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Public Utility Commission of Texas

Memorandum

TO: Chairman Peter Lake
Commissioner Will McAdams
Commissioner Lori Cobos
Commissioner Jimmy Glotfelty
Commissioner Kathleen Jackson

FROM: Therese Harris, Director, Infrastructure Division
Chris Roelse, Engineering Manager, Infrastructure Division
Sherryhan Ghanem, Engineering Specialist, Infrastructure Division

DATE: September 30, 2022

RE: Weather Emergency Preparedness Report
Project No. 53385, *Project to Submit Emergency Operations Plans and Related Documents Under 16 TAC § 25.53*

Attached, please find the Commission's final Weather Emergency Preparedness Report. At the Commission's September 29, 2022 open meeting, the Commission approved this report and delegated authority to Commission Staff to update the content of this report to include corrected data from Ascenttra. Commission Staff has updated the report accordingly and will distribute this report to the Legislature.

Background

Senate Bill 3, Section 24, enacted by the 87th Texas Legislature, requires the Commission to analyze emergency operations plans (EOPs) developed by electric utilities, power generation companies, municipally owned utilities, electric cooperatives, and retail electric providers and prepare a weather emergency preparedness report on power weatherization preparedness.

To analyze and review the EOPs, the Commission sought the expertise of a qualified contractor to perform a baseline assessment of the EOPs and develop recommendations for improvements of the plans that can be incorporated in a future rulemaking initiative. Ascenttra, Inc. was selected and began its review of the EOPs in April 2022.

The Commission's report summarizes the analysis in Ascenttra's weather emergency preparedness report and reflects corrections Ascenttra made to its report that considers additional information excluded from its initial review. Ascenttra's weather emergency preparedness report, exactly as submitted to Commission Staff, is attached as Appendix 1 to Commission Staff's report.

Weather Emergency Preparedness Report

Public Utility Commission of Texas

September 30, 2022

Senate Bill 3 (SB3) Section 24, passed by the 87th Texas legislature, requires the Public Utility Commission of Texas (Commission) to analyze emergency operations plans developed by electric utilities, power generation companies, municipally owned utilities, electric cooperatives, and retail electric providers (collectively "entities") and prepare a weather emergency preparedness report on power weatherization preparedness.[1]

The Commission was directed to:

(1) review emergency operations plans on file with the Commission;
(2) analyze and determine the ability of the electric grid to withstand extreme weather events in the upcoming year;
(3) consider the anticipated weather patterns for the upcoming year as forecasted by the National Weather Service or any similar state or national agency; and
(4) make recommendations on improving emergency operations plans and procedures in order to ensure the continuity of electric service.

Overview

The Commission initiated Project Number 51841, Review of 16 TAC §25.53 Relating to Electric Service Emergency Operations Plans, to conduct a formal rulemaking to enact the provisions of Senate Bill 3. The Commission adopted new 16 Texas Administrative Code (TAC) §25.53 on February 25, 2022. The new rule expanded upon the requirements of the Commission's preexisting EOP rule by requiring more entities such as municipally owned utilities to also file emergency operations plans (EOPs) and outlining the specific contents EOPs must contain. The rule also requires each entity to file its EOP in its entirety. Previously, entities were only required to file a summary. Finally, the new rule requires each of the applicable entities to participate in drills to test its plan and provide status updates at the request of Commission staff when the State Operations Center is activated.

The adopted rule applied to the following five entity types that generate power, deliver electricity, or bill customers:

- **Electric utilities (EU)** are defined in Tex. Util. Code §31.002(6) and include transmission and distribution infrastructure owners but exclude the other entities in this list that may own transmission or distribution infrastructure.

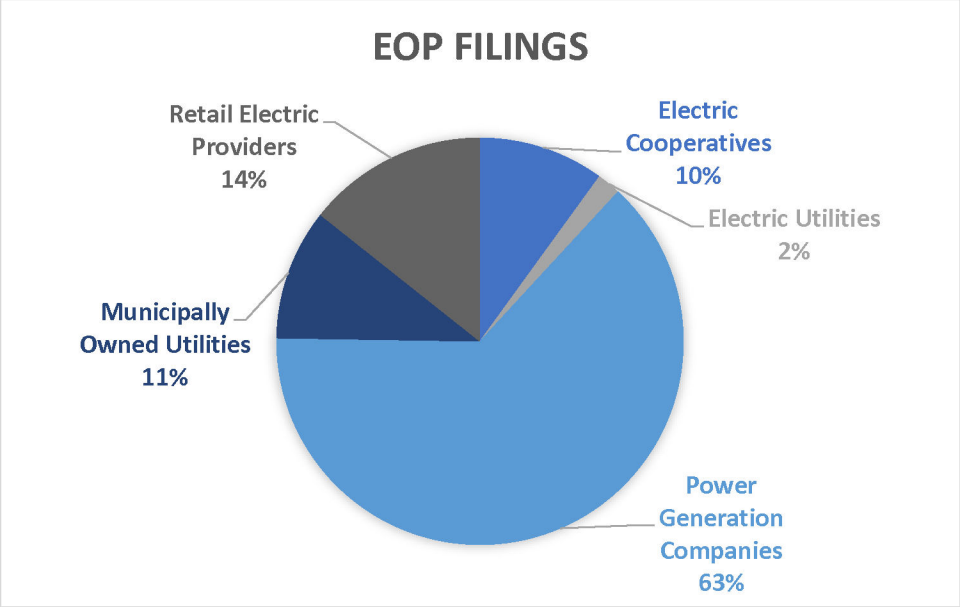
[1] Tex. Util. Code §186.007.

Electric utilities must prepare to ensure continuous delivery of electricity during an emergency event. Some electric utilities also generate electricity and must also prepare to ensure continuous generation of electricity during an emergency event.

- **Power generation companies (PGC)** are defined in Tex. Util. Code §31.002(10) and refer to certain owners of generation facilities that do not own transmission or distribution facilities or have a certificated service territory. These owners are excluded from the definition of an electric utility. Power generation companies must prepare to ensure continuous generation of electricity during an emergency event.
- **Municipally owned utilities (MOU)** are defined in Tex. Util. Code §11.003(11), and refer to utilities that are owned, operated, and controlled by a municipality or by a nonprofit corporation whose directors are appointed by one or more municipalities. A municipally owned utility owns or operates equipment or facilities to transmit or distribute electricity and may also own or operate facilities to generate electricity. A MOU must prepare to ensure continuous delivery of electricity during an emergency event. Those MOUs that also own or operate facilities to generate electricity must also ensure continuous generation of electricity during an emergency event.
- **Electric cooperatives (EC)** are defined in Tex. Util. Code §11.003(9) and refer to corporations organized as electric cooperatives that own or operate equipment or facilities to transmit or distribute electricity. Electric cooperatives must prepare to ensure continuous delivery of electricity during an emergency event. Those ECs that also own or operate facilities to generate electricity must prepare to ensure continuous generation of electricity during an emergency event.
- **Retail electric providers (REP)** are defined in Tex. Util. Code §31.002(17) and refer to entities that sell electricity to retail customers and are prohibited from owning or operating generation assets. REPs prepare to keep their business running and their customers informed during an emergency event.

To analyze and review the emergency operations plans the Commission sought the expertise of a qualified contractor to perform a baseline assessment of the emergency operations plans to develop recommendations for improvements to the plans that can be incorporated in a future rulemaking initiative. Ascenttra, Inc. was selected and began work in April 2022. In total, Ascenttra reviewed and analyzed 691 EOPs filed with the Commission. They evaluated conformance with the requirements of 16 TAC §25.53. Ascenttra also considered additional criteria, identified as best practices within the emergency management community. Appendix 1 to this report is Ascenttra's analysis, exactly as submitted to the Commission without alterations. The analysis below is a summary of Ascenttra's analysis and does not represent the observations or conclusions of the Commission.

The pie chart below shows the 691 EOP filings by entity type.



Ascenttra's EOP review team observed several trends and outliers during the review process. As an example, the entities that filed the EOPs used a variety of plan formats. Many EOPs consisted of standalone documents developed for other purposes that were compiled together to form the plan. Ascenttra reported that this type of filing lacks an organized format and can present difficulty in locating information during an emergency. In contrast, the municipally owned utilities employed a systemized template. Most of the plans included both primary and secondary emergency contacts, as a good practice to ensure prompt responses in an emergency. These trends, in addition to others noted by the reviewers, helped identify strengths and gaps in electric industry best practices.

Methodology

To assess the EOPs, 53 separate criteria were identified from requirements in 16 TAC §25.53. These criteria were then grouped into seven measures[2]:

1. EOP filing
2. Executive summary
3. Record of distribution
4. Emergency contacts
5. Affidavit

[2] The seven measures are referred to as "headings" in Ascenttra's report attached in Appendix 1.

6. EOP required content
7. Required annexes

The EOPs were scored on both the fulfillment of the requirements (i.e., whether the required element was present) and the quality of supporting information provided (i.e., whether the information was clear, complete, and responsive to the requirement).

For each EOP, a score for each of the seven measures was calculated using a simple average of the scores for each criterion under a given measure. Each criterion received a score from zero (worst) to ten (best), with ten indicating the objective was fully achieved. A score for each entity group, by measure, was derived using a simple average of the scores achieved for that measure by all the entities in the group.

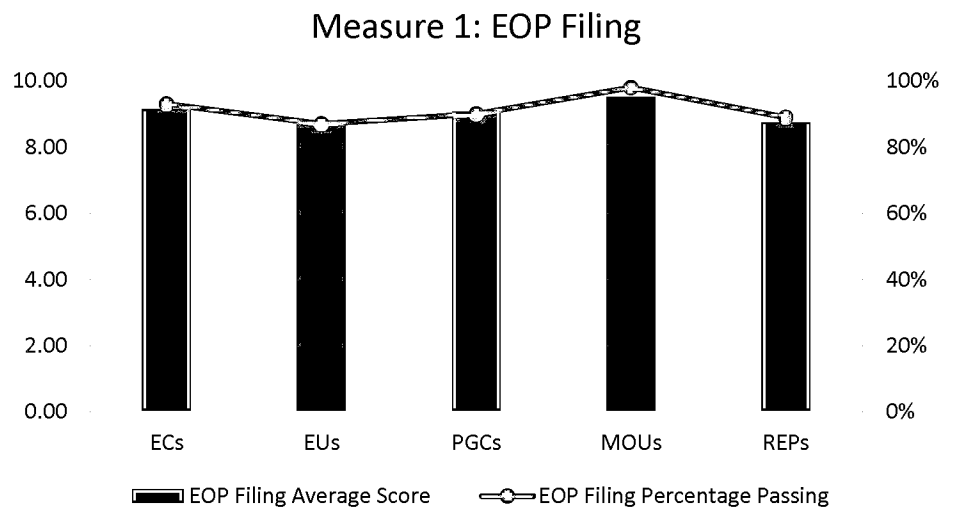
A score of seven or higher for each measure was considered "passing." The percentage of entities that received a passing score for each measure was also calculated.

Measure #1 - EOP Filing

The criteria for this measure required an entity to:

- File a complete copy with the Commission with all confidential portions removed.
- File an unredacted EOP with ERCOT if operating within the ERCOT power region.
- Make an unredacted EOP available in its entirety to Commission staff, if requested, at a location designated by Commission staff.
- File an EOP annex for each facility that conspicuously identifies the facility to which it applies.
- Demonstrate continuous maintenance of an EOP.

With 91% of entities who filed an EOP receiving a passing score of seven or higher, this was the highest scoring measure. However, many EOPs did not contain a uniform format and were instead a compilation of standalone documents, making information difficult to locate efficiently during an actual emergency. Further, some EOPs were marked "confidential" or "for internal use only" which is contrary to the objective of coordinating with external stakeholders.

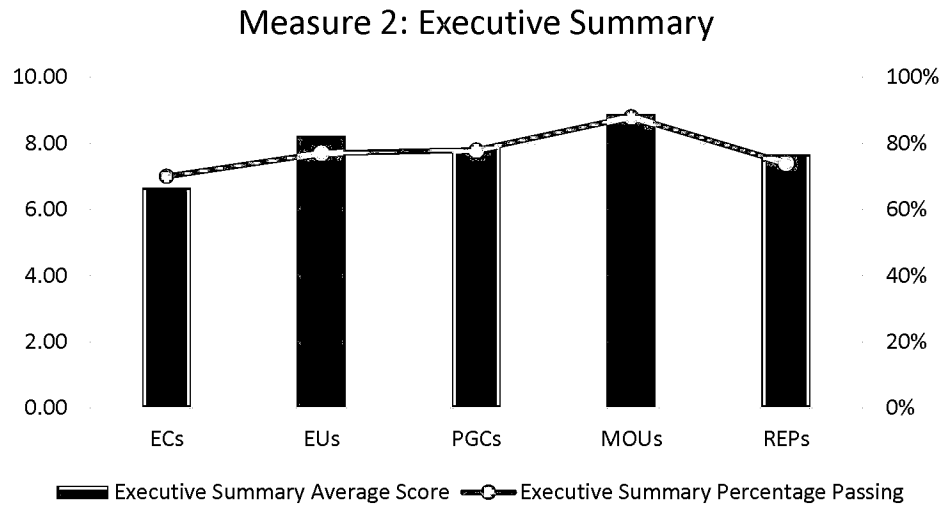


Measure #2 - Executive Summary

The criteria for this measure required the executive summary to:

- Describe the contents and policies contained in the EOP.
- Include a reference to specific sections and page numbers of the entity's EOP that correspond with the requirements of the rule.
- Contain the affidavit required under 16 TAC §25.53(c)(4)(C).

Overall, 78% of the EOPs met the criteria for an executive summary. The municipally owned utilities employed an EOP template with a specific section for the executive summary.

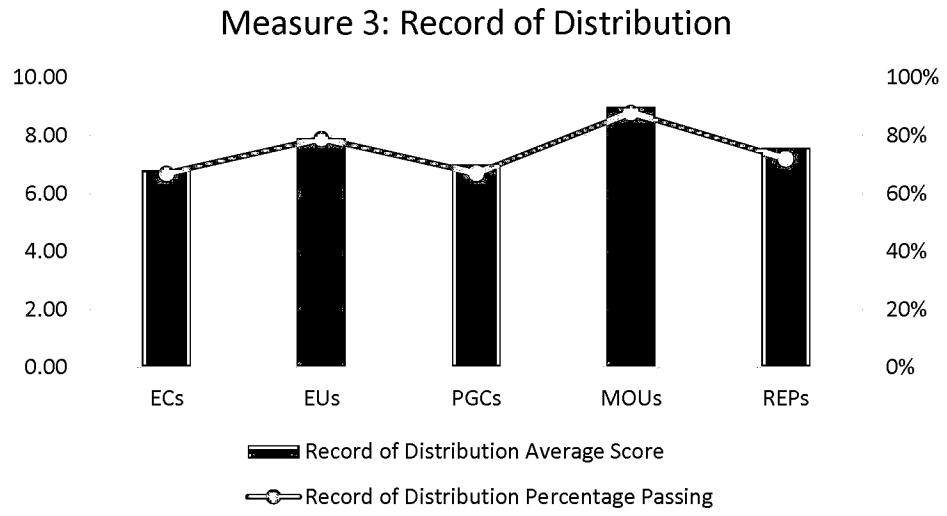


Measure # 3 - Record of Distribution

The criteria for this measure required the EOP to:

- Include a completed record of distribution required under 16 TAC §25.53(c)(4)(A).
- Contain, in table format, the titles and names of persons in the entity's organization receiving access to and training on the EOP.
- Contain dates of access to or training on the EOP.

It was difficult to evaluate the record of distribution because 16 TAC §25.53(c)(4)(A)(ii) provides flexibility whether to file the dates of access to the EOP or dates of training on the EOP.

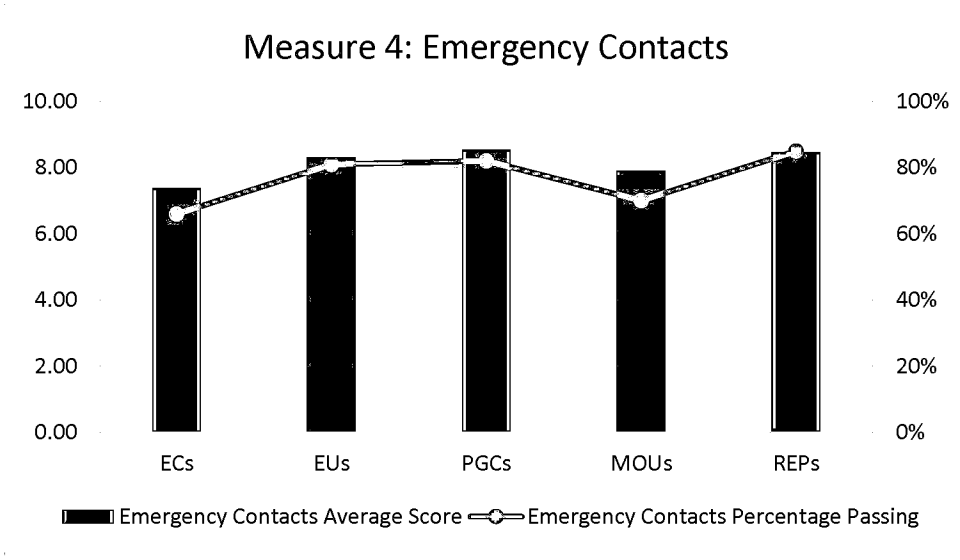


Measure #4 - Emergency Contacts

The criteria for this measure required the EOP to:

- List the primary contacts for the entity.
- List the secondary contacts for the entity.
- Identify specific individuals available immediately to address urgent requests and questions from the Commission during an emergency.

Overall, 80% of the EOPs met the criteria for emergency contacts. Most of the entities provided multiple emergency contacts. However, the information was located in the base plan which would render the plan outdated if there are personnel changes. The list of emergency contacts should be contained in a separate section so that it can be updated regularly to keep up with personnel changes.

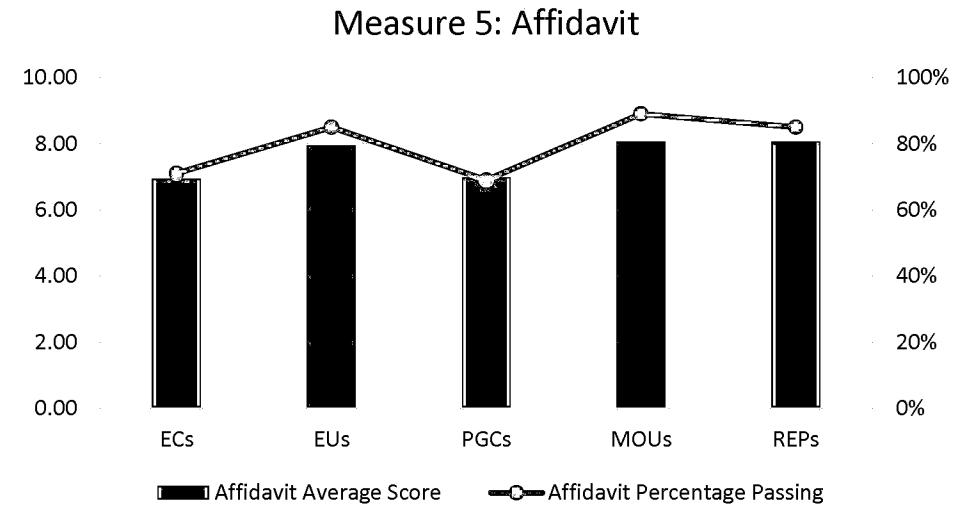


Measure #5 - Affidavit

The criteria for this measure required affidavits to affirm the following:

- Relevant operating personnel have received training on the applicable contacts and execution of the EOP, and such personnel are instructed to follow the applicable portions of the EOP, recognizing that deviation from the plan may be appropriate as a result of specific circumstances during an emergency.
- Appropriate executives have reviewed and approved the EOP.
- Drills have been conducted to the extent required by 16 TAC §25.53(f).
- The EOP or an appropriate summary has been distributed to local jurisdictions as needed.
- The entity maintains a business continuity plan addressing the return to normal operations after disruptions caused by an incident.
- The entity's emergency management personnel who are designated to interact with local, state, and federal emergency management officials during emergency events have received the IS-100, IS-200, IS-700 and IS-800 National Incident Management System training.

The language used in the affidavits often did not contain specific details related to the individual EOP. Some of the content affirmed in the affidavits was not found in the corresponding EOPs.

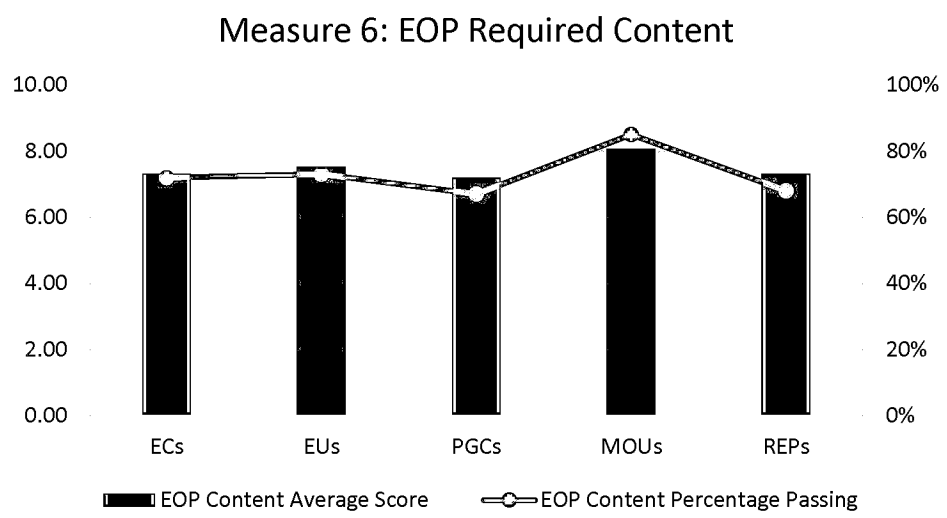


Measure #6 - EOP Required Content

The criteria for this measure requires the EOPs to contain specific items:

- An approval in the form of a signed statement formally recognizing and adopting the plan, how it will be implemented, and indicating that it supersedes all previous plans.
- An introduction.
- An outline of the applicability of the plan.
- A list of the individuals responsible for maintaining and implementing the EOP.
- A list of the individuals who can change the EOP.
- A revision control summary that lists the dates of each change made to the EOP since the initial EOP filing.
- The date the EOP was most recently approved by the entity.
- A communications plan.
- The procedures during an emergency the entity uses for handling complaints.
- Emergency procedures for communicating with the following prescribed groups:
    - the media;
    - customers;
    - fuel suppliers;
    - the Commission;
    - the Office of Public Utility Counsel (OPUC);
    - local and state governmental entities, officials, and emergency operations centers, as appropriate in the circumstances for the entity;
    - the reliability coordinator for its power region; and
    - critical load customers directly served by the entity.
- A plan to maintain pre-identified supplies for emergency response.
- A plan for adequate staffing during emergency response.
- A description of how an entity identifies and plans for weather-related hazards, including tornadoes, hurricanes, extreme cold weather, extreme hot weather, drought, and flooding.
- The process and procedures the entity follows to activate the EOP.

EOP required contents varied widely. Administrative requirements relating to revisions and approval were more readily followed. More information regarding operational processes and procedures relating to communication, ensuring adequate staffing, maintaining critical supplies, implementing procedures for weather emergencies, and activating the EOP is necessary to be better prepared for a weather emergency.


Measure 6: EOP Required Content
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ECs
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REPs
EOP Content Average Score
EOP Content Percentage Passing

Measure #7- Annexes

The criteria for this measure require specific annexes for each entity type. All entities are required to include annexes that address: a pandemic and an epidemic annex, a hurricane annex including evacuation and re-entry procedures if facilities are located within a hurricane evacuation zone, a cyber and physical security incidents annex, and any additional circumstances appropriate to the entity, in addition to those annexes. Further, these are the only annexes REPs are required to include in their EOPs.

Entities with transmission or distribution facilities must also include:

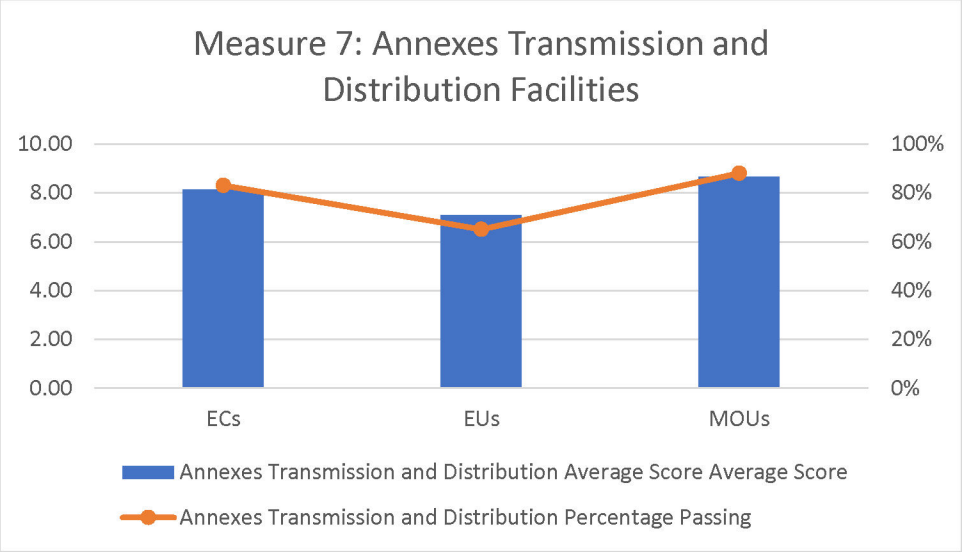
- A weather annex with operational plans for responding to cold or hot weather emergencies and a checklist for facility personnel to use during cold or hot weather emergency response. This annex must include checklists that reflect lessons learned from past weather emergencies to ensure necessary supplies and personnel are available.
- A load shed annex with procedures for controlled shedding of load and lists of priorities for restoring service to customers who were affected by load shedding. This annex must contain procedures for maintaining an accurate registry of critical load customers that is updated as necessary, but at least annually. This annex must also contain procedures addressing aiding critical load customers in the event of an unplanned outage; communicating with critical load customers during an emergency; coordinating with government and service agencies as necessary during an emergency; and training staff with respect to serving critical load customers.
- A wildfire annex.

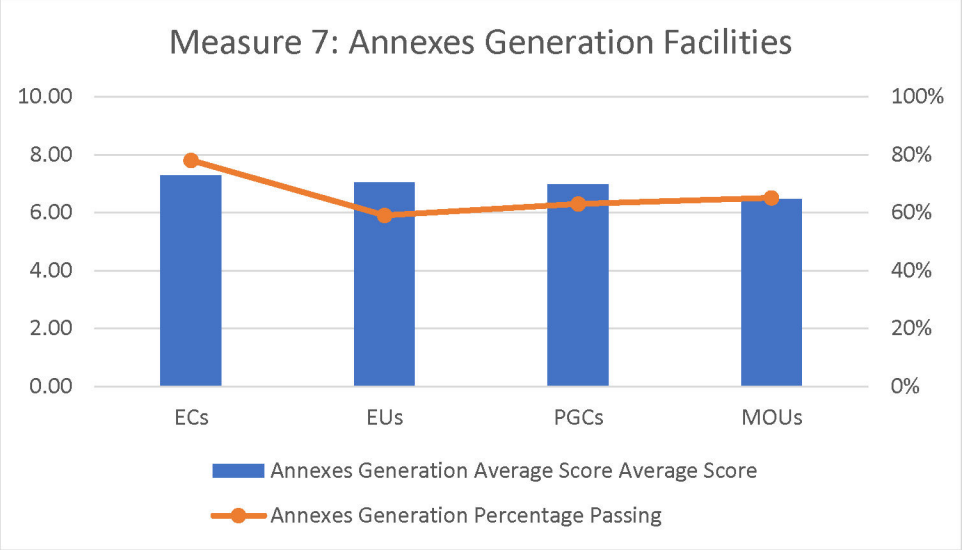
Entities with generation facilities must also include:

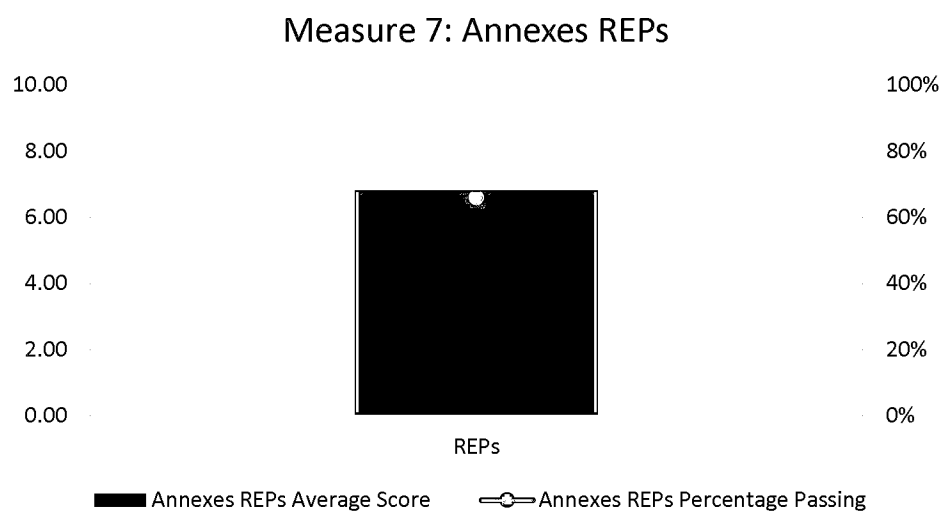
- A weather annex that meets all of the requirements of this annex produced by entities with transmission or distribution facilities and also includes a verification of the adequacy and operability of fuel switching equipment, if installed.
- A water shortage annex that addresses supply shortages of water used in the generation of electricity for generation facilities.
- A restoration of service annex that identifies plans and procedures to restore to service a generation resource that failed to start or that tripped offline due to a hazard or threat.

The required annexes and corresponding information varied based on entity type as required by 16 TAC §25.53 (e). However, many entities did not clearly list which annexes were applicable to them. So, for example, some entities did not indicate

whether they were located in a hurricane evacuation zone, such that a hurricane annex would be required.






Measure 7: Annexes REPs
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Annexes REPs Average Score
Annexes REPs Percentage Passing

Future Weather Considerations

The winter of 2022-2023 is predicted to be slightly colder than average. The coldest month is predicted to be January with an average low of 39°F and high of 57°F. This is because of the effect of La Niña which is expected to continue during the winter months of December 2022 through February 2023.

During a La Niña event, warmer than average sea surface temperatures in the Atlantic and Caribbean Seas as well as weaker tropical Atlantic trade winds predict an above-normal active Hurricane season. It is uncertain when the La Niña event will end, however, there is a 56% chance of transition to ENSO-neutral (a period when La Niña and El Niño patterns are not present) between February and April 2023.[3] According to the National Weather Service Climate Prediction Center, the seasonal temperature outlook during the summer of 2023 makes predictions for above normal temperatures.[4]

The assessment of EOP annexes for hot and cold weather emergencies and hurricanes provides an indication of the preparedness of entities considering the upcoming weather predictions. Overall, electric cooperatives and electric utilities have the highest passing rates for hurricane preparedness around 75%.[5] Electric cooperatives and power generation companies received the highest scores with respect to hot and cold weather preparedness for generation facilities. Municipally owned utilities demonstrated excellent weather emergency preparedness for transmission or distribution facilities with an overall passing rate of 88%.[6]

EOP Best Practices

To strengthen emergency response and grid resiliency, Ascenttra recommended the following best practices be considered for incorporation into EOPs. The Commission will review and consider these best practices for implementation within the bounds of its statutory authority, as appropriate.

- Equipment weather design limits should be defined to identify key factors that lead to an EOP activation. Many electric cooperatives are already doing this.
- Single points of failure for critical assets should be documented in the EOP to identify vulnerabilities and determine support systems and mitigation plans for continuity of service. Similarly, it is important to plan to ensure an uninterrupted supply chain during a weather emergency and to inventory,

[3] National Weather Service, Climate Prediction Center, El Niño/Southern Oscillation (ENSO) Diagnostic Discussion.
[4] National Weather Service, Climate Prediction Center, Seasonal Outlooks Official forecast Jun-Jul-Aug 2023.
[5] This figure was derived from Ascenttra's work papers not included in this report.
[6] This figure was derived from Ascenttra's work papers not included in this report.

maintain, and strategically deploy critical supplies in a weather emergency for efficient equipment maintenance. The identification of single points of failure and linked vulnerabilities presents an opportunity for improvement from entities with generation facilities.

- EOPs should include procedures for plant personnel to periodically test the use of backup or alternative fuel to become familiar with the process if necessary, during an EOP activation. Many power generation companies are currently implementing alternative fuel testing as documented in the EOP.
- EOPs should include a plan to maintain appropriate staffing levels and ensure all surge capacity staff are trained. Many entities address adequate staffing in the EOPs and procedures to train and deploy both internal and contracted surge staff.
- EOPs should include procedures for regular updates to an EOP, especially following an exercise or activation based on lessons learned. 16 TAC §25.53 includes basic requirements for corrective action processes. Nearly a third of entities incorporated more comprehensive continuous improvement planning.

EOP Improvement Recommendations

Ascenttra's EOP assessment identified areas of strength in the EOPs and opportunities for improvements that may be considered by the entities and the Commission. Ascenttra's recommendations include:

- Develop a template. An EOP should be crafted from a comprehensive template that includes a repository for all relevant information and contains internal cross references to streamline documents submitted. Ascenttra recommends use of a template as a best practice rather than a requirement. Each EOP must address every section. Any section that is not applicable should be clearly labeled with an explanation as to why it is not applicable.
- In addition to maintaining a record of internal distribution, require each EOP to maintain a record of external distribution to local emergency management authorities.
- Customize the EOP, as necessary. The EOP should contain information that is relevant and addresses the specific facility characteristics An EOP should clearly identify specific facility information including geographic characteristics, location and function, staffing, and equipment. geographic characteristics, location and function, staffing, and equipment.
    - All critical staffing positions (denoting hazard type, if appropriate) must be listed.
    - All critical supplies (denoting hazard-type, if appropriate) must be listed, specifying locations of supplies as well as primary and alternate vendors for obtaining additional supplies.

    - Weather design limits and single points of failure must be identified so that mitigation strategies and specific response measures can be developed.
- Adopt an all-hazards approach to emergency management. 16 TAC §25.53(d) requires an entity's EOP to address both common operational functions that are relevant across emergency types and annexes that outline the entity's response to specific types of emergencies. However, Ascenttra noted that not all entity's EOPs followed this approach. All-hazards is an emergency management best practice that emphasizes capacities and capabilities rather than scenarios or event types. This type of EOP has a base plan that focuses on processes common to all emergencies such as purpose, planning assumptions, responsibilities, plan maintenance, and authorities.
    - Annexes are used to respond to a specific emergency type and build upon the fundamentals established in the base plan. Planning for specific hazards and vulnerabilities such as weather events or other known threats should be done in annexes.
    - Appendices are used to document areas needing more specificity than the base plan, as well as confidential or perishable information (for example, contact information, training records, and event participation logs). Whenever possible, sensitive information should be located in these sections.
- Utilize checklists. Each EOP should contain checklists that are easily accessible when responding to an emergency to expedite and reliably replicate preparedness for weather events.
- Identify local coordination efforts. Each EOP should document how to coordinate with representatives at the local and regional levels. Specifically, the EOP should include how the entity will implement Incident Command System (ICS) in coordination with local emergency response.
- Require equivalent responsibilities for alternate emergency managers. Both primary and alternate emergency managers should be designated to attend meetings, participate in training and exercises, and coordinate with the emergency preparedness community.
- Specificity in affidavits. Affidavits should affirm specific EOP details rather than boilerplate language. Ambiguity should not be introduced into the affidavit (for example, "will be or has been" or "as needed" qualifiers should be eliminated).

Recommended Commission Actions

Ascenttra recommended the Commission consider the following actions:

- Amend 16 TAC §25.53 to standardize entities' EOPs and require or encourage use of the characteristics noted above.[7]
- Amend 16 TAC §25.53 to conform to Homeland Security Exercise and Evaluation Program (HSEEP) nomenclature. For example, current language uses "drills," which is one of seven different exercise types under HSEEP.
    - For entities located in a hurricane evacuation zone, a mandatory annual hurricane exercise and an exercise for another scenario should be required to ensure entities are prepared to respond to a variety of vulnerabilities.
- Collaborate with TDEM to develop a recommended curricula for emergency managers, facilitate planning workshops, and support entities in completing thorough EOPs.
    - Consider options to support entities in finding training opportunities on weather awareness and EOP development to incorporate into their EOP planning and development processes.
    - Develop processes for receiving and disseminating forecasts.
    - Provide training to personnel regarding how to identify changes in weather conditions.

[7] Tex. Util. Code § 186.007 provides the Commission with limited rulemaking authority to impose requirements on EOPs. Fully implementing Ascenttra's rulemaking recommendations may require additional statutory authority.

PUBLIC UTILITY COMMISSION OF TEXAS

WEATHER EMERGENCY PREPAREDNESS REPORT

September 29, 2022

Executive Summary

Purpose and Scope

The Public Utility Commission of Texas (Commission) selected a contractor to analyze and review the emergency operations plans (EOPs) of electric utilities, power generation companies, municipally owned utilities, electric cooperatives, and retail electric providers (collectively "entities") in 2022 with an emphasis on the weather emergency preparedness portions of the plans. The following objectives are consistent with the requirements of Section 186.007, Utilities Code.

- ☐ Review EOPs filed with the Commission,
- ☐ Analyze and determine the ability of the electric grid to withstand extreme weather events in the upcoming year,
- ☐ Consider the anticipated weather patterns for the upcoming year as forecast by the National Weather Service (NWS) or any similar state or national agency,
- ☐ Make recommendations on improving EOPs and procedures to ensure the continuity of electric service, and
- ☐ Include information on best practices and other information necessary to support weather emergency preparedness.

In total, 691 plans filed in accordance with 16 Texas Administrative Code (TAC) § 25.53 deadlines in April and June 2022 were reviewed. Each EOP was analyzed for conformance with 16 TAC § 25.53. to identify best practices, and to assess the robustness of Texas electric entities' ability to manage emergencies due to severe weather conditions and projected peak season conditions.

Analysis of Findings and Best Practices

To assess the criteria from 16 TAC § 25.53, an assessment tool was developed to evaluate an entity's EOP (see Appendix C), and the team performing the evaluation considered 13 additional criteria. Identified as best practices within the emergency management community, the additional criteria, if adopted, would strengthen an entity's ability to effectively respond to emergencies. The best practices were used to inform recommendations to strengthen each entity's mitigation, preparedness, and response efforts in an emergency event.

Section V, Best Practices to Support Weather Emergency Preparedness and Withstand Extreme Weather Events, describes weather preparedness best practices and reviews how the entities currently stand in their utilization of them. Whereas Section III, Review of Emergency Operations Plans, assesses the current state of the EOPs, the best practices section indicates the desired preparedness goals and provides a roadmap to help entities progress from their current state to the desired weather preparedness outcomes.

Conclusions and Recommendations

The EOPs submitted to the Commission contained varying levels of detail and approaches. The EOPs were scored for conformance with each of the criteria in 16 TAC § 25.53 as well as with weather preparedness best practices. The goal of the report is to make recommendations on improving emergency operations plans and procedures to ensure the continuity of electric service. To accomplish this, the entities' EOPs were reviewed and analyzed to determine the ability of the electric grid to recover from extreme weather events in the upcoming year based on anticipated weather patterns.

Recommendations were developed by assessing gaps in contrast to emergency management best practices. The development of a comprehensive, foundational, all-hazards emergency management program for each entity will largely address the areas noted for improvement. All-hazards is an emergency management approach that focuses on capacities and capabilities through varying circumstances. The list below summarizes the conclusions and recommendations to the Commission outlined in Section VI of this report.

- ☐ Enhance coordination with stakeholders to identify interdependencies so that relationships are well established before an emergency occurs. Entities should designate primary and alternate emergency managers to collaborate with representatives at the local, regional, state, and federal levels.
- ☐ Improve format and usability of EOPs by raising awareness for how they are used, defining elements and best practices, understanding the collaborative nature of these documents, and developing a continuous improvement process. By working from guidance of an instructive template developed by the Commission in coordination with the Texas Division of Emergency Management (TDEM), entities should rework EOPs focusing the base plan on an all-hazards approach while including hazard-specific planning in the annexes. Perishable and sensitive information should be relocated to appendices. Including operational checklists easily accessible in the EOP will helps responders seeking critical information during an emergency. The Commission in coordination with TDEM should deliver planning webinars and workshops to support the entities in understanding new requirements.
- ☐ Support weather preparedness and response with awareness of distinctions and integrations with weatherization and weather preparedness best practices such as readying operations based on weather forecasts or observed conditions. A crucial step in ensuring this happens is implementing training for field-level recognition and response to changing weather conditions.
- ☐ Identify resource requirements and availability with regard to both staffing and supplies to ensure operations can be maintained through an emergency. Understanding the risks in comparison to resources requirements will help organizations acquire and redistribute capabilities and capacities with efforts such as cross-training and inventorying.

- ☐ Develop robust training and exercise programs to increase knowledge and assess disaster responses, thereby validating plans, training personnel, identifying shortfalls, and maintaining a cycle of continuous improvement. The Commission should coordinate with TDEM to leverage existing programs to elevate the knowledge and abilities to respond to disasters. Topics to incorporate into training and exercise programs include all-hazards approach, distinctions between weather preparedness and weatherization, developing an effective EOP, and learning standards in emergency management exercises.
- ☐ Institute policy modifications to standardize and mandate emergency preparedness measures. To bolster the Commission and the entities' ability to respond to emergency incidents during extreme weather events, the Commission should consider amending 16 TAC 25.53 to require entities to incorporate the recommendations outlined in this report into their EOPs.

Using the regulations in concert with recommendations in improving planning practices should result in increased preparedness within the industry. This strategy should provide overall increase of the ability of the grid to withstand extreme weather events

Table of Contents

I. Background

Texas Utilities Code § 186.007 requires the Public Utility Commission of Texas (Commission) to analyze the emergency operations plans (EOPs) of electric utilities, power generation companies, municipally owned utilities, electric cooperatives that operate generation facilities in Texas, and retail electric providers. The Commission's review of the EOPs must assess the ability of the electric grid to withstand extreme weather events in the upcoming year considering the anticipated weather patterns and include recommendations to improve the EOPs to ensure continuity of electric service. On February 25, 2022, the Commission adopted amendments to its electric service EOP rule, 16 Texas Administrative Code (TAC) § 25.53. This report assesses the EOP's consistency with that rule.

II. Purpose and Scope

The Commission selected an emergency management contractor to develop the weather emergency preparedness report on power weatherization preparedness for 2022. The objectives for this report are:

- ☐ Review EOPs filed with the Commission;
- ☐ Analyze and determine the ability of the electric grid to withstand extreme weather events in the upcoming year;
- ☐ Consider the anticipated weather patterns for the upcoming year as forecast by the National Weather Service or any similar state or national agency;
- ☐ Make recommendations on improving EOPs and procedures to ensure the continuity of electric service; and
- ☐ Include information on best practices and other information necessary to support weather emergency preparedness.

The evaluation team analyzed and reviewed 691 EOPs filed with the Commission. These plans were from 69 electric cooperatives, 13 electric utilities, 72 municipally owned utilities, 438 power generating companies, and 99 retail electric providers.

III. Review of Emergency Operations Plans

All registered electric entities in Texas, defined as an electric cooperative, electric utility, power generation company, municipally owned utility, retail electric provider, or the Electric Reliability Council of Texas (ERCOT) are required by 16 TAC § 25.53 to annually file a current EOP with the Commission. The 691 EOPs were reviewed from April through August 2022.

The objectives of this review were to evaluate the EOPs for conformance with 16 TAC § 25.53, to assess the ability of the electric grid to withstand severe weather, and to make recommendations to improve future EOPs.

To achieve these objectives, the evaluation team developed an assessment tool to evaluate all EOP submissions. The tool contained the following key sections.

- ☐ Conformance measures consisted of 53 criteria directly derived from 16 TAC § 25.53. Not every criterion applied to every entity type.
- ☐ Weather preparedness best practices, which consisted of 13 practices, and focused on industry standards for weather preparedness practices.[1]

When assessing the EOPs against 16 TAC § 25.53 and weather preparedness best practices, the evaluation team integrated guidance from Federal Emergency Management Agency (FEMA) Comprehensive Preparedness Guide (CPG) 101. Using FEMA CPG 101 provided nationally recognized and commonly employed benchmarks to evaluate the EOPs. To determine conformance, the 53 criteria were divided into seven headings as organized in 16 TAC § 25.53:

- ☐ EOP filing
- ☐ Executive summary
- ☐ Record of distribution
- ☐ Emergency contacts
- ☐ Affidavit
- ☐ EOP content
- ☐ Required annexes

Scoring

Each of the 691 EOPs were reviewed, analyzed, and assessed a score for each of the applicable 53 criteria. Scores ranged from zero (worst) to ten (best). Appendix C lists the individual specific criteria that fall under each heading and defines the numerical scores. The criteria within each heading were averaged to arrive at a score for each heading. After determining a score for each heading for every EOP, the average score for that heading for all EOPs combined was calculated and presented in Graph A- Overall Average Scores.

[1] These practices were derived from lessons learned and recommendations from the 2012 Public Utility Commission of Texas (PUCT) Weatherization Preparedness Reporting, Federal Energy Regulatory Commission (FERC) August 2011 report, North American Electric Reliability Corporation (NERC) A Lessons Learned, the June 2011 ERCOT Weatherization Workshop, Texas Regional Entities November 2011 presentation, and the El Paso Electric May 2011 report on the February 2011 emergency incident.

Conformance Percentage

As mentioned above, a numerical score was provided for each criterion, which was averaged to calculate an overall score for each of the seven headings; this process was repeated for all EOPs. A score of seven and above indicates the specific heading for that entity conforms with 16 TAC § 25.53. The percentage of all EOPs in which a particular heading was found to conform with 16 TAC § 25.53 was calculated and is presented in Graph B - Conformance Percentage.

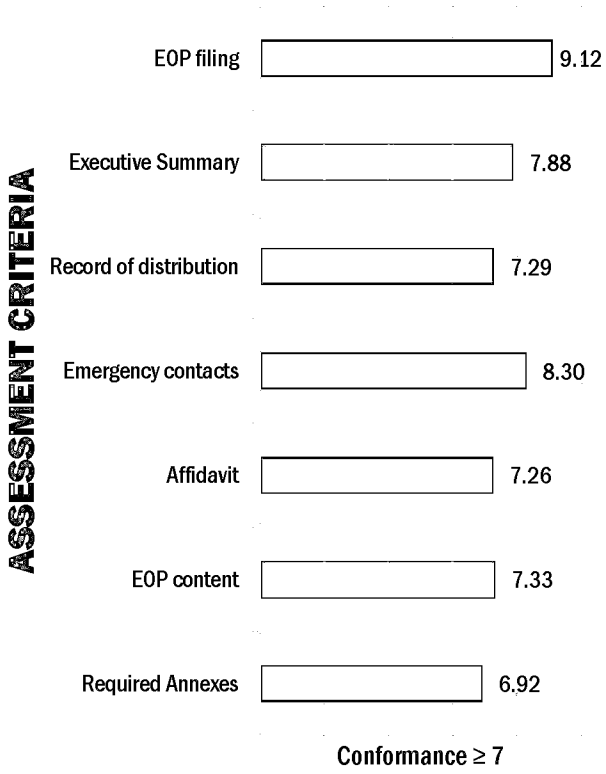
As an example, assume that Heading X for 600 EOPs achieved a score of seven or greater, indicating a score conforming with 16 TAC § 25.53. The remaining 91 EOPs (of the 691 total) received a score of less than seven for Heading X, thereby not conforming. In this example, EOPs achieved an 87% conformance percentage for Heading X (600 divided by 691 times 100).

To review scoring, conformance percentages, and findings by entity type (i.e., electric cooperative, electric utility, municipally owned utility, power generation company, retail electric provider), please refer to Appendices D, E, F, G, and H.

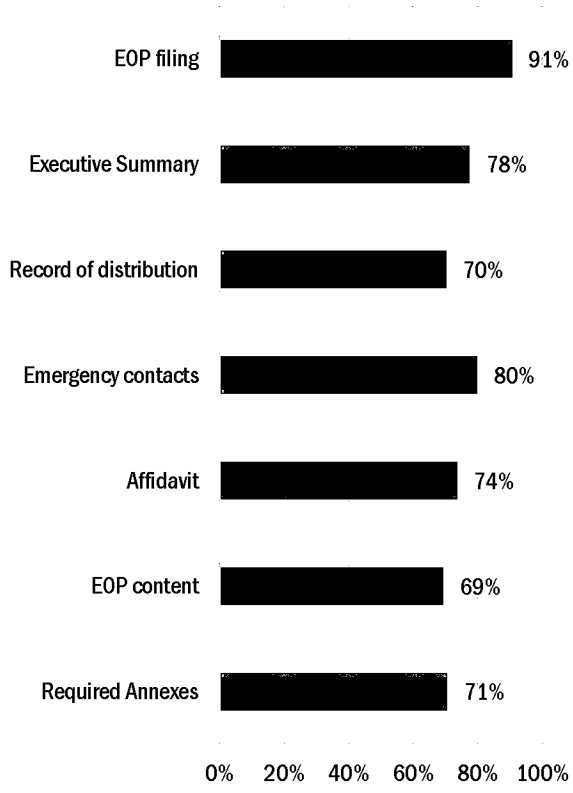
16 TAC § 25.53 Conformance Findings of All EOPs

This section examines the in-depth findings regarding conformance with 16 TAC § 25.53 for 2022 for all entity types combined. The graphs show the average scores and conformance percentages for each of these criteria.

Graph B



Graph A



Criterion #1: EOP Filing (9.12/10)

Criterion #1 measured whether each EOP was filed as required by 16 TAC § 25.53. Specifically, did the entity file a complete EOP in a timely manner with all confidential sections removed? For entities within ERCOT, was an unredacted EOP filed with ERCOT? For entities outside of ERCOT, was an unredacted version made available to Commission staff for review? Was the EOP continuously maintained and updated?

The Commission, as the regulatory body, must have access to current EOPs to determine an entity's ability to appropriately respond to an adverse weather event. Confidentiality requirements are also necessary to protect critical infrastructure and personal data.

> **Findings:** Overall, Criterion #1 received the highest average score across each entity type. 91% of the EOPs achieved satisfactory scores of 7.0 or higher, without taking timeliness into consideration. More than 16% of all plans were submitted late. Differences found were usually based on the submission of individual EOPs rather than by entity type. In addition to a high overall average score, each subcomponent

of the headings received satisfactory scores, with the lowest subcategory being continued maintenance of EOPs[2] at 78% conformance.

A notable attribute identified in many EOPs is the submission of a compilation of standalone documents developed for other purposes. This format presents extreme difficulty in locating necessary information quicky and effectively during an emergency. Additionally, EOPs were often marked "confidential" or "for internal use only." This contravenes a primary objective of EOPs to coordinate with external stakeholders such as emergency responders and contractors.

Criterion #2: Executive Summary (7.88/10)

Each EOP must have an executive summary describing the contents and policies contained within the EOP. The executive summary must include a reference to specific sections along with page numbers of the entity's EOP that correspond with the requirements of 16 TAC § 25.53. An affidavit must be included as part of the executive summary.

The executive summary provides the Commission and other readers with an overview that demonstrates the basic requirements have been met and where to find the appropriate language.

Findings: 78% of EOPs conformed with Criterion #2. Differences were observed among the various entity types. The municipally owned utilities performed well with 88% conforming while the electric cooperatives were 70%. Other entity types met the requirements at the following rates: electric utilities 77%, power generation companies 78%, and retail electric providers 74%.

Criterion #3: Record of Distribution (7.29/10)

Each EOP was reviewed to ensure that a completed record of distribution was included in a table format containing the names and titles of individuals within the organization with access to and training on the EOP.

The record of distribution is critical to documenting the dissemination of the EOP as well as whether the recipients have been familiarized with the information and procedures contained within it.

Findings: 70% of EOPs conformed with Criteria #3. Municipally owned utilities achieved the highest conformance at 88%, and power generation companies the lowest at 67%. Electric cooperatives achieved at 67% conformance; electric utilities were 79% and retail electric providers were 72% conformant. Trends were more closely correlated with the quality and comprehensiveness of individual EOPs as opposed to the three sub-category scores. In other words, trends in this area were

[2] Continued maintenance of plans was assessed by the revision history in each EOP.

seen more within specific plans – strong plans in general scored well here - rather than across multiple plans. Assessing the records of distribution was complicated by the policy language that reads "dates of access to or training on the EOP" as these can be separate criteria; however, only slightly more than half of the plans included any date.

Criterion #4: Emergency Contacts (8.30/10)

Primary emergency contacts must be included in the EOP, and backup emergency contacts must be provided, if possible. Specific individuals must be identified as available immediately to address urgent requests and questions from the Commission during an emergency.

Providing emergency contact information for each facility allows the Commission to expeditiously communicate and coordinate with the appropriate individual within each organization.

Findings: 80% of entities conformed with documentation of emergency contacts in the EOP. Most of the entities included primary emergency contacts and, although not required, also provided alternate contacts or provided sufficient numbers of primary contacts to serve the same purpose. The retail electric providers achieved the highest conformance with 85%. At the low end, only 66% of electric cooperatives included required contact information.

Across all entity types, the contact information was difficult to find and poorly organized. It was often located in the base plan, meaning routine personnel changes would render the basic document outdated. The second subcomponent of this criterion was providing contact information for one or more individuals to address urgent requests and questions from the Commission. Inclusion of this information was moderate across all entity types with an overall satisfactory conformance rate of 61%.

Criterion #5: Affidavit (7.26/10)

Each entity must file an affidavit from its highest-ranking representative, official, or officer with binding authority affirming that relevant operating personnel have received training on the applicable portions of the EOP, the EOP has been reviewed and approved by appropriate executives, drills are conducted, the EOP or a summary has been distributed to the appropriate local jurisdictions, a business continuity plan is maintained, and that emergency management personnel designated to interact with emergency management officials have received basic training.

The affidavit is an essential document of record that is designed to promote accountability by ensuring the highest-ranking officials of each entity are aware of and implementing the requirements established in the EOP.

> **Findings:** 74% of entities met the requirements of Criterion #5. The reviewers frequently observed that the language required in the affidavit was generic lacking specific details relating the requirement to the specific EOP. In some instances, the content affirmed in the affidavit was omitted from the EOP. The municipally owned utilities received the highest conformance of 89% and at 69% the power generation companies were the lowest. The three remaining entity types received conformance scores in a range from 71% to 85%. The lowest subcomponent criterion addressing Incident Command System (ICS) training overall lowest rate of at 64%.

Criterion #6: EOP Content (7.33/10)

This criterion outlines the required components in the main body of the EOP. The EOP must contain an approval and implementation section that introduces the EOP, lists the individual's tasked with maintaining, implementing, and updating the EOP, provides a revision control summary which includes the date the EOP was most recently updated and approved, and a statement that the current EOP supersedes previous EOPs. The next requirement is a communication plan which addresses how the entities will communicate with various groups including customers, governmental and regulatory entities, and the media among others. A complete list of applicable public groups can be found in Appendix C. Additional required components in the EOP consist of plans to maintain pre-identified supplies and to maintain adequate staffing during emergency response. An EOP must address how an entity identifies and plans for weather-related hazards, including tornadoes, hurricanes, extreme cold weather, extreme hot weather, drought, and flooding. The necessary processes and procedures the entity follows to activate its EOP must also be outlined.

This section is important because it evaluates the foundational content of every EOP, regardless of the type of entity, while addressing key potential points of failure in emergency responses. This section is where the organizational coordination processes and procedures should be documented.

> **Findings:** The average score for this criterion was 7.33 out of 10 with 69% overall conformance. The EOPs were presented in a multitude of formats, including content sequenced according to the regulation, in the form of occupant emergency plans, and even some that are more appropriately Hazardous Waste Operations and Emergency Response plans written to satisfy an entirely different federal requirement (1910 Code of Federal Regulations 10.20) for Local Emergency Planning Committees. Very few entities used a recognized emergency operations plan format designed for optimizing coordination with emergency managers and first responders.

Some plans were generated at the corporate level or by a contractor and then replicated for each facility. This raises a major concern as the plans neither included site specific information (other than the respective facility name and corresponding contact information) nor were specific to the location with its associated hazards and resources; few plans included the facility address or identified the local jurisdiction(s). This shortcut translated into an EOP which ignores critical planning and coordinating mechanisms within the local community.

The average score in this section reflects an overarching trend that demonstrates that plans scored better on the administrative requirements while lacking operational aspects such as response processes and procedures like communication (both internal and external), ensuring adequate staffing, maintaining critical supplies, implementing procedures for weather-related emergencies, and activating the EOP. The conformance percentage for the more easily implemented administrative components of the EOP, such as processes for revisions and approval is at 80%, and more than offset the lower scores on the more crucial, operational aspects of the EOPs. Processes for activating the EOP consistently scored the lowest across all entity types.

Criterion #7: Required Annexes (6.92/10)

The annexes required under 16 TAC § 25.53 differ by entity type and are grouped as: 1) those annexes required of entities with transmission and/or distribution systems; 2) annexes required by generation entities; and 3) annexes required of retail electric providers. Collectively across all three groups, conformance was 71% of all entities with an average score of 6.93.

In addition to annexes specific to each group, all entities were required to have a common set of annexes. Each group was assessed for the specific annexes required for the entities in that group as well as for the commonly required annexes. The exception is retail electric providers which were required to include in their EOP only the common annexes. The common annexes include a pandemic and epidemic annex, a cybersecurity annex, and a physical security annex. If a facility is located within a hurricane evacuation zone, as determined by the Texas Division of Emergency Management (TDEM), a hurricane annex including evacuation and re-entry procedures is also required. All of the EOPs must also include a weather annex; however, the contents required vary by entity type and were thus assessed as part of the required annexes for that group.

Electric cooperatives, electric utilities, and municipally owned utilities operating transmission or distribution facilities must include operational plans for responding to cold or hot weather emergencies, a checklist for transmission or distribution facility personnel to use during cold or hot weather emergency response, and language ensuring necessary supplies and personnel are available throughout the weather emergency.

The EOPs for the entities that operate transmission or distribution facilities must also include a load shed annex including procedures for controlled shedding of load, a priority listing for restoring service to customers who were affected by load shedding, a registry of critical load customers, and procedures for maintaining and updating the registry at least annually. The load shed annex must also include procedures that describe assistance to critical load customers in the event of unplanned outages, communicating with critical load customers during an emergency, coordinating with government and service agencies as necessary during an emergency, and training staff with respect to serving critical load customers.

As mentioned above, there is also a set of requirements pertaining to entities with generation resources. In addition to the power generating companies, this group included a subset of other entity types, such as municipally owned utilities that maintain a generation resource.

The weather annex for these utilities that operate generation resources must include verification of the adequacy and operability of fuel switching equipment, if installed, checklist(s) for generation resource personnel to use during a cold or hot weather emergency response that reflects lessons learned from past weather emergencies, and language to ensure necessary supplies and personnel are available through the weather emergency.

In addition, those that operate generation resources are also required to include a water shortage annex addressing a supply shortage or a shortage of water used in the generation of electricity. Another requirement is for a restoration of service annex that identifies plans and procedures intended to restore to service a generation resource that failed to start or that ripped offline due to a hazard or threat. And as is the case for the transmission and distribution entities, generation entities must also have the common annexes, such as pandemic and cybersecurity annexes.

Again, retail electric providers were required only to have those annexes that were found in common for all three groups. Where transmission and distribution utilities were assessed for both their uniquely required annexes and the common annexes, and generation utilities were assessed for their uniquely required annexes and the common annexes, retail electric providers were assessed solely for those annexes that were in common across all three groups. As with the other entity types, more specific details are found in the annex for their specific entity type, which for retail electric providers is Appendix H.

Annexes are key elements in providing response-specific information for each type of entity to coordinate its emergency response plan and resources with stakeholders including local responders, state oversight, contractors, and customers. This is the location within each EOP where, among other important considerations, each entity should address its response

plans for weather-related emergencies and their aftermath. The body of the EOP addresses key operational considerations that apply across all potential emergency situations, whereas the annexes are more specifically focused.

Findings: As described above, all entities are required to include pandemic, cyber, and physical security annexes. Even though the United States is still in the midst of a pandemic, only 70% of plans included a pandemic plan which scored 7.0 or higher. The cyber and physical security annexes have slightly lower conformance percentages at 64% and 66% respectively.

Additional required annexes are based on which group or groups the entity type (i.e., electric cooperative, electric utility, municipally owned utility, power generation company, or retail electric provider) fall under. 16 TAC § 25.53 requires each entity to cite exceptions to the requirements; however, many entities did not provide this information which caused great challenges in identifying and evaluating applicable annexes. Two prominent examples were encountered in the analysis of municipally owned utilities' EOPs. Many of those that operate generation facilities or are located within hurricane evacuation zones did not identify either detail as required. Across all entity types, only 65% of the submitted hurricane annexes achieved a conformance score over 7.0; however, many plans failed to specify whether they were or were not located in a hurricane evacuation zone.

The entities with transmission or distribution facilities received a high conformance percentage at 88% for submission of a load shed annex. A significant number, 80%, achieved a 7.0 or higher score because they included their procedures for coordination with customers, government and service agencies, and training staff. These same organizations must also include a weather annex with operational plans and checklists; while 89% of the municipally owned utilities conformed in providing such an annex, almost half of the electric co-ops and nearly 40% of the electric utilities scored below 7.0.

Entities that have power generation resources received 66% conformance in fulfilling annex requirements. The same trend noted previously with municipally owned utility EOPs was again observed in that they did not include information specifying operation of generation facilities.

During the review of power generation companies, it was discovered that solar and wind facilities are required to include a water shortage annex and restoration of service annexes; however, it was noted by several that these are not applicable to these types of facilities and were thus not scored in this subcategory. Although these types of facilities do not use water in the generation of electric power, it was noted that the majority of plans across all entity types failed to address the loss of water for

other purposes, such as for business operations in their facilities or offices. Water is such a daily necessity that it is likely that all sites, even those operated remotely, should consider the need and plan accordingly. A remote site, for example, might have to house temporary workers to rebuild damaged components, or perhaps to wash off dust-covered solar panels. Even if, ultimately, there is no such requirement, the planning process should ensure that detail is discussed; it rarely was.

Retail electric providers overall conformance was 66%, scoring 6.81 on the four annexes on which they were assessed. These ranged from 52% conformance on the requirement to have a hurricane annex to the other three required annexes scoring at about 70% on average.

IV. Anticipated Weather Patterns for the Upcoming Year

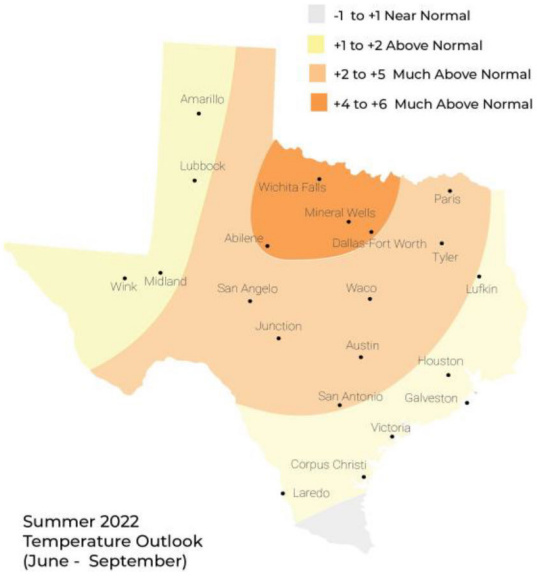
This section provides an overview of the current and future severe weather events that will affect the Texas electric grid. Future forecasts, as well as additional weather phenomenon are included for consideration and context but remain predictions only.

Weather Trends

Predicted weather trends and forecasts for Texas by the National Weather Service (NWS) from November 2021 to October 2022 to date have been mostly accurate with some slight deviations. Below are the predicted forecasts for the 2021-2022 year as reported[3].

- Coldest periods in mid- to late November, mid- to late December, and early and late January.
- April and May were warmer than normal, with rainfall above normal.
- Hottest periods in late May, June and from mid-July into mid-August.
- Precipitation was slightly above normal as predicted.
- September and October are expected to be warmer and drier than normal.

According to the data gathered by the NWS, Texas is predicted to have a slight increase in the number of 100°+ days over the next 10 years. Already, parts of Central Texas have documented having its hottest May, June, and July on record, with Camp Mabry, Austin's official reporting site, recording 68 triple-digit days this year alone.[4] These temperatures, combined with a prolonged La Niña event that started in late summer of 2020, have resulted in a significant drought, impacting over 80% of Texas. This data is a part of a trend that shows that extreme heat will become more frequent, as well as an expectation that wintertime temperatures will also become milder on average.[5]



Summer 2022
Temperature Outlook
(June - September)

Drought conditions also create a cyclical pattern: intensifying the heat, which increases the temperatures during late spring that will carry over into the summer and perhaps early fall,

[3] https://www.cpc.ncep.noaa.gov/

[4] Adams, Christopher. "2022 ranks 3rd for most triple-digit days in a single year. *KXAN Weather Blog*. 22 Aug. 2022. https://www.kxan.com/weather/weather-blog/2022-ranks-8th-for-most-triple-digit-days-in-a-single-year/#:~:text=10%2C%20Camp%20Mabry%2C%20Austin's%20official,a%20total%20of%2060%20times.&text=That%20means%202022%20is%20now,ever%2C%20with%2090%20in%20total.

[5] Office of the Texas State Climatologist. "Assessment of Historic and Future Trends of Extreme Weather in Texas, 1900-2036". 2021. https://climatexas.tamu.edu/files/ClimateReport-1900to2036-2021Update

according to NWS forecasters. In addition to more extreme temperatures, the State of Texas climatologist has predicted much drier conditions across the state. The entire state of Texas saw below-normal rainfall from January 1 through mid-May and in that period was also recorded as being the 12th driest start of a year out of the 127-year recorded history. If current weather conditions continue, by the end of 2022, this year will be the 10th driest in the State of Texas' recorded history. The current, prolonged La Niña event has been a significant driver of the weather pattern this year in Texas, as above-normal temperatures and below-normal precipitation are common with La Niña events. Until La Niña decreases in intensity, or there is a major rain event covering a large area of the state, the NWS predicts that the dry weather will continue to impact the State of Texas.

Forecasts for 2022-2023

According to the NWS, the current La Niña is "expected to continue, which changes for La Niña gradually decreasing from 85% in the coming season to 60% during December to February 2022-2023."[6] This indicates that El Niño-Southern Oscillation (ENSO) pattern, or the recurring climate pattern involving changes in the temperature of waters in the central and eastern tropical Pacific Ocean, is becoming more neutral, or more average temperatures and normal precipitation amounts. This indicates a slightly colder than normal winter for the upcoming winter of 2022-2023 with the coldest month being January with an average low of 39°F and high of 57°F. Current forecasts and analyses agree with the longer-term forecasts which predict that La Niña will continue to affect the state into the winter of 2022-2023[7].

Additional Weather Considerations

A major weather consideration when planning for critical infrastructure improvements is the hurricane season. Due to the compounded factors of La Nina, warmer than average sea surface temperatures in the Atlantic Ocean and the Caribbean Sea, weaker tropical Atlantic trade winds, and an enhanced West African monsoon, the National Hurricane Center as well as the National Oceanic and Atmospheric Administration (NOAA) have predicted an active hurricane season.[8] According to the NOAA Climate Prediction Center's 2022 Atlantic Hurricane Season forecast, it was predicted in May 2022 that this year's hurricane season

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[6] United States Department of Commerce. National Oceanic and Atmospheric Administration Climate Prediction Center. *El Nino/Southern Oscillation Diagnostic Discussion.* 2022 https://www.cpc.ncep.noaa.gov/products/analysis_monitoring/enso_advisory/ensodisc.shtml

[7] https://www.cpc.ncep.noaa.gov/products/analysis_monitoring/enso_advisory/ensodisc.shtml

[8] CSU MarComm Staff. "CSU researchers reduce forecast but continue to predict active 2022 Atlantic hurricane season". 4, Aug. 2022, https://engr.source.colostate.edu/csu-researchers-reduce-forecast-but-continue-to-predict-active-2022-atlantic-hurricane-season/#:~:text=Colorado%20State%20University%20hurricane%20researchers,anticipation%20of%20an%20active%20season.

should see an above-average number of storms.[9] As of August 2022, this prediction has slightly decreased from a 65% to 60% "likelihood of an above-normal Atlantic hurricane season."[10] The NOAA still warns that the "atmospheric and oceanic conditions still favor an above-normal 2022 Atlantic hurricane season" and that storms could occur outside of the normal hurricane season.[11],[12] While long-range hurricane forecasts cannot predict specific paths of hurricanes, the NOAA predicts the 2022 hurricane season will have 18 to 22 named storms, 7 to 12 of those being hurricanes, and 4 to 6 of those hurricanes becoming major hurricanes (Category 3 or greater). In May, NOAA also anticipated that 3 to 6 of those storms may be in the Gulf of Mexico for the 2022 season, with slightly better than 50% likelihood of a Texas landfall[13]. According to the NWS, the mostly likely time for a hurricane to strike the Texas coast is in August.[14] At the time of this report, August ended with no major storms making landfall.

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[9] United States Department of Commerce. National Oceanic and Atmospheric Administration Climate Prediction Center. *NOAA predicts above-normal 2022 Atlantic Hurricane Season. 2022 https://www.noaa.gov/news-release/noaa-predicts-above-normal-2022-atlantic-hurricane-season*

[10] United States Department of Commerce. National Oceanic and Atmospheric Administration Climate Prediction Center. *NOAA still expects above-normal Atlantic hurricane season. 2022 https://www.noaa.gov/news-release/noaa-still-expects-above-normal-atlantic-hurricane-season*

[11] Ibid

[12] Metz, Jason. "Experts Predict "Above Average" 2022 Hurricane Season. *Forbes Advisor, 12, Aug. 2022, https://www.forbes.com/advisor/homeowners-insurance/2022-hurricane-season/.*

[13] United States Department of Commerce. National Oceanic and Atmospheric Administration Climate Prediction Center. *NOAA predicts above-normal 2022 Atlantic Hurricane Season. 2022 https://www.noaa.gov/news-release/noaa-predicts-above-normal-2022-atlantic-hurricane-season*

[14] Roth, David. "Texas Hurricane History. *National Weather Service.* 6, Jan. 2010. https://www.weather.gov/media/lch/events/txhurricanehistory.pdf

V. Best Practices to Support Weather Emergency Preparedness and Withstand Extreme Weather Events

The study of the ability of the grid to withstand extreme weather events naturally led to the identification of best practices in both emergency preparedness planning and the electric utility industry.[15] A number of these practices are already referenced in the current version of 16 TAC § 25.53; however, while to some extent they overlap with current requirements, they lack the specificity of what is described below. These best practices are not yet part of the regulations and not well disseminated within the electric utility industry. It is possible they are implemented but not included in the EOPs.

A key best practice is identification of single points of failure in an entity's operations and planning for such failures. Another best practice is to use the Incident Command System (ICS), which serves not only to assist an entity in organizing and executing its response to an emergency event but also to adhere to a response system adopted and used by emergency responders and organizations nationwide

All EOPs were assessed for inclusion of these practices. The same sliding scale used in the review of EOPs and described in Appendix C was also used to indicate levels of progress toward achievement of best practice implementation. Each of the best practices below are aligned with one or more of the recommendations detailed in the following section.

Best Practice #1: Awareness of Plant Weather Design Limits

Generator and plant equipment design limits regarding weather should be defined in the planning and assumptions section of the EOP. Defining weather design limits in the EOP, in coordination with the ability to identify imminent weather events (Best Practice #4), would help entities identify key factors in determining when to transition from routine daily operations to enhanced operations by activating the EOP.

While pertinent only to the categories of electric cooperatives, electric utilities, municipally owned utilities that operate a generation resource in Texas, and power generation companies, understanding weather design limits is a key element in determining the ability of the grid to withstand extreme weather events. The current assessment shows electric cooperatives have made the greatest progress in documenting these measures with 54% already noting weather design limits in their EOPs. Future amendments of 16 TAC § 25.53 should require entities to assess these critical parameters, implement mitigations where

[15] These practices were derived from lessons learned and recommendations from the 2012 Public Utility Commission of Texas (PUCT) Weatherization Preparedness Reporting, Federal Energy Regulatory Commission (FERC) August 2011 report, North American Electric Reliability Corporation A Lessons Learned, the June 2011 Electric Reliability Council of Texas (ERCOT) Weatherization Workshop, Texas Regional Entities November 2011 presentation, and the El Paso Electric May 2011 report on the February 2011 emergency incident.

possible, and document them in their EOPs. This best practice is supported by the recommendation to support weather preparedness and response which identifies equipment limitations.

Best Practice #2: Identification of Single Points of Failure

Known single points of failure for critical assets should be specified in the EOP. Understanding single points of failure for equipment helps facilities identify critical backup equipment and inventory to always keep on hand to ensure operations are maintained. Further, knowing these points of failure is necessary for an entity to adequately address such concerns in its EOP.

Documentation of single points of failure in an EOP is applicable only to electric cooperatives, electric utilities, municipally owned utilities that operate a generation resource in Texas, and power generation companies. Demonstrated progress was low at 27%. Identification of these critical points, especially when linked to vulnerabilities, provides a strong baseline in determining support systems such as appropriate personnel training, contract support services, and inventory/supply chain maintenance. In continuity of operations, these processes are part of a business process analysis/business impact analysis (BPA/BIA) which is designed to determine business weaknesses. The goal is to leverage that information to develop and implement mitigation strategies. Recommendations related to this best practice are identification of resource requirements and availability as well as support of weather preparedness and response.

Best Practice #3: Coordinated Operational Performance

The EOP should address continued operational performance across a wide spectrum of weather-related events. All-hazards EOPs are the national standard and encouraged by FEMA. This approach ensures entities can operate through a variety of complex circumstances either with or without notice. EOPs drafted too narrowly have limited effectiveness when an event outside of its focus occurs. It is unlikely that, given the complexity and interdependencies of the grid, all possible emergency scenarios can be identified and planned for. A fundamentally sound all-hazards approach can mitigate that risk.

Across all categories all-hazards performance is an essential concept of continued operational performance. All-hazards focuses on capabilities and capacities as opposed to types of events or scenarios; it is the foundation of modern emergency management and provides enhanced preparedness for the ever-increasing complexity of disasters. An effective all-hazards plan must be coordinated with a substantial array of stakeholders as appropriate not only for the specific entity but for its geographic area as well. The planning process and the actual all-hazards EOP thus combine to provide a coordinated process for response to any emergency regardless of the type of event. Few of the plans reviewed were

all-hazards but rather were focused on unique plans for particular situations or events. An improved framework can simultaneously streamline and enhance operational performance. This is a critical component of a successful response and the enhancement of these capabilities is found in recommendations for coordination with stakeholders and improvement of format and usability of EOPs.

Best Practice #4: Specific Documentation for Extreme Weather Operations

The EOP should contain a documented concept of operations and procedures for ensuring all critical failure points are addressed prior to and during the onset of extreme weather. Repeatable procedures are critical to ensure a consistent response when routine operations are compromised by weather or any other unexpected factor.

Only 37% of entities included within their EOPs tools such as checklists. Standardized forms ensure consistency regardless of the level of personnel experience or type of disaster. When located within the EOP itself, these forms can be easily found during an emergency response. Checklists solve the issues of both the tedium of routine preparations as well as the additional stress encountered surrounding a disaster response. Effectiveness of checklists is reinforced when they are an integral part of the training and exercise programs. Integration of these components is discussed further in the recommendations for improvement of format and usability of EOPs and development of robust training and exercise programs.

Best Practice #5: Identification of Imminent Weather Events

The EOP should explain the processes used to recognize an imminent weather event and to proactively activate and implement the EOP for the event. Recognizing a significant weather event is about to occur is essential in understanding when to activate emergency preparedness procedures. Proactive responses are preferable and more effective than solely reactive ones.

Event identification demonstrated the greatest progress (63%) among the best practices for all EOPs reviewed, However, in many cases while procedures were included, they lacked sufficient detail for implementation. The first part of this best practice, recognition of imminent weather events, was the strongest; however, many EOPs, lacked procedures for notifying personnel. Few plans addressed proactively activating and implementing the EOP. In other words, many plans mention activating the EOP without recognition that doing so implies following the procedures. When such language was included, the accompanying procedures often were entirely absent. The recommendation of supporting weather preparedness and response will improve the ability of entities to recognize imminent hazards and take appropriate steps for preparedness and response.

Best Practice #6: Continuation of Supply Chain

The EOP should describe the process for how the entity will continue an uninterrupted supply chain during extreme weather events. Significant interdependencies exist in the generation of electricity; one missing link in the supply chain has the potential to disrupt the ability to deliver electricity to customers. The weather event may also impact delivery mechanisms.

Just under a third, or 32%, of plans addressed how they would continue an uninterrupted supply chain. When the issue was covered, the plan often lacked the specific information required to understand or implement. Ensuring these processes are considered and documented will support maintaining the interdependencies inherent in the energy system. Recommendations to enhance coordination with stakeholders and identification of resource requirements will support the ability of entities to maintain an uninterrupted supply chain.

Best Practice #7: Critical Supplies for Weather Events

The EOP should specify the process for how critical supplies are inventoried and strategically deployed for weather related events. Maintaining inventories of critical supplies is essential to allow necessary maintenance of equipment during severe weather. Critical supplies must be in strategic locations due to the potential adverse impact of weather on transportation and delivery systems. Most of the EOPs reviewed simply referenced some notional supply list without describing how the list is maintained, who is responsible for procuring items, or how the items are guaranteed to be where they are needed.

16 TAC § 25.53 requires that the EOP contain a process to identify supplies, and 60% of EOPs did so. However, when adding inventory and deployment requirements, the percentage of EOPs including this information dropped to 37%. This is an all-hazards capability critical to any response, and supplies can include a wide variety of items including equipment parts, water and cots for responding personnel, and generators – whatever is essential for continued operations. Improvement in the capability to ensure critical supplies are available is supported by the recommendation of identifying resource requirements and availability.

Best Practice #8: Test, Training, and Exercises

The EOP should specify a test, training, and exercise program to ensure employees understand plant operations and limitations, roles and responsibilities during extreme weather events, and personnel safety. Emergency management preparedness cycles begin with organizations training personnel on new information and then use exercises to simulate operations and assess performance. Exercises are also a way to determine whether the plans will actually work: they are validated. From that point, shortfalls are evaluated, and corrective actions implemented often resulting in changes to plans and procedures. The process then repeats to ensure the improvements are successful and to identify the next level of shortfall. This is the continuous improvement process. Programs should provide

personnel with the opportunity to demonstrate the recognition of problems, how to address issues, and take corrective actions as needed.

It is critical that employees are familiar with how to safely transition from routine to extreme weather operations beginning with identification of issues, how to address the challenges, and develop options for remediation. While activated operations may simply be an escalation of routine operations, personnel must understand and know how to implement the unique processes and procedures inherent in emergency operations.

While 16 TAC § 25.53 references exercises (using the term "drills") and training, it does not require a comprehensive plan of developing personnel through training programs and validating plans using exercises. Only 23% of EOPs included language for such a program. As disasters are inherently non-routine events, formal training and exercises are an essential component in preparing personnel and facilities for response. The EOPs that did include any substantive language about past or future drills generally focused on only one type (e.g., tabletop exercises) and a narrow range of scenarios. Few adequately articulated an effective program to identify, implement, and track corrective actions. For additional information, refer to the recommendation to develop robust training and exercise programs as well as the Appendix I for more information on FEMA's Homeland Security Exercise and Evaluation Program (HSEEP).

Best Practice #9: Drills for Extreme Weather Events

The EOP should require extreme weather drills on a regular basis, include methods to identify gaps, and allow plant personnel to make necessary procedural adjustments or updates to the EOP. Ensuring personnel fully understand their roles and responsibilities during extreme weather events is critical. Conducting drills for extreme weather provides the opportunity to simulate a disaster in a controlled environment.

Entities can leverage such a program to train personnel, recognize operational shortfalls, and test corrective actions. The EOPs reviewed demonstrated little emphasis on conducting drills for extreme weather events, as reflected by 23% of organizations that included procedures with sufficient details. As mentioned earlier, the focus should be on all-hazards capabilities and capacities rather than specific scenarios. The recommendation for development of a training and exercise program supports this best practice.

Best Practice #10: Testing of Backup and Alternative Fuel

The EOP should describe a process and procedure for plan personnel to periodically test the use of backup or alternate fuel (as appropriate for the specific facility). Testing of backup or alternate fuels provides an opportunity for electric utilities to train and familiarize personnel with alternate processes as well as to assess procedures for applicability and improvement.

Very few entities have this capability, so it is imperative that those that do are proficient in bringing backup or alternate fuel sources online.

For generating facilities that have the ability to utilize more than their usual, single, fuel source, their EOPs were assessed at 38% progress toward this best practice. Similar requirements are already instituted in the required annexes. However, 16 TAC § 25.53 does not allow for exemptions for renewable energy sources. Next steps would include more specific requirements for testing, including test procedures and frequency of testing. The recommendations aligned with this best practice are identifying resource requirements and availability as well as development of a robust training and exercise program.

Best Practice #11: Surge Capacity Staffing

The EOP should address maintaining appropriate staffing levels during an extreme weather event. The plans should also specify whether surge capacity staff are trained to execute the plan and maintain operational effectiveness throughout extreme weather events.

Staffing requirements must be assessed and documented such that the entity understands minimum staffing requirements and is able to surge appropriately trained personnel as needed. Training must include not only normal plant operations but how personnel should operate during the adverse conditions of an extreme weather event and its immediate aftermath.

This practice is another crossover from 16 TAC § 25.53 where the criterion of adequate staffing during an emergency response was evaluated with 63% conformance. Best practice for the staffing criterion carries the additional requirements for training surge personnel or ensuring mutual assistance personnel are adequately trained. About 54% of entities incorporated surge capacity procedures into their EOPs. Planning for minimum staffing ensures continued operations resulting from staffing shortages. Preparing alternate staff to surge is important in the event primary personnel are unable to perform their duties (whether resulting from circumstances caused by the emergency or just illness). Most of the EOPs reviewed include mention of surge or minimal staffing but without procedures or detailed planning. In most cases, entities assumed their own personnel would be adequate for any event or that mutual assistance agreements would provide adequate staffing. Training for either group was rarely included. The surge capacity staffing best practice is supported by the recommendation to identify resource requirements and availability.

Best Practice #12: Corrective Actions, Lessons Learned, and Improvement Planning

An EOP should document procedures for updating plans on a regular basis to adopt extreme weather lessons learned and improvements. Every exercise or actual incident response uncovers areas for improvement and sometimes best practices. A formal process to ensure the incorporation of these lessons learned into revised plans and procedures is critical to

developing a culture of continuous improvement. Such findings should not wait on scheduled plan reviews to be incorporated into an updated EOP. Instead, their inclusion should be specifically required by procedures.

16 TAC § 25.53 includes some requirements about including corrective action processes; however, this best practice outlines more comprehensive continuous improvement planning. Only 29% of entities met the objective of this practice. In most cases, the concepts of corrective actions, lessons learned, and improvement planning were mentioned, but there was little in the way of describing how the process should work. Corrective actions, lessons learned, and improvement planning are major elements of HSEEP (see Appendix I) and implementation is supported by the recommendation to develop robust training and exercise programs.

Best Practice #13: Incident Command System Implementation

Procedures should document the use of ICS implementation as part of daily operational events. ICS is a proven model for emergency response throughout the country. Implementing this system on a routine basis outside of large-scale emergencies has been shown as an effective way to ensure personnel are able to use the system during an actual emergency. Agencies known to have subject matter expertise in emergency response, such as numerous fire departments, either utilize ICS routinely on every incident, or practice it regularly, such as one day each week.

Although ICS training is required by 16 TAC § 25.53 and the affidavits affirm conformance, analysis showed only 14% of the EOPs had integrated the model into operations. The four online courses provided by FEMA (i.e., IS-100, IS-200, IS-700, and IS-800) provide a good foundation of theory and take only 12.5 hours to complete. This is a good first step in coordinating operations and communication with community emergency management by ensuring a common emergency response framework is used by all participants. Training and exercises will help bolster knowledge and implementation of this critical emergency management model which is already mandated by 16 TAC § 25.53.

VI. Conclusions and Recommendations

This report presents the current state of the electric utility industry's emergency planning in the State of Texas based on a review of 691 EOPs. This report assesses EOPs for conformance with existing requirements and makes recommendations to improve preparedness to future extreme weather events to ensure continuity of electric service. The report provides suggestions for revisions to regulatory language to meet this objective.

Recommendations addressing areas for improvement align with the best practices with the greatest potential impact of the ability of the electric grid to respond to extreme temperatures and weather which should be considered for inclusion in EOPs

A gap analysis has found several areas for improvement to emergency preparedness and emergency response operations. The following emergency management recommendations are based on industry practices, assessed during the EOP review, and referenced in Best Practices to Support Weather Emergency Preparedness. The recommendations focus on establishing foundational emergency management standards. Once this improved foundation is in place, it can be expanded in the future.

Enhance Coordination with Stakeholders

Effective emergency operations planning depends on successful collaboration with a wide variety of stakeholders including both business and community partners. Every organization has key relationships that support its business, including suppliers, contractors, and customers. Identification of each of these inherent affiliations provides insight into the fragilities of organizational interdependencies. An entity must use existing relationships to effectively coordinate with others in the community while forging key new relationships identified as their planning matures and progresses.

Since 2011, FEMA has championed the "Whole Community" approach as "a means by which residents, emergency management practitioners, organizational and community leaders, and government officials can collectively understand and assess the needs of their respective communities and determine the best ways to organize and strengthen their assets, capacities, and interests."[16] The goal is to increase community resilience.

Recommendations

Specific actions entities can take to enhance coordination with stakeholders are as follows:

[16] Federal Emergency Management Agency, A Whole Community Approach to Emergency Management: Principles, Themes, and Pathways for Action, December 2011 (https://www.fema.gov/sites/default/files/2020-07/whole_community_dec2011__2.pdf)

- ☐ Collaborate with representatives at the local and regional levels to enhance understanding of how they can coordinate in support of an emergency response.
- ☐ Designate primary and alternate emergency managers for each entity responsible for attending meetings, participating in training and exercises, and coordinating with the emergency preparedness community from local up to the state level. Identifying and building relationships with partners in the emergency management community will amplify the level of preparedness.

Improve Format and Usability of EOPs

EOPs are a tool to collaboratively manage risk. Using a coordinated approach among community and stakeholders, hazards are assessed for risk and then EOPs are developed to assign responsibilities, identify resources, and determine steps to mitigate, where possible, and prepare for response operations. The standard for developing EOPs is Developing and Maintaining Emergency Operations Plans: Comprehensive Preparedness Guide (CPG) 101 which was published by FEMA in 2010 as guidance in creating operational planning efforts for government as well as private entities. According to CPG 101, "National guidance and consensus standards expect that a jurisdiction's plans will be coordinated and integrated among all levels of government and with critical infrastructure planning efforts."[17] EOPs are intended for a wide audience and should be available and accessible to all within each organization and the Commission as well as the emergency management community. The assessment of EOPs was performed with CPG 101 as an integral consideration in the development of the assessment tool and conceptually as each individual EOP was reviewed.

A diverse team led by the facility emergency manager should develop the EOP in coordination with key stakeholders such as the emergency management office and emergency responders. Developing plans with input from varied perspectives provides the opportunity to investigate differing assumptions while still in the planning phase. Strong plans are built from coordination with key stakeholders intimately familiar with their resources as well as known gaps in the response community. Assembling and coordinating a collaborative writing team may be led by the facility emergency manager. The final phase prior to approval should include reviews by both internal and external stakeholders (e.g., facility operations, emergency responders, contractors).

It is difficult to overstate the improvements possible by simply establishing and following simple formats; it was noted in the assessment that dozens of submitted EOPs used one of a few different templates in the first place. Unfortunately, any inadequacies in each template led to low conformance across several areas of the assessed documents.

[17] Federal Emergency Management Agency, Developing and Maintaining Emergency Operations Plans: Comprehensive Preparedness Guide (CPG) 101, November 2010.

Conversely, a well-thought-out and complete template would prove useful in ensuring future EOP iterations are improved.

Recommendations

Specific and actionable steps entities can take to improve EOPs are as follows:

- ☐ Focus planning on the local level as much as possible. Entities should start with a thorough template that is a single document customized to each facility. This includes geographic characteristics, staffing and personnel, equipment, logistics, etc. Ensure specific information unique to the facility – starting with a basic description of the facility, its location and function – and then including other considerations such as equipment, resources, and specific capabilities or needs are detailed. (Reference Best Practice #3)
- ☐ The base EOP should emphasize an all-hazards approach which can be applied to a variety of circumstances. All-hazards is an emergency management professional best practice that focuses on overarching processes and procedures. It emphasizes capacities and capabilities rather than scenarios or event types.
  - The base plan focuses on processes common to all emergencies such as purpose, planning assumptions, concept of operations (including organizational structure and communication), responsibilities, plan maintenance, and authorities. Other fundamental within the base plan include training, exercises, and a robust corrective action process. All-hazards planning emphasizes capacities and capabilities for any situation (in contrast to a full plan for a specific hazard).
  - Annexes should be written for utility and build upon the basics; this is where organizations should capture planning for specific hazards and vulnerabilities such as weather events or other known threats the entity faces. Although these may be marked for limited distribution, doing so limits their effectiveness.
  - Appendices should document areas needing more specificity than is needed in the base plan as well as confidential and perishable information such as contact information, training records, and event participation logs; wherever possible, sensitive information should be relocated to these sections. In this manner, simple, common occurrences in business, such as personnel or phone number changes, are easily handled by changing only an appendix; the base plan is not rendered outdated by such changes.
- ☐ Include how ICS will be implemented in coordination with local emergency response. (Reference Best Practice #13)
- ☐ Create checklists to expedite and reliably replicate preparedness for weather events. Include these in EOPs so they are easily accessible when responding to an emergency.

Specific and actionable steps the Commission in consultation with TDEM can take to encourage continuity of electric service in relation to the entities' EOPs are as follows:

- ☐ Provide EOP guidance in the form of templates which include instructions for completion. These non-mandatory formats will serve as a tool for planners to understand planning objectives. Templates should be one base document with annexes and appendices rather than multiple documents.
- ☐ Develop a recommended curricula for emergency management POCs and provide planning workshops and/or on-demand online training to support entities in completing thorough EOPs.

Support Weather Preparedness and Response

A crucial point in addressing weather preparedness is ensuring that the distinction between weatherization and weather preparedness is clear. While weatherization emphasizes specific operational and maintenance actions necessary to prepare a facility for a hazard, weather preparedness should refocus to an all-hazards approach in an EOP base plan with specific hazard scenarios addressed in annexes.

Recognition of local weather forecasts - whether long term, such as a hurricane or short term like a tornado - is critical in preparing for a weather event. All entities should develop processes for receiving and disseminating forecasts as well as providing training to personnel about how to identify changes in weather conditions which would impact facility operations.

Recommendations

Specific and actionable steps entities can take in relation to their EOPs to improve their state of readiness are as follows:

- ☐ Develop plans with an understanding of the capabilities and limitations of key equipment; this is critical information in preparing for extreme weather. These limitations may pertain to temperature, precipitation, wind speeds, etc. Similarly, facilities should specifically identify single points of failure for equipment as well as processes to develop mitigation strategies and preparedness plans as necessary. (Reference Best Practices #1, #2, #4)
- ☐ Develop processes for receiving and disseminating forecasts. (Reference Best Practice #5)
- ☐ Provide training to personnel regarding how to identify changes in weather conditions which would impact facility operations. Recognition of local weather forecasts - whether long term, such as a hurricane, or short term like a tornado - is critical in preparing for a weather event.

Specific and actionable steps the Commission can take to enhance entities' EOPs to improve weather preparedness and response are as follows:

- ☐ Consider providing these topics as virtual workshops or help entities find training on weather awareness and EOP development as other examples to provide clarity in terms of what information should be incorporated into the EOP.

Identify Resource Requirements and Availability

Understanding and maintaining minimum resources is critical to sustaining operations for any given circumstance. For example, prior to a hurricane, an evacuation may necessitate reduction to a skeleton staffing level. Then post-disaster repairs to damages might necessitate surge support. All entities should understand hazard vulnerabilities and assess needs before, during, and after a disaster. A fundamental aspect of a community's emergency preparedness planning efforts is a tool known as a THIRA – a Threat and Hazard Identification and Risk Assessment – which may be available to an entity for use in their planning processes through their local emergency management.

Recommendations

Additional actionable steps that the entities can take to support weather emergency preparedness are as follows:

- ☐ Based on entity, local, and state threats and vulnerabilities, the EOP should identify resources required to respond and determine personnel requirements based on functions or capabilities. (Reference Best Practice #11)
- ☐ Consider cross-training to ensure staffing requirements are met with redundancy built into their essential staffing plans.
- ☐ Specify the process for how critical supplies are inventoried and strategically deployed for weather related events. Planners should consider resources required for facility/equipment (e.g., fuel, parts, network connections) as well as for their personnel (e.g., food, water, cots). Where possible, keep this inventory on site and available. For items that may require on demand resupply, planners should identify alternate suppliers. A schedule for verifying the presence and adequacy of such supplies should be established, allowing as well for the rotation of any item with an expiration date. (Reference Best Practice #7)
- ☐ Describe in the EOP the process for how the entity will continue an uninterrupted supply chain during extreme weather events. Significant interdependencies exist in the generation of electricity; one missing link in the supply chain has the potential to disrupt the ability to deliver electricity to customers. The weather event may also impact delivery mechanisms. (Reference Best Practice #6)
- ☐ Define in the EOP a process and procedure for plan personnel to periodically test the use of backup or alternate fuel (as appropriate for the specific facility). Testing of backup or alternate fuels provides an opportunity for electric utilities to train and familiarize personnel with alternate processes as well as to assess procedures for applicability and improvement. Very few entities have this capability, so it is imperative that those that do are proficient in bringing backup or alternate fuel sources online. (Reference Best Practice #10)

Develop Robust Training and Exercise Programs

As disasters are infrequent, non-routine events, training and exercise programs are a critical aspect of a successful preparedness process. Increased opportunities to mature disaster training and exercise programs will result in improved response within communities as well as through various levels of government (i.e., local, state, federal). Training and exercise programs should be structured to address the needs of individual training through organizational development with an emphasis on continuous improvement. The process that is followed in emergency management is the Homeland Security Exercise and Evaluation Program (HSEEP).

Training is considered the entry point, focusing on increasing the knowledge of individuals. It should be designed to orient students to new information which may include learning a new topic or skills or it could include familiarization with plans or procedures specific to an organization. Training may be conducted in collaboration with other agencies and using a variety of delivery methods (e.g., in-person, virtual synchronous, asynchronous webinars).

FEMA's Emergency Management Institute (EMI) provides hundreds of emergency management courses with both virtual and classroom options. Additionally, the TDEM course catalog provides dozens of classes including many of the classroom courses offered by EMI.

Emergency management exercises evaluate planning, test training, and validate corrective actions. Exercises may be discussion-based or operations-based. Discussion-based exercises familiarize participants with current plans, policies, agreements, and procedures, or may be used to develop new plans, policies, agreements, and procedures. Operations-based exercises are designed to validate or test current plans, policies, and procedures as well as clarify roles and responsibilities, identify resources gaps in a hands-on, operational environment.

Recommendations

Additional actionable steps that entities can take to support weather emergency preparedness are as follows:

- ☐ Create training programs for each entity designed to familiarize personnel with emergency policies and procedures as well as to teach skills that improve response.
- ☐ Participate in emergency preparedness exercises. Experienced HSEEP practitioners in the entity's local area are likely already familiar with existing training and exercise programs in which the entity may participate. Such participation is valuable not only to the entity but also to the whole community.
- ☐ Develop an exercise program which encourages an incremental, building-block approach in developing an emergency management culture. Including smaller

discussion-based exercises is a way to familiarize personnel with procedures and learn about external capabilities while expending fewer resources. A greater range of exercise types will provide opportunities for exercising more than a single hazard annually. There are also opportunities to participate in exercises hosted by other organizations or agencies. (Reference Best Practice #9)

Specific and actionable steps the Commission can take as it pertains to the development of a robust training and exercise program:

- ☐ Partner with TDEM to develop some basic, standardized lists of training appropriate for emergency management POCs to include, but not limited to:
  - All-hazards planning concepts
  - Distinctions between weather preparedness and weatherization
  - Developing an effective EOP
  - THIRA
  - HSEEP

Institute Policy Modifications

Building upon the work already completed by the Commission and based on the lessons learned in reviewing hundreds of EOPs, a revision of 16 TAC §25.53 to provide more specific guidance on the format and contents of these documents to include the recommendations as outlined above, should substantially strengthen the industry's planning process and the documents themselves.

Recommendations

The Commission should consider amending 16 TAC §25.53 to reflect the shortfalls found during the review of the EOPs. Revisions, by section, suggested below align with findings and recommendations in this document.

- ☐ EOPs
  - Revise global planning approach from hazard-specific (e.g., hurricane, cyber, etc.) to an all-hazards approach focusing on common disaster response frameworks rather than individual plans for various hazards.
  - Create a single document (versus a collection of existing documents) for the purpose of coordinated emergency planning. Plans comprising numerous separate documents that are formatted differently, unconnected, unsearchable, and lack an all-hazards foundation are extremely difficult to implement during an emergency.
  - The Executive Summary as required by 16 TAC 25.53 becomes the introduction to the plan (just before the Table of Contents) and can serve as an introductory overview of the planning process and subsequent document.

It should, however, not be expected to serve any tactical purpose during an emergency response.
- Provide more specific guidance for requirements of diverse missions (e.g., wind generation entities should be required to have a water shortage annex for their on-site operations even though they do not use water in the electricity generation process; generation entities that do use water in their generation processes should address both).
- Include how an entity will implement ICS in coordination with local emergency response. It is a given that ICS will be used by the emergency responders; planning by the entity on how they will integrate should be emphasized.
- Describe critical staffing positions and detail responsibilities. Denote hazard type, if appropriate.
- List critical supplies in an appendix and denote hazard-type, if appropriate. Specify locations of supplies as well as primary and alternate vendors. This enables the emergency management system in its ability to obtain and support the entity. Within the National Incident Management System (NIMS) there is an extensive resource typing mechanism explicitly for this purpose.
- Specify weather design limits and identify single points of failure in an appendix so that mitigation strategies as well as specific response measures can be developed.

☐ Records of distribution

- Require inclusion of both internal and external distribution. A plan that is unavailable or inaccessible to the local emergency management authorities is of limited utility during the most crucial phase of response.
- Distinguish between access to plans and training and track dates for both.

☐ Emergency contacts

- Designate local primary and alternate local emergency managers for each facility responsible for attending meetings, participating in training and exercises, and coordinating emergency preparedness up to the state level.
- Require alternate contact information for urgent Commission questions.
- For notification purposes, include internal contact information in an appendix (may be redacted or marked “Not for Distribution”).

☐ Filing an affidavit

- Ensure affidavits are affirmations of actual details rather than copying and pasting boilerplate language. Details in affidavits should be validated elsewhere in the EOP.

☐ Drill/Exercise requirements

- Revise the term “drills” to “exercises” to align with current HSEEP nomenclature.
- Require a full, global training and exercise program.
- For those entities located in a hurricane evacuation zone, in addition to the mandatory annual hurricane exercise, an additional exercise for another scenario should be required to ensure entities are prepared to respond to a variety of vulnerabilities.

Appendix A: Texas Utilities Code § 186.007

Sec. 186.007. PUBLIC UTILITY COMMISSION WEATHER EMERGENCY PREPAREDNESS REPORTS. (a) In this section, "commission" means the Public Utility Commission of Texas.

(a-1) The commission shall analyze emergency operations plans developed by electric utilities as defined by Section 31.002, power generation companies as defined by Section 31.002, municipally owned utilities, and electric cooperatives that operate generation facilities in this state and retail electric providers as defined by Section 31.002 and prepare a weather emergency preparedness report on power weatherization preparedness. In preparing the report, the commission shall:

(1) review emergency operations plans on file with the commission;

(2) analyze and determine the ability of the electric grid to withstand extreme weather events in the upcoming year;

(3) consider the anticipated weather patterns for the upcoming year as forecasted by the National Weather Service or any similar state or national agency; and

(4) make recommendations on improving emergency operations plans and procedures in order to ensure the continuity of electric service.

(b) The commission shall require an entity subject to this section to file an updated emergency operations plan if it finds that an emergency operations plan on file does not contain adequate information to determine whether the entity can provide adequate electric services.

(c) The commission may adopt rules relating to the implementation of the report described by Subsection (a-1).

(d) The commission shall submit the report described by Subsection (a-1) to the lieutenant governor, the speaker of the house of representatives, and the members of the legislature not later than September 30 of each even-numbered year.

(e) The commission may submit additional weather emergency preparedness reports if the commission finds that significant

changes to weatherization techniques have occurred or are necessary to protect consumers or vital services, or if there have been changes to statutes or rules relating to weatherization requirements. A report under this subsection must be submitted not later than:

(1) March 1 for a summer weather emergency preparedness report; and

(2) September 1 for a winter weather emergency preparedness report.

(f) The emergency operations plans submitted for a report described by Subsection (a-1) and any additional plans submitted under Subsection (e) are public information except for the portions of the plan considered confidential under Chapter 552, Government Code, or other state or federal law. If portions of a plan are designated as confidential, the plan shall be provided to the commission in a redacted form for public inspection with the confidential portions removed. An entity within the ERCOT power region shall provide the entity's plan to ERCOT in its entirety.

Added by Acts 2011, 82nd Leg., R.S., Ch. 1335 (S.B. 1133), Sec. 1, eff. June 17, 2011.

Amended by:

Acts 2021, 87th Leg., R.S., Ch. 426 (S.B. 3), Sec. 23, eff. June 8, 2021.

Acts 2021, 87th Leg., R.S., Ch. 426 (S.B. 3), Sec. 24, eff. June 8, 2021.

Appendix B: Texas Administrative Code § 25.53

CHAPTER 25. SUBSTANTIVE RULES APPLICABLE TO ELECTRIC SERVICE PROVIDERS. Subchapter C. INFRASTRUCTURE AND RELIABILITY.

§25.53. Electric Service Emergency Operations Plans.

(a) **Application.** This section applies to an electric utility, transmission and distribution utility, power generation company (PGC), municipally owned utility, electric cooperative, and retail electric provider (REP), and to the Electric Reliability Council of Texas (ERCOT).

(b) **Definitions.**

(1) **Annex** -- a section of an emergency operations plan that addresses how an entity plans to respond in an emergency involving a specified type of hazard or threat.

(2) **Drill** -- an operations-based exercise that is a coordinated, supervised activity employed to test an entity's EOP or a portion of an entity's EOP. A drill may be used to develop or test new policies or procedures or to practice and maintain current skills.

(3) **Emergency** – a situation in which the known, potential consequences of a hazard or threat are sufficiently imminent and severe that an entity should take prompt action to prepare for and reduce the impact of harm that may result from the hazard or threat. The term includes an emergency declared by local, state, or federal government, or ERCOT or another reliability coordinator designated by the North American Electric Reliability Corporation and that is applicable to the entity.

(4) **Entity** -- an electric utility, transmission and distribution utility, PGC, municipally owned utility, electric cooperative, REP, or ERCOT.

(5) **Hazard** -- a natural, technological, or human-caused condition that is potentially dangerous or harmful to life, information, operations, the environment, or property, including a condition that is potentially harmful to the continuity of electric service.

(6) **Threat** -- the intention and capability of an individual or organization to harm life, information, operations, the environment, or property, including harm to the continuity of electric service.

(c) **Filing requirements.**

(1) An entity must file an emergency operations plan (EOP) and executive summary under this section by April 15, 2022. Notwithstanding the foregoing, a municipally owned utility must provide its EOP and executive summary in the manner prescribed by the commission in this paragraph no later than June 1, 2022. Each individual entity is responsible for compliance with the requirements of this section. An entity filing a joint EOP or other joint document under this section on behalf of one or more entities over which it has control is jointly responsible for each entity's compliance with the requirements of this section.

(A) An entity must file with the commission:

(i) an executive summary that:

(I) describes the contents and policies contained in the EOP;

(II) includes a reference to specific sections and page numbers of the entity's EOP that correspond with the requirements of this rule;
(III) includes the record of distribution required under paragraph (4)(A) of this subsection; and
(IV) contains the affidavit required under paragraph (4)(C) of this subsection; and
(ii) a complete copy of the EOP with all confidential portions removed.
(B) For an entity with operations within the ERCOT power region, the entity must submit its unredacted EOP in its entirety to ERCOT.
(C) ERCOT must designate an unredacted EOP submitted by an entity as Protected Information under the ERCOT Protocols.
(D) An entity must make its unredacted EOP available in its entirety to commission staff on request at a location designated by commission staff.
(E) An entity may file a joint EOP on behalf of itself and one or more other entities over which it has control provided that:
(i) the executive summary required under subparagraph (A)(i) of this paragraph identifies which sections of the joint EOP apply to each entity; and
(ii) the joint EOP satisfies the requirements of this section for each entity as if each entity had filed a separate EOP.
(F) An entity filing a joint EOP under subparagraph (E) of this paragraph may also jointly file one or more of the documents required under paragraph (4) of this subsection provided that each joint document satisfies the requirements for each entity to which the document applies.
(G) An entity that is required to file similar annexes for different facility types under subsection (e) of this section, such as a pandemic annex for both generation facilities and transmission and distribution facilities, may file a single combined annex addressing the requirement for multiple facility types. The combined annex must conspicuously identify the facilities to which it applies.
(2) A person seeking registration as a PGC or certification as a REP must meet the filing requirements under paragraph (1)(A) of this subsection at the time it applies for registration or certification with the commission and must submit the EOP to ERCOT if it will operate in the ERCOT power region, no later than ten days after the commission approves the person's registration or certification.
(3) An entity must continuously maintain its EOP. Beginning in 2023, an entity must annually update information included in its EOP no later than March 15 under the following circumstances:
(A) An entity that in the previous calendar year made a change to its EOP that materially affects how the entity would respond to an emergency must:
(i) file with the commission an executive summary that:
(I) describes the changes to the contents or policies contained in the EOP;
(II) includes an updated reference to specific sections and page numbers of the entity's EOP that correspond with the requirements of this rule;
(III) includes the record of distribution required under paragraph (4)(A) of this subsection; and

(IV) contains the affidavit required under paragraph (4)(C) of this section;
(ii) file with the commission a complete, revised copy of the EOP with all confidential portions removed; and
(iii) submit to ERCOT its revised unredacted EOP in its entirety if the entity operates within the ERCOT power region.

(B) An entity that in the previous calendar year did not make a change to its EOP that materially affects how the entity would respond to an emergency must file with the commission:
(i) a pleading that documents any changes to the list of emergency contacts as provided under paragraph (4)(B) of this subsection;
(ii) an attestation from the entity's highest-ranking representative, official, or officer with binding authority over the entity stating the entity did not make a change to its EOP that materially affects how the entity would respond to an emergency; and
(iii) the affidavit described under paragraph (4)(C) of this subsection.

(C) An entity must update its EOP or other documents required under this section if commission staff determines that the entity's EOP or other documents do not contain sufficient information to determine whether the entity can provide adequate electric service through an emergency. If directed by commission staff, the entity must file its revised EOP or other documentation, or a portion thereof, with the commission and, for entities with operations in the ERCOT power region, with ERCOT.

(D) ERCOT must designate any revised unredacted EOP submitted by an entity as Protected Information under the ERCOT Protocols.

(E) An entity must make a revised unredacted EOP available in its entirety to commission staff on request at a location designated by commission staff.

(F) The requirements for joint and combined filings under paragraph (1) of this subsection apply to revised joint and revised combined filings under this paragraph.

(4) In accordance with the deadlines prescribed by paragraphs (1) and (3) of this subsection, an entity must file with the commission the following documents:

(A) A record of distribution that contains the following information in table format:
(i) titles and names of persons in the entity's organization receiving access to and training on the EOP; and
(ii) dates of access to or training on the EOP, as appropriate.

(B) A list of primary and, if possible, backup emergency contacts for the entity, including identification of specific individuals who can immediately address urgent requests and questions from the commission during an emergency.

(C) An affidavit from the entity's highest-ranking representative, official, or officer with binding authority over the entity affirming the following:
(i) relevant operating personnel are familiar with and have received training on the applicable contents and execution of the EOP, and such personnel are instructed to follow the applicable portions of the EOP except to the extent deviations are appropriate as a result of specific circumstances during the course of an emergency;
(ii) the EOP has been reviewed and approved by the appropriate executives;

(iii) drills have been conducted to the extent required by subsection (f) of this section;
(iv) the EOP or an appropriate summary has been distributed to local jurisdictions as needed;
(v) the entity maintains a business continuity plan that addresses returning to normal operations after disruptions caused by an incident; and
(vi) the entity's emergency management personnel who are designated to interact with local, state, and federal emergency management officials during emergency events have received the latest IS-100, IS-200, IS-700, and IS-800 National Incident Management System training.

(5) Notwithstanding the other requirements of this subsection, ERCOT must maintain its own current EOP in its entirety, consistent with the requirements of this section and available for review by commission staff.

(d) **Information to be included in the emergency operations plan.** An entity's EOP must address both common operational functions that are relevant across emergency types and annexes that outline the entity's response to specific types of emergencies, including those listed in subsection (e) of this section. An EOP may consist of one or multiple documents. Each entity's EOP must include the information identified below, as applicable. If a provision in this section does not apply to an entity, the entity must include in its EOP an explanation of why the provision does not apply.

(1) An approval and implementation section that:
(A) introduces the EOP and outlines its applicability;
(B) lists the individuals responsible for maintaining and implementing the EOP, and those who can change the EOP;
(C) provides a revision control summary that lists the dates of each change made to the EOP since the initial EOP filing pursuant to paragraph (1) of this subsection;
(D) provides a dated statement that the current EOP supersedes previous EOPs; and
(E) states the date the EOP was most recently approved by the entity.

(2) A communication plan.
(A) An entity with transmission or distribution service operations must describe the procedures during an emergency for handling complaints and for communicating with the public; the media; customers; the commission; the Office of Public Utility Counsel (OPUC); local and state governmental entities, officials, and emergency operations centers, as appropriate in the circumstances for the entity; the reliability coordinator for its power region; and critical load customers directly served by the entity.
(B) An entity with generation operations must describe the procedures during an emergency for communicating with the media; the commission; OPUC; fuel suppliers; local and state governmental entities, officials, and emergency operations centers, as appropriate in the circumstances for the entity; and the applicable reliability coordinator.
(C) A REP must describe the procedures for communicating during an emergency with the public, media, customers, the commission, and OPUC, and the procedures for handling complaints during an emergency.

(D) ERCOT must describe the procedures for communicating, in advance of and during an emergency, with the public, the media, the commission, OPUC, governmental entities and officials, the state emergency operations center, and market participants.

(3) A plan to maintain pre-identified supplies for emergency response.

(4) A plan that addresses staffing during emergency response.

(5) A plan that addresses how an entity identifies weather-related hazards, including tornadoes, hurricanes, extreme cold weather, extreme hot weather, drought, and flooding, and the process the entity follows to activate the EOP.

(6) Each relevant annex, as detailed in subsection (e) of this section and other annexes applicable to an entity.

(e) **Annexes to be included in the emergency operations plan.**

(1) An electric utility, a transmission and distribution utility, a municipally owned utility, and an electric cooperative a must include in its EOP for its transmission and distribution facilities the following annexes:

(A) A weather emergency annex that includes:

(i) operational plans for responding to a cold or hot weather emergency, distinct from the weather preparations required under §25.55 of this title (relating to Weather Emergency Preparedness); and

(ii) a checklist for transmission or distribution facility personnel to use during cold or hot weather emergency response that includes lessons learned from past weather emergencies to ensure necessary supplies and personnel are available through the weather emergency;

(B) A load shed annex that must include:

(i) procedures for controlled shedding of load;

(ii) priorities for restoring shed load to service; and

(iii) a procedure for maintaining an accurate registry of critical load customers, as defined under 16 TAC §25.5(22) of this title (relating to Definitions), §25.52(c)(1) and (2) of this title (relating to Reliability and Continuity of Service) and §25.497 of this title (relating to Critical Load Industrial Customers, Critical Load Public Safety Customers, Critical Care Residential Customers, and Chronic Condition Residential Customers), and TWC §13.1396 (relating to Coordination of Emergency Operations), directly served, if maintained by the entity. The registry must be updated as necessary but, at a minimum, annually. The procedure must include the processes for providing assistance to critical load customers in the event of an unplanned outage, for communicating with critical load customers during an emergency, coordinating with government and service agencies as necessary during an emergency, and for training staff with respect to serving critical load customers;

(C) A pandemic and epidemic annex;

(D) A wildfire annex;

(E) A hurricane annex that includes evacuation and re-entry procedures if facilities are located within a hurricane evacuation zone, as defined by the Texas Division of Emergency Management (TDEM);

(F) A cyber security annex;

(G) A physical security incident annex;
(H) A transmission and distribution utility that leases or operates facilities under PURA §39.918(b)(1) or procures, owns, and operates facilities under PURA §39.918(b)(2) must include an annex that details its plan for the use of those facilities; and
(I) Any additional annexes as needed or appropriate to the entity's particular circumstances.

(2) An electric cooperative, an electric utility, or a municipally owned utility that operate a generation resource in Texas; and a PGC must include the following annexes for its generation resources other than generation resources authorized under PURA §39.918:
(A) A weather emergency annex that includes:
(i) operational plans for responding to a cold or hot weather emergency, distinct from the weather preparations required under §25.55 of this title;
(ii) verification of the adequacy and operability of fuel switching equipment, if installed; and
(iii) a checklist for generation resource personnel to use during a cold or hot weather emergency response that includes lessons learned from past weather emergencies to ensure necessary supplies and personnel are available through the weather emergency;
(B) A water shortage annex that addresses supply shortages of water used in the generation of electricity;
(C) A restoration of service annex that identifies plans intended to restore to service a generation resource that failed to start or that tripped offline due to a hazard or threat;
(D) A pandemic and epidemic annex;
(E) A hurricane annex that includes evacuation and re-entry procedures if facilities are located within a hurricane evacuation zone, as defined by TDEM;
(F) A cyber security annex;
(G) A physical security incident annex; and
(H) Any additional annexes as needed or appropriate to the entity's particular circumstances.

(3) A REP must include in its EOP the following annexes:
(A) A pandemic and epidemic annex;
(B) A hurricane annex that includes evacuation and re-entry procedures if facilities are located within a hurricane evacuation zone, as defined by TDEM;
(C) A cyber security annex;
(D) A physical security incident annex; and
(E) Any additional annexes as needed or appropriate to the entity's particular circumstances.

(4) ERCOT must include the following annexes:
(A) A pandemic and epidemic annex;
(B) A weather emergency annex that addresses ERCOT's plans to ensure continuous market and grid management operations during weather emergencies, such as tornadoes, wildfires, extreme cold weather, extreme hot weather, and flooding;
(C) A hurricane annex that includes evacuation and re-entry procedures if facilities are located within a hurricane evacuation zone, as defined by TDEM;

(D) A cyber security annex;
(E) A physical security incident annex; and
(F) Any additional annexes as needed or appropriate to ERCOT's particular circumstances.

(f) **Drills.** An entity must conduct or participate in at least one drill each calendar year to test its EOP. Following an annual drill the entity must assess the effectiveness of its emergency response and revise its EOP as needed. If the entity operates in a hurricane evacuation zone as defined by TDEM, at least one of the annual drills must include a test of its hurricane annex. An entity conducting an annual drill must, at least 30 days prior to the date of at least one drill each calendar year, notify commission staff, using the method and form prescribed by commission staff on the commission's website, and the appropriate TDEM District Coordinators, by email or other written form, of the date, time, and location of the drill. An entity that has activated its EOP in response to an emergency is not required, under this subsection, to conduct or participate in a drill in the calendar year in which the EOP was activated.

(g) **Reporting requirements.** Upon request by commission staff during an activation of the State Operations Center by TDEM, an affected entity must provide updates on the status of operations, outages, and restoration efforts. Updates must continue until all incident-related outages of customers able to take service are restored or unless otherwise notified by commission staff. After an emergency, commission staff may require an affected entity to provide an after action or lessons learned report and file it with the commission by a date specified by commission staff.

Appendix C: EOP Assessment Tool & Scoring Guidelines

Numerical Score Definitions											
	No Progress	**Limited Progress**			**Moderate Progress**			**Substantial Progress**			**Objective Achieved**
EXPLANATION	**0:** No progress has been made toward achieving the identified EOP requirement or objective. This may be because there has been no activity in this area or because insurmountable barriers exist.	**1-2:** Preliminary efforts have been initiated. Few if any steps have been implemented successfully so far. **3:** Initial specific steps toward the objectives have been successfully implemented. • Steps may include initial plans to develop this aspect of the capability, allocation of resources, and identification of personnel responsible for achievement of the requirement or objective			**4-5:** Significant efforts are underway but the requirement has not yet been fulfilled. • Important gaps remain. • Challenges that could potentially undermine achievement exist and have not yet been resolved. **6:** Significant efforts are under way and specific examples of progress in this area can be identified. • Strategies for closing gaps and overcoming barriers have been initiated.			**7-8:** Efforts to achieve this objective are established and stable. • Some weakness or barriers that prevent complete success at all organization component levels persist • Shortfalls are not critical and strategies to resolve them are documented and well under way **9:** Efforts in this area are mature. • Few gaps or barriers remain • None are significant • Evidence documenting this level of progress is readily available			**10:** Indicates the requirement and/or objective is fully achieved with regard to this capability. • All barriers to success have been overcome • Strengths are robust and likely to be sustained • Evidence is readily available attesting to this level of achievement
	0	1	2	3	4	5	6	7	8	9	10
	NO							YES			

QUANTITATIVE ASSESSMENT OF REQUIREMENTS			
Chapter 25. SUBSTANTIVE RULES APPLICABLE TO ELECTRIC SERVICE PROVIDERS			
Subchapter C. Infrastructure and Reliability			
25.53. Electric Service Emergency Operations Plans			
File an emergency operations plan (EOP)		**RESPONSE**	**COMMENTS**
	File a complete copy with all confidential portions removed to PUCT.		
	If operating within the ERCOT power region, file an unredacted EOP with ERCOT.		
	Make an unredacted EOP available in its entirety to commission staff on request at a location designated by commission staff.		
	File an EOP annex for each facility operated that conspicuously identifies the facility to which it applies.		
	Demonstrate continuous maintenance of an EOP.		
File an executive summary		**RESPONSE**	**COMMENTS**
	Describes the contents and policies contained in the EOP.		
	Includes a reference to specific sections and page numbers of the entity's EOP that corresponds with the requirements of this rule.		
	Contains the affidavit required under paragraph (4)(c) of this subsection.		
File a Record of Distribution			**COMMENTS**
	EOP includes a completed record of distribution required under paragraph (4)(A) of this subsection.		
	Contains in table format the titles and names of persons in the entity's organization receiving access to and training on the EOP.		
	Contains dates of access to or training on the EOP.		
File a list of emergency contacts for the entity		**RESPONSE**	**COMMENTS**
	The EOP lists the primary contacts for the entity.		
	The EOP lists the secondary contacts for the entity.		
	The list identifies specific individuals available immediately to address urgent requests and questions from the commission during an emergency.		

QUANTITATIVE ASSESSMENT OF REQUIREMENTS			
Chapter 25. SUBSTANTIVE RULES APPLICABLE TO ELECTRIC SERVICE PROVIDERS			
Subchapter C. Infrastructure and Reliability			
25.53. Electric Service Emergency Operations Plans			
File an affidavit from the entity's highest-ranking representative, official, or officer with binding authority over the entity with the following affirmations:		**RESPONSE**	**COMMENTS**
	Affirms relevant operating personnel are familiar with and have received training on the applicable contacts and execution of the EOP and such personnel are instructed to follow the applicable portions of the EOP except to the extent deviation are appropriate as result of specific circumstances during the course of an emergency.		
	Affirms that the EOP has been reviewed and approved by the appropriate executives.		
	Affirms that drills have been conducted to the extent required by subsection (f) of this section.		
	Affirms that the EOP and or an appropriate summary has been distributed to local jurisdictions as needed.		
	Affirms that the entity maintains a business continuity plan that addresses returning to normal operations after disruptions caused by an incident.		
	Affirms that the entity's emergency management personnel who are designated to interact with local, state, and federal emergency management officials during emergency events have received the IS-100, IS-200, IS-700 and IS-800 National Incident Management System training.		
EOP Contains		**RESPONSE**	**COMMENTS**
	An approval in the form of a signed statement formally recognizing and adopting the plan, how it will be implemented, and indicates that it supersedes all previous plans.		
	Introduction		
	Provides an outline of the applicability of the plan.		
	Lists individual(s) responsible for maintaining and implementing the EOP.		
	Lists individuals who can change the EOP.		
	Provides a revision control summary that lists the dates of each change made to the EOP since the initial EOP filing pursuant to paragraph (1) of this subsection.		
	States the date the EOP was most recently approved by the entity.		

QUANTITATIVE ASSESSMENT OF REQUIREMENTS			
Chapter 25. SUBSTANTIVE RULES APPLICABLE TO ELECTRIC SERVICE PROVIDERS			
Subchapter C. Infrastructure and Reliability			
25.53. Electric Service Emergency Operations Plans			
	A communications plan.		
	Describes the procedures during an emergency the entity uses for handling complaints.		
	Describes the procedures during an emergency for communicating with the media; customers; fuel suppliers; the commission; the Office of Public Utility Counsel (OPUC); local and state governmental entities, officials, and emergency operations centers, as appropriate in the circumstances for the entity; the reliability coordinator for its power region; and critical load customers directly served by the entity.		
	Describes a plan to maintain pre-identified supplies for emergency response.		
	Addresses and provides for adequate staffing during emergency response.		
	Addresses how an entity identifies and plans for weather-related hazards, including tornadoes, hurricanes, extreme cold weather, extreme hot weather, drought, and flooding.		
	Describes the process and procedures the entity follows to activate the EOP.		
Annexes required per Section 25.53		**RESPONSE**	**COMMENTS**
	A weather annex with operational plans for responding to cold or hot weather emergencies, distinct from the weather preparations required under Section 25.55 to this title.		
	The weather annex has a checklist for transmission or distribution facility personnel to use during cold or hot weather emergency response. Checklists obviously reflect lessons learned from past weather emergencies to ensure necessary supplies and personnel are available through the weather emergency.		
	A load shed annex.		
	Load shed annex has procedures for controlled shedding of load.		
	Load shed annex lists priorities for restoring service to customers who were affected by load shedding.		
	Load shed annex contains procedures for maintaining an accurate registry of critical load customers.		
	A Registry of critical load customers that is updated as necessary but at a minimum annually.		

QUANTITATIVE ASSESSMENT OF REQUIREMENTS			
Chapter 25. SUBSTANTIVE RULES APPLICABLE TO ELECTRIC SERVICE PROVIDERS			
Subchapter C. Infrastructure and Reliability			
25.53. Electric Service Emergency Operations Plans			
	Load shed annex procedures address providing assistance to critical load customers in the event of an unplanned outage; for communicating with critical load customers during an emergency; coordinating with government and service agencies as necessary during an emergency; and for training staff with respect to serving critical load customers.		
	A pandemic and epidemic annex.		
	A wildfire annex.		
	A hurricane annex that includes evacuation and re-entry procedures if facilities are located within a hurricane evacuation zone.		
	A cyber security annex.		
	A physical security incident annex.		
	Any additional annexes as needed or appropriate to the entity's particular circumstances.		
Annexes required by electric cooperative, an electric utility, or a municipally owned utility that operates a generation resource in Texas; and a PGC		**RESPONSE**	**COMMENTS**
	The weather emergency annex includes verification of the adequacy and operability of fuel switching equipment, if installed.		
	The weather emergency annex includes a checklist for generation resource personnel to use during a cold or hot weather emergency response that reflects lessons learned from past weather emergencies to ensure necessary supplies and personnel are available through the weather emergency.		
	A water shortage annex that addresses supply shortages or water used in the generation of electricity.		
	A restoration of service annex that identifies plans and procedures intended to restore to service a generation resource that failed to start or that ripped offline due to a hazard or threat.		

QUANTITATIVE ASSESSMENT			
Consolidated Industry Best Practices—Weather			
Awareness of plant (generator and plant equipment) weather design limits		**RESPONSE**	**COMMENTS**
	Does the EOP discuss the entity's generator and plant equipment design limits regarding weather in the planning and assumptions section?		
	Are all weather-related design parameters—such as high temperatures, wind, ice, lightning, etc.—outlined in the EOP?		
Identification of Single Points of Failure (SPOF) for the entity which may be impacted by weather related events		**RESPONSE**	**COMMENTS**
	Does the EOP identify SPOF for critical assets?		
Ability to have continued operational performance across a wide spectrum of weather-related events		**RESPONSE**	**COMMENTS**
	Does the EOP address continued operational performance across all hazards?		
Specific documentation (Procedures, Processes, Checklists) for extreme weather operations		**RESPONSE**	**COMMENTS**
	Does the EOP contain a repeatable and documented framework and procedures for ensuring all critical failure points are addressed prior to and during the onset of extreme weather?		
Process for the identification of imminent weather events		**RESPONSE**	**COMMENTS**
	Does the EOP have a process for personnel to recognize an imminent weather event and proactively activate and implement the EOP for the event?		
Continuation of supply chain during extreme weather events		**RESPONSE**	**COMMENTS**
	Does the EOP address how the entity will continue an uninterrupted supply chain during extreme weather events?		
Critical Supplies for weather related events		**RESPONSE**	**COMMENTS**
	Does the EOP document how critical supplies are inventoried and strategically deployed for weather related events?		
Test, Training and Exercises (TT&E)		**RESPONSE**	**COMMENTS**
	Does the EOP discuss a TT&E program to ensure employees understand plant operations and limitations, their roles and responsibilities during extreme weather events, and personnel safety that allows personnel to demonstrate the recognition of problems, how to address issues and take corrective actions as needed?		
Drills for extreme weather events		**RESPONSE**	**COMMENTS**
	Does the TT&E program conduct extreme weather drills on a regular basis that includes methods to identify gaps, allow plant personnel to make the necessary procedural adjustments, and update to the EOP?		

QUANTITATIVE ASSESSMENT			
Consolidated Industry Best Practices—Weather			
	Are drills and training structured for extreme weather operation to confirm personnel fully understand their roles and responsibilities during an extreme weather event?		
Testing of backup and alternative fuel		**RESPONSE**	**COMMENTS**
	Does the EOP describe a process and procedure for plant personnel to periodically test the use of backup or alternate fuel (if available)?		
Surge capacity staffing during extreme weather events		**RESPONSE**	**COMMENTS**
	Does the EOP address maintaining appropriate staffing levels during an extreme weather event?		
	Are surge capacity staff trained to execute the plan and maintain extreme weather remediation necessary throughout extreme weather events?		
Corrective Actions, Lessons Learned, and Improvement Planning		**RESPONSE**	**COMMENTS**
	Does the EOP documentation show that the EOP is updated on a regular basis to adopt extreme weather lessons learned and improvements?		
Incident Command System Implementation		**RESPONSE**	**COMMENTS**
	Do procedures document the use of ICS implementation as part of daily operational events?		
OVERALL SCORE			
COMMENTS			

Measure	Mapped to §25.53
File an Emergency Operations Plan	**§25.53.c**
File a complete copy with all confidential portions removed to the Commission.	§25.53. c.1.
If operating within the ERCOT power region, file an unredacted EOP with ERCOT.	§25.53. c.1.B
Make an unredacted EOP available in its entirety to commission staff at a location designated by commission staff.	§25.53. c.1.D
File an EOP annex for each facility operated that conspicuously identifies the facility to which it applies.	§25.53. c.1.G
Demonstrate continuous maintenance of an EOP.	§25.53. c.3

Measure	Mapped to §25.53
File an Executive Summary	**§25.53. c.1.A. i**
Describes the contents and policies contained in the EOP.	§25.53. c.1.A.i. I
Includes a reference to specific sections and page numbers of the entity's EOP that correspond with the requirements of this rule.	§25.53. c.1.A.i. II
Contains the affidavit required under paragraph (4)(c) of this subsection.	§25.53. c.1.A.i. IV
EOP Changes	
File an executive summary each time material changes are made to the EOP that outlines the four information requirements mandated in an Executive Summary.	§25.53. c.3.A. i
If no material changes are made in the EOP, the entity files a list of updated emergency contacts, an attestation from the entity's highest-ranking representative, official or officer and an affidavit as described in paragraph (4)(c) at least annually.	§25.53. c.3.B
Update and file a revised EOP or other documents if commission staff determines that documents filed do not contain sufficient information to satisfy the Subsection requirements.	§25.53. c.3.C
Make an unredacted revised EOP available in its entirety to commission staff at a location designated by commission staff.	§25.53. c.3.E
File a Record of Distribution	**§25.53. c.4**
EOP includes a completed record of distribution required under paragraph (4)(A) of this subsection.	§25.53. c.4.A
Contains in table format the titles and names of persons in the entity's organization receiving access to and training on the EOP.	§25.53. c.4.A. i
Contains dates of access to or training on the EOP.	§25.53. c.4.A. ii
File a list of emergency contacts for the entity	**§25.53. c.4.B**
The EOP lists the primary contacts for the entity.	§25.53. c.4.B
The EOP lists the secondary contacts for the entity.	§25.53. c.4.B
The list identifies specific individuals available immediately to address urgent requests and questions from the commission during an emergency.	§25.53. c.4.B

Measure	Mapped to §25.53
File an Affidavit	**§25.53. c.4.C**
Affirms relevant operating personnel are familiar with and have received training on the applicable contacts and execution of the EOP, and such personnel are instructed to follow the applicable portions of the EOP except to the extent deviations are appropriate as a result of specific circumstances during the course of an emergency.	§25.53. c.4.C. i
Affirms that the EOP has been reviewed and approved by the appropriate executives.	§25.53. c.4.C. ii
Affirms that drills have been conducted to the extent required by subsection (f) of this section.	§25.53. c.4.C.iii
Affirms that the EOP and/or an appropriate summary has been distributed to local jurisdictions as needed.	§25.53. c.4.C. iv
Affirms that the entity maintains a business continuity plan that addresses returning to normal operations after disruptions caused by an incident.	§25.53. c.4.C. v
Affirms that the entity's emergency management personnel who are designated to interact with local, state, and federal emergency management officials during emergency events have received the IS-100, IS-200, IS-700 and IS-800 National Incident management System training.	§25.53. c.4.C.vi
EOP Content	**§25.53. d**
Affirms relevant operating personnel are familiar with and have received training on the applicable contacts and execution of the EOP, and such personnel are instructed to follow the applicable portions of the EOP except to the extent deviations are appropriate as a result of specific circumstances during the course of an emergency.	§25.53. d.1
Affirms that the EOP has been reviewed and approved by the appropriate executives.	§25.53. d.1.E
Required Annexes	**§25.53. e.1**
A weather annex with operational plans for responding to cold or hot weather emergencies, distinct from the weather preparations required under Section 25.55 to this title.	§25.53. e.1.A. i
The weather annex has a checklist for transmission or distribution for facility personnel to use during cold or hot weather emergency response. Checklists obviously reflect lessons learned from past weather emergencies to ensure necessary supplies and personnel are available through the weather emergency.	§25.53. e.1.A. ii
A load shed annex.	§25.53. e.1.B

Measure	Mapped to §25.53
Load shed annex has procedures for controlled shedding of load.	§25.53. e.1.B. i
Load shed annex lists priorities for restoring service to customers who were affected by load shedding.	§25.53. e.1.B. ii
Load shed annex contains procedures for maintaining an accurate registry of critical load customers.	§25.53. e.1.B.iii
A Registry of critical load customers that is updated as necessary but at a minimum annually.	§25.53. e.1.B.iii
Load shed annex procedures address providing assistance to critical load customers in the event of an unplanned outage; for communicating with critical load customers during an emergency; coordinating with government and service agencies as necessary during an emergency; and for training staff with respect to serving critical load customers.	§25.53. e.1.B.iii
A pandemic and epidemic annex.	§25.53. e.1.C
A wildfire annex.	§25.53. e.1.D
A hurricane annex that includes evacuation and re-entry procedures if facilities are located within a hurricane evacuation zone.	§25.53. e.1.E
A cyber security annex.	§25.53. e.1.F
A physical security incident annex.	§25.53. e.1.G
Any additional annexes as needed or appropriate to the entity's particular circumstances.	§25.53. e.1.I
Drill Requirements	**§25.53. f**
Provide records that the entity conducted or participated in at least one drill each calendar year to test and exercise its EOP.	§25.53. f
Provide documentation that shows drill conduction or participation, assesses the effectiveness of emergency response against the written EOP, and shows resulting corrective actions that drive revisions to the EOP as needed.	§25.53. f
If the entity operates in a hurricane evacuation zone, documentation shows that at least one of the annual drills includes a test of the hurricane annex.	§25.53. f
Show notification to the commission staff, and the appropriate TDEM District Coordinators of the date, time and location of a drill at least 30 days prior to the date of at least one drill each calendar year.	§25.53. f
Incident or Emergency Reporting Requirements	**§25.53. g**
Provide updates during an incident or an emergency on the status of operations, outages, and restoration efforts upon commission staff request.	§25.53. g

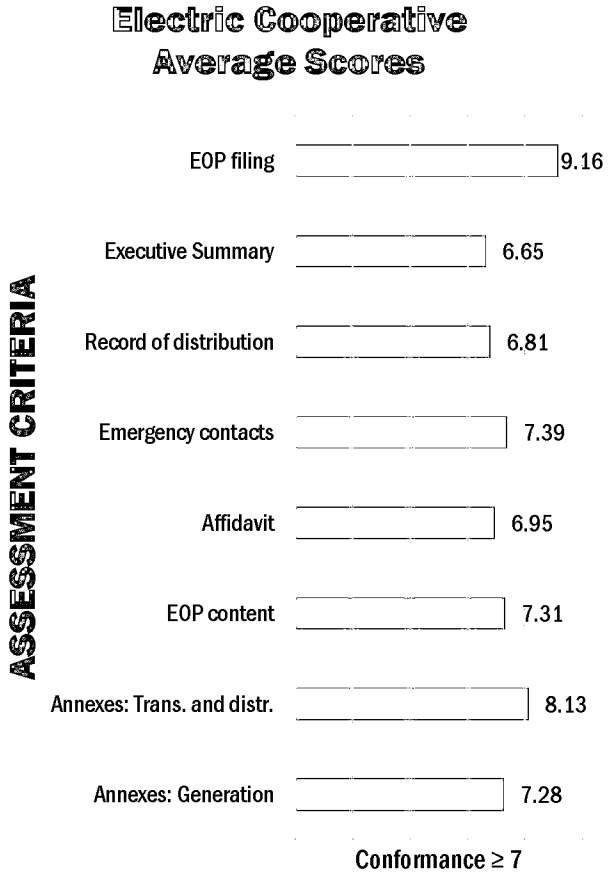
Measure	Mapped to §25.53
Provide updates to commission staff until all incident-related customer outages able to take service are restored or unless otherwise notified by the commission staff.	§25.53. g
Provide after action or lessons learned report after each emergency.	§25.53. g

Appendix D: Conformance Findings for Electric Cooperatives

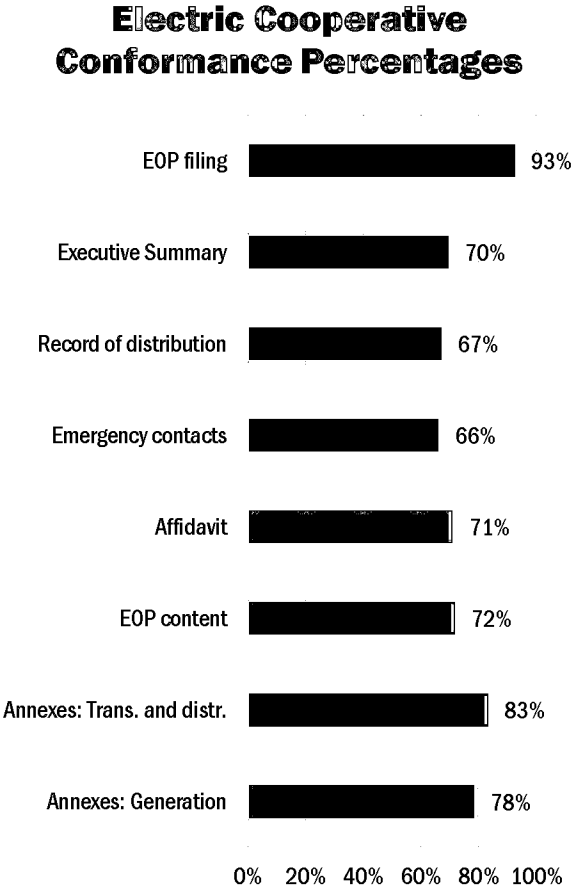
16 TAC § 25.53 Conformance Findings

This appendix examines the in-depth findings regarding the conformance of 69 electric cooperatives with 16 TAC §25.53 (that were applicable for this year). The 53 criteria were divided into categories as organized in 16 TAC §25.53. The graphs below detail the conformance scores, as well as the conformance percentage rates, for each of the categories:

Graph D



Graph C



Electric cooperatives, when viewed collectively, generally conformed with four of the criteria. Successful conformance included filing an EOP, emergency contacts, the contents of their EOPs, and required annexes. Their score for filing an affidavit was just slightly below the level of conformance, while the remaining criteria will require minor improvements to achieve conformance.

Findings for Electric Cooperatives	
Criterion #1 **EOP filing** **9.16/10** Described on page 4.	Electric cooperatives' EOPs achieved a 93% conformance percentage. This was the top scoring section. However, scores do not account for the fact that 25% of plans were submitted late. The lowest scoring subsection criteria was due to the failure to demonstrate continuous maintenance. Yet, the conformance percentage in this subsection was still high at 83%.
Criterion #2 **Executive summary** **6.65/10** Described on page 5.	70% of electric cooperatives demonstrated conformance to executive summary requirements in the EOP. The area of greatest weakness at only 64% concerned references to specific sections and page numbers.
Criterion #3 **Record of distribution** **6.81/10** Described on page 5.	67% of electric cooperatives demonstrated conformance with providing an adequate record of distribution. Results reflected whether distribution records were submitted at all rather than trends in response to a particular criterion.
Criterion #4 **Emergency contacts** **7.39/10** Described on page 6.	Electric cooperatives conformed significantly less in comparison to the other entity types regarding inclusion of contact information in their EOPs. The overall conformance rate for contact information was 80%, but electric cooperatives achieved a rate of only 66%. Inclusion of primary contacts was 81% conformance, and only 33% conformance for the identification of individuals available immediately to address urgent questions from the Commission during an emergency.
Criterion #5 **Affidavit** **6.95/10** Described on page 6.	Electric cooperatives performed consistently with the overall trends observed for submission of affidavits at 71%. The scoring was more reflective of whether the organization included an affidavit at all versus information within the affidavit. However, the conformance rates for ICS training were lower at 66% due to little evidence of completion of the ICS training.

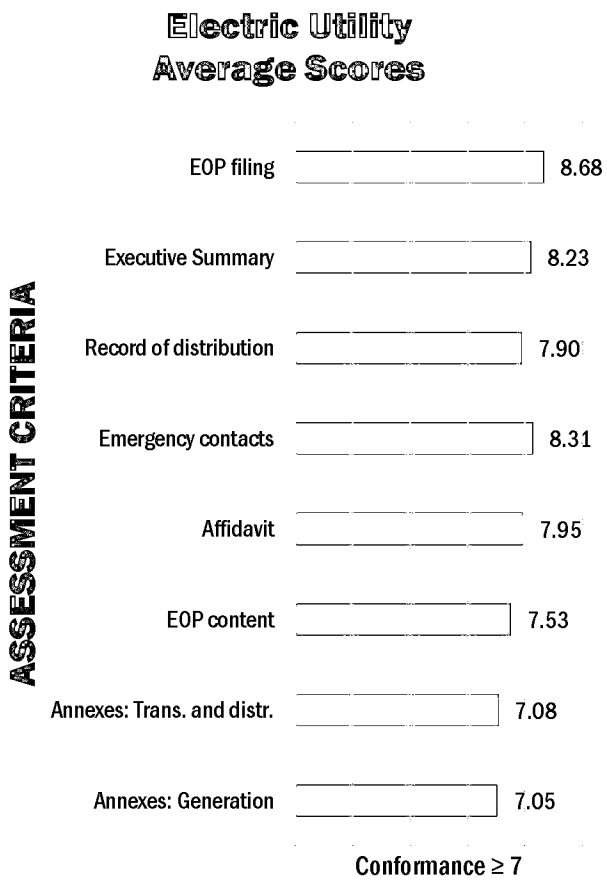
Findings for Electric Cooperatives	
Criterion #6 **EOP Content** **7.31/10** Described on page 7.	Of 69 electric cooperatives, 72% demonstrated conformance with the base plan content of their EOPs. The subsection criteria with the highest level of conformance (88%) was for inclusion of the approval date of the plan while the lowest subsection criteria was the documentation of a process to activate the plan for an emergency at 51% conformance. In addition, there were two notable areas for improvement including a signed approval statement for the plan and procedures for ensuring adequate staffing during an emergency response.
Criterion #7 **Required Annexes** **Trans. & distr. 8.13/10** **Generation: 7.28/10** Described on page 8.	For electric cooperative required annexes, the best rate of conformance (91%) for was inclusion of the load shed annex. Other specific criteria related to load shed scored well also, with more than 75% scoring above 7.0 on various sub-component criteria of load shed conformance. The weather annex which requires operational plans received the lowest conformance percentage of 51% due to a lack of detailed information for use during an emergency. Some annexes that were not applicable to all electric cooperatives, such as the water shortage and restoration annexes, were not always specified as required. Regardless of applicability with respect to power generation, a plan should be in place for the loss of water for operational purposes.

Appendix E: Conformance Findings for Electric Utilities

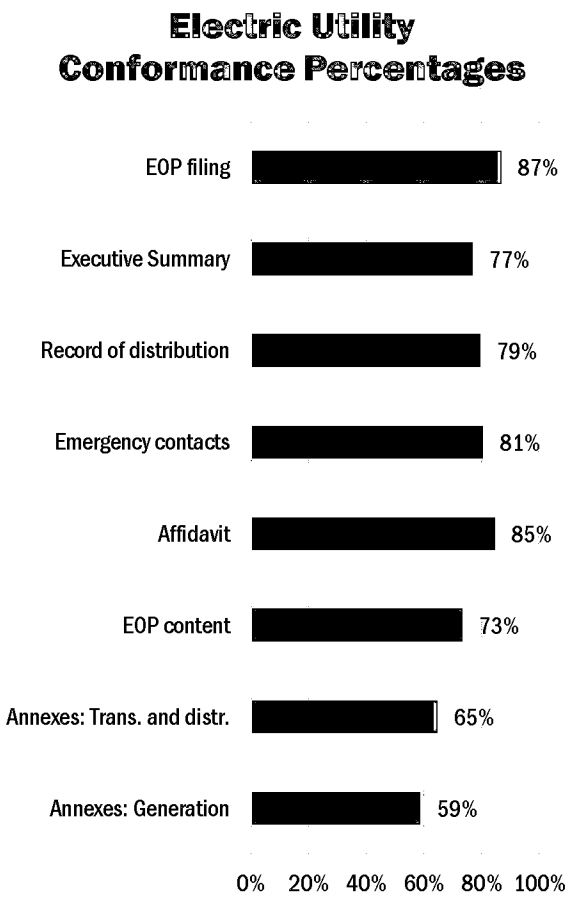
16 TAC § 25.53 Conformance Findings

This appendix examines the in-depth findings regarding the conformance of 13 electric utilities with 16 TAC §25.53 (that were applicable for this year). The 53 criteria were divided into categories as organized in 16 TAC §25.53. The graphs below detail the conformance scores, as well as the conformance percentage rates, for each of the categories:

Graph E



Graph F



Although electric utilities generally conformed with the first criterion, or filing an EOP, they had the lowest conformance in terms of filing their EOP in a timely manner as nearly one-third of EOPs were submitted late. However, they are the only category which conformed with all criteria.

Findings for Electric Utilities	
Criterion #1 **EOP filing** **8.68/10** Described on page 4.	Electric utilities which include transmission, distribution, and vertically integrated entities were the smallest group of utility types assessed and achieved 87% conformance. However, 31% of electric utilities filed an EOP past the deadline. A notable area for improvement, scoring at 58%, is clearly identifying the facility to which the annexes apply. Often there was no such information, or a single filing was expected to address the entire entity. Without more information it is difficult to determine whether a single filing is appropriate but given the size and geographic extent of some of these entities, it is likely that more than one EOP should be developed and maintained.
Criterion #2 **Executive summary** **8.23/10** Described on page 5.	This score reflects that 77% of electric utilities provided EOPs with appropriate executive summaries, however, only 62% included references to specific sections and page numbers within the EOP.
Criterion #3 **Record of distribution** **7.90/10** Described on page 5.	79% of electric utilities filed a responsive record of distribution and 76% filed a record that included the dates of access to the EOP or dates that personnel were trained on the EOP as required.
Criterion #4 **Emergency contacts** **8.31/10** Described on page 6.	81% of electric utilities conformed to this criterion. Providing a list of primary contacts received a conformance percentage of 85% and incorporating a list of secondary contacts received a conformance percentage of 90%. As observed across all entity types, electric utilities scored the lowest at 69% conformance in identifying points of contact for the Commission to address urgent requests during an emergency.
Criterion #5 **Affidavit** **7.95/10** Described on page 6.	85% of electric utilities conformed to filing an affidavit and scored similarly in each subsection criteria.

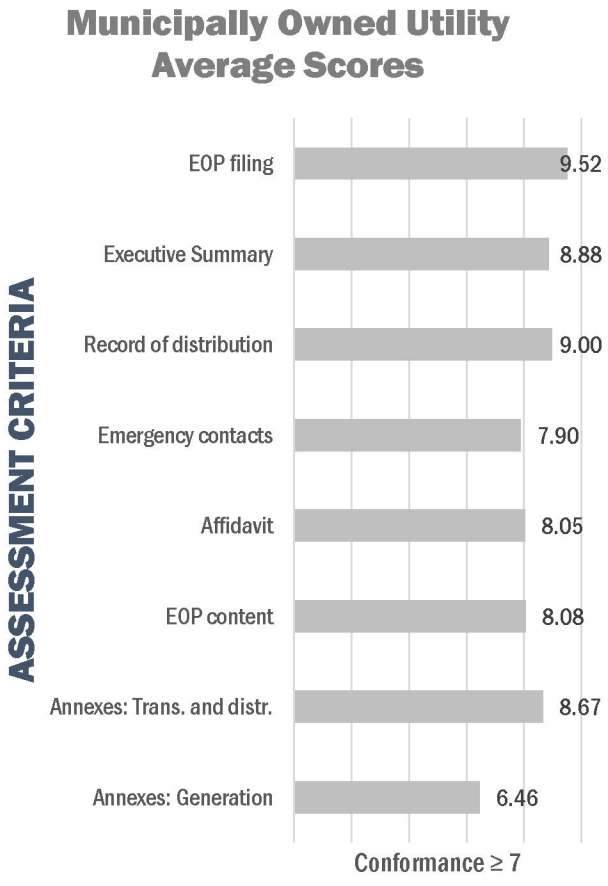
Findings for Electric Utilities	
Criterion #6 **EOP Content** **7.53/10** Described on page 7.	73% of electric utility EOPs conformed with this criterion by scoring 7.0 or higher. The results ranged from a high of 92% for containing both an outline on the applicability of the plan and for articulating an approval date. Like other entity types, the lowest section of this criterion was 46% for describing the processes and procedures for activation of the plan. While many plans made mention of activating the plan, less than half described how that would occur.
Criterion #7 **Required Annexes** **Trans. & distr.: 7.08/10** **Generation: 7.05/10** Described on page 8 .	65% of electric utilities conformed with the overall aspects of this requirement. The subcomponent criteria ranged from 38% for the required weather annex checklist to 76% for inclusion of including a physical security checklist. As with other entities, electric utilities did not always adequately articulate the nature and location of their operations. However, based on information presented in the EOP, 59% confirmed by including annexed required of generation facilities.

Appendix F: Conformance Findings for Municipally Owned Utilities

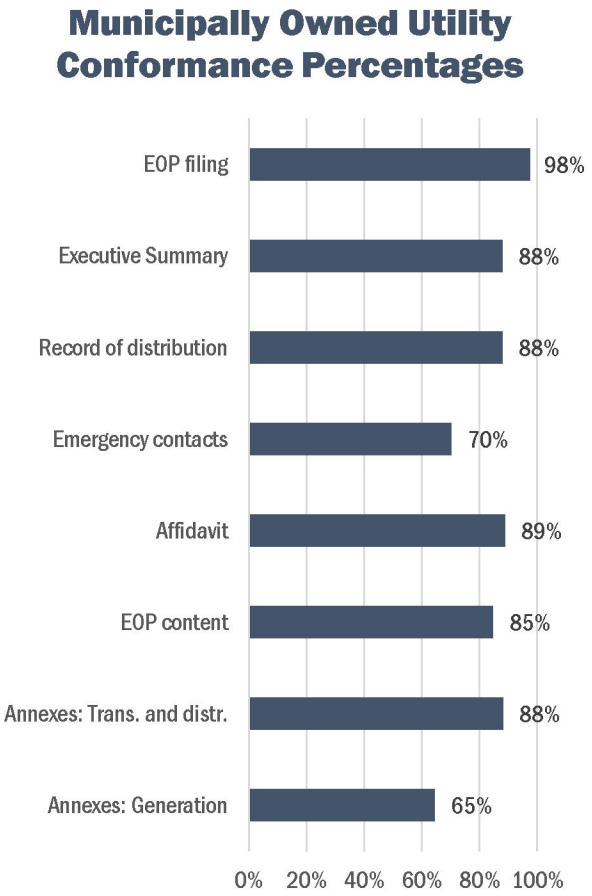
16 TAC § 25.53 Conformance Findings

This appendix examines the in-depth findings regarding the conformance of 72 municipally owned utilities with 16 TAC §25.53 (that were applicable for this year). The 53 criteria were divided into seven categories as organized in 16 TAC §25.53. The graphs below detail the conformance scores, as well as the conformance percentage rates, for each of the categories:

Graph G



Graph H



Municipally owned utilities, which were noted to have used a common template for the vast majority of their submitted EOPs, thus demonstrated commonalities in their conformance. They did well filing their EOPs, including having the highest rate of on-time submissions and had conforming scores for all criteria except annexes for power generation.

Findings for Municipally Owned Utilities	
Criterion #1 **EOP filing** **9.52/10** Described on page 4.	Municipally owned utilities comprised 72 individual entities. As observed in all entity types, municipally owned utilities conformed well with the submission of EOPs receiving a 98% conformance percentage and 86% filed on time. Municipally owned utilities also demonstrated a conformance percentage of 86% for continuous maintenance of an EOP.
Criterion #2 **Executive summary** **8.88/10** Described on page 5.	88% of municipally owned utilities complied with the requirement to provide an executive summary. This criterion also included the subcomponent requirement to contain the affidavit, and 90% of entities conformed.
Criterion #3 **Record of distribution** **9.00/10** Described on page 5.	88% of municipally owned utilities conformed with this requirement. All subsections received conforming scores, and sub-component conformance rates ranged from 85% to 93%.
Criterion #4 **Emergency contacts** **7.90/10** Described on page 6.	70% of municipally owned utilities provided sufficient contact information to conform with the emergency contact requirement. 97% submitted primary contact information; however, this was offset by only 15% identifying specific individuals to address urgent requests and questions from the commission.
Criterion #5 **Affidavit** **8.05/10** Described on page 6.	89% of all municipally owned utilities received a conformance percentage for the submission of an affidavit. The sub-component criteria were identical in their level of conformance.
Criterion #6 **EOP Content** **8.08/10** Described on page 7.	The majority of municipally owned utilities scored well in this criterion comprising several requirements for the contents of an EOP with a conformance percentage of 85%. However, the particular requirement for language specifying the applicability of the plan was lacking resulting in a conformance percentage of 25%.

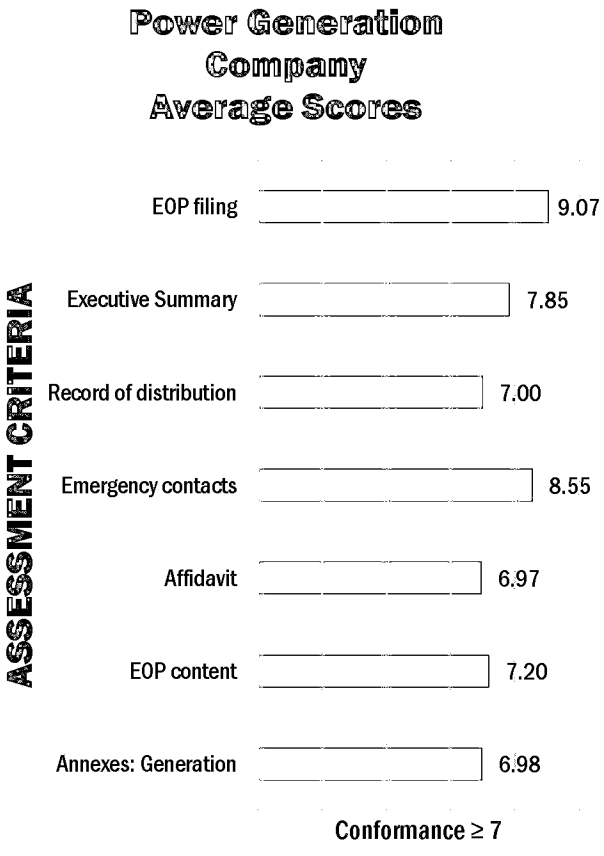
Findings for Municipally Owned Utilities	
Criterion #7 **Required Annexes** **Trans. & distr.: 8.67/10** **Generation: 6.46/10** Described on page 8.	Municipally owned utilities with transmission and distribution facilities scored well in the inclusion of required annexes at 88% conformance; for those with a generation capability, the conformance was lower at 65%. However, most municipally owned utilities did not specify which annexes were applicable to the facility. Only the requirement for those without generation capacity to include a hurricane annex was as low, with 67% achieving conformance, because entities did not indicate whether they were located in a TDEM hurricane zone and did not include a hurricane annex. Most specified they were not in a hurricane evacuation zone; of those that were, most included some form of hurricane planning document.

Appendix G: Conformance Findings for Power Generation Companies

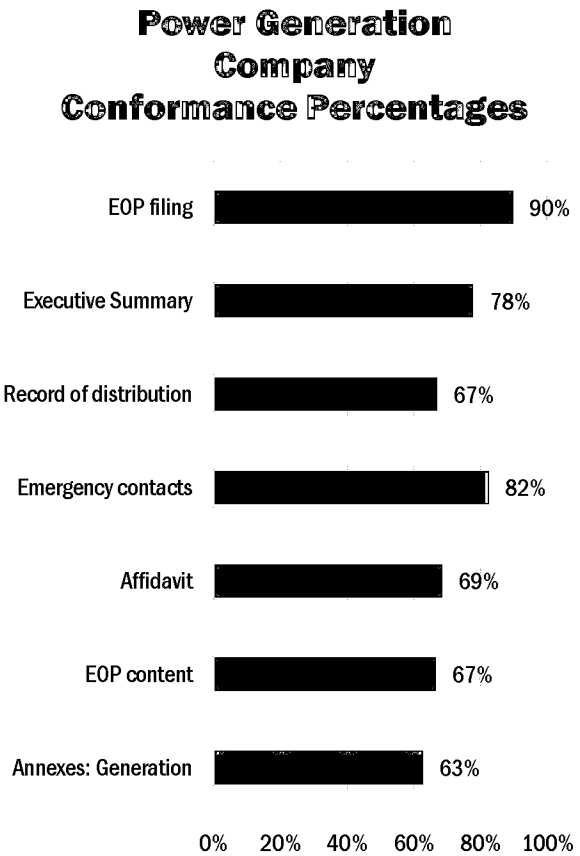
16 TAC § 25.53 Conformance Findings

This appendix examines the in-depth findings regarding the conformance of 438 power generation companies with 16 TAC §25.53 (that were applicable for this year). The 53 criteria were divided into seven categories as organized in 16 TAC §25.53. The graphs below detail the conformance score, as well as the conformance percentage rate, for each of the headings.

Graph I



Graph J



By far the largest group, power generation companies conformed with most criteria by achieving scores more than 7.0, although one of these, filing an EOP, is marred by over 15% having submitted their plans after the deadline. Filing an affidavit and power generation annexes were very slightly below conformance thresholds.

Findings for Power Generation Companies	
Criterion #1 **EOP filing** **9.07/10** Described on page 4.	On average, most entities scored well in this section with 90% achieving conformance scores over 7.0. Similar to the trend observed across all of the entity types, this section received the highest conformance rate. In accordance with another trend across entity types, the ability to demonstrate continuous maintenance of an EOP received a lower conformance percentage at 76% due to the absence of revision control procedures. In an effort to comply with the new rule, many entities developed a completely new version of the plan thus deleting the revision history potentially resulting in scoring artificialities.
Criterion #2 **Executive summary** **7.85/10** Described on page 5.	78% of the entities achieved scores over 7.0 by including sufficient language required in an executive summary. In some cases, the information was included in other parts of the document rather than a standalone or section title "Executive Summary." Fewer plans (75%) appended an affidavit conforming with the required language.
Criterion #3 **Record of distribution** **7.00/10** Described on page 5.	67% of the power generation companies conformed to the requirements of a record of distribution with minimal variance across the three subcomponent criteria. For those entities that provided distribution records, it was frequently noted that the individuals were all internal to the organization and that there was conflation between access to and training on the EOP.
Criterion #4 **Emergency contacts** **8.55/10** Described on page 6.	82% of the power generation companies conformed to furnishing contact information; however, it was often difficult to locate. A common occurrence included contact information that was not specified as primary, secondary, or for immediately addressing urgent requests and questions from the Commission during an emergency.

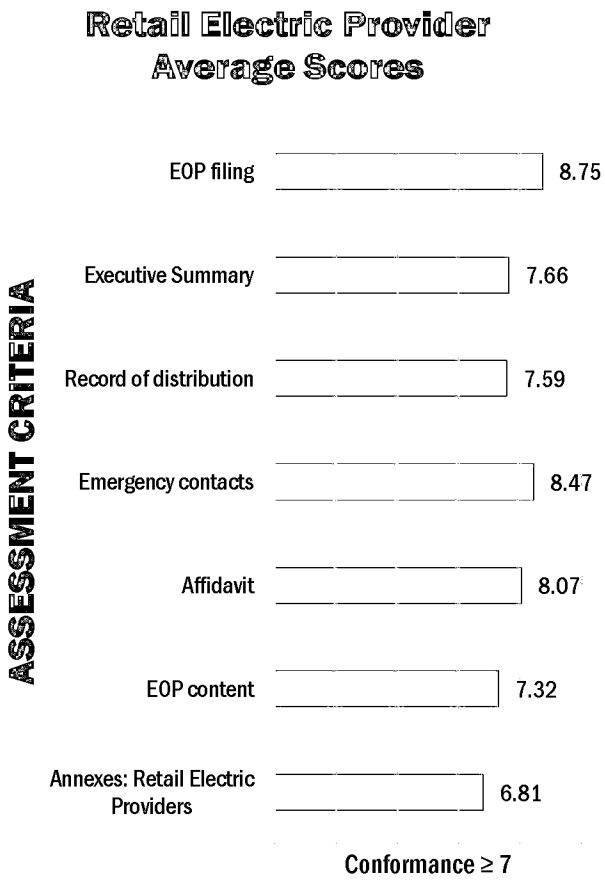
Findings for Power Generation Companies	
Criterion #5 **Affidavit** **6.97/10** Described on page 6.	The specific criteria when included within the affidavit were often duplicated verbatim from a template without verification that it was within the EOP, resulting in a 69% conformance percentage. In many instances, the entity's highest-ranking executive affirmed that certain information was included in the EOP; however, the information was not contained in plan. This was particularly true for the NIMS training with only 55% of power generation company EOPs reaching a level of conformance. Reasons for low conformance rates were due to the exclusion of training certificates, identification of only one individual to coordinate with local emergency managers (sometimes not locally based), and the lack of references to ICS frameworks in the EOP.
Criterion #6 **EOP Content** **7.20/10** Described on page 7.	67% of power generation companies conformed to the requirements within the base plan. The lowest scoring subcomponent criteria at 51% conformance, is the inclusion of a signed approval adopting the plan with language to indicate that it superseded all previous plans. In most cases trends were more closely aligned to the quality of the plan submitted by the entity rather than scoring variance of criteria.
Criterion #7 **Required Annexes** **Generation: 6.98/10** Described on page 8.	Power generation company annex requirements varied by type though overall scoring was 63% conformance. Inclusion of required annexes was sporadic. When annexes were furnished, there was a lack of specificity to the facility and insufficient detail needed to implement procedures. In some cases, if the information was present, it was located within the base plan rather than the annexes. Another significant finding, already discussed in in the Criterion #7 overall findings, was that the requirements for water shortage and restoration of service annexes were not pertinent to renewable energy facilities.

Appendix H: Conformance Findings for Retail Electric Providers

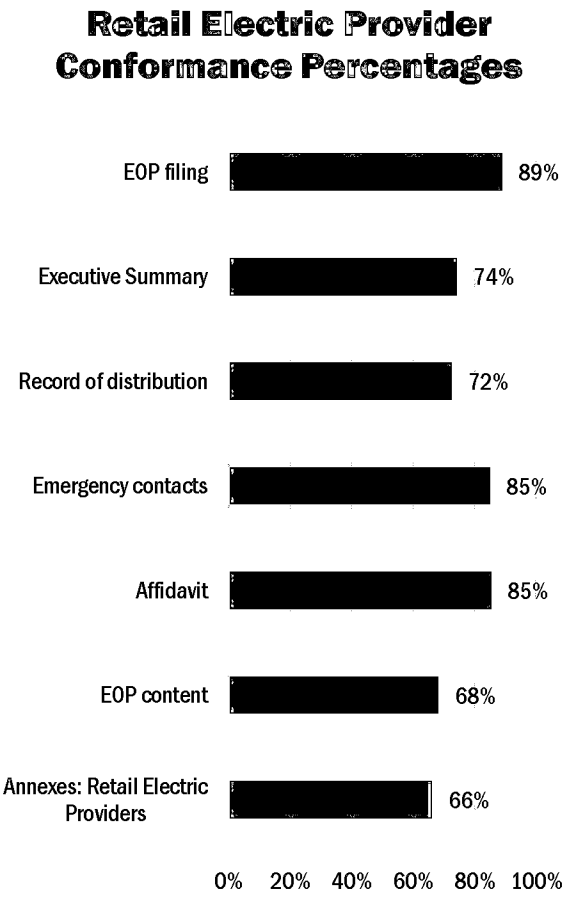
16 TAC § 25.53 Conformance Findings

This appendix examines the in-depth findings regarding the conformance of 99 retail electric providers with 16 TAC §25.53 (that were applicable for this year). The 53 criteria were divided into seven categories as organized in 16 TAC §25.53. The graphs below detail the conformance scores, as well as the conformance percentage rates, for each of the headings.

Graph K



Graph L



Retail electric providers conformed with six of seven criteria. This is somewhat impacted by almost 20% filing their EOPs after the deadline. Inclusion of required annexes was the lowest scoring and least conformant criterion.

Findings for Retail Electric Providers	
Criterion #1 **EOP filing** **8.75/10** Described on page 4.	As with the other four types of entities, retail electric providers – the second largest group – scored well with the general requirement to file an EOP with conformance scores of 7.0 or more occurring at a rate of 89% with 82% filing within the deadline. Retail electric providers performed well in the subcomponent criteria achieving 73% conformance for filing an annex including clearly identifying for which facility portions of the EOP apply and scoring higher in the remaining subsections.
Criterion #2 **Executive summary** **7.66/10** Described on page 5.	74% of retail electric providers filed a conforming executive summary. Only 63% filed an executive summary including references to sections and page numbers.
Criterion #3 **Record of distribution** **7.59/10** Described on page 5.	72% of retail electric providers conformed to the requirement to file a record of distribution; however, as observed across all entity types' EOPs, information was missing regarding dates of access to or training on the EOP. Often the requirement was misunderstood, resulting in entities providing only one date but not specifying whether it was for access to the EOP or the date of training.
Criterion #4 **Emergency contacts** **8.47/10** Described on page 6	85% of retail electric providers met or exceeded the minimum conformance score of 7.0 for including contact information. Additionally, 70% demonstrated conformance to subsection criterion for identifying points of contact for the Commission during an emergency.
Criterion #5 **Affidavit** **8.07/10** Described on page 6.	With a conformance percentage of 85%, retail electric providers supplied the required affidavit and specific component language. However, 78% conformed to the affirmation of specific ICS courses required of identified personnel.

Findings for Retail Electric Providers	
Criterion #6 **EOP Content** **7.32/10** Described on page 7.	Overall, retail electric providers demonstrated 68% conformance to this criterion. 52% conformed to the requirement to describe how the EOP is activated and 77% conformed to the identification of authorized personnel permitted to make changes to the EOP. Two outliers were both highly conformant- providing a plan approval date at 98% conformance, and the inclusion of a revision control summary table at 81%.
Criterion #7 **Required Annexes for Retail Electric Providers:** **6.81/10** Described on page 8.	66% of retail electric providers conformed to this criterion. Of the four annexes applicable to retail electric providers, the hurricane annex received the lowest conformance percentage at 52%. This was primarily due to ambiguity regarding whether a facility was located in a TDEM designated hurricane zone.

Appendix I: Homeland Security Exercise Evaluation Program

In emergency management standardized processes for exercises are part of FEMA's Homeland Security Exercise and Evaluation Program (HSEEP). HSEEP provides exercise designers with guiding principles for developing exercises using a common, validated approach. Using HSEEP, the whole community can develop, execute, and evaluate exercises that address preparedness priorities.

In current regulatory language the terminology used is "drills." However, drills are a category of just one of seven different exercise types as defined in HSEEP. The seven types of exercises defined within HSEEP are further categorized by discussion-based or operations-based exercises. Discussion-based exercises are designed to familiarize participants with plans, policies, and procedures or can be used to develop plans, policies, or procedures. The types of discussion-based exercises include:

- **Seminar**. A seminar is an informal discussion, designed to orient participants to new or updated plans, policies, or procedures (e.g., a seminar to review a new Evacuation Standard Operating Procedure).
- **Workshop.** A workshop resembles a seminar, but is employed to build specific products, such as a draft plan or policy (e.g., a Training and Exercise Plan Workshop is used to develop a Multi-year Training and Exercise Plan).
- **Tabletop Exercise (TTX).** A tabletop exercise involves key personnel discussing simulated scenarios in an informal setting. TTXs can be used to assess plans, policies, and procedures.
- **Games.** A game is a simulation of operations that often involves two or more teams, usually in a competitive environment, using rules, data, and procedure designed to depict an actual or assumed real-life situation.

Operations-based exercises are designed to validate or test the current plans, policies and procedures as well as clarify roles and responsibilities, identify resources gaps in a hands-on, operational environment. The types of operations-based exercises include:

- **Drill.** A drill is a coordinated, supervised activity usually employed to test a single, specific operation or function within a single entity (e.g., a fire department conducts a decontamination drill).
- **Functional Exercise (FE).** A functional exercise examines and/or validates the coordination, command, and control between various multi-agency coordination centers (e.g., emergency operation center, joint field office, etc.). A functional exercise does not involve any "boots on the ground" (i.e., first responders or emergency officials responding to an incident in real time).
- **Full-Scale Exercises (FSE).** A full-scale exercise is a multi-agency, multi-jurisdictional, multi-discipline exercise involving functional (e.g., joint field office,

emergency operation centers, etc.) and "boots on the ground" response (e.g., firefighters decontaminating mock victims).

Additional information about HSEEP can be found at https://www.fema.gov/emergency-managers/national-preparedness/exercises/hseep.

Appendix J: Glossary

Term	Definition
All-hazards	An all-hazards approach addresses capabilities-based preparedness to prevent, protect against, respond to, and recover from terrorist attacks, major disasters, and other emergencies.
Annex	A section of an emergency operations plan that addresses how an entity plans to respond in an emergency involving a specified type of hazard or threat.
Appendix	The sections placed at the end of a plan that provide additional supporting details.
Drill	In Texas terminology, it is a synonym for an "exercise." In HSEEP terminology it is an operations-based exercise that is a coordinated, supervised activity employed to test an entity's EOP or a portion of an entity's EOP. A drill may be used to develop or test new policies or procedures or to practice and maintain current skills.
Electric Cooperative	(A) a corporation organized under the Texas Utilities Code, Chapter 161 or a predecessor statute to Chapter 161 and operating under that chapter; (B) a corporation organized as an electric cooperative in a state other than Texas that has obtained a certificate of authority to conduct affairs in the State of Texas; or (C) a successor to an electric cooperative created before June 1, 1999, in accordance with a conversion plan approved by a vote of the members of the electric cooperative, regardless of whether the successor later purchases, acquires, merges with, or consolidates with other electric cooperatives.
Electric Utility	A person or river authority that owns or operates for compensation in this state equipment or facilities to produce, generate, transmit, distribute, sell, or furnish electricity in this state.
Emergency	A situation in which the known, potential consequences of a hazard or threat are sufficiently imminent and severe that an entity should take prompt action to prepare for and reduce the impact of harm that may result from the hazard or threat. The term includes an emergency declared by local, state, or federal government, or ERCOT or another reliability coordinator designated by the North American Electric Reliability Corporation and that is applicable to the entity.
Emergency Operations Plan	A document that describes how people and property will be protected in disaster and disaster threat situations; details who is responsible for carrying out specific actions; identifies the personnel, equipment, facilities, supplies, and other resources available for use in the disaster; and outlines how all actions will be coordinated.
Entity	An electric utility, transmission and distribution utility, PGC, municipally owned utility, electric cooperative, REP, or ERCOT.

Term	Definition
Exercise	A scripted, scenario-based activity designed to evaluate the system's capabilities and capacity to achieve overall and individual functional objectives, and to demonstrate the competencies for relevant response and recovery positions. The purpose of exercise evaluation is to determine a valid indication of future system performance under similar conditions, and to identify potential system improvements.
Hazard	A natural, technological, or human-caused condition that is potentially dangerous or harmful to life, information, operations, the environment, or property, including a condition that is potentially harmful to the continuity of electric service.
Municipally Owned Utility	Any utility owned, operated, and controlled by a municipality or by a nonprofit corporation whose directors are appointed by one or more municipalities.
Power Generation Company	A person that: (A) generates electricity that is intended to be sold at wholesale, including the owner or operator of electric energy storage equipment or facilities to which the Public Utility Regulatory Act, chapter 35, subchapter E applies; (B) does not own a transmission or distribution facility in this state, other than an essential interconnecting facility, a facility not dedicated to public use, or a facility otherwise excluded from the definition of "electric utility"; and (C) does not have a certificated service area, although its affiliated electric utility or transmission and distribution utility may have a certificated service area.
Preparedness	The phase of Comprehensive Emergency Management that encompasses actions designed to build organizational resiliency and/or organizational capacity and capabilities for response to and recovery from disasters and emergencies.
Retail Electric Provider	A person that sells electric energy to retail customers in this state. A retail electric provider may not own or operate generation assets. The term does not include a person not otherwise a retail electric provider who owns or operates equipment used solely to provide electricity charging service for consumption by an alternatively fueled vehicle, as defined by Section 502.004, Transportation Code.
Threat	The intention and capability of an individual, organization, or natural hazard to harm life, information, operations, the environment, or property, including harm to the continuity of electric service.
Training	Training is instruction that imparts and/or maintains the skills (and abilities such as strength and endurance) necessary for individuals and teams to perform their assigned system responsibilities. Training objectives should be competency-based and specify a level of proficiency that relates to the relevant competencies ("awareness, operations, or expert"). As much as possible, training should address skills function under the conditions likely when the skill must be conducted.

Term	Definition
Transmission and Distribution Utility	A person or river authority that owns, or operates for compensation in this state equipment or facilities to transmit or distribute electricity, except for facilities necessary to interconnect a generation facility with the transmission or distribution network, a facility not dedicated to public use, or a facility otherwise excluded from the definition of "electric utility", in a qualifying power region certified under PURA §39.152, but does not include a municipally owned utility or an electric cooperative. The TDU may be a single utility or may be separate transmission and distribution utilities.
Weatherization	Protecting structures against the elements and making them more energy efficient.

Appendix K: Acronyms

Acronym	Definition
BIA	Business Impact Analysis
BPA	Business Process Analysis
CPG	Comprehensive Preparedness Guide
EC	Electric Cooperative
ENSO	El Niño-Southern Oscillation
EOP	Emergency Operations Plan
ERCOT	Electric Reliability Council of Texas
EMI	Emergency Management Institute
FEMA	Federal Emergency Management Agency
FERC	Federal Energy Regulatory Commission
HSEEP	Homeland Security Exercise and Evaluation Program
ICS	Incident Command System
MOU	Municipally Owned Utility
NERC	North American Electric Reliability Corporation
NIMS	National Incident Management System
NOAA	National Oceanic and Atmospheric Administration
NWS	National Weather Service
OPUC	Office of Public Utility Counsel
PGC	Power Generation Company
PUC	Public Utility Commission
PUCT	Public Utility Commission of Texas
PURA	Public Utility Regulatory Act
REP	Retail Electric Provider
TAC	Texas Administrative Code
TDEM	Texas Division of Emergency Management
TDU	Transmission Distribution Utility
THIRA	Thread and Hazard Identification and Risk Assessment