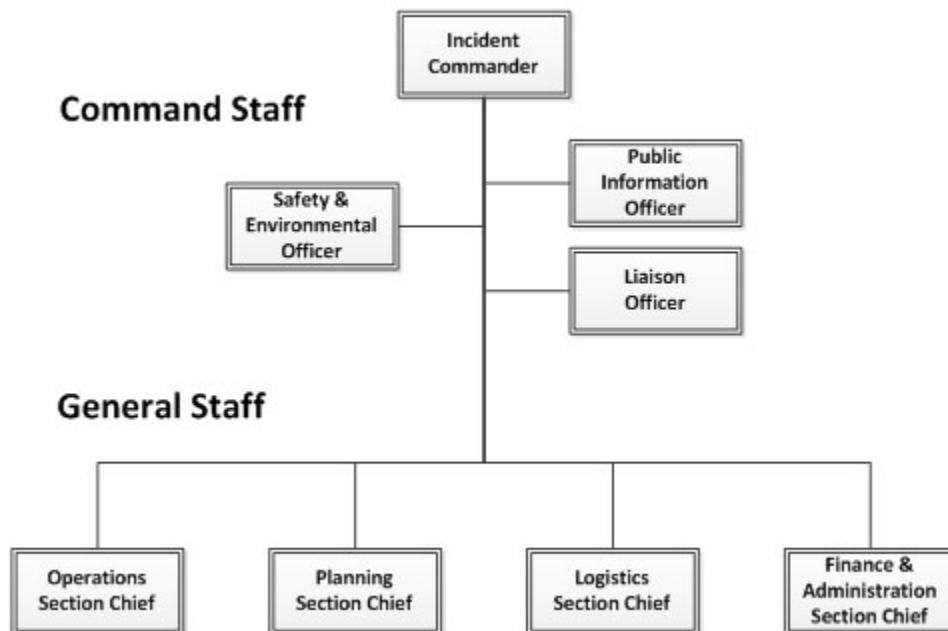
Response Organization – Incident Management Team

AEP has adopted an Incident Command System (ICS) structure for management of significant emergency events. The positions required to adequately staff a safe and efficient service restoration effort are dependent on the level of the event.

It is recognized that one individual may be able to perform the tasks required for more than one of these positions, particularly in less severe events. The Incident Commander and Incident Management Team will need to make the decision for the proper staffing and expansion of the ICS organization.

ICS Roles and Descriptions

ICS Structure – Incident Management Team (IMT)



INCIDENT MANAGEMENT TEAM (IMT) consists of the Incident Commander and the appropriate Command and General Staff personnel assigned to an incident, and has direct authority to plan and execute the response.

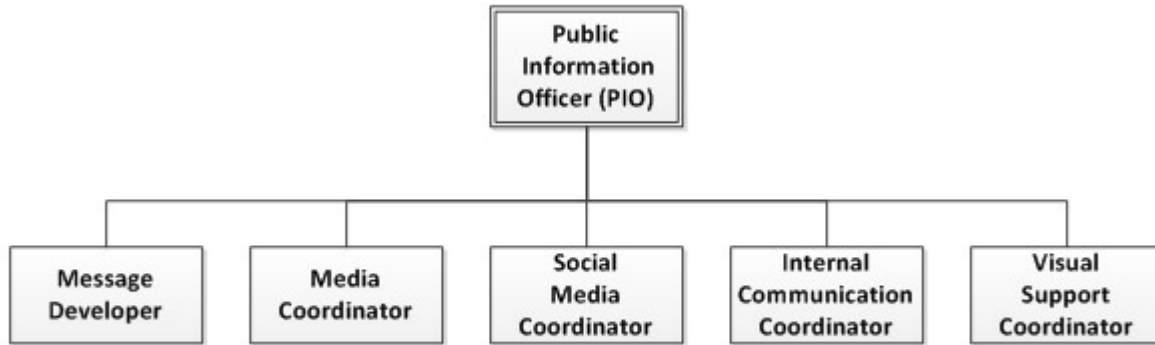
| Role | Reports to: | Position Summary |
|--|--------------------|--|
| <u>Incident Commander (IC)</u> | | All general and command staff roles and responsibilities that have not been delegated are the responsibility of the Incident Commander. Maintains overall responsibility of the restoration effort. |
| <u>Safety and Environmental Officer(SEO)</u> | Incident Commander | Monitors incident operations and advises Incident Command on all matters relating to operational safety, including the health and safety of storm restoration personnel, and environmental issues relating to the storm restoration effort. |
| <u>Public Information Officer(PIO)</u> | Incident Commander | Ensures the organization is communicating a consistent message to all stakeholders, and sets the tone and pace of communications throughout the incident. Works directly with the Incident Command Staff, and is responsible for interfacing with and providing incident information to all internal and external stakeholders. |
| <u>Liaison Officer(LNO)</u> | Incident Commander | The Liaison Officer is Incident Command's point of contact for representatives of other governmental departments and agencies, NGOs, and/or the private sector to provide input on their organization's policies, resource availability, and other incident-related matters. |
| <u>Operations Section Chief(OSC)</u> | Incident Commander | Responsible for the management of all tactical operations. Activates and supervises the Operations Section in accordance with the IAP and directs its execution. Also directs the preparation of the operational plans; works with Planning Section on requests or releases of resources; monitors progress, makes changes to the IAP and reports to the Incident Commander. |
| <u>Planning Section Chief(PSC)</u> | Incident Commander | The Planning Section Chief oversees all incident-related data gathering and analysis regarding incident operations and assigned resources, conducts planning meetings, and prepares the IAP for each operational period. |
| <u>Logistics Section Chief(LOGS)</u> | Incident Commander | Providing facilities, services, and material in support of the incident. Participate in the development and implementation of the IAP, activating and supervising the Branches and Units within the Logistics Section |
| <u>Finance & Admin Section Chief(FSC)</u> | Incident Commander | Manages and monitors expenditures to ensure that applicable statutory rules are met. Monitors multiple sources of funds, tracks and reports to the IC the accrued cost as the incident progresses. Coordinates with other administrative functions such as legal, human resources, risk, labor and others as needed or requested by the Incident Commander. |

Response Organization – Safety and Environmental



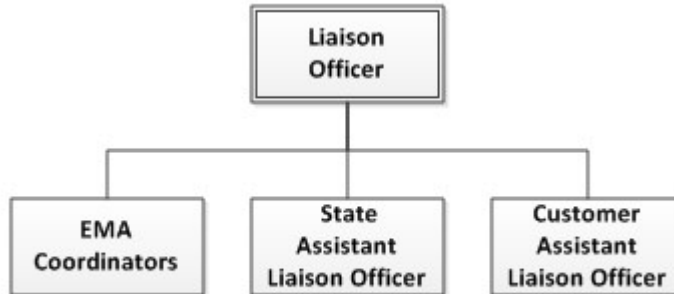
| Role | Reports to: | Position Summary |
|----------------------------------|----------------------------------|--|
| Region Environmental Coordinator | Safety and Environmental Officer | Monitors incident operations and advises Safety & Environmental Officer on all environmental matters relating to the storm restoration efforts. |
| Safety Coordinator | Safety and Environmental Officer | Ensures adherence to all safety policies and requirements through field visits and crew observations. Stops any unsafe work practice observed. Works with operations to set expectations for storm restoration crews by briefing them on the Emergency Storm Restoration Safety Guideline. |

Response Organization – Public Information Officer



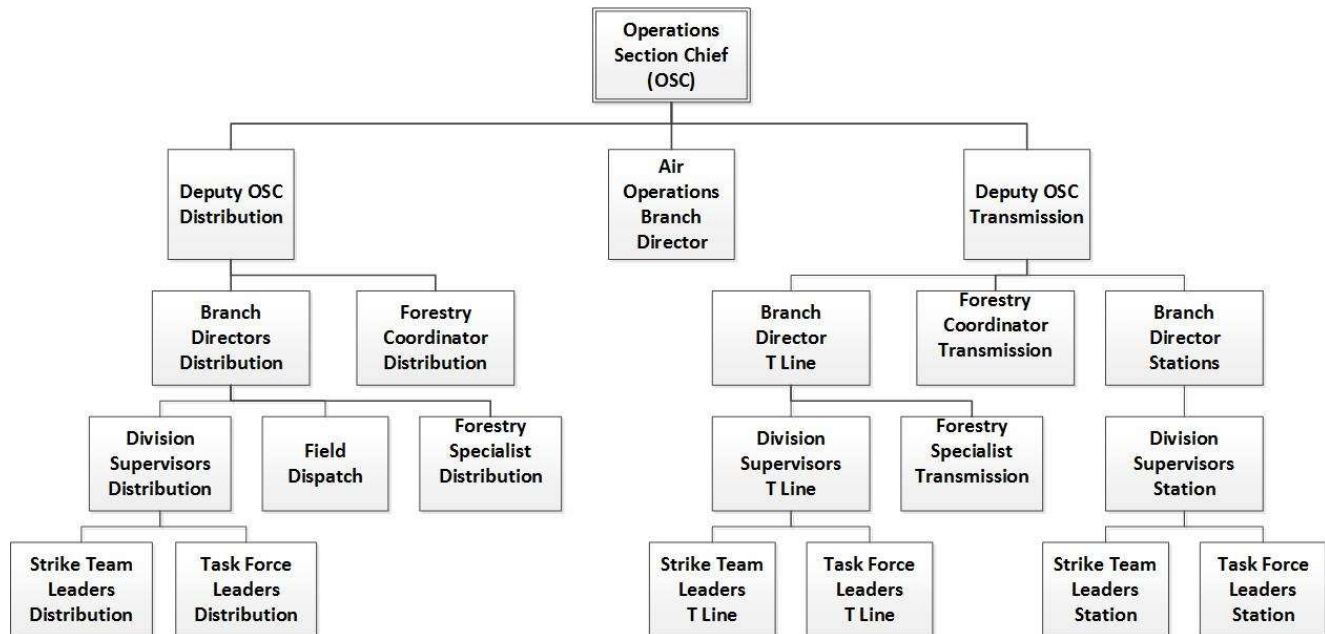
| Role | Reports to: | Position Summary |
|-------------------------------------|----------------------------|--|
| Internal Communications Coordinator | Public Information Officer | Produces and distributes updates that keep employees and contractors informed as to the status of the company's response. |
| Media Coordinator | Public Information Officer | Is the primary contact with traditional print and broadcast media outlets, and provides these outlets with information that helps keep the general public informed about the company's efforts. |
| Message Developer | Public Information Officer | Works with the Incident Command Staff to prepare incident response updates regularly throughout the incident. All communication about the company's efforts flows from these updates, which ensures consistent messaging across all communications channels. |
| Social Media Coordinator | Public Information Officer | Regularly updates the company's web sites and social media sites and issues regular electronic updates to keep subscribers informed of the company's efforts, and monitors user comments to identify issues that may need addressed. |
| Visual Support Coordinator | Public Information Officer | Produces, gathers and distributes material that documents the incident through photos, videos and graphics to support messages about the company's response. |

Response Organization – Liaison Officer



| Role | Report to: | Position Summary |
|------------------------------------|-----------------|---|
| Customer Assistant Liaison Officer | Liaison Officer | Facilitates the two-way communication between the company and customers; providing storm updates to customers while gathering critical customer feedback to provide to aid the Planning organization in establishing restoration prioritization. |
| State Assistant Liaison Officer | Liaison Officer | Facilitates the two-way communication between the company and Regulatory Public Utilities Commission and Legislators; providing storm updates and ETR's to the various agencies while gathering critical customer feedback to provide to the Liaison Officer. |
| EMA Coordinator | Liaison Officer | Has primary responsibility for the interface between the Company and the Local Emergency Management agencies during major storm events. |

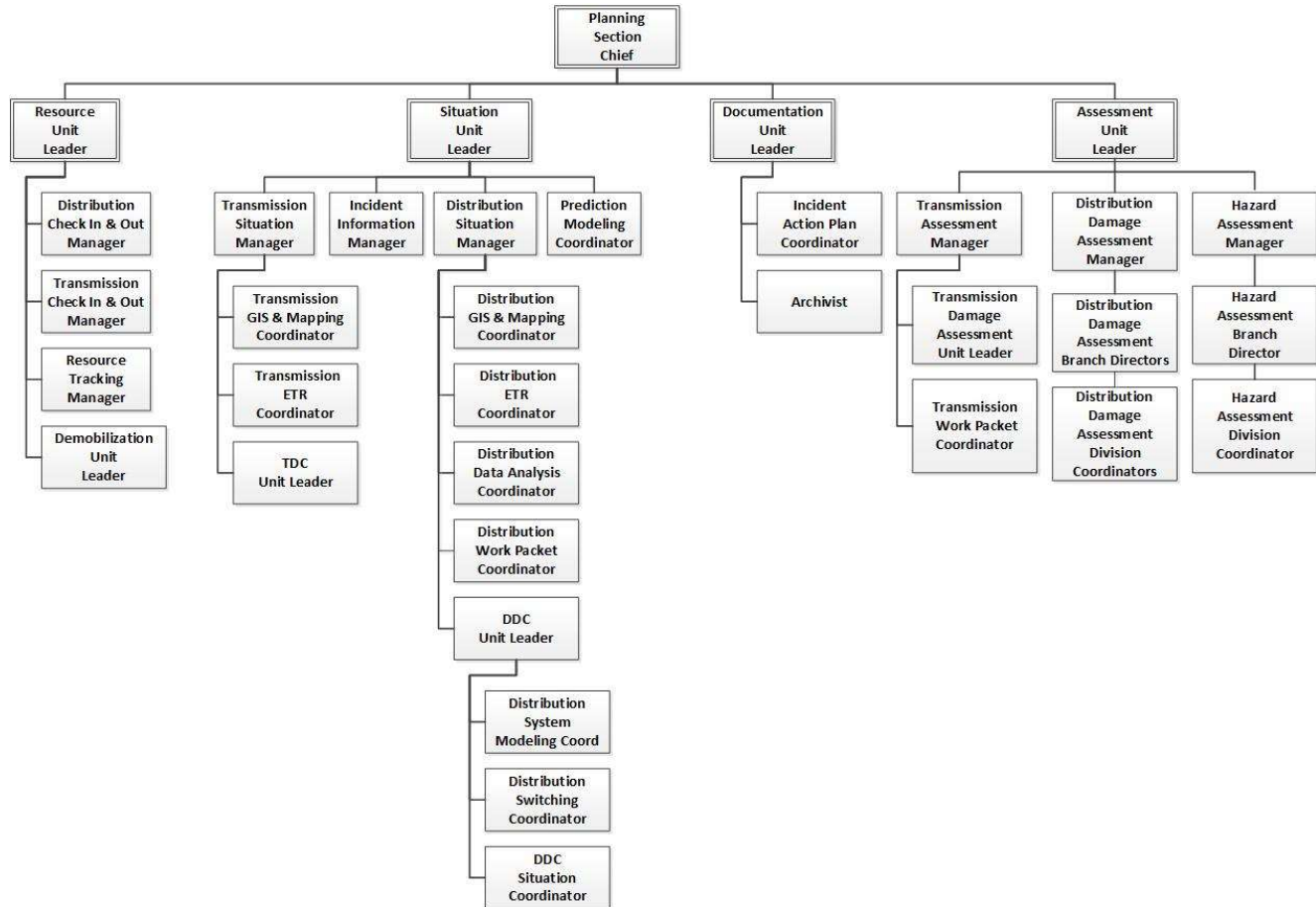
Response Organization – Operations Section



| Role | Reports to: | Position Summary |
|--------------------------------|--------------------------|---|
| Air Operations Branch Director | Operations Section Chief | Responsible for preparing the air operations of the Incident Action Plan (IAP). The plan will include details such as flying hours per pilot, night flying, etc. After the plan is approved, AIROPS is responsible for implementing its strategic aspects. |
| Branch Director Distribution | Deputy OSC Distribution | Responsible for the executing the IAP at the Branch level. Monitors Branch progress and provides updates to the Deputy OSC Distribution or OSC. |
| Branch Director T Line | Deputy OSC Transmission | <ul style="list-style-type: none"> • Reports to Operations Section Chief or Deputy Operations Section Chief Transmission • Identify Branch organization and resources • Supervise Branch organization |
| Deputy OSC Distribution | Operations Section Chief | Responsible for the management of all distribution tactical operations. Activates and supervises the distribution operations section in accordance with the IAP and directs its execution. Also directs the preparation of the distribution operational plans, requests or releases distribution resources; monitors progress, provides feedback of OSC for necessary changes to the IAP and reports to the Operations Section Chief. |
| Deputy OSC Transmission | Operations Section Chief | Supervises the Transmission organization of Operations Section and directs the execution of Transmission portion of Incident Action Plan (IAP) |

| Role | Reports to: | Position Summary |
|-----------------------------------|--|---|
| Division Supervisor Distribution | Branch Directors Distribution | Responsible for the executing the IAP at the Division level. Monitors Division progress and provides updates to the Branch Director. |
| Division Supervisor Transmission | Branch Director Line | <ul style="list-style-type: none"> Identify Division/Group organization and resources Supervise the Division organization Provide copies of the current IAP to subordinates |
| Field Dispatch | Branch Directors Distribution | Responsible for local dispatch of outage cases to strike teams or task forces within assigned area. |
| Forestry Coordinator Distribution | Deputy OSC Distribution | Responsible for organizing and overseeing forestry resources in the Operations Section Distribution. The forestry resources are responsible for clearing rights of way and access points to allow for line resources to restore power. |
| Forestry Coordinator Transmission | Deputy OSC Transmission | Responsible for organizing and overseeing forestry resources in the Transmission Operations Section. The forestry resources are responsible for clearing rights of way and access points to allow for line resources to restore power. |
| Forestry Specialist Distribution | Branch Director Distribution | Responsible for organizing and overseeing forestry resources within their assigned Distribution Branch. The forestry resources are responsible for clearing rights of way and access points to allow for line resources to restore power. |
| Forestry Specialist Transmission | Branch Director Transmission Line | Responsible for organizing and overseeing forestry resources within their Transmission Branch. The forestry resources are responsible for clearing rights of way and access points to allow for line resources to restore power. |
| Strike Team Leader Distribution | Division Supervisors Distribution (Affected Divisions) | Responsible for Implementing the IAP for assigned team consisting of like resources |
| Strike Team Leader Transmission | Division Supervisors Transmission | Responsible for Implementing the IAP for assigned team consisting of like resources |
| Task Force Leader Distribution | Division Supervisors Distribution (Affected Divisions) | Responsible for Implementing the IAP for assigned team consisting of multiple different resources |
| Task Force Leader Transmission | Division Supervisors Transmission | Responsible for Implementing the IAP for assigned team consisting of multiple different resources |
| Task Force Leader Station | Division Supervisors Station | Responsible for Implementing the IAP for assigned team consisting of multiple different resources |
| Strike Team Leader Station | Division Supervisors Station | Responsible for Implementing the IAP for assigned team consisting of like resources |
| Division Supervisor Station | Branch Director Stations | <ul style="list-style-type: none"> Reports to Branch Director Identify Division/Group organization and resources Supervise the Division organization Provide copies of the current IAP to all response personnel. |
| Branch Director Station | Deputy OSC Transmission | <ul style="list-style-type: none"> Reports to Operations Section Chief or Deputy Operations Section Chief for Transmission Identify Branch organization and resources Supervise Branch organization |

Response Organization – Planning Section

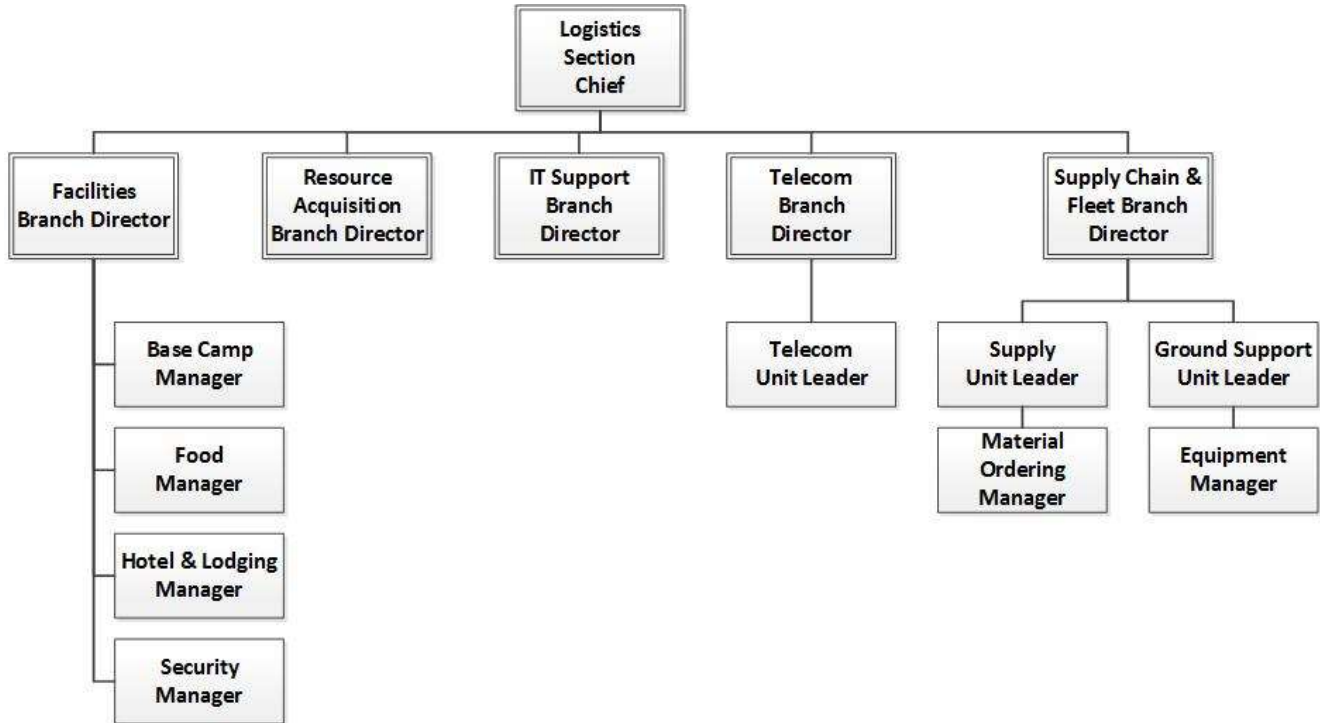


| Role | Reports to: | Position Summary |
|--|-----------------------------------|--|
| Hazard Assessment Division Coordinator | Hazard Assessment Branch Director | Responsible for managing hazard assessment and mitigation in accordance with the IAP at the Division level. Evaluates hazard assessment and mitigation progress and provides status updates to the Hazard Assessment Branch Director. |
| Distribution Data Analysis Coordinator | Distribution Situation Manager | The Distribution Data Analysis Coordinator is responsible for analyzing data from the Distribution Damage Assessment Manager and Hazard Assessment Manager. |
| Archivist | Documentation Unit Leader | The Archivist is responsible for developing a single, central, and comprehensive repository that will stand up to internal, legal, regulatory and governmental review. |
| Assessment Unit Leader | Planning Section Chief | Provide oversight for the Assessment Unit. Provide oversight of T&D damage assessment and hazard mitigation activities. Communicate assessment status to the PSC. Review damage assessment and hazard mitigation progress and recommend adjustments accordingly. |

| Role | Reports to: | Position Summary |
|---|--|--|
| DDC Situation Coordinator | DDC Unit Leader | Provide status update based upon available outage management system (OMS) data availability, including but not limited to the number of customers affected, the number of hazard tickets, and/or the number of trouble tickets. |
| DDC Unit Leader | Distribution Situation Manager | Provide status update based upon available outage management system (OMS) data availability, including but not limited to the number of customers affected, the number of hazard tickets, and/or the number of trouble tickets. Coordinates and recommends optimal switching to carry out the IAP. |
| Distribution Damage Assessment Manager | Assessment Unit Leader | Responsible for the oversight of Distribution Damage Assessment. Coordinate damage assessment activities for Distribution and ensure they align with the IAP. Communicate damage assessment status to the PSC. Review Distribution's damage assessment progress and recommend adjustments accordingly. |
| Distribution Check In & Out Manager | Resource Unit leader | The Check In/Check Out Manager is responsible for establishing and conducting the check-in function and check-out function at designated incident locations. |
| Distribution Damage Assessment Branch Director | Distribution Damage Assessment Manager | Responsible for managing damage assessment in accordance with the IAP at the Branch level. Evaluates damage assessment progress and provides status updates to the Distribution Damage Assessment Manager. |
| Distribution Damage Assessment Division Coordinator | Distribution Damage Assessment Branch Director | Responsible for managing damage assessment in accordance with the IAP at the Division level. Evaluates damage assessment progress and provides status updates to the Distribution Damage Assessment Branch Director. |
| Distribution ETR Coordinator | Distribution Situation Manager | Ensure that the Estimated Time of Restoration (ETR) is available and updated throughout the event. |
| Distribution GIS & Mapping Coordinator | Distribution Situation Manager | Provide hard or electronic copies of all electric system maps being requested. Provide maps, which will be utilized to communicate impacted areas, as well as ETR maps and status of restoration updates. |
| Hazard Assessment Branch Director | Hazard Assessment Manager | Responsible for managing hazard assessment and mitigation in accordance with the IAP at the Branch level. Evaluates hazard assessment and mitigation progress and provides status updates to the Hazard Assessment Manager. |
| Distribution Situation Manager | Situation Unit Leader | Provide oversight, coordinate and analyze available information between the DDC Unit Leader, Distribution Data Analysis Coordinator, Distribution ETR Coordinator, and Distribution GIS/Mapping Coordinator. Coordinate with Distribution Branch Manager within Operations Section to provide overall picture of progress against Incident Action Plan within the Distribution organization. |
| Distribution Switching Coordinator | DDC Unit Leader | Responsible for monitoring bulk distribution system, including coordinating with TDC Switching Coordinator to recommend the prioritization of switching to restore outages, resolve voltage or system stability issues. |
| Distribution System Modeling Coordinator | DDC Unit Leader | The System Modeling Leader is responsible for maintaining the circuit model within the outage management system to reflect the conditions on the circuit in order to reflect the number of customer outages on the circuit. |
| Distribution Work Packet Coordinator | Distribution Situation Manager | Provide oversight of work packet coordination. Ensure appropriate work packets are created and provided to the Operations Section. |
| Documentation Unit Leader | Planning Section Chief | The Documentation Unit Leader is responsible for the creation, maintenance and distribution of the Incident Action Plan (IAP) and ad hoc documentation and records. Maintain accurate, up-to-date incident files, incident reports, communication logs, injury claims, and situational status reports. Collect, create and store the final archive of incident records and documentation. |

| Role | Reports to: | Position Summary |
|--|---------------------------------|---|
| Incident Action Plan Coordinator | Documentation Unit Leader | Responsible for collecting the components of the IAP from incident personnel, assembling the pages in the correct order, providing the original documents to the PSC for review and signature, photocopying and distribution of signed copies. |
| Incident Information Manager | Situation Unit Leader | Responsible for updating and analyzing, as appropriate, all information within the Situation Unit, including ETRs, damage and hazard assessment data, resource availability, prediction model information, status of restoration activities, and weather related information. |
| Prediction Modeling Coordinator | Situation Unit Leader | Responsible for the utilization of the AEP prediction modeling tool(s) to develop pre & after event predictions, and provides post assessment analysis for resource allocation and development of ETR's. |
| Resource Tracking Manager | Resource Unit leader | Responsible for tracking resources responding to the incident prior to, during and after. Tracking resources efficiently is essential for personnel safety, accountability and fiscal control. |
| Resource Unit Leader | Planning Section Chief | Responsible for maintaining the status of all assigned resources at an incident. This is achieved by overseeing the check-in/check-out of all resources and maintaining a tracking system indicating current location and status of all resources. |
| Situation Unit Leader | Planning Section Chief | Responsible for keeping the Planning Section Chief updated on the status of events impacting the storm restoration effort, including but not limited to changes in the weather patterns, status of customers impacted as a result of the storm, number of hazard tickets, number of outage cases, number of customers impacted, number of breakers locked out, number of transmission lines out, and the status of customer outages restored. |
| TDC Unit Leader | Transmission Situation Manager | Provide update based upon available data, including but not limited to the number of stations and circuits affected. Coordinates and recommends optimal switching to carry out the IAP. |
| Transmission Assessment Manager | Assessment Unit Leader | Responsible for oversight of Transmission assessment. Communicate assessment status to Assessment Unit Leader. Review progress of assessment and make adjustments. Direct resources to complete assessment. |
| Transmission Check In & Out Manager | Resource Unit leader | Responsible for establishing and conducting the check-in function and check-out function at designated incident locations. |
| Transmission Damage Assessment Unit Leader | Transmission Assessment Manager | Provide oversight for damage assessment unit. Implement damage assessment tactics for Transmission. Communicate assessment status to the Transmission Assessment Manager. Review damage assessment progress and recommend adjustments accordingly. |
| Transmission ETR Coordinator | Transmission Situation Manager | Maintain/update list of ETA and ERT. Coordinate with Distribution ETR Coordinator on ETA and ERT |
| Transmission GIS & Mapping Coordinator | Transmission Situation Manager | Provide technical support for GIS. Provide support for assessment tool. |
| Transmission Work Packet Coordinator | Transmission Assessment Manager | Provide work packages to facilitate repairs. |
| Transmission Situation Manager | Situation Unit Leader | Provides status updates based upon available outage data. |

Response Organization – Logistics Section



| Role | Reports to: | Position Summary |
|----------------------------|----------------------------|---|
| Facilities Branch Director | Logistic Section Chief | The supervision/direction of operations associated with Facilities related to the incident. |
| Base Camp Manager | Facilities Branch Director | Ensuring that appropriate sanitation, security, and facility management services are conducted at the Base Camp |
| Food Manager | Facilities Branch Director | Supplying the food needs for the entire incident including all remote base camps as well as providing food for personnel unable to leave tactical field assignments. |
| Hotel/Lodging Manager | Facilities Branch Director | Planning, directing and coordinating the lodging needs for the entire incident including all remote base camps (work with Base Camp Manager) as well as providing lodging for personnel unable to leave tactical field assignments. |

| Role | Reports to: | Position Summary |
|--------------------------------------|----------------------------|---|
| Security Manager | Facilities Branch Director | The supervision of security operations associated with Facilities related to incident |
| Resource Acquisition Branch Director | Logistics Section Chief | The Resources Acquisition Branch Director has the overall responsibility for obtaining all needed resources both internal (Requesting OpCo) and external. The Resources Acquisition Branch Director work closely with the Logistic Section Chief to evaluate the situation and determine the best avenue for obtaining resources which include; Within the Requesting/Affected OpCo, Responding/Unaffected OpCo, Regional Mutual Assistance Groups (RMAGs) and non-RMAG contractor's resources. Resources include line, tree, assessment, dispatch, safety, supply chain, back office, field support and event management/leadership. |
| IT Support Branch Director | Logistics Section Chief | Developing plans for the effective use of incident IT systems and equipment and the maintenance, performance, and repair of IT systems; set up of IT systems when distributed dispatching is implemented; supervision of IT personnel in distributed dispatching center |
| Telecom Branch Director | Logistics Section Chief | The planning, coordinating, directing, and managing of duties related to the internal/external communication needs of incident related activities. Developing plans for the effective use of incident communications equipment and associated telecom devices. Work closely with the Logistic Section Chief to maintain or resolve, various business unit needs or concerns. |

| Role | Reports to: | Position Summary |
|--|--------------------------------------|--|
| Telecom Unit Leader | Telecom Branch Director | Work closely with the Telecom Branch Director to develop plans for the effective use of incident communications equipment and telecom facilities; program 800 MHz radios; install and test communications equipment; distribute communications equipment to incident personnel; supervise an Incident Communications Center; restore failed communication infrastructure and/or end-item equipment |
| Supply Chain and Fleet Branch Director | Logistics Section Chief | The planning, coordinating, directing and managing of duties related to materials, supplies and fleet operations in response of storm operations. |
| Supply Unit Leader | Supply Chain & Fleet Branch Director | Reviewing all material orders to support the business needs during storms operations of Distribution, Transmission or Generation. Must establish and maintain effective relationships with Expediting and Procurement to ensure that material is available to support construction/maintenance needs during storm operations. |
| Material Ordering Manager | Supply Unit Leader | Placing all orders for supplies and equipment for the incident |
| Ground Support Unit Leader | Supply Chain & Fleet Branch Director | The Ground Support Unit Leader is responsible for support out-of-service resources, transportation of personnel, supplies, food, and equipment Fueling, service, maintenance, and repair of vehicles and other ground support equipment and implementing the Traffic Plan for camps and areas |
| Equipment Manager | Supply Chain & Fleet Branch Director | Provides service, repair, and fuel for all apparatus and equipment; provides transportation and support vehicle services; and maintains records of equipment use and service provided |

Response Organization – Finance and Administration Section



| Role | Reports to: | Position Summary |
|------------------------------------|-------------------------------|---|
| Compensations & Claims Unit Leader | Finance & Admin Section Chief | The Compensation and Claims Unit Leader ensures that all forms required by workers' compensation programs and local agencies are completed. Maintains files on injuries and illnesses associated with the incident, and ensures that all witness statements are obtained in writing. |
| Contract Unit Leader | Finance & Admin Section Chief | The Contract Unit Leader administers all financial matters pertaining to vendor contracts. This Unit coordinates with local jurisdictions to identify sources for equipment, prepares and signs equipment rental agreements, and processes all administrative requirements associated with equipment rental and supply contracts. |
| Time & Cost Unit Leader | Finance & Admin Section Chief | <p>The Time & Cost Unit Leader manages and provides cost analysis data for the incident. Ensures that equipment and personnel for which payment is required are properly identified, obtain and record all cost data, and analyze and prepare estimates of incident costs.</p> <p>The Time & Cost Unit is primarily responsible for ensuring proper daily recording of personnel time, in accordance with the policies of the relevant agencies. Ensures that the Logistics Section records or captures equipment-use time.</p> |

Planning

AEP will be utilizing Incident Command Systems' Planning P. Effective planning provides the foundation for successful incident management. The operational planning cycle is a structured, consistent and repeatable process for managing incident planning commonly referred to as the "Planning P." The Planning P accomplishes the following:

- Defines a series of specific, targeted meetings aligned with the operational period to focus on planning
- Supports cyclical development of a comprehensive incident action plan throughout the response
- Assures consistent and timely information sharing among command and general staff
- Provides scheduled opportunities for responders to provide and receive critical information through their chain of command
- Limits the attendance to only those who will contribute to a particular meeting
- Separates the development of plans from the briefing of plans to make efficient use participants' time. Those who merely need information do not have to sit through decision-making meetings
- Provides numerous opportunities for updating stakeholders on the response situation and plans
- Provides platform for coordinated and consistent determination of ETRs

Overall, the Planning P makes a strong, safe, and efficient operational response better by providing coordinated focus on the next operational period based on continuous common understanding of the situation.

Incident Management Meetings & Agendas

The AEP Planning P supports the Five Phases of Planning:

1. **Understand** the Situation
2. **Establish** Incident Objectives and Strategy
3. **Develop** the Plan
4. **Prepare** and Disseminate the Plan
5. **Execute**, Evaluate and Revise the Plan

Incident Action Plan (IAP)

AEP – IAP Structure and Elements

The Incident Action Plan (IAP) presents the current situation and provides a summary of the general objectives, the overall strategy for managing the incident and other significant issues that may impact the response. The Command & General Staff review the IAP during the planning meeting and pass the information on to their teams after the IC approves the final document.

An IAP can be an oral or written plan depending on the size and scope of the event; however, in a major event it will be a written plan. The level of detail contained in the IAP is scalable and relative to the size and complexity of the incident. If an ICS position is not filled next highest role has responsibility for providing the information. The Documentation Unit Leader has overall responsibility to insure IAP is completed.

Pre-Storm Plans

Learning how to handle an emergency cannot be done efficiently during the emergency situation. During emergency situations, everyone needs to react in a pre-planned manner. Prior to any emergency, there are many items that need to be put in place to handle the emergency in the most efficient and effective manner. That is one of the reasons for the creation of this manual. Some of these items are; having a plan, organizing resources, training personnel and practice. Many of these items are just extensions of our everyday operation.

Having a plan

This manual is designed to be the AEP Emergency Response Plan for handling restoration efforts. It needs to be reviewed annually, and critiqued to ensure effectiveness.

If changes/corrections are needed, they need to be submitted to insure that everyone who could be involved is operating under the same plan (refer to the Revisions Section of this plan). A consistent plan will provide each participant a better understanding of their role and responsibilities in the emergency efforts.

Organizing Resources

Once the AEP Emergency Response Plan has been established, the resources required to implement the plan, need to be identified and organized. Resources fall into the following three categories; people, material/equipment, and facility resources. Each requires unique considerations and will be reviewed separately by the OpCo.

1. People

Various roles are identified to operate the emergency plan. Each Operating Company needs to identify its available human resources and the positions that each will fill during an emergency.

2. Material/Equipment

Part of the emergency plan will require the use of material/equipment that is not used during normal business operations. Pre-arrangements to obtain such material/equipment for emergency use need to be made. Some of these items include, but are not limited to the following: maps of the area, communication equipment (radios, cell phones), and vehicles (company and possible rentals).

3. Facilities

During a restoration effort, depending on its magnitude, many facilities may be required. Pre-arrangement needs to be made for the use of the following facilities: motels/lodging services, restaurants, available helicopter landing sites, base camps, and crew/material marshaling areas.

Training Personnel

All employees that have been identified and assigned a response role(s) shall complete annual training on the responsibilities of each role. The Vice President of Distribution Operations is responsible for ensuring all response personnel complete training on an annual basis.

The ERP training program reinforces American Electric Power's philosophy for service restoration. The ERP training program was developed to provide training on the Emergency Response Plan (ERP) and to promote its consistent use during restoration efforts on the AEP system.

Restoration Process

Whenever outages occur or are imminent, appropriate Company resources shall be immediately assembled to evaluate potential impact, perform assessment, determine resource requirements, and perform the necessary repair work. Restoration efforts shall be performed within the guidelines of AEP's existing Transmission and Distribution organizational structure and in accordance to the Emergency Response Plan.

In order to coordinate efforts of both the transmission and distribution groups, the following process is recommended:

- For smaller events not requiring ICS activation, Transmission and Distribution resource acquisition within AEP will be coordinated by their respective Operations Managers and Storm Coordinator.
- Upon activation of ICS, resource acquisition will be coordinated by the Resource Acquisition Branch Director under the Logistics Section Chief. RABD will work with the AEP's Emergency Restoration Planning Manager who is responsible for acquiring the additional requested resources. All potential release/demobilization of resources will be shared with the ERP MGR.

Outages are caused by many things such as; equipment failure, vehicle accidents, animals, trees, high winds, and major storms. Generally, major storms and high winds cause widespread damage and outages. Outages caused by equipment failure, vehicle accidents, animals, or trees are usually isolated outages. Whether the outage is widespread or isolated, the restoration process is similar. The restoration process will generally follow these steps:

1. Customer notifies company of outage via phone call or Internet to Customer Solutions Center. Where available AMI may be used to help supplement outage information being reported via the customers.
2. Customer Solutions Center generates a Trouble Ticket via Trouble Entry Reporting System (TERS).
3. DDC/Dispatching Authority receives outage information via PowerOn/PORD and dispatches 1st Responder or a damage assessor based on priority.
4. Once the extent and/or cause of outage are determined, repair crews are dispatched or repairs are conducted by the 1st responder crew (i.e., General Servicicers) in small isolated outage cases. Field employees update ETR to a FETR (Field Estimated Time of Restoration).
5. Crews complete repairs and report back to DDC/Dispatching on status and PowerOn/PORD is updated.
6. When necessary, a sampling of customers are called back to verify that restoration is complete. Where available AMI may be used to help determine where outages continue to exist.
7. Outage cases are updated via PowerOn/PORD.

Although widespread outages involve a great deal of organization in moving resources to the sites where the damage has occurred, the above steps are still necessary. Determining the extent of the outage is a key factor in identifying whether additional resources are needed to move from Step #4 to Step #5.

Service Restoration Procedures

It is very important to make a high level or Reconnaissance damage assessment early in the outage event. The earlier the need for additional resources is identified, the sooner those resources can be mobilized for the restoration effort. Ideally, this will happen within the first few hours of an outage event. As the outage situation worsens and the outage footprint expands, additional resources may need to be called upon to be involved in the restoration efforts.

The following procedures are guidelines for obtaining additional resources.

1. If a District cannot restore all of the outages within a timely manner from the first reported outage by using **only** District resources, then that District should request additional resources from the Operating Company Storm Coordinator.
2. The Storm Coordinator will contact unaffected areas within the same OpCo to secure the resources needed.
3. If resources cannot be secured within the OpCo, the Operating Company will submit the request for additional resources from the Emergency Restoration Planning Manager.
4. The AEP Emergency Restoration Manager will contact other AEP operating companies, Regional Mutual Assistance Groups, or Contractors to acquire the requested resources.

District Supervision, DDC Supervision, or an On-call Incident Commander will declare the existence of, or imminent probability of, emergency conditions requiring the activation of the Incident Command System.

Restoration Priority

In a major outage emergency, where Company facilities have been damaged the investigation and mitigation of hazardous conditions has the highest priority. Next are essential services/critical customers. Following that, the priority in the restoration effort would be restoring the largest number of customers served from one isolating device.

The Planning Section will establish the priority order in which assessed outages are worked.

The following guidelines are recommended to assist in setting priorities. The order may vary, depending on the specific needs to the outage situation at hand.

Based on Safety

- Investigation and mitigation of hazardous conditions with the emphasis on electrical hazards such as downed wires or broken poles.

Based on Essential Services, (as pre-determined by community leaders along with AEP)

- Hospitals, institutions and health support facilities.
- Fire, Law enforcement and essential governmental agencies
- Water and Sewage treatment facilities
- Perishable food processors
- Media communication centers
- FAA Navigational Facilities
- Other institutions whose operation are essential to the safety, health and welfare of the community

Based on circuits (Number of Customers involved)

- Transmission circuits that could result in cascading station outages
- Sub transmission circuits that could result in cascading station outages
- Sub transmission circuits that result in station outages
- Stations
- Distribution Feeder circuits
- Distribution three phase branch circuits
- Two phase and single phase laterals
- Secondary/ Services
- Street lighting

Damage / Hazard Assessment

Damage Assessment

1. In the event of a major restoration effort (i.e. Level III/II/I event), damage assessment will be implemented, and will include the Assessment Unit Leader, and others as required. (Any Level V or IV category event may be handled by the DDC Supervision and district management team.)
2. The DDC Supervision will communicate with the On-call Incident Commander and/or the Operating Company Storm Coordinator to determine the extent of the event.
3. DDC Supervision will hand off the coordination of any assessment in progress to the District management team for Level III, II, and I events. District management will establish an office team for clerical, technical and/or overall assessment support.
4. The Reconnaissance damage assessment should include:
 - Geographical description of the area involved
 - Stations and/or circuits affected
 - Extent and type of equipment damage (high level estimate)
 - Estimated number of customers affected by district
 - Restoration plans (manpower and material needs)
5. The Recon assessment will be followed as early as possible with assessment of major interruptions and three phase outages and finally complete circuit detailed assessment based on resources available, updated condition reports, estimates of length and severity of weather conditions.
6. Aerial patrols should also be utilized, if feasible, for a broader, more detailed assessment. Historically, helicopters have proven to be an efficient means for augmenting the “boots on the ground” damage assessment effort.
7. In the event of an oncoming storm, the Operating Company Storm Coordinator, District and DDC personnel shall work closely together to prepare for the restoration effort. The AEP system has available information from AEP’s Meteorologist to estimate the probability and approximate time of all weather related event. Local and/or national weather services should also be consulted. Such estimates may help determine the need for, and degree of, readiness in view of the expense of maintaining standby personnel and facilities.
8. The DDC can also provide information on Station breakers status via alarms and should be consulted.

Hazard Assessment

1. Hazard assessment is an important component of the overall assessment process. Resolution of reported hazardous conditions requires careful consideration being given to utilizing trained resources for this aspect of the overall assessment. Resolution of reported hazardous conditions includes simultaneous focus on addressing the actual hazards and managing the information related to orders in the Outage Management System that contain reports of hazardous conditions.
2. The Hazard Assessment Manager oversees the hazard assessment. This position manages the hazard assessment efforts to provide updates as to the status of the hazard assessment and mitigation progress.
3. The Hazard Assessment Manager works with his team to mobilize the appropriate number of Hazard Assessors, Hazard Guards and make safe personnel to ultimately mitigate confirmed hazardous conditions..

The Hazard Assessment Manager and his team are also responsible for updating the status of outage orders with hazards reported. Hazard Assessors responding to hazardous situations are trained to and should identify the extent of the hazard. This could include identifying the isolating device, determine its status, identify circuit, voltage and if any downed conductor is energized.

Oil Spill Reporting and Cleanup Procedures

If an oil spill is discovered, procedures in the Company's "Oil Spill Response and Cleanup" field guide should be followed immediately. The Region Environmental Coordinator should be contacted immediately upon the discovery of any oil spill. During major outages, The REC will coordinate the cleanup and make any necessary reports to environmental regulatory agencies.

External Resources

Overview

The need for outside resources should be determined early in an event restoration planning process. Requests for outside resources must be made early enough to accommodate mobilization and travel time in a manner that allows resource arrivals to fit into day-work/night-rest cycle. Once it has been determined what type and number of outside resources will be required, this information should be communicated to the Resource Acquisition Branch Director to allow for ample time to obtain the resources. Following this guideline will ensure that the requested resource needs can be provided within the requested time frames. The key to being able to request an adequate number of resources within a short time frame may be based on the timeliness of the restoration assessment phase (SCADA, OMS outage cases, hazard tickets, etc.). It is critical that assessment be conducted in a timely manner to enable valuable feedback on the severity of the damage and the estimated restoration time frame.

In the case of an approaching hurricane, tropical storm, or ice storm, outside crews may be pre-positioned at locations outside the area of expected damage but close enough to respond once weather conditions improve so that safe travel is possible. It is important to work with AEP Meteorology, governmental agencies and private weather forecasting services to estimate the time and location the storm's landfall. This information will also be used to estimate the number of resources (line, assessors, POR users, etc.) and the number and location of base camp and staging areas required.

Requests for outside resources submitted to the Resource Acquisition Branch Director will generally be filled by the Emergency Restoration Planning Manager in the following order of resources:

1. Other OpCo AEP crews
2. Contractor personnel currently working on AEP Property
3. Contractor personnel that can be brought in from outside AEP property
4. Other utilities

It is very important that the Resource Acquisition Branch Director communicate the necessary crew personnel and specific equipment needs to the Emergency Restoration Planning Manager as accurately as possible, (i.e. the makeup/size of crews - such as pole replacement or two person bucket/service crews, three or four person line crews with bucket and digger derrick, assessors, stores, requested arrival time, etc.). The type of storm damage will dictate the type and makeup of the crews.

A company crew guide should be made available to support outside crews as needed. The guide should be able to provide the crews with the proper paperwork, have a good knowledge of the area, and be prepared with proper PPE & clothing to work the same hours as the crew. Because this

person is the communications link for the crew they should have a vehicle equipped with a company radio or cellular phone.

American Electric Power (AEP) Resources

The OpCo that is sending the resources will make an effort to send appropriate support staff.

The OpCo that is requesting the resources will make every attempt to keep groups sent with their supervisors together. The requesting OpCo will also be responsible for ensuring that all radios are programmed with the local restoration talk group. The requesting OpCo should contact the Telecom Branch Director to coordinate radio programming.

Contractor Resources

The Resource Unit Leader should evaluate the deployment of all existing base load distribution line contract crews assigned to that OpCo.

The Emergency Restoration Planning Manager can potentially acquire additional contract crews from other AEP companies, and storm assistance contractors.

Other contractor crews working in an OpCo (for example; involved in transmission or sub transmission work) can also be utilized.

Other Utility Mutual Assistance

AEP is a member of the EEI Mutual Assistance Program and various Regional Mutual Assistance Groups (RMAGs). This, along with agreements that may exist in various states, provides for additional assistance from other utilities.

Mutual assistance among utilities is designed to help restore service as rapidly as possible after a storm or other adverse situation and is an important step to underwrite the reliability of service by the individual utilities and the industry. The benefits derived are not only to the affected customers and utility, but also to the general reputation of the entire industry.

Requests to other utilities will be made through the Emergency Restoration Planning Manager, after an evaluation of resource needs have been made. The evaluation of resource needs should include the severity of outages or imminent weather throughout the system, along with travel time for assisting crews.

Government Agencies

There are many local, county, state and federal agencies that deal with widespread emergency conditions. The Liaison Officer and staff should be familiar with the availability of local agencies, such as but not limited to county disaster assistance, 911-agencies, civil defense groups, amateur radio groups, etc. The involvement with local, county, state and federal

agencies not only provides benefits to the company, but also strengthens public awareness of our restoration efforts and involvement in the communities we serve.

The positions that are involved with governmental agencies perform the following tasks:

- Liaison Officer and State Assistant Liaison Officer interface with the state Public Utility Commissions and other state regulatory agencies by providing timely information and responding to inquiries and coordinate communication with federal, state and local community leaders.
- EMA Coordinator establishes coordination and communication with local emergency management organizations for ongoing and post-disaster assistance as well as coordinating assistance with contractors and public and private contractors.

Storm Outage Reporting

It is important to our Customers and the Company that accurate information on the status of the outage and restoration effort is provided in a timely manner according to established procedures.

Outage Reporting to Governmental Agencies, State Utility Regulatory Commissions, etc.

Each of the States served by AEP has unique outage reporting requirements and procedures. Each OpCo should document and be familiar with the procedures pertaining to their States.

Customer Notification

Large / Sensitive Customer Notification

Outages to large/sensitive customers can affect the lives of many individuals. Industrial and large commercial centers, malls, hospitals, and governmental agencies have emergency plans to follow when outages occur. Consequently, these groups need to know the status of our restoration efforts.

Radio stations, Social Media and print are an effective means of providing the public at large with general outage information. However, direct contact should be made to the following customers when an outage affects them:

- Key Accounts, Industrial and Large Commercial Customers, Sensitive Loads (as pre-determined by AEP with input from community leaders)

The Customer Assistant Liaison Officer and staff has the overall responsibility for communicating with these customers and is responsible for keeping such customers informed of the status and progress of the restoration effort.

DDC's have notification guidelines to follow for customers having preferred/alternate service schemes when either of the circuits is removed from service or made unavailable. Notification should be made to Transmission whenever one of the supplies to their facilities must be removed from service.

Certain customers, including those mentioned above, should also be notified when substation switching operations take place that could impact service on the circuit.

Emergency Facilities Notification

Hospitals, emergency shelters, etc., most likely have backup electric service schemes. However, if they are within the outage footprint, they must be kept current on the status of our restoration efforts. The Customer Assistant Liaison Officer will contact these customers.

Life Support Customer Inquiry

Life support customers are noted and maintained in our customer information system, During the life support application and annual verification process, customers are encouraged to have a personal emergency plan to implement during power interruptions, which could include having a battery back-up or a properly installed back-up generator, relocating to a shelter, etc. Customers calling in to AEP will be

advised to monitor media reports and updates on outage status and restoration efforts and to implement their personal emergency plan as needed.

Outage Alerts

Customers have access to their account and outage information on-line, including mobile access. In addition, customers may sign up to receive mobile outage alerts. Mobile alerts provide all customers the option of receiving email and/or text messages when their registered premise is predicted to be experiencing an outage. Customers can enroll in outage alerts by logging onto their account through the utility website.

Outage Mapping

Online outage mapping provides customers and media contacts a graphic representation of outage locations. Information is pulled from outage management systems to display current outages and available restoration information. This information is available on the utility web site.

Media Communications

The Public Information Officer will coordinate the development and communication of public information regarding emergency situations within the affected OpCo through the One Voice process.

The Public Information Officer or designee will be the media contact person for the OpCo. This position is normally staffed by a member of the Corporate Communications Department.

The Public Information Officer will be a participant on all Incident Management Team conference calls and/or meetings.

Unless otherwise directed, inquiries from the news media received by the field personnel or other employees shall be directed to the Public Information Officer or designee for response.

One Voice - Information to be provided by the Public Information Officer

The One Voice update is the official communication used to keep internal and external audiences informed of the company's incident response and may include the following information.

- A description of the storm/event and its impact in terms of damage and customer outages. If a pre-event update, description of predicted event and its expected impact to the utility system.
- Weather information in instances where weather may interfere with restoration efforts or cause additional outages
- Current outage numbers broken down by service area, city, county or state;
- Current restoration effort status, including resources dedicated to the effort, percentage of customers who have had service restored, overall and area-specific restoration estimates. If a pre-event update, discuss preparations being made for the event.
- Safety messages
- Company contact information for reporting outages
- Date and time for the next scheduled update

The Public Information Officer should request TV, radio, and print media to remind the public of the hazards when power lines are down. In addition, each OpCo maintains an external website that is updated with major event outage information so that customers can stay informed of restoration progress.

Logistics

The Logistics Section Chief oversees the efforts in providing lodging, meals, transportation, and security assistance.

Restoration Support

The Facilities Branch Director has the overall responsibility for coordinating lodging, meals and security for the response resources.

Lodging

Room arrangements are the responsibility of the Hotel and Lodging Manager. Rooms should be reserved in advance for inbound crews as soon as the estimated time of arrival and the number of rooms required becomes known.

Base Camps and Staging Area Locations

Each operating company has identified locations for base camps and staging areas and is responsible for establishing contracts and pre-determined layouts for these sites. The Base Camp Managers are responsible for ensuring the activation, operation and demobilization of their assigned base camp.

Meals

The Food Manager has the overall responsibility for determining whether meals will be provided for field and support personnel, or employees directed to local restaurants or a combination of both.

Security

The Security Manager has the overall responsibility for coordinating security for all locations being utilized by any response resources. The Security Manager will work closely with local law enforcement for security needs and if any incident occurs.

Supply Chain and Fleet Branch Director

Transportation

Fleet Branch Director and/or Ground Support Unit Leader are responsible for coordinating any transportation and associated needs. Special equipment requests will be coordinated with the Resource Acquisition Branch Director. Additional associated needs may be the acquisition of fuel and buses to transport field crews.

- Fuel may be provided at the Company bases and all vehicles should be filled prior to leaving the base of operation. The vehicle driver assumes this responsibility of filling their vehicle and completing any required paperwork.
- Other fueling stations may be designated during extended emergency periods. The Fleet Branch Director or Ground Support Unit Leader will communicate the locations and establishments involved to the appropriate Operations and Planning branches or divisions.

Telecom

The Telecom Branch Director has the overall responsibility for ensuring that telecommunications systems are available for use. Telecom is responsible for Network communication availability at company facilities, including the telephone and associated equipment. Every department relies on network connected assets during storm restoration.

- The Company has in place a licensed 800 MHz trunked radio network managed by the AEP Telecom Department. These radios contain programming that allows them to operate on a wide range of transmitter sites, enabling them to communicate across broad expanses of the AEP service territory. The radio system has capabilities to support major storm restoration activities by allowing special Storm Talk Groups to co-exist with normal Talk Groups.

Telecom personnel are distributed throughout the AEP system, and are available to assist with coordination of the telecommunications requirements during the restoration effort. The AEP Telecomm Department has a Network Operations Center (NOC) staffed on a 7 x 24 basis, allowing both monitoring of system performance and support of the local Telecommunications personnel.

- Issues related to the availability of telecommunications systems should be reported through the IT Service Desk, Telecom NOC, Telecom Unit Leader, or Telecom Branch Director.

Revisions

AEP's Director of Crisis Response is responsible for updating and maintaining this Emergency Response Plan. They are responsible for managing the review process which includes input from all Operating companies. Each Operating Company Storm Coordinator will coordinate any recommended changes and submit those to the Director of Crisis Response. The Emergency Response Plan will be reviewed annually. The review process will include input and participation from all Operating Companies. Once final edits are approved the Director of Crisis Response and the Operating Company Storm Coordinator are responsible for acquiring the required approval.



Transmission Operations

AEP East/PJM Emergency Operating Plan

Effective Date: 4/15/2020

Supersedes *AEP East/PJM Emergency Operating Plan Rev. 21.0*

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 substations who collectively deliver the power to major points of distribution.

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Document Control

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Guideline

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Implementation

| | |
|-------------------------|-----------|
| Effective Date | 4/15/2020 |
| Review Frequency | Annually |
| Retention Period | Six Years |

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 |
| 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"> Updated Implementation with some revised names and corrected some phone numbers. 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 |

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| Rev. | Description of Change(s) | By | Date |
|------|---|----|----------------|
| 11.1 | Minor edits, and classification of document as AEP Confidential Special Handling | | August 2008 |
| 12.0 | Annual Review | | April 2009 |
| 12.1 | Added Document Control, updated Section VI-Rockport SPS and Section VIII-Black Start test dates | | August 2009 |
| 12.2 | Updated Implementation phone numbers Updated Section VIII-Black Start - AEPW/SPP test dates and backup agreement with METC for Cook Updated Appendix VII Emergency Contact phone numbers | | September 2009 |
| 13.0 | Annual Review <ul style="list-style-type: none"> • Implementation names/phone numbers • Section III - Capacity Deficiency Program consistent with PJM • 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 | | April 2010 |
| 13.1 | Updated <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 | | December 2010 |

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| Rev. | Description of Change(s) | By | Date |
|------|---|----|---------------|
| | <ul style="list-style-type: none"> TDC Name changes System Restoration dB 4.) Appendix VII AEP internal contacts due to reorganization | | |
| 14.0 | Annual Review | | June 2011 |
| 15.0 | Annual Review. Correct Date typo | | June 2012 |
| 15.1 | Update <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 | Annual Review <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 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 | | August 2013 |

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| Rev. | Description of Change(s) | By | Date |
|------|---|----|----------------|
| | <ul style="list-style-type: none"> #, 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. 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 | | September 2014 |
| 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. | | November 2015 |

Guideline

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| Rev. | Description of Change(s) | By | Date |
|------|--|----|---------------|
| | <ul style="list-style-type: none"> • 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. • 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. • Appendix V – Updated load shed MW. • Appendix VI – Incorporates updated AEP Operator to Act Policy document. • Appendix VII – Updated internal / external contacts | | November 2016 |

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| Rev. | Description of Change(s) | By | Date |
|------|--|-----------------|--------------|
| 20.0 | Annual Review <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 • 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 | | January 2018 |
| 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 |



Executive Team

| Group | Team Member(s) |
|--|---|
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| Environmental Services | Gary O Spitznogle [REDACTED], Cell phone [REDACTED] |

The Management Group personnel listed below are responsible for keeping the Executive Team informed and up to date as well as keeping their organizations informed of all the actions taking place. The best practice is for Transmission Operations and Corporate Communications to coordinate from the System Control Center (SCC) location. Other parties can operate in the SCC or coordinate their efforts by telephone and/or 800 MHz radios.

In an emergency situation, the FERC rules allow for temporary suspension of the affiliate restrictions and standards of conduct in order to preserve the reliability of the grid. A notice is posted on the Open Access Same-Time Information system (OASIS) that states: “AEP is in an emergency situation and the separation between the Transmission Reliability and Market functions has been temporarily suspended.”

The OASIS posting is on the AEP FERC Standards of Conduct for Transmission Providers. See www.aep.com > About Us > Required Internet Postings. Ethics and Compliance coordinate the postings from Transmission. Contact Ethics and Compliance at 8-200-6226 or 614-716- 6226.



Management Group

Groups who are responsible for directing operational implementations of the Emergency Operating Plan (EOP):

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| Group | Contact(s) |
|-------|--|
| | Ranie Wohnhas [REDACTED] – Kentucky, Cell [REDACTED] Thomas Brice [REDACTED] – Louisiana/Arkansas/Texas(SPP), Cell [REDACTED] Matthew A Horeled [REDACTED] – Oklahoma, Cell [REDACTED] Gilbert Hughes [REDACTED] – Texas Cell [REDACTED] |

The Management Group above provides guidance to the System Control Center regarding implementation of provisions of the EOP, but the final decision rests with the System Control Center Operator per NERC Standards and NERC Certification requirements. The Management Group also assists with external communication to such agencies as the Public Utilities Commissions, media outlets, Homeland Security, state emergency management centers, the Nuclear Regulatory Commission (NRC), the Department of Energy (DOE), etc.



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Purpose

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

PJM is the Balancing Authority for AEP East/PJM. The following procedures help clarify Section 3.0, *Capacity Deficiency*, of our plan.

Procedure for Implementing Capacity Deficiency of the Emergency Operating Plan

For the AEP/PJM footprint, PJM is responsible for monitoring the operation of the PJM RTO and 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.

Whenever PJM declares a capacity alert/warning/action for the AEP/PJM footprint, the System Control Center contacts their Executive Team representative as well as the Market Operations representative who are responsible for notifying their Executive Team representative.

The regional BA (PJM) decides when to implement the provisions of EOP Section 3.0, *Capacity Deficiency*, and the SCC makes notifications as required.

1.0 Introduction

This plan is aimed at maintaining reliable power system operation associated with the bulk electric system. The main focus is on preventing major power outages of wide extent involving generating plants, transmission lines, and bulk electric system 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 Emergency Operating Plan 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 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 bulk electric system. The AEP Event Reporting Operating Plan on TOPs ShareNow summarizes the NERC Standard EOP-004-3 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 Emergency Operating Plan.

AEP provides the AEP Emergency Operating Plan to neighboring entities per RC requirements. Information that is designated as 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 Reliability Coordinator for review.

- Section 7 of PJM Manual 13 states the plan(s) need to be submitted to PJM Reliability Coordinator 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 to RTOpsCompliance@misoenergy.org.

2.0 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 our 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. The integrity of the transmission system will be maintained at all times without planned internal separation. Actual thermal overloads or voltage constraints must be alleviated immediately using identified transmission procedures.
4. Responsibilities and authorities of the AEP Transmission System Control Center Reliability Coordinators and Transmission Dispatchers in performing various actions to alleviate operating Emergencies and/or ensure stable and reliable operation of the AEP transmission system are outlined in AEP's *TOPs Operator Authority to Act Procedure*. 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. Maximum reasonable assistance is given to adjacent systems experiencing difficulty. However, such assistance will be terminated, 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 shall be developed to ensure prompt action to prevent or mitigate identified adverse System impacts. Operation of the AEP System also takes into consideration any effects on facilities outside of the AEP System. Other systems should be 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 bulk power electric system reliability must be reported to the U.S. Department of Energy (DOE) and NERC.
 6. The principles of sound interconnected operation are maintained when the AEP System experiences a generation load imbalance by following Operating Instructions issued by the applicable Balancing Authority unless it cannot be physically implemented 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 System Control Center (SCC) notifies each Transmission Dispatching Center (TDC) and Market Operations (MO), so any work that could jeopardize generation or transmission capabilities can be postponed.
 8. The System Control Center Reliability Coordinator (SCCRC) shall notify the Reliability Coordinator (RC) of current and projected conditions when experiencing an operating emergency. The SCCRC shall inform its Reliability Coordinator, known impacted Balancing Authorities, and known impacted Transmission Operators of its actual or expected operations that result in, or could result in, an Emergency.
 9. The SCCRC coordinates the Emergency actions for facilities in the AEP/RC common area with the associated RC.
 10. Some common acronyms used throughout this plan are listed in the Terms and Definitions section of this document.

References

| Document ID | Document Title |
|-------------|---|
| | PJM Manual M03 Transmission Operations rev 56 |
| | PJM Manual M10 Pre-Scheduling Operations rev 38, Section 2, Generation Outage Reporting |
| | PJM Manual M13 Emergency Operations rev 76 |
| | PJM Manual M14D Generation Operational Requirements rev 51 |



| Document ID | Document Title |
|-------------|--|
| | PJM Manual M37 Reliability Coordination rev 17 |
| | NERC Emergency Operations Standards <ul style="list-style-type: none"> EOP 011-1 Emergency Operations |
| | NERC Transmission Operations Standards: <ul style="list-style-type: none"> TOP-001 Transmission Operations TOP-002 Operations Planning |
| | AEP Congestion Management Guidelines |
| | AEP Voltage and Reactive Guides and Procedures |
| | Operator Authority to Act Procedure |

Terms and Definitions

| Term | Description |
|--|---|
| ALL-CALL | The PJM ALL-CALL process is a one-way communications system used to send messages to member companies. |
| 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. |
| CC | Corporate Communications |
| Control Zone | One or more transmission zones or multiple contiguous Zones as defined in PJM manuals. |
| CSC | Customer Solutions Center |
| DDC | Distribution Dispatching Center |
| EEA | NERC Energy Emergency Alert |
| FEL | Fuel, Emissions, and Logistics |
| Interruptible Customer (Interruptible Load) | <i>NERC Glossary of Terms</i> Demand that the end-use customer makes available to its Load-Serving Entity via contract or agreement for curtailment. |
| LCC | Local Control Center (synonymous with SCC) |



| Term | Description |
|-------|--|
| LSE | Load Serving Entity |
| MO | Market Operations |
| OASIS | Open Access Same Time Information Service – An electronic posting system that the Transmission Service Provider maintains for transmission access data and that allows all transmission customers to view the data simultaneously. |
| RF | Reliability First |
| SCC | AEP System Control Center |
| TDC | Transmission Dispatching Center Locations: <ul style="list-style-type: none"> • Columbus West • Columbus East • Columbus Central • Roanoke North • Roanoke South |

3.0 Capacity Deficiency Program

3.1 Purpose

Provide a plan for full utilization of emergency capacity resources and for orderly reduction in the aggregate customer demand on the American Electric Power AEP East/PJM system in the event of a capacity deficiency.

3.2 Criteria

The goals of AEP are to safely and reliably operate the Bulk Electric System in order to avoid widespread system outages as a consequence of a major disturbance. Precautionary procedures, including maintaining Daily Operating Reserves, as specified in *Reliability First 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 a Reliability Coordinator, the Transmission Operations Engineering group can assist in preparing those reports.



The NERC *Standard EOP 011-1* requires the Balancing Authority to have an emergency plan to mitigate Capacity Emergencies and Energy Emergencies within its Balancing Authority Area. PJM is the registered Balancing Authority in the AEP East area.

3.3 AEP East/PJM Procedures

The following section contains excerpts from the *PJM Manual – M13 Section 2 Revision 76*. PJM maintains the complete version of M13 on the [PJM website](#). Consult the PJM M13 for specific details about the PJM plan.

3.3.1 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 (M28).

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

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3.4 Capacity Deficiency 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 orders 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 e-mail notifications: [REDACTED] Verbally notify TDCs. | <ul style="list-style-type: none"> MO notify management TDC advise station MO orders units to be in a state of readiness |
| | Maximum Generation Emergency / Load Management Alert | <ul style="list-style-type: none"> Transmission / Generation dispatchers notify management of the Alert. Transmission / Generation dispatchers advise all stations and key personnel. | <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 e-mail notifications: [REDACTED] Verbally notify TDCs. | <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 report any fuel / environmental issues to PJM MO management of the alert. |

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| <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 e-mail notifications: [REDACTED] • 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 TDCs. | <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 | <ul style="list-style-type: none"> • <u>***AEP does not have a voltage reduction program***</u> • SCC issue [REDACTED] • Verbally notify TDCs. | |

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| | | <p>that could expedite implementation of a Voltage Reduction Action, should one become necessary.</p> <ul style="list-style-type: none"> 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. | | |
|------|--|---|---|--|
| 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 e-mail notifications: [REDACTED] Verbally notify TDCs. | <ul style="list-style-type: none"> For steps 1 and 2: PJM notifies the Curtailment Service Providers directly via the DRHub (Demand Response Hub). |
| 2 | Emergency Load Management Reductions Action EEA 2 | <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 e-mail notifications: [REDACTED] Verbally notify TDCs. | <ul style="list-style-type: none"> e-mail recipients notify appropriate government agencies EEA2 Requires a DOE OE-417 Report (PJM will complete the report) |
| 3 | Primary Reserve Warning | <ul style="list-style-type: none"> Transmission / Generation dispatchers notify management of the warning. | <ul style="list-style-type: none"> SCC e-mail notifications: [REDACTED] Verbally notify TDCs. | <p>Generation Operators take necessary actions regarding</p> |

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| | | <ul style="list-style-type: none"> 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. 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. PJM marketers remain on heightened awareness regarding PJM system conditions and the potential need for Emergency Energy Purchases. | <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 | <p>the availability and capability of generating units.</p> |
| 4A | Maximum Emergency Generation Action | <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. | <ul style="list-style-type: none"> SCC e-mail notifications: [REDACTED] Verbally notify TDCs. | <ul style="list-style-type: none"> Generation Operators take necessary actions regarding the availability and capability of generating units. |

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| | | <ul style="list-style-type: none"> • 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"> • TDC notify non-retail behind the meter generation for availability. |
| 4B | Emergency Voluntary Energy Only Demand Response Reduction Action | <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 e-mail notifications: [REDACTED] • Verbally notify TDCs. | <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). |
| 5 | Voltage Reduction Warning and Reduction of Non-Critical Plant Load | <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. | <ul style="list-style-type: none"> • <u>***AEP does not have a voltage reduction program***</u> • SCC e-mail notifications: [REDACTED] • Verbally notify TDCs. | <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 |

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| | | <ul style="list-style-type: none"> • 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 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. | | via the DRHub (Demand Response Hub). |
| 6 | Curtailment of Non-Essential Building Load | <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 e-mail notifications: [REDACTED] • Verbally notify TDCs. | <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 | Deploy All Resources Action | <ul style="list-style-type: none"> • Member Generation Dispatchers raise all available online generating units to full output • (Emergency Maximum). | <ul style="list-style-type: none"> • SCC e-mail notifications: [REDACTED] • Verbally notify TDCs. | <ul style="list-style-type: none"> • PJM notifies the Curtailment Service Providers directly via the DRHub (Demand Response Hub). |

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| | | <ul style="list-style-type: none"> Member Generation Dispatchers start up all offline generation and ramp to full output (Emergency Maximum), utilizing the communication methods below: 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. 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: 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. | | <ul style="list-style-type: none"> e-mail recipients notify appropriate government agencies EEA2 Requires a DOE OE-417 Report (PJM will complete the report) e-mail recipients contact the necessary parties to make public appeals. e-mail recipients contact the necessary parties to reduce non-essential loads. PJM alerts the Curtailment Service Providers directly via the DRHub (Demand Response Hub). e-mail recipients contact the necessary parties to curtail services or reduce load. MO take necessary actions regarding the availability and capability of generating units. |
| 8 | Manual Load Dump Warning | <ul style="list-style-type: none"> Transmission / Generation dispatchers notify management of the warning. | <ul style="list-style-type: none"> SCC e-mail notifications: [REDACTED] | <ul style="list-style-type: none"> Email recipients notify appropriate government agencies. |

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| | <ul style="list-style-type: none"> • 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. • 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"> • Enter load shed information into the AEP Load Shed Allocation Table to determine anticipated amount of load shed for each operating company. • Verbally notify TDCs load dump allocations. | <ul style="list-style-type: none"> • TDCs prepare for the Manual Load Dump Action. • TDC notifies DDC. |
|--|--|---|--|

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| 9 | Voltage Reduction Action | <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 e-mail notifications: [REDACTED] Verbally notify TDCs. | <ul style="list-style-type: none"> Email recipients contact the necessary parties to make public appeals. Email recipients notify appropriate government agencies. |
| 10 | Manual Load Dump Action EEA 3 | <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. | <ul style="list-style-type: none"> SCC e-mail notifications: [REDACTED] 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 TDCs to shed load per allocations. | <ul style="list-style-type: none"> EEA3 Requires a DOE OE-417 Report. PJM will complete the report. Email recipients notify appropriate government agencies. |

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| | | | | |
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| | | <ul style="list-style-type: none"> 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. | | |
|--|--|---|--|--|

Table 3-1. Capacity Deficiency Summary AEP/PJM

Note 1: DOE Report required for Public Appeals/Voltage Reduction called in an EEA 2



3.5 Severe Weather Conditions

3.5.1 Cold Weather Alert

From *PJM Manual 13*:

The purpose of the Cold Weather Alert is to prepare personnel and facilities for expected extreme cold weather conditions. As a general guide, PJM can initiate a Cold Weather Alert across the RTO or on a Control Zone basis when the forecasted weather conditions approach minimum or actual temperatures of 10 degrees Fahrenheit or below. PJM can initiate a Cold Weather Alert at higher temperatures if PJM anticipates increased winds or if PJM projects a portion of gas-fired capacity is unable to obtain spot market gas during load pick-up periods. PJM initiates the Cold Weather Alert for the appropriate region(s) in advance of the operating day based on historical experience, information supplied by the pipelines, and/or information supplied from the generator owners.

Consult *PJM M13* for specific details on the PJM plan.

SCC Actions

- SCC and Market Operations (MO) notifies Transmission/MO management of the alert.
- SCC issues [REDACTED] e-mail notifications.
- SCC/MO/FEL 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.

Other Actions

- MO updates their unit parameters, including the Start-up and Notification, Min Run Time, Max Run Time, Eco Min, Eco Max, etc. in Markets Gateway.
- MO determines whether alternate fuel will be made available to PJM for dispatch. If made available, any known alternate fuel restrictions are communicated via Markets Gateway in the **operating restrictions** field. If available but only in an emergency, this also is communicated via Markets Gateway in the **operating restrictions** field.
- Based on direction received from PJM, the MO call-in or scheduled personnel ensures that all combustion turbines and diesel generators that are expected to operate are started in sufficient time and available for loading when needed for the morning pick up. This action includes operations, maintenance, and technical personnel that are necessary to gradually start all equipment during the midnight period. The units are brought on at engine idle, where possible, and loaded as necessary to maintain reliability. Once units are started, they remain on-line until the PJM dispatcher requests the units be shut down. Running combustion turbines (CTs) to provide for Synchronized Reserve is monitored closely for units where fuel and delivery may be hampered. Each generator owner attempts to start their most troublesome or unreliable units first.
- MO reviews their combustion turbine capacities, specifically units burning No. 2 fuel oil that do not have sufficient additive to protect them from the predicted low temperature.



- MO/Fuel, Emissions, and Logistics (FEL) reviews fuel supply/delivery schedules in anticipation of greater than normal operation of units.
- MO/FEL monitors and reports projected fuel limitations to the PJM dispatcher and updates the unit **Max Run** field in Markets Gateway.
- MO/FEL contacts the PJM dispatcher if they anticipate that spot market gas is unavailable, resulting in unavailability of bid-in generation.
- MO/FEL contacts PJM dispatch to inform them of gas-fired CTs placed in Maximum Emergency Generation due to daily gas limitations of less than eight hours (i.e. five hours of gas per day).
- MO updates the “early return time” for any Planned generator outages as indicated in *M-10 Section 2.2.2*

3.6 Hot Weather Alert

The purpose of the Hot Weather Alert is to prepare personnel and facilities for extreme hot and/or humid weather conditions. These weather conditions may cause capacity requirements/unit unavailability to be substantially higher than forecasted and are expected to persist for an extended period. A Hot Weather alert can be issued on a Control Zone basis if projected temperatures are to exceed 90 degrees with high humidity for multiple days. PJM may also issue a Hot Weather alert at lower temperatures during the spring and fall periods if there are significant amounts of generation and transmission outages that reduce available generating capacity.

Consult *PJM M13* for specific details on the PJM plan.

SCC Actions

- SCC/MO notifies Transmission/MO management of the alert.
- SCC issues [REDACTED] e-mail notifications.
- SCC/MO 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.

Other Actions

- MO updates their unit parameters, including the Start-up and Notification, Min Run Time, Max Run Time, Eco Min, Eco Max, etc. in Markets Gateway.
- MO determines whether alternate fuel will be made available to PJM for dispatch. If made available, any known alternate fuel restrictions are communicated via Markets Gateway in the **operating restrictions** field. If available but only in an emergency, this will also be communicated via Markets Gateway in the **operating restrictions** field.
- MO advises all generating stations and key personnel.
- MO/FEL report to PJM dispatcher all fuel/environmental limited facilities as they occur and update PJM dispatcher as appropriate and update the unit **Max Run** field in Markets Gateway.



- MO/FEL contact PJM dispatch to inform them of gas-fired CTs placed in Maximum Emergency Generation due to daily gas limitations of less than 8 hours (i.e. 5 hours of gas per day).
- MO will update the **early return time** for any planned generator outages as indicated in *PJM M-10 Section 2.2*
- PJM dispatcher cancels the alert when appropriate.

AEP extreme weather actions are listed in the *EOP Section 5 Transmission Emergency Procedures* under Conservative Operation and Section 6.0 Major Storm Restoration.

AEP East/PJM

| Unit | MW (Summer/Winter) |
|---------------------|--------------------|
| Amos #1 | 20/40 |
| Amos #2 | 20/40 |
| Cardinal #1 | 5/15 |
| Cardinal #2 | 5/15 |
| Cardinal #3 | 0/5 |
| Rockport #1 | 0/5 |
| Rockport #2 | 5/10 |
| Mitchell #1 | 10/30 |
| Mitchell #2 | 20/40 |
| Total System | 85/220 |

Table 3-2. AEP System – Details of Emergency Capacity Resources Extra Load Capability

| Plant | MW | Plant | MW |
|--------------|----|-----------------------------|-----------|
| Amos | 2 | | |
| Big Sandy | 2 | | |
| Clinch River | 1 | Mitchell | 1 |
| Cardinal | 1 | Mountaineer | 2 |
| D. C. Cook | 0 | | |
| | | Rockport | 0 |
| | | Total AEP/PJM System | 20 |

Table 3-3. AEP System – Details of Emergency Capacity Resources Curtailment of Generating Station Use

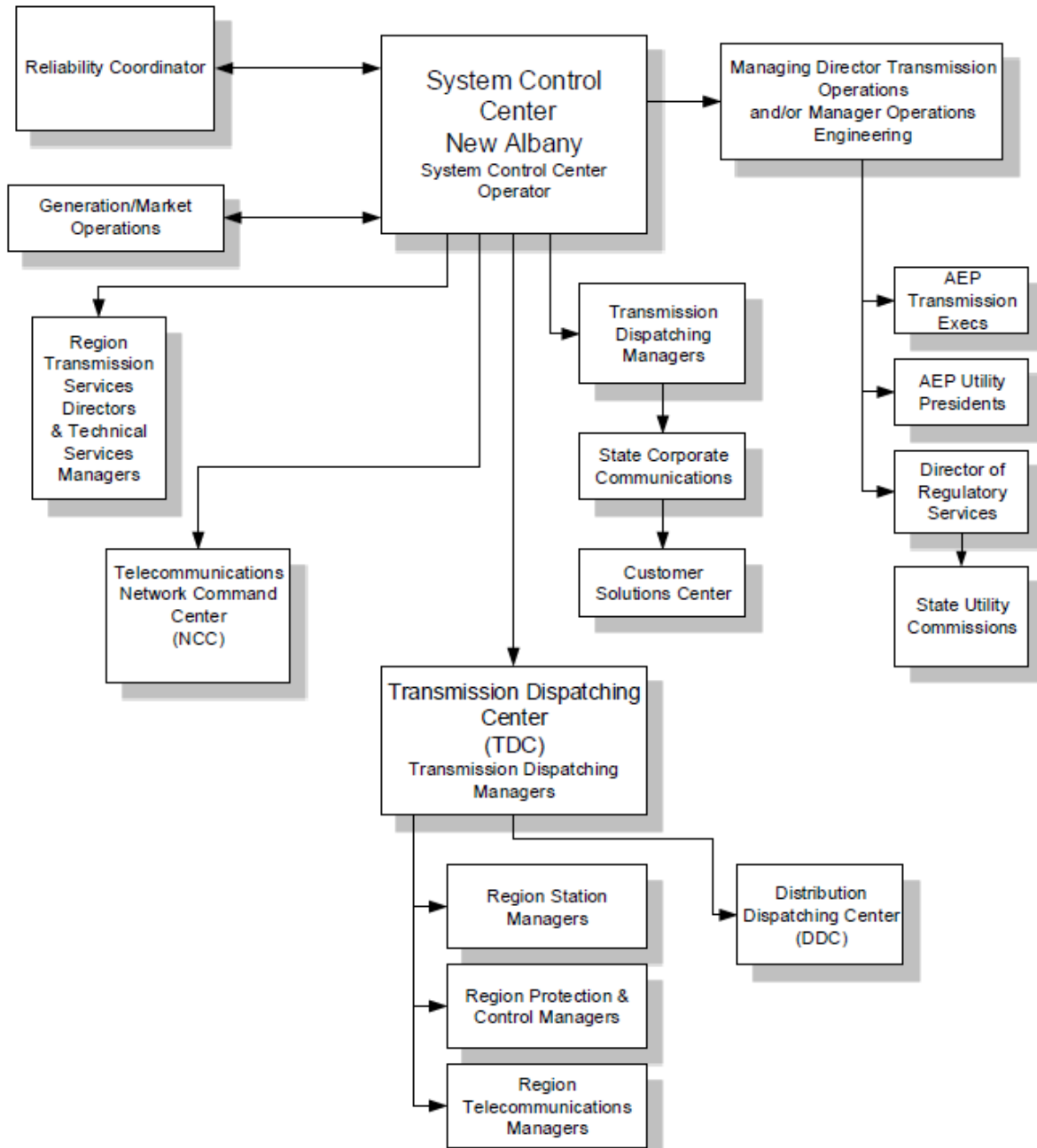


Figure 3-1. Capacity Deficiency Warning Notifications

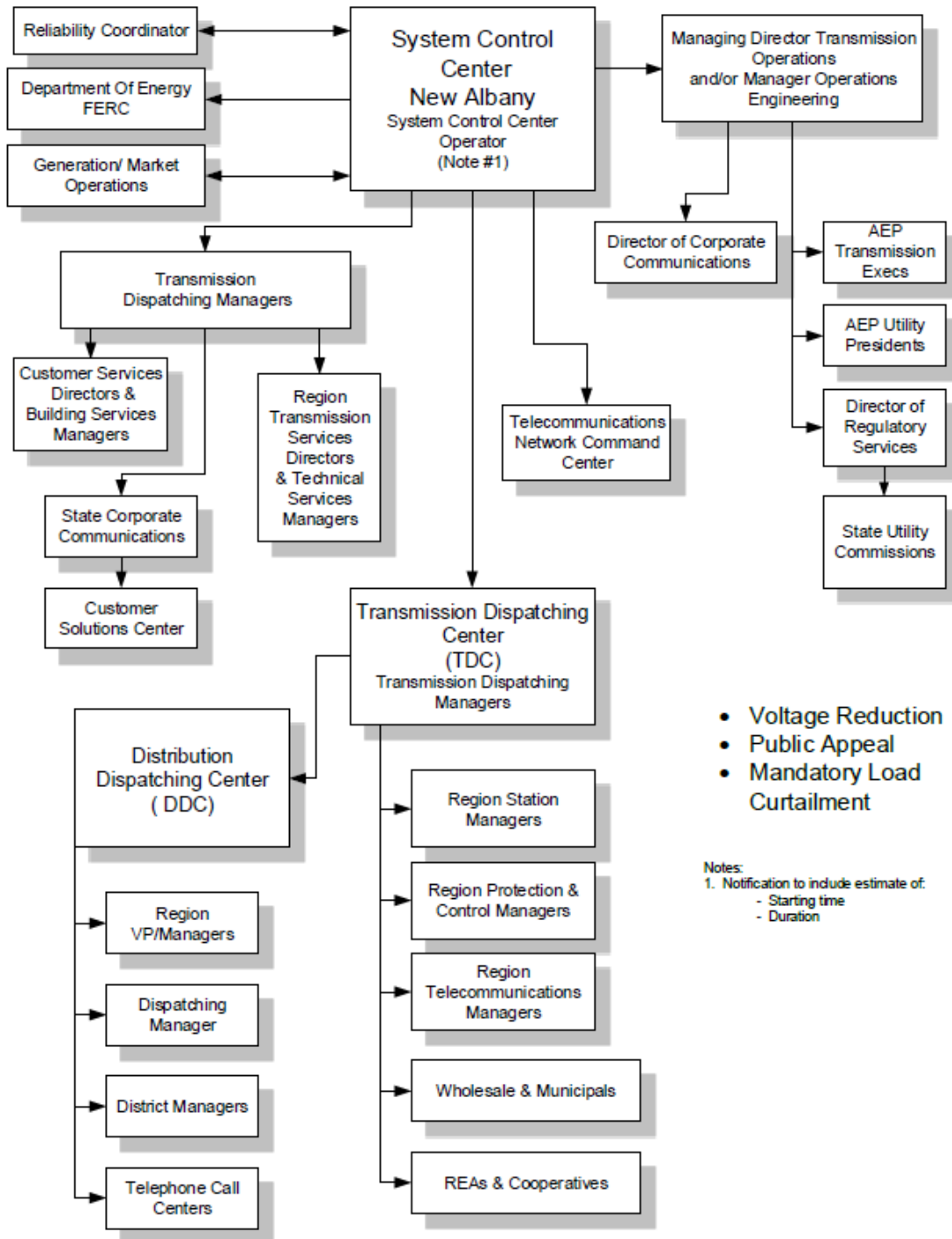


Figure 3-2. Capacity Deficiency Action Notifications

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3.7 Emergency Messages from American Electric Power to the Public

This is an Emergency Message form American Electric Power Company:

Demand for electricity is expected to increase as the (excessive heat and humidity, excessive cold) continues. AEP asks customers to conserve electricity, if health permits – especially between (3 p.m. to 7 p.m. - summer, 6 a.m.-9 a.m. and 3 p.m. to 7 p.m. - winter)

Electricity customers can take simple electricity conservation steps:

- Close curtains and blinds to keep out the sun (summer), and
- Postpone using major electric household appliances such as stoves, dishwashers and clothes dryers until the evening hours, and
- If health permits, set air conditioner thermostats higher than usual (summer), or set heating thermostats lower than usual (winter), and
- Turn off electric appliances and equipment that you do not need or are not using.

Conserving electricity will help ensure adequate power supplies. AEP continues to carefully monitor the power supply conditions. It will do everything possible to keep power flowing in the region.

AEP will keep you informed by radio and television announcements until the problem eases.

AEP thanks you for your cooperation.

Figure 3-3. Voluntary Load Curtailment Request to the Public

This is a Further Emergency Message from the American Electric Power Company:

The power supply problem announced earlier has become critical.

To avoid widespread blackouts it has become necessary to interrupt electric service to customers for periods ranging from 30 minutes to two hours. To minimize inconvenience, the interruptions will take place on a rotating basis: while some areas will be off, others will be on. Later, the areas of outages will be reversed, so that no group of customers will have to bear all of the inconvenience.

Even while your electric service is on, you can help in this emergency by turning off all appliances, lights, radios, and television sets that are not essential. We recommend that you leave at least one electric light in the "on" position so that you'll know when the power is "on" or "off."

AEP thanks you for your cooperation in helping us to get through this critical time.

Figure 3-4. Mandatory Load Curtailment Initiation Announcement to the Public



This is an Emergency Message from American Electric Power Company:

The power curtailment to AEP's customers is continuing. In an effort to lessen the impact of this emergency on all of our customers, the company is alternating the power cut-off among groups of customers for periods ranging from 30 minutes to two hours. Make sure that all appliances are turned off so that, when the power is restored, it will not cause an overload and create further problems. If you are receiving power, please keep your usage to a bare minimum. Full service will be restored just as soon as conditions permit.

AEP regrets that the critical problem it now faces has made these drastic steps necessary, and thanks all of its customers for their cooperation and understanding.

Further announcements will follow as the situation continues to develop.

Figure 3-5. Mandatory Load Curtailment Information Statement to the Public

This is a Message from American Electric Power Company:

AEP reports that the critical electric power shortage has now eased, and full-time electric service has been restored to its customers.

If your electric service is still interrupted, please call the appropriate AEP Customer Solutions Center.

AEP thanks you for your cooperation and understanding. We realize the importance of your electric service.

Figure 3-6. Capacity Deficiency Termination Statement to the Public



4.0 Procedures during Abnormal System Frequency

Note: A DOE Required Report if Load is shed.

4.1 Under-Frequency 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 a Reliability Coordinator, the System Control Center prepares those reports and the Transmission Operations Engineering group reviews them.

4.1.1 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 depend a lot on the behavior of the System during the emergency. A deficient Balancing Authority shall only use the assistance provided by the Interconnection's frequency bias for the time needed to implement corrective actions. The Balancing Authority 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. (25 cycle, .42 sec. delay).
4. At 59.3 Hz automatically shed an additional 5% of System internal load by relay action. (25 cycle, .42 sec. delay).
5. At 59.1 Hz automatically shed an additional 5% of System internal load by relay action. (25 cycle, .42 sec. delay).
6. At 58.9 Hz automatically shed an additional 5% of System internal load by relay action. (25 cycle, .42 sec. delay).
7. At 58.7 Hz automatically shed an additional 5% of System internal load by relay action. (25 cycle, .42 sec. delay).
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.

4.2 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 MWs or a total station load of 6 MW should be controlled by each static relay or digital device.



- a. Total load to be controlled by load shedding relays should equal a minimum of 25% of System internal load.
 - b. Under-frequency 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. Frequency is to be manually directed to return to 60 Hz by the SCC in conjunction with the MO and interconnections.
 - b. Load should be restored only when spinning reserve equals three times the restoration block and due consideration is given to possible automatic reclosing of interconnections by check synchronizing schemes.
 - c. 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 – UF 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.
 - d. 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 a UF trip only.
 - e. 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 |
| 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 |



| Load Restored | Integrated Time at or above 59.95 Hz | Straight Time at 59.95 Hz |
|-----------------|--------------------------------------|---------------------------|
| 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 4-1 . Restoration Blocks – Time Delay Settings

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

- Management of the data and information system relative to the continuing status of the load shedding program is the responsibility of Transmission 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. These steps must be completed within the time constraints imposed upon the operation of generating units that are discussed in Isolation of Coal-fired Generating Units.

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 Market Operations. This recommendation is intended to assure coordinated restoration procedures. If this attempt with the MO is not successful, communication with the assigned Transmission Dispatch Center 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.

4.3 Isolation of Coal-Fired Steam Turbine Generation Units

The basic approach to handling sustained frequency deviations on the System is:

- Use emergency capacity resources. (Refer to Section 3.0)
- Maintain generating units in service while attempting to restore the balance between generation and load until the system frequency excursion exceeds the allowable limits for safe turbine operation as listed in the following subsection: Turbine Off-Frequency Operation.
- Since any significant frequency deviation is accompanied by system separation, it is not possible for any one-control center to direct unit isolation. It is the responsibility of each unit operator to prevent or minimize potential damage to the unit by disconnecting the unit from the System should the frequency excursions exceed the recommended limits noted in the following subsections.



4.4 Turbine Off-Frequency Operation

The primary consideration for operating a steam turbine generator under loaded condition at other than rated frequency (60 Hz) is protection of the tuned rotating blading at the exhaust end of the low-pressure turbine. In most fossil applications, this may include the last two to three stages (L-0, L-1, and L-2 stages) of blading. Operation with these stages under load at a speed that results in the coincidence of a blading natural frequency and a multiple of actual turbine running speed frequency leads to blading fatigue damage. Fatigue damage is cumulative over blading service life and ultimately leads to failure and unit-forced outages.

In order to prevent blading fatigue damage, turbine operation at other than rated frequency, also known as off-frequency, should be limited. Typically, turbine blading has an off-frequency range that allows for continuous operation without the potential for blading fatigue damage. Additionally, another off-frequency range or ranges is defined where total accumulated time is limited such that blading fatigue damage is not sufficient to initiate a failure.

The purpose of this subsection is to provide plant operators with recommendations that establish allowable deviation from rated frequency for steam turbine generators under loaded conditions. It is the responsibility of each fossil unit operator to monitor and respond to system frequency excursions in order to prevent blading fatigue damage.

Recommendations for turbine off-frequency operation contained in this subsection are provided for each of the AEP System units, listed under their respective original equipment manufacturer. Operating parameters defined in the text on the following pages take into account that frequency limitations are applicable to the turbine generator equipment during load operation only and, as such, do not apply to no-load operation during startup. However, these instructions do apply to units that are operating in a load-rejected or islanded mode, and action should be taken to restore and maintain turbine speed at 3600 rpm for these units after separating from the grid.

4.4.1 AEP PJM Turbine Generator Units

The following information provides listings of AEP/PJM Region units and recommendations for each group of units based on their original equipment manufacturer. The original equipment manufacturers are:

- ABB
- General Electric
- Westinghouse

ABB Turbine Generator Units

These units use the ABB Turbine Generators:

- Cardinal 3
- Amos 3
- Mountaineer 1
- Rockport 1 and 2



| Allowable Turbine Speed Range | Allowable Frequency Range | Comments |
|-------------------------------|---------------------------|--|
| 3420 rpm - 3816 rpm | 57 Hz - 63.6 Hz | Unlimited (continuous) operation permitted. |
| Below 3420 rpm | Below 57 Hz | Operation in this speed (frequency) range not to exceed 10 seconds per occurrence. |

Table 4-2. Recommendations for ABB Turbine Generators

General Electric Turbine Generator Units

These units use the General Electric Turbine Generators:

- 600 MW Series
 - Cardinal 1 and 2
- 800 MW Series
 - Amos 1 and 2
 - Mitchell 2

Westinghouse Turbine Generator Units

Two separate sets of recommended turbine off-frequency operating parameters are applicable to the Westinghouse turbine-generator sets on the AEP System. These recommended operating limitations are a function of LP turbine last-stage blade length and design. This section separates recommendations for applicable units according to last-stage blade design.

These units use the Westinghouse Turbine Generators with 18, 20, 23, 25, and 26 Inch LP Ends and 32 Inch Ruggedized LP Ends:

- Big Sandy 1

| Allowable Turbine Speed Range | Allowable Frequency Range | Comments |
|-------------------------------|---------------------------|---|
| 3510 rpm – 3690 rpm | 58.5 Hz - 61.5 Hz | Continuous operation in this speed (frequency) range permitted. |
| 3360 rpm – 3510 rpm | 56 Hz – 58.5 Hz | Operation in this speed (frequency) range not to exceed 10 minutes cumulative time over the life of the LP blading. |

Table 4-3 . Recommendations for Westinghouse Turbine Generators 18, 20, 23, 25, and 26-Inch LP Ends and 32-Inch Ruggedized LP Ends

These units use the Westinghouse Turbine Generators with 28.5 through 44-Inch LP Ends:

- Mitchell 1



| Allowable Turbine Speed Range | Allowable Frequency Range | Comments |
|-------------------------------|---------------------------|--|
| 3570 rpm - 3630 rpm | 59.5 Hz - 60.5 Hz | Continuous operation in this speed (frequency) range permitted. |
| 3510 rpm - 3570 rpm | 58.5 Hz - 59.5 Hz | Operation in this speed (frequency) range is not to exceed 60 minutes cumulative time over the life of the unit. |
| 3360 rpm - 3510 rpm | 56 Hz - 58.5 Hz | Operation in this speed (frequency) range is not to exceed 10 minutes cumulative time over the life of the unit. |

Table 4-4. Recommendations for Westinghouse Turbine Generators 28.5 through 44-Inch LP Ends

5.0 Transmission Emergency Procedures

5.1 SOL/IROL Definitions

NERC Standard TOP-001 and TOP-002 outlines specific requirements and identifies accountability for developing and implementing Operating Plans to alleviate System Operating Limits (SOL) and Interconnected Reliability Operating Limits (IROL). The definitions of a SOL and IROL are as follows:

5.1.1 System Operating Limit

System Operating Limit 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. System Operating Limits 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)

5.1.2 Interconnected Reliability Operating Limit

An Interconnected Reliability Operating Limit is a System Operating Limit that, if violated, could lead to instability, uncontrolled separation, or Cascading Outages that adversely impact the reliability of the Bulk Electric System.

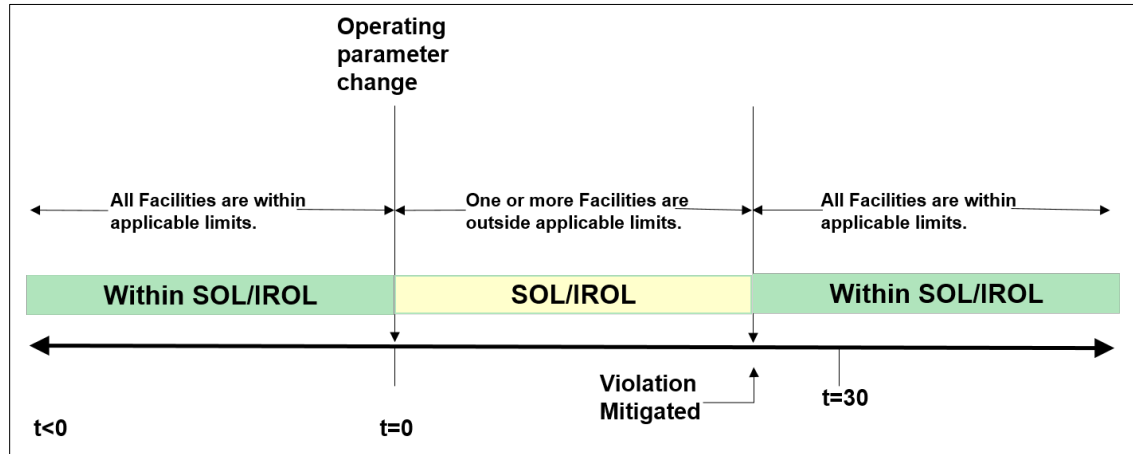


Figure 5-1. Operating Limit Timeline

5.2 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 Reliability Coordinator 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 AEP Transmission System Control Center (SCC) shall comply with all Operating Instructions issued by the applicable Reliability Coordinator as outlined in Operator Authority to Act Procedure on TOPs ShareNow. 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 Department of Energy (DOE), NERC, or a Reliability Coordinator, Real-time Operations prepares those reports with assistance from the Transmission Operations Engineering group and/or the applicable Transmission Dispatch Center 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 facility 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.

5.3 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 cancelled 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 Reliability Coordinator of the current and projected conditions for the emergency.

5.3.1 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 Reliability



Coordinator, using NERC guidelines to achieve an effective and timely resolution of each problem. The following key points relate to transmission loading relief and voltage criteria.

- The NERC transmission loading relief (TLR) procedures are found in the *AEP Congestion Management Guidelines* document.
- It is important to maintain adequate pre-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 *AEP Voltage and Reactive Guides and Procedures* list the AEP East and West Baseline Voltage Limits.

In addition, the *AEP Voltage and Reactive Guides and Procedures* provide guidance on monitoring, controlling, and maintaining system voltages, reactive flows, and reactive resources. The document is stored on the AEP TOPS ShareNow.

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

1. Series capacitors and reactors whose insertion or removal from service diverts power from a loaded facility and/or increases voltage in a low voltage area is 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 cancelled 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 Reliability Coordinator 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 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 TOPs ShareNow as noted below.

The TOPs *AEP Congestion Management Guidelines* for the AEP/PJM/SPP areas have specific actions to be taken by the System Control Center Reliability Coordinator (SCCRC) and Reliability Coordinator (RC) for congestion events. The *AEP Congestion Management Guidelines* document is located on the AEP TOPs ShareNow at **Engineering>Operating Guidelines>AEP System Wide Guidelines and Information>AEP Congestion Management Guidelines**.

The *Congestion Management: Constraint Mitigation Action Plan Procedure* document located on the AEP TOPs Document Repository outlines processes for contingency load relief, including local load shedding. The PJM pull-down menu under the Switching tab on the AEP URL [REDACTED] documents the switching and load shed solutions for potential post-contingency local load relief warnings (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 3*. 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 AEP TOPs ShareNow at [REDACTED] for the East area.

PJM Manual 3 rev 56, Section 5 lists a potential IROL facility that is managed by PJM/MISO via conservative operations.



The *AEP Transmission Operations Coordination and Communications of Ratings* document outlines a process for communicating AEP facility ratings. AEP Transmission Operations is responsible for maintaining accurate ratings within the State Estimator (SE) and communicating rating changes to the applicable RC. AEP Transmission Operations is notified by AEP Transmission Planning of rating changes as the Kremlin databases are updated with revised rating information. Transmission Operations act as a catalyst to initiate facility rating reviews as Transmission Operations becomes aware of planned and unplanned outages and system changes that can impact facility ratings. Upon completion of a facility rating review and official notification of the facility rating change, Transmission Operations Engineering updates the SE and Transmission Dispatch Center (TDC) SCADA systems and provides this information to the RC through established processes. For additional details refer to the *Coordination Communications of Ratings R5* document on TOPs ShareNow at [REDACTED]

5.4 AEP/PJM – [REDACTED]

5.4.1 System Description – [REDACTED]

5.5 Plant Fault Duty Procedures

OHIO - Cardinal 1

To prevent exceeding the fault duty current capability on the 138kV bus circuit breakers at Tidd, when Cardinal Unit 1 is online, normal configuration at Tidd, shall be to operate CB-M2 and CB-M1 as normally open, which will tie Tidd 345/138 TR B to the Gable SW 138 circuit through CB_M. Other safe scenarios are described in the Tidd 138kV switchyard Op Guide.

- Refer to the Tidd138kV Switchyard Operating Guidelines for over-duty Circuit Breakers on the TOPs Document Repository for additional information.

5.6 Geomagnetic Disturbance Operating Procedure

Geomagnetic storms can cause large fluctuations in the earth's magnetic field. During these storms, geomagnetic induced current (GIC) is produced in the electric power system. The GIC flow through the power system via the neutral grounding points of the wye connected transformers, which can result in saturation of the transformer cores. Transformer saturation causes the excitation current to rise sharply. An increase in the excitation current usage of a transformer may be noticed as an increase in the lagging VAR usage of the transformer. This increase in lagging VAR usage can lead to system reactive power deficiencies and voltage problems.

5.6.1 Highlights of Procedure

AEP's Geomagnetic Disturbance (GMD) procedure:

1. Ensures the SCC and Corpus SCC are aware of GMD space weather forecast information.
2. Provides guidance on a response to the potential GMD event.
3. Includes voltage monitoring which is a proxy for the Loss of Reactive Power Support.
4. Provides options to reduce the risk of damage to transformers with DC neutral current monitoring.



5. Has procedures addressing PJM member actions requirements.
6. Provides conditions for terminating the GMD procedure.

Refer to the Geomagnetic Disturbance Operating Procedure for specific details.

5.7 NERC Transmission Loading Relief Procedure

The NERC Transmission Loading Relief (TLR) Procedure is an Eastern Interconnection-wide procedure to allow the Reliability Coordinator to:

- Respect Transmission Service reservation priorities.
- Mitigate potential or actual limit violations.

The Congestion Management Guideline document covers the TLR procedure.

5.8 Additional PJM Emergency Procedures

5.8.1 PJM – Thermal Operating Guides

PJM Transmission Operations M03 and Emergency Manual 13 have times to correct thermal limitations being exceeded. PJM has these times posted on their website. The *AEP Congestion Management Guidelines* document also addresses the time-to-correct limitations.

5.9 Voltage Limit Violations

The most current version of the PJM time-to-correct procedures are located on the PJM website.

5.10 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

5.10.1 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 notifies transmission management of the alert



- SCC works with TOE/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)

5.10.2 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 will notify transmission management of the alert
- SCC will notify TDCs, while observing established limits to ensure all underlying shunt reactors are out of service, and underlying capacitors are in service

5.10.3 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 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 will notify transmission management of the alert
- 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 765kV 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

5.11 Light Load, High Voltage Conditions

5.11.1 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 implement 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 will notify transmission management of the action

5.11.2 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 will notify transmission management of the action

5.11.3 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 will notify transmission management of the action

5.11.4 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 will notify transmission management of the action
- SCC will notify TDCs, while observing established limits, to ensure all shunt reactors are in service and capacitors are out of service. (765kV Reactors will be coordinated through PJM).
- SCC will verify that 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

5.12 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 3 Transmission Operations, Section 2 –Thermal Operating Guidelines.

The Congestion Management: Constraint Mitigation Action Plan Procedure document 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 M-13.

Please refer to Congestion Management: Constraint Mitigation Action Plan Procedure document located on the TOps Document Repository for detailed information.

5.13 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 Transmission Operations' specific response to PCLLRWs issued by PJM, see the *PCLLRW- PCAP Procedure* document.

5.14 PJM Reactive Reserve Check

Per *PJM Manual 03 section 3.12*, upon the request of PJM, The System Control Centers (SCC) provides a Reactive Reserve Check (RRC) data to PJM. This information is filled out in the PJM eDart interface.

Units Equipped with [REDACTED]

5.15 Units Equipped with [REDACTED]

The Voltage_and_Reactive_Guide_AEPE_AEPW-SPP contains the list of [REDACTED] controls that resides on the AEP TOps ShareNow.

5.16 Conservative Operation

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:

- Forest fires/brush fires that threaten major transmission circuits.
- Extreme weather-related events, such as ice/snow/wind storms, severely cold/hot weather, hurricanes, tornadoes, severe thunderstorms, and floods.
- Environmental alerts.



- Terrorist alerts.
- GMD disturbance events.
- Widespread fuel-related emergencies.
- Failure of Energy Management System (EMS)/Control Area CAMS computers.

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

- The PJM Reliability Coordinator 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 Reliability Coordinator'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 Reliability Coordinators, MO generation dispatchers, and MO/PJM marketers respond, as required, to specific requests and Operating Instructions of the PJM Reliability Coordinator subject to the constraints noted in the *Operator Responsibility and Authority to Act Procedure*.

AEP Transmission Operations Engineering personnel are to provide support to transmission dispatchers.

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 (RTA). 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 document.

5.17 Emergency Messages

Samples of messages to be broadcast in affected areas and procedures for communicating transmission emergencies are included in the Figures below. Messages will be modified as necessary to convey the nature of the problem and the extent of the area affected.



This is an Emergency Message from American Electric Power Company

Location, Date –A serious electric transmission constraint is anticipated *today/tomorrow, Day, Date* as a result of the extremely hot weather.

To help ease this problem AEP urges all its customers in homes, factories, stores and everywhere in *Districts Affected*, to reduce their usage of electric power in every possible way, during the hours of 7AM through 9PM on *Day, Date*. Please avoid using such appliances as clothes washers, dishwashers, clothes dryers, and ranges; turn off unnecessary lighting; and turn up the thermostat for air conditioning or turn off the air conditioning. Cooperation in reducing the demand for electricity during daylight hours all day will help prevent interruption of electric service.

AEP will keep customers informed with public announcements until this transmission constraint eases.

Energy Conservation Tips:

- Set the thermostat between 78 and 80 degrees and operate ceiling fans for additional comfort with raised temperatures.
- Draw drapes and close blinds to help cool the home.
- Turn off unnecessary lights.
- Turn off all non-essential equipment and appliances.
- Reduce hot water consumption
- Limit opening refrigerators and freezers.
- Limit water consumption if you are on well water.
- Limit use of kitchen appliances, dishwashers, ranges, etc.
- Avoid using washers and dryers.

AEP appreciates the patience and cooperation of our customers during this extreme heat wave. Please cooperate now by reducing your use of electricity. By doing this, you can help prevent possible interruptions in your electric service. AEP will continue to keep you informed with public announcements until this problem eases and we thank you for your cooperation.

Figure 5-2. Voluntary Load Curtailment Initiation Announcement to the Public



This is an Emergency Message from American Electric Power Company

A serious electric transmission constraint has developed as a result of (unprecedented cold weather, unprecedented hot weather).

To avoid uncontrolled blackouts it has become necessary to interrupt electric service to customers for periods ranging from ten minutes to two hours. To minimize inconvenience, the interruptions will take place on a rotating basis; while some areas will be off, others will be on. Later, the areas of outages will be reversed, so that no group of customers will have to bear all of the inconvenience.

When service is restored in your house, you can help AEP hasten the job by turning off all appliances, lights, radios, stereos, and television sets that were in use at the time the electricity went off. We recommend that you leave one low-watt electric light in the "on" position so that you'll know when the power has been restored.

AEP thanks you for your cooperation in helping us to get through this critical time.

Figure 5-3. Mandatory Load Curtailment Initiation Announcement to the Public

This is an Emergency Message from American Electric Power Company

The power curtailment to AEP's customers is continuing. In an effort to make this situation as easy as possible for all customers, the company is alternating the power cut-off among groups of customers for periods ranging from ten minutes to two hours. Make sure that all appliances are turned off so that, when the power is restored, it will not cause an overload and create further problems. If you are receiving power, please keep your usage to a bare minimum. With everyone cooperating, the company hopes to be able to restore full service as soon as conditions permit.

AEP regrets that the critical problem it now faces has made these drastic steps necessary, and thanks all of its customers for their cooperation and understanding.

Further announcements will follow as the situation continues to develop.

Figure 5-4. Mandatory Load Curtailment Information Statement to the Public

This is an Emergency Message from American Electric Power Company

AEP reports that the serious electric transmission constraint has now eased, and full-time electric service to its customers is being restored as quickly as possible.

While the power situation has improved enough to permit us to restore service, we ask you to continue to be careful in your power use. With your cooperation, we have come through this emergency in good shape, and we are grateful.

AEP thanks you.

Figure 5-5. Transmission Emergency Termination Statement to the Public



6.0 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

6.1 Introduction

Super Storm Sandy, the June 2012 Derecho, the 2008 Hurricane Ike, and other big storms brought a critical eye to the way utilities respond to large storms and other emergencies. Hurricane Ike is unique in that it impacted both the AEP West and AEP East areas. Initially the storm involved the AEP West SWEPCO area. The remnants of the storm then produced significant wind damage across the AEP East Ohio area.

As a result of the frequent large storm events, AEP developed the Emergency Response Plan to improve emergency response efforts. In addition, Transmission Operations further developed several tools and process documents, such as the Outage Tracking System (OTS), the *New Albany Transmission Operations Center Major Event Coordination* document, and the *TDC Storm Manual Tulsa Region*, which align with the AEP Emergency Response Plan.

6.2 AEP Emergency Response Plan – Overview

The AEP Emergency Response Plan [REDACTED] is a multi-year project to improve emergency response efforts within AEP and between Regulatory agencies and customers. The ERP project focuses on three key areas to improve AEP’s emergency response:

1. Incident Command System (ICS) – ICS is a comprehensive approach to incident management. The management tool responds to both small and large emergencies.
2. Technology Deployment
 - a. Outage Management System [REDACTED]
 - b. Enhanced Estimated Time of Restoration (ETR)
 - c. Assessment and restoration processes
3. Process Improvement – improve the storm management structure and focus on assessment and restoration processes.

ERP currently has 32 processes within the AEP ICS system. Each process is described in detail at the [REDACTED] website under the forms, checklist, procedures, and training materials area. A number of these processes are transmission-specific and are listed below. Transmission Field Services (TFS) is the owner for the following transmission processes:

- ICS_Event_Level_Determination_-_Transmission_Process
- Transmission_Assessment_Process
- Transmission_Priority_Process



6.3 AEP ERP – Declaration of Transmission Emergency

One of the most important steps in the ERP is assessing the impact of the event and determining the severity of the event. For transmission related events, Transmission Field Services (TFS) and Transmission Operations (TOps) play a key role in the initial event assessment. The *ICS Event Level Determination – Transmission Process* document contains a process flow chart to identify the event level to activate the appropriate transmission response. The response levels vary from I to V with I being the most severe.

A declaration of a Transmission Emergency will be determined by the TFS Managing Director and the TOps Managing Director or their designees. Upon the declaration, the Directors notify the vice presidents (VPs) of AEP Transmission as well as the State Presidents of the emergency. The System Control Center Reliability Coordinators notify the Managing Directors of AEP Transmission, Corporate Communications, Network Command Center, Customer Services, and the TDCs. The TDCs notify the Region Managers and the DDCs.

6.4 AEP ERP – Transmission Operations Overview

Upon declaration of a Transmission Emergency, TOps uses the processes outlined in the Storm Restoration Plan below and as shown in the *New Albany Transmission Operations Center Major Event Coordination* document (located on TOps ShareNow [REDACTED]) and the *TDC Storm Manual Tulsa Region* (located on the TOps ShareNow at [REDACTED]). These plans establish roles and responsibilities, and notification requirements during a major transmission event. Objectives include assessing the event, stabilizing the grid, restoring customers in a safe, efficient manner, and restoration of the grid to its original configuration. The TDC Unit Leader is part of the ICS structure and is the liaison to ICS. The TDC Unit Leader must meet the training requirements defined by ICS.

TOps uses the Outage Tracking System [REDACTED] which enhances communication between Transmission Dispatch, Distribution Dispatch, Transmission Field Services, and AEP management during major system events by providing a shared communication tool for the exchange of transmission outage information. OTS is responsible for setting restoration priorities. The OTS program supports ICS during system events by allowing all approved AEP employees access to transmission and sub-transmission outage data via the OTS website.

6.5 AEP ERP – Training Personnel

TOps dispatch personnel, as well as applicable personnel throughout Transmission, are trained in the ICS process. Additional ICS training manuals and links to the online training in KEY are listed on the [REDACTED] website under the References book icon and are available as needed. In addition, TOps and Transmission Field Services Management are responsible for scheduling and training personnel on a regular basis so that the appropriate personnel are prepared to use the ICS structure and implement the Storm Restoration Plan when a major event occurs.

6.6 Storm Restoration Plan

The key to a successful restoration effort is in the EARLY assessment of the extent of the damages.



It is important to initiate the Storm Restoration Plan as soon as possible to ensure early assessment. The earlier the need for additional resources is identified, the sooner those resources can be mobilized and utilized in the restoration effort. However, as the outage situation worsens and the outage footprint expands, additional resources must be called upon to assist in the restoration efforts. Communications with the various Coordination Centers is facilitated by the use of conference bridges. As noted in the NATOC Major Event Coordination document, the conference bridge number(s) will be disseminated to all parties via text or email.

6.6.1 Restoration Priority

When a major outage emergency 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. The Outage Tracking System (OTS) provides the communication interface between Transmission Dispatch, Distribution Dispatch, and Transmission Field Services by providing multiple designated users the ability to input Real-time data into a shared web application. The shared web application, Data Entry Interface, can be accessed by typing [REDACTED] into the browser address bar.

The OTS program supports the ICS structure during system events by allowing all approved AEP employees access to transmission and sub-transmission outage data via the OTS website. The website gives users the ability to sort and research data. Data includes Transmission outages, Distribution network circuit outages, affected stations, estimated assessment times (EAT), estimated field repair time (EFRT), estimated restoration times (ERT), trouble information, priority status (Station and Circuit/Equipment), and restoration rank. Refer to the *Outage Tracking System Guide -2015* user guide for additional information about getting access to the OTS system.

6.6.2 Staffing

The TDC Unit Leader and the SCC Lead Operator are responsible for allocating appropriate staff to manage the event. Additional staffing information is included in the NATOC Major Event Coordination document, which also includes staffing responsibilities for Transmission Operations Engineering and State Estimator Support personnel. Transmission Operations management also continuously evaluates the staffing needs as the event progresses.



6.6.3 Communications

Initial Notifications for Storm Restoration Plan

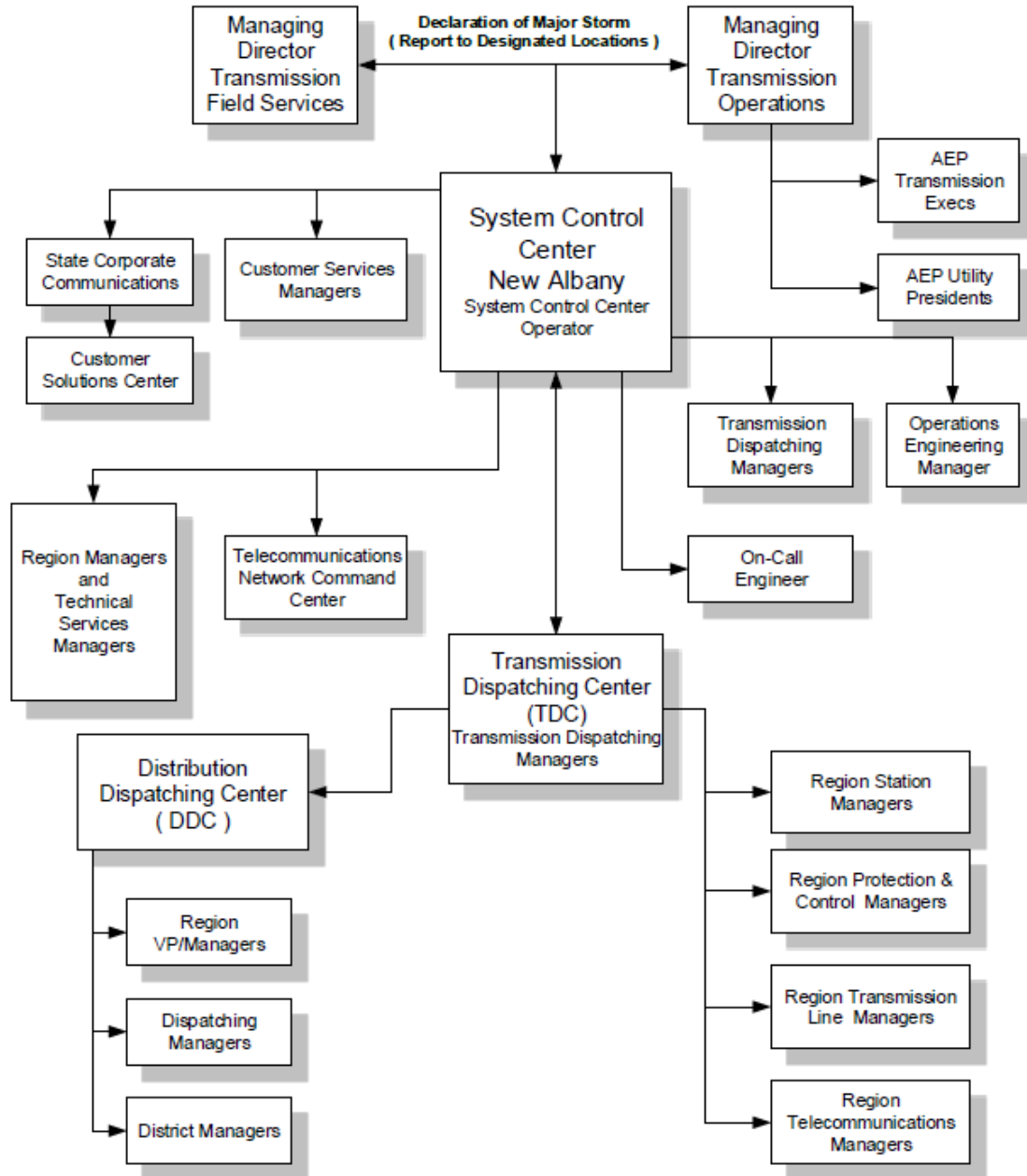


Figure 6-1. Initial Notifications for Storm Restoration Plan Flow Chart



6.6.4 Storm Organization Responsibilities

| Storm Titles | Description of Responsibilities | Sources |
|---|---|---|
| Transmission Field Services (TFS) | <p>Determine work priorities and convey them to the SCC.</p> <p>Interface with state commissions via Regulatory Services, Corporate Communications, State Emergency Services, and all other outside entities.</p> <p>Interface with Distribution Region management.</p> <p>Identify damage via the Transmission Assessment Process.</p> <p>Establish restoration priorities in accordance with the Transmission Prioritization Process.</p> <p>Set storm administrative policies.</p> <p>Request Telecom to call out personnel to reprogram radios.</p> <p>Determine location for reprogramming 800 Mhz radios.</p> <p>Determine the additional communication equipment required and request Telecom to acquire.</p> <p>Arrange for line fault locating equipment.</p> <p>Determine equipment that foreign crews should bring with them.</p> <p>Keep management informed and provide reports as required.</p> | <p>Transmission Region Director and designees</p> <p>Transmission Operations Managers and their designees</p> <p>Distribution Operations representative</p> |
| System Control Center (SCC) | <p>Send e-mail notification to TFS of the status of facilities.</p> <p>Provide information to TDC who assist TFS in making work priorities.</p> <p>Obtain information from the TDCs about the status of company facilities.</p> <p>Keep management informed and provide reports as required.</p> <p>Assist with informing Company Management.</p> <p>Call in Operations Engineering.</p> | <p>Transmission Operations Managers</p> <p>System Control Center Operators</p> <p>Engineering Support</p> |
| Transmission Dispatch Center (TDC) | <p>Dispatch crews.</p> <p>Direct necessary switching.</p> <p>Convey area and D-Region work priorities to SCC.</p> <p>Receive damage assessment from crews.</p> <p>Assign personnel to stations as needed.</p> | <p>Dispatching Supervisors</p> <p>Dispatching Coordinators</p> <p>Transmission Dispatchers</p> |



| Storm Titles | Description of Responsibilities | Sources |
|--|---|--|
| | <p>Monitor location of crews.</p> <p>Coordinate priorities with the DDCs and pass regional work priorities to the DDCs.</p> <p>Convey equipment status to the DDCs and SCC.</p> <p>Provide outage/restoration information to the SCC at regular intervals.</p> <p>Assign 800 Mhz radio storm emergency channels for Transmission work crews.</p> | |
| Distribution Dispatching Center (DDC) | <p>Direct switching on the distribution system from the feeder breakers out.</p> <p>Coordinate work priorities with the TDCs.</p> <p>Dispatch personnel in response to distribution alarms.</p> <p>Provide reports on total customer outages at regular time intervals.</p> <p>Provide distribution equipment status to TDCs.</p> <p>Work directly with the Customer Solutions Center to respond to customer outages.</p> <p>Interface with critical customers such as those on life support systems.</p> | <p>Dispatching Managers</p> <p>Dispatching Supervisors</p> <p>Distribution Dispatchers</p> |
| Field Crews | <p>Provide damage assessments to TDCs and TFS.</p> <p>Determine equipment, materials, and personnel needs and provide this information to TFS and others as assigned.</p> <p>Carry out the administrative directives of the TFS.</p> <p>Restore service to facilities as directed by the TDC.</p> <p>Provide property owner damage assessments to TFS.</p> <p>Respond to property owner damage.</p> <p>Receive and conduct switching orders from the TDC.</p> <p>Clear roads into stations.</p> <p>Operate line fault locating equipment.</p> <p>Maintain station batteries.</p> <p>Assist Telecommunication to reach MW sites as requested.</p> <p>Have all accident investigation forms</p> | <p>T-Line personnel</p> <p>P&C personnel Station personnel</p> |
| Telecommunications | <p>Lease cell phones.</p> | <p>Telecommunication technicians</p> |



| Storm Titles | Description of Responsibilities | Sources |
|----------------------------------|--|--|
| | Provide temporary communications equipment. Provide communications equipment maintenance to include microwave sites. Program 800 MHz radios for incoming crews at the designated location. Provide hand-held 800 MHz radios to field personnel as requested. Provide outside maintenance services as required. | |
| Customer Services | Respond to inquiries from customers. Interface with the SCC\TDC regarding restoration status. Inform customers of estimated restoration times. | A person from Customer Services is assigned to interface with their Field Engineers. |
| Shared Services | Provides 24 hours per day vehicle and stores services. Provides specialty permits for incoming crews. | Stores attendants Garage attendants |
| Corporate Communications | Act as the liaison between the TFS Directors, the outside media, and government organizations. | Corporate Communications |
| Customer Solutions Center | Respond to customer inquiries. Generate trouble tickets. Inform customers of estimated restoration times. | Customer Solutions Center |

Table 6-1. Storm Organizational Responsibilities Matrix

These activities support the AEP Emergency Response Plan. The ICS structure is still being implemented in the APCO area.

6.6.5 Storm Emergency Communications

Storm radios exist for use by AEP East Transmission Operations during major storms.

The Transmission Dispatcher 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 Transmission Dispatcher to inform both the transmission crew supervisors working in the area as well as 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).

NATOC has access to [REDACTED] through [REDACTED] for all of I&M and AEP Ohio.

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



Figure 6-2. Storm Channels

7.0 Introduction DOE and NERC Event Reporting Requirements

This section relates to the NERC reporting requirements under *NERC standard EOP-004*. AEP applicable NERC entities include Transmission Operators and Generator Operators registrations. In addition, the Department of Energy (DOE) requires **OE-417** form, **Electronic Incident and Disturbance Report**, be completed and filed for incidents listed in **Schedule 1** of form OE-417 and in the instructions for form **OE-417**. The AEP Event Reporting Operating Plan consolidates both the NERC and DOE requirements into one cohesive plan along with the critical reporting timelines.

8.0 Emergency Communications

The following items from PJM define the conditions when emergency communications should take place between Reliability Coordinators, System Control Center Reliability Coordinators or Operating Authorities, and Transmission Dispatchers.

PJM Manual 01 Section 2.6.1 addresses emergency EMS outages. Section 3.2.3 addresses data exchange during a loss of EMS data.

Each Transmission Operator shall have Interpersonal Communication capability with its Reliability Coordinator, each Balancing Authority, Distribution Provider, Generator Operator, and adjacent Transmission Operator.

Each Transmission Operator shall notify entities within 60 minutes of detecting a failure of its Interpersonal Communication capability that lasts 30 minutes or longer.

The following communications diagram depicts the various paths of the required communication:

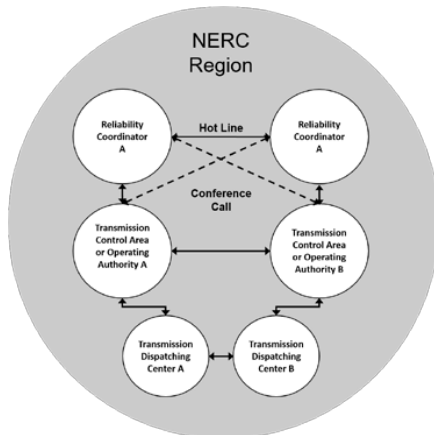


Figure 8-1. Emergency Communication Pathways

The Hot Line is typically between Reliability Coordinator and Reliability Coordinator. The conference call is usually requested by a Reliability Coordinator or Transmission Control Area or Operating Authority and will include several Reliability Coordinators, Transmission Control Areas, and Operating Authorities.



The AEP communication system was designed to allow control and operation of the geographically dispersed stations and plants from the System Control Center (SCC) and five Transmission Dispatch Centers (TDC). This system was designed to maintain reliable communication paths for the exclusive use of the SCC, TDCs and station personnel during emergencies. AEP East uses public switched communication networks for external communications. Internal communications is via company owned or leased facilities including microwave and fiber optic media.

8.1 Types of Communication Systems

8.1.1 800 Mhz Radio and Fiber Optics System

The backbone of the communication system is the AEP 800 Mhz radio and fiber optics system, its equipment, and path switching techniques.

The availability of 800 Mhz and fiber optics facilities during emergency situations is ensured by each microwave terminal and repeater station having an emergency power supply using a propane-powered automatic generator with sufficient fuel for three to fourteen days (typically seven days), or 24-hour emergency batteries.

8.1.2 Audinet System

The AEP Audinet system permits override on any congested tie-line group, disconnecting lower priority users. To minimize the possibility of overheating temperature-sensitive switches, air conditioning for the communication equipment rooms is supplied from the emergency generators during a power outage.

8.1.3 TDC to Plant Communication

Plant control rooms have a telephone console with a button dedicated to the Transmission Dispatching Centers (TDC) communication. At some TDCs, the telephone consoles have a button dedicated to each plant. All of the above equipment is battery-powered and continues to function if plant power is lost.

Note: Only Cook and Rockport plants have this console.

8.1.4 Satellite Communications

Satellite communication systems are also available in case of a loss of both the dedicated and the public telephone systems. Satellite Communications are the preferred backup systems for PJM as well as Market Operations.

8.1.5 SCADA Communications

The Eastern AEP SCADA host computers communicate with the substation RTUs via a communication front-end called the Station Data Gateway (SDG). The SDG can be located either local to the SCADA host or remote. Currently more SDGs exist than SCADA hosts to provide for sufficient diversity in case of the loss of an SDG.

The SDGs communicate with the SCADA host using the internal Transmission SCADA Network (TSN) via TCP/IP. The TSN provides redundant paths to each SDG to provide for a single contingency communications path loss. Between the redundant communication paths and diverse SDG locations, AEP constructed a robust network for RTU communications.



8.1.6 AEP Satellite Telephones

[REDACTED]

8.1.7 [REDACTED]

| AEP/PJM | | |
|------------------------------|------------|------------|
| ***NO CONDUIT RULE APPLIES!! | | |
| Plant | Unit | Talk Group |
| Amos | [REDACTED] | [REDACTED] |
| Big Sandy | [REDACTED] | [REDACTED] |
| Cardinal | [REDACTED] | [REDACTED] |
| Ceredo | [REDACTED] | [REDACTED] |
| Claytor | [REDACTED] | [REDACTED] |
| Clinch River | [REDACTED] | [REDACTED] |
| Dresden | [REDACTED] | [REDACTED] |
| Mitchell | [REDACTED] | [REDACTED] |
| Mountaineer | [REDACTED] | [REDACTED] |
| R.P. Mone | [REDACTED] | [REDACTED] |
| Smith Mountain | [REDACTED] | [REDACTED] |

Table 8-1. AEP/PJM [REDACTED]

8.2 Decision Making/Collaboration

It is important to be aware and to determine when the transmission system is in a stressed or abnormal state. Reliability Coordinators, System Control Center Reliability Coordinators, and Transmission Dispatchers have the authority to implement emergency procedures to remedy emergency or abnormal conditions. These conditions should be reported and discussed with the System Control Center Reliability Coordinators, Reliability Coordinators, 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 (see communications diagram), and the Reliability Coordinator can use the Reliability Coordinator Information System (RCIS) and the NERC Hot Line to inform other Reliability Coordinators of the situation.

In some instances a Hot Line may be set up between Reliability Coordinators, or a conference call may be initiated between the Reliability Coordinators 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.

8.3 Communication Failures

When problems are encountered with either the IT systems or Telecom infrastructure, the System Control Center Operators/Dispatchers 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 call-outs 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 Transmission Dispatcher 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 Reliability Coordinator about the loss. The SCC, the On-Call Engineer, and the Reliability Coordinator evaluate the impact of the RTU loss to their respective EMS systems.

Refer to the Real-time Data Integrity Procedure on the TOPs ShareNow site for additional information about the detailed corrective actions the SCC follows.

8.4 Testing

800 Mhz communications is tested through normal usage or by a designated test.

Satellite communications are routinely tested with PJM and Market Operations.

9.0 Training Requirements

The NERC Standards *EOP-005* and *PER-005* describe general training requirements for this plan. It is the responsibility of the various AEP training departments to develop and maintain an emergency operating training program for each area of responsibility.



9.1 System Operator Training

Purpose – Implement System Operator training to ensure plans, procedures, and resources are practiced/simulated to restore the electric system to a normal condition in the event of a partial or total shut down of the system.

Objectives – Learning objectives shall be based on this Emergency Operating Plan and/or company-specific reliability-related tasks performed by System Operators.

9.2 Requirements


System Operators shall receive emergency operations training applicable to its organization that reflects emergency operations topics, which include system restoration using drills, exercises, or other training required to maintain qualified personnel.

System Operators shall be trained in the implementation of the AEP System restoration plan. Such training shall include simulated exercises, if practicable.

Emergency Operations drills or simulations will be conducted each year to evaluate the effectiveness of the plan and to evaluate the knowledge of the SCC Reliability Coordinators and Transmission Dispatchers.

Documentation must be retained in the personnel training records that operating personnel were trained annually in the implementation of the plan and participated in restoration exercises.

10.0 Appendix A: AEP PJM Manual Load Shedding Guidelines

The Manual Load Shedding Program is part of the Emergency Operating Plan 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 Procedures AEPE PJM* document for additional details. It is located on the TOPs ShareNow site at .

Manual load shedding is performed in the AEP East/PJM footprint by arming the AEP Advanced Load Shedding (ALS) 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.

The Menu Advanced Load Shedding (MALS) displays on the WINSCADA ADX system shows the MVA load shed available for each area. The LOAD displayed in the figure below reflects the current Real-time area load.



Figure 10-1. Example of MALS Display

As an example using the MALS display, upon selecting the blue box in the **Main** column for OHIO, the program directs the user to the OHIO Control screen.



Figure 10-2. ALSCA Display



From a high level perspective, to shed load the TDC:

1. Enters the TARGET MVA load to shed.
2. Selects Enable Load Shed poke point.
3. Selects Initiate Load Shedding followed by Confirm.

The attached link to the ALS training video provides detailed step-by-step instructions for using the program.

| Peak Non Coincidental MW Available on MALS for Calendar Year 2017 | | | | | | |
|---|-------|-------|-------|-------|-------|--------|
| ALS by TDC | CCTDC | CETDC | CWTDC | RNTDC | RSTDC | Total |
| MW's Available for ALS | 3,525 | 984 | 2,000 | 2,608 | 1,902 | 11,020 |

Table 10-1. Peak Non-Coincidental MW Available on MALS for Calendar Year 2017

The following sequence shows the events that occur:

- The SCC issues a Manual Load Dump Warning. Each TDC arms a predetermined area to stand by for Manual Load Curtailment (if time permits).
- The SCC issues a Manual Load Dump Action. The SCC instructs each TDC to initiate Mandatory Load Curtailment on the requested amount of load in their specific area through the ALS program.

10.1 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.

10.1.1 Priority

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

| | |
|-------------------|--|
| Priority 1 | Hospitals which shall be limited to major institutions providing critical care to patients. |
| 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 10-2. Feeder Prioritization

The following abbreviations can be used to describe the type of load on each circuit and in many cases the same circuit has several priority users.



| Abbreviation | Definition |
|--------------|---|
| HOSP | Hospitals |
| LS | Life support equipment |
| POL | Police stations and government detention institutions |
| EMS | Emergency medical services |
| GOVT | Critical state and federal government facilities |
| FIRE | Fire stations |
| COM | Communication services such as telephone, radio, newspaper |
| WATER | Water and/or sewer services |
| TRAN | Transportation related services such as transit systems and major airport terminals |
| ALT ENG | Alternate energy source services such as IPP, Cogen |
| FOOD | Perishable food or medicine that represents substantially all of a customer's load |

Table 10-3. Load Definitions

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.

10.1.2 Procedure

1. Estimate % **District** load as a percentage of Operating Companies peak summer/winter internal load and calculate target load for summer and winter.
 (Target Load = % District Load x Operating Company peak load x 25 %)
2. Determine type of load on each District's circuits and assign a **Priority** number.
3. Add the **Priority 3** circuit loads and compare to target load for the **District**.
4. If Priority 3 circuits are not enough, select Priority 2 circuits and recalculate.



5. If Priority 2 circuits are not enough, select Priority 1 circuits and recalculate.

NERC EOP 011-1 requirement R1.2.5 states in part:

Processes to prepare for and mitigate Emergencies including provisions for operator- controlled manual Load shedding that minimizes the overlap with automatic Load shedding and are capable of being implemented in a timeframe adequate for mitigating the Emergency.

AEP approaches this requirement by avoiding the addition of new manual Load shed facilities that have automatic Load shedding.

Kentucky Power Company
KPSC Case No. 2021-00129
Attorney General's First Set of Data Requests
Dated March 26, 2021

DATA REQUEST

AG 1_10 What is the current total of known and measurable costs related to the storm events at issue as of the date of the response to this request?

RESPONSE

Please see Exhibit 3 to the Company's Application, which provides the only cost information presently available.

The Company has committed to updating the estimates contained in the Application to the actual amounts when actual costs are known (application numbered paragraph 38, at page 12).

Witness: Brian K. West

Kentucky Power Company
KPSC Case No. 2021-00129
Attorney General's First Set of Data Requests
Dated March 26, 2021

DATA REQUEST

AG 1_11 When does Kentucky Power anticipate knowing the total amount of costs related to the storm events at issue?

RESPONSE

Due to the unprecedented scope of the storms under review, the Company cannot estimate at this time when the associated costs will be finalized.

The Company has committed to updating the estimates contained in the Application to the actual amounts when actual costs are known (Application at paragraph 38, page 12).

Witness: Brian K. West

Kentucky Power Company
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Attorney General's First Set of Data Requests
Dated March 26, 2021

DATA REQUEST

AG 1_12 Does Kentucky Power have any insurance policy or policies that will make payments related to the storm impacts? If so, provide a copy of the policy documents and identify the amount expected to be paid. If not, discuss why coverage is not appropriate.

RESPONSE

AEP maintains property insurance covering all risks of physical loss or damage to nonnuclear assets, subject to insurance policy conditions and exclusions. Covered property generally includes power plants, substations, facilities and inventories. Excluded property generally includes transmission and distribution lines, poles and towers. Coverage for lines, poles and towers are typically excluded by property insurance companies, and covering such assets would be prohibitively expensive. As such, we do not anticipate any insurance coverage for our assets related to the storm damage.

Witness: Brian K. West

Kentucky Power Company
KPSC Case No. 2021-00129
Attorney General's First Set of Data Requests
Dated March 26, 2021

DATA REQUEST

AG 1_13 Does Kentucky Power expect to encounter lost revenues from the storm events? If so, calculate or estimate the amount of lost revenue.

RESPONSE

The Company objects to this data request. The information sought it is not relevant and not reasonably calculated to lead to the discovery of admissible evidence. Without waiving this objection, the Company states that it has not calculated nor requested recovery of any such lost revenues in this case.

Witness: Brian K. West

Kentucky Power Company
KPSC Case No. 2021-00129
Attorney General's First Set of Data Requests
Dated March 26, 2021

DATA REQUEST

AG 1_14 When does Kentucky Power expect to file its next base rate case?

RESPONSE

To comply with the Commission's January 13, 2021 order in Case No. 2020-00174 at page 32, the Company presently expects to file its next base rate case in June 2023, for rates effective January 1, 2024.

Witness: Brian K. West

Kentucky Power Company
KPSC Case No. 2021-00129
Attorney General's First Set of Data Requests
Dated March 26, 2021

DATA REQUEST

AG 1_15 Does Kentucky Power maintain mutual assistance agreements with other utilities? Were those triggered in the storm events at issue? Provide copies of those agreement(s).

RESPONSE

No. Kentucky Power does not have mutual assistance signed agreements with other investor owned utilities. Instead, mutual assistance participating utilities agree to adhere to the Edison Electric Institute's Mutual Assistance Governing Principles. See Attachment KPCO_R_AG_1_15_Attachment1.

The Company received 66 full time employees from Detroit Edison to assist with storm restoration efforts.

Witness: Gregory A. Bell



SUGGESTED GOVERNING PRINCIPLES COVERING EMERGENCY ASSISTANCE ARRANGEMENTS BETWEEN EDISON ELECTRIC INSTITUTE MEMBER COMPANIES

Electric companies have occasion to call upon other companies for emergency assistance in the form of personnel or equipment to aid in maintaining or restoring electric utility service when such service has been disrupted by acts of the elements, equipment malfunctions, accidents, sabotage or any other occurrences where the parties deem emergency assistance to be necessary or advisable. While it is acknowledged that a company is not under any obligation to furnish such emergency assistance, experience indicates that companies are willing to furnish such assistance when personnel or equipment are available.

In the absence of a continuing formal contract between a company requesting emergency assistance ("Requesting Company") and a company willing to furnish such assistance ("Responding Company"), the following principles are suggested as the basis for a contract governing emergency assistance to be established at the time such assistance is requested:

1. The emergency assistance period shall commence when personnel and/or equipment expenses are initially incurred by the Responding Company in response to the Requesting Company's needs. (This would include any request for the Responding Company to prepare its employees and/or equipment for transport to the Requesting Company's location but to await further instructions before departing). The emergency assistance period shall terminate when such employees and/or equipment have returned to the Responding Company, and shall include any mandated DOT rest time resulting from the assistance provided and reasonable time required to prepare the equipment for return to normal activities (e.g. cleaning off trucks, restocking minor materials, etc.).
2. To the extent possible, the companies should reach a mutual understanding and agreement in advance on the anticipated length – in general – of the emergency assistance period. For extended assistance periods, the companies should agree on the process for replacing or providing extra rest for the Responding Company's employees. It is understood and agreed that if, in the Responding Company's judgment such action becomes necessary the decision to terminate the assistance and recall employees, contractors, and equipment lies solely with the Responding Company. The Requesting Company will take the necessary action to return such employees, contractors, and equipment promptly.
3. Employees of Responding Company shall at all times during the emergency assistance period continue to be employees of Responding Company and shall not be deemed employees of Requesting Company for any purpose. Responding Company shall be an independent Contractor of Requesting Company and wages, hours and other terms and conditions of employment of Responding Company shall remain applicable to its employees during the emergency assistance period.
4. Responding Company shall make available upon request supervision in addition to crew leads. All instructions for work to be done by Responding Company's crews shall be given by

Requesting Company to Responding Company's supervision; or, when Responding Company's crews are to work in widely separate areas, to such of Responding Company's crew lead as may be designated for the purpose by Responding Company's supervision.

5. Unless otherwise agreed by the companies, Requesting Company shall be responsible for supplying and/or coordinating support functions such as lodging, meals, materials, etc. As an exception to this, the Responding Company shall normally be responsible for arranging lodging and meals en route to the Requesting Company and for the return trip home. The cost for these in transit expenses will be covered by the Requesting Company.
6. Responding Company's safety rules shall apply to all work done by their employees. Unless mutually agreed otherwise, the Requesting Company's switching and tagging rules should be followed to ensure consistent and safe operation. Any questions or concerns arising about any safety rules and/or procedures should be brought to the proper level of management for prompt resolution between management of the Requesting and Responding Companies.
7. All time sheets and work records pertaining to Responding Company's employees furnishing emergency assistance shall be kept by Responding Company.
8. Requesting Company shall indicate to Responding Company the type and size of trucks and other equipment desired as well as the number of job function of employees requested but the extent to which Responding Company makes available such equipment and employees shall be at responding Company's sole discretion.
9. Requesting Company shall reimburse Responding Company for all costs and expenses incurred by Responding Company as a result of furnishing emergency assistance. Responding Company shall furnish documentation of expenses to Requesting Company. Such costs and expenses shall include, but not be limited to, the following:
 - a. Employees' wages and salaries for paid time spent in Requesting Company's service area and paid time during travel to and from such service area, plus Responding Company's standard payable additives to cover all employee benefits and allowances for vacation, sick leave and holiday pay and social and retirement benefits, all payroll taxes, workmen's compensation, employer's liability insurance and other contingencies and benefits imposed by applicable law or regulation.
 - b. Employee travel and living expenses (meals, lodging and reasonable incidentals).
 - c. Replacement cost of materials and supplies expended or furnished.
 - d. Repair or replacement cost of equipment damaged or lost.
 - e. Charges, at rates internally used by Responding Company, for the use of transportation equipment and other equipment requested.
 - f. Administrative and general costs, which are properly allocable to the emergency assistance to the extent such costs, are not chargeable pursuant to the foregoing subsections.
10. Requesting Company shall pay all costs and expenses of Responding Company within sixty days after receiving a final invoice therefor.

11. Requesting Company shall indemnify, hold harmless and defend the Responding Company from and against any and all liability for loss, damage, cost or expense which Responding Company may incur by reason of bodily injury, including death, to any person or persons or by reason of damage to or destruction of any property, including the loss of use thereof, which result from furnishing emergency assistance and whether or not due in whole or in part to any act, omission, or negligence of Responding Company except to the extent that such death or injury to person, or damage to property, is caused by the willful or wanton misconduct and / or gross negligence of the Responding Company. Where payments are made by the Responding Company under a workmen's compensation or disability benefits law or any similar law for bodily injury or death resulting from furnishing emergency assistance, Requesting Company shall reimburse the Responding Company for such payments, except to the extent that such bodily injury or death is caused by the willful or wanton misconduct and / or gross negligence of the Responding Company.
12. In the event any claim or demand is made or suit or action is filed against Responding Company alleging liability for which Requesting Company shall indemnify and hold harmless Responding Company under paragraph (11) above, Responding Company shall promptly notify Requesting Company thereof, and Requesting Company, at its sole cost and expense, shall settle, compromise or defend the same in such manner as it in its sole discretion deems necessary or prudent. Responding Company shall cooperate with Requesting Company's reasonable efforts to investigate, defend and settle the claim or lawsuit.
13. Non-affected companies should consider the release of contractors during restoration activities. The non-affected company shall supply the requesting companies with contact information of the contactors (this may be simply supplying the contractors name). The contractors will negotiate directly with requesting companies.

| Date | Description |
|----------------|-----------------------|
| October 2014 | Sections 4, 5, and 10 |
| September 2005 | Sections 11 and 12 |



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E-Signature 1: Gregory A Bell (GAB)

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 gabell@aep.com (Principal) (Personally Known)

E-Signature Notary: Brenda Williamson (BW)

March 29, 2021 10:07:02 -8:00 [680FF9FC9336] [167.239.221.82]
 bgwilliamson@aep.com
 I, Brenda Williamson, did witness the participants named above electronically sign this document.



VERIFICATION

The undersigned, Gregory A. Bell, being duly sworn, deposes and says he is Director of Distribution Risk and Project Management for Kentucky Power Company that he has personal knowledge of the matters set forth in the forgoing responses and the information contained therein is true and correct to the best of his information, knowledge and belief after reasonable inquiry.

Gregory A Bell
Signed on 2021/03/29 10:07:02 -8:00

Gregory A. Bell

STATE OF OHIO

)

) Case No. 2021-00129

COUNTY OF FRANKLIN

)

Subscribed and sworn to before me, a Notary Public in and before said County and State, by Gregory A. Bell, this ___ day of March 2021.
03/29/2021

Brenda Williamson
Signed on 2021/03/29 10:07:02 -8:00

Notary Public
Brenda G. Williamson
Commission # 2016-RE-579446
Electronic Notary Public
State of Ohio
My Comm Exp. Apr 25, 2021
Notary Stamp 2021/03/29 10:07:02 PST 680-F9F-C1336

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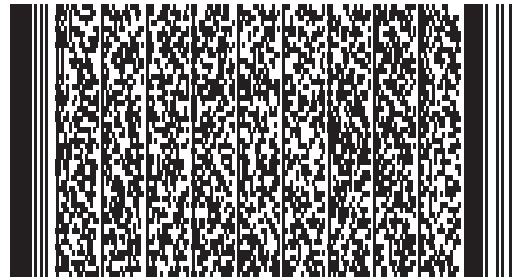
E-Signature Summary

E-Signature 1: Stephen D Blankenship (SDB)

March 29, 2021 09:04:25 -8:00 [00973206DFDC] [167.239.221.85]
 sdbblank1@aep.com (Principal) (Personally Known)

E-Signature Notary: Brenda Williamson (BW)

March 29, 2021 09:04:25 -8:00 [72E890E6301B] [167.239.221.82]
 bgwilliamson@aep.com
 I, Brenda Williamson, did witness the participants named above electronically sign this document.



VERIFICATION

The undersigned, Stephen D. Blankenship, being duly sworn, deposes and says he is a Region Support Manager for Kentucky Power Company that he has personal knowledge of the matters set forth in the forgoing responses and the information contained therein is true and correct to the best of his information, knowledge and belief after reasonable inquiry.

Stephen D Blankenship

Signed on 2021/03/29 09:04:25 -8:00

Stephen D. Blankenship

STATE OF OHIO

)

) Case No. 2021-00129

COUNTY OF FRANKLIN

)

Subscribed and sworn to before me, a Notary Public in and before said County and State, by Stephen D. Blankenship, this 03/29/2021 _ day of March 2021.

Brenda Williamson

Signed on 2021/03/29 09:04:25 -8:00

Notary Public



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E-Signature 1: Everett G. Phillips (EGP)

March 29, 2021 09:32:08 -8:00 [A2055E540C43] [167.239.221.83]
egphillips@aep.com (Principal) (Personally Known)

E-Signature Notary: Brenda Williamson (BW)

March 29, 2021 09:32:08 -8:00 [4146C30AB4B3] [167.239.221.82]
bgwilliamson@aep.com
I, Brenda Williamson, did witness the participants named above electronically sign this document.



VERIFICATION

The undersigned, Brian K. West, being duly sworn, deposes and says he is Vice President, Regulatory & Finance for Kentucky Power Company that he has personal knowledge of the matters set forth in the forgoing responses and the information contained therein is true and correct to the best of his information, knowledge and belief after reasonable inquiry.



Brian K. West

State of Indiana)
) ss Case No. 2021-00129
County of Allen)

Subscribed and sworn to before me, a Notary Public, in and for said County and State, Brian K. West this 29th day of March, 2021.

Regiana M.
Sistevaris

Digitally signed by Regiana M. Sistevaris
Date: 2021.03.29 08:06:48 -04'00'

Regiana M. Sistevaris, Notary Public

My Commission Expires: January 7, 2023