

September 2022

AUSTIN ENERGY

**FEBRUARY
WINTER STORMS**

**FOLLOW-UP ACTION
COMPLETION REPORT**

FINAL Update

**20
21**



Following the February 2021 Winter Storms, Austin Energy performed an after-action review to identify strengths to continue to leverage and opportunities for improvement within the utility and in its interactions with other City of Austin (COA) departments and the industry. In addition, Austin Energy immediately engaged in its internal change process and the change processes led by regulatory bodies such as the Public Utility Commission of Texas, Federal Energy Regulatory Commission and North American Electric Reliability Corporation. The actionable improvements made by Austin Energy in response to the 2021 Winter Storms are reported in this “February 2021 Winter Storms Follow-Up Action Completion Report (issued 2022).” This report details the utility’s responses, identified recommendations and best practices to improve preparedness for future extreme weather events and ERCOT grid emergencies.

Austin Energy’s February 2021 Winter Storms After-Action Report covered 19 high-level observations and detailed 116 follow-up actions. Austin Energy’s completion of these follow-up actions is reported below. Observation areas included communications, management of ERCOT-mandated load shed, the restoration process, vegetation management near power lines, the performance of substations and transmission lines, climate event risk assessment and coordination with other COA departments. For all 116 follow-up actions, Austin Energy staff has either completed the identified actions by the assigned target date or has “operationalized” the identified on-going actions. Operationalized actions were completed by assigning responsibility for completing regularly recurring tasks as a part of normal operations, by establishing projects, or by Austin Energy providing support to projects in which another entity or COA department is the primary responsible party. An explanation of the work performed, assigned or the project established with respect to each action item can be found in the Final Update column.

Observation	OA No.	Sub-Observation	Follow-up Action	Target Date	Status	Final Update
Observation 1 – Community Communications	1.1	Media and Communications	Engage with the City of Austin (COA) Communication and Public Information Office (CPIO) and Homeland Security and Emergency Management (HSEM) to determine communication tools and resources for non-digital outreach.	Ongoing	Completed	Austin Energy communications staff have engaged with CPIO and HSEM to determine communication tools and resources for non-digital outreach. In connection with this engagement, a series of exercises and “Grid Failure” informational and educational seminars were developed with the COA and Travis County’s HSEM. The first of this series of seminars was held on December 15, 2021 and included a joint City and County tabletop exercise. The primary objective of this exercise and future exercises is to identify planning gaps and resource shortages including the identification of communications tools and resources for non-digital outreach. Austin Energy communications staff work continually to improve its communication tools and resources and will continue to work with CPIO and HSEM to refine these tools and resources.
Observation 1 – Community Communications	1.2	Media and Communications	Identify budget resources to secure backup resources for Austin Energy communications staff (power packs, weather radios, mobile Wi-Fi hotspots, etc.).	Qtr. 1, 2022	Completed	Austin Energy secured contract authority for backup resources (including power packs, weather radios, and mobile Wi-Fi hotspots) for Austin Energy communications staff. Austin Energy acquired these backup resources during Qtr. 1, 2022.
Observation 1 – Community Communications	1.3	Media and Communications	Work with the COA’s Communications and Public Information Office to develop a plan or protocol for the involvement of City Council offices.	Ongoing	Completed	During 2021, Austin Energy communications staff completed work to refine plans and protocols for the involvement of City Council offices during emergency events. In anticipation of future emergency events, communications and local regulatory affairs staff will conduct regular efforts to improve and refine plans and protocols for involvement with City Council offices.
Observation 1 – Community Communications	1.4	Media and Communications	Continue conducting media training with the executive team and Communications staff.	Qtr. 1, 2022	Completed	Austin Energy PIO staff continues to provide ongoing one-on-one media training for Austin Energy executive and management staff in preparation for media interviews across multiple communication media (print, radio and television). During Qtr. 1, 2022, PIO staff also initiated the process of securing an agreement with a communications firm to conduct periodic media training in a classroom (live and virtual) setting for Austin Energy executives and communications staff.
Observation 1 – Community Communications	1.5	Media and Communications	Engage in the Public Utility Commission of Texas (PUCT) rulemaking on statewide emergency messaging.	Ongoing	Completed	During 2021 and 2022, Austin Energy jointly submitted comments with the Texas Public Power Association (TPPA) on PUCT Project No. 52287, Power Outage Alert Criteria. The new rule, adopted in May 2022, establishes criteria for the activation, content, and termination of the regional and statewide power outage alert for emergency messaging.

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Observation 1 – Community Communications	1.6	Media and Communications	Provide emergency materials in other languages besides English and Spanish.	Qtr. 3, 2021	Completed	As Austin Energy messaging during the Winter Storms was limited to English and Spanish, the Austin Energy PIO has taken corrective measures during 2021 to expand messaging to the limited English proficiency community during emergency and winter weather events by translating multiple emergency messages (including energy conservation alerts and sustained outages notices for ERCOT events) into Simplified Chinese and Vietnamese. The availability of these message translations has broadened Austin Energy's ability to communicate to the limited English proficiency community during future emergency events.
Observation 1 – Community Communications	1.7	Media and Communications	Coordinate with Customer Care and provide a pool of trained representatives to help respond to social media messages during an emergency.	Qtr. 2, 2022	Completed	Since the Winter Storms, Austin Energy Corporate Communications staff have met and collaborated with key Austin Energy Customer Care staff to determine a strategy for providing digital support for social media communications during an emergency. Customer Care identified key staff and back-up staff members who will work directly with Corporate Communications staff, who are trained in providing effective emergency communications, to provide accurate and timely responses in the case of severe emergencies.
Observation 1 – Community Communications	1.8	Media and Communications	Continue to encourage customers to monitor news and emergency broadcasts, charge phones, laptops and tablets if a storm is coming, create a family emergency communication plan, and sign up to receive alerts and warnings.	Ongoing	Completed	As a part of normal operations, Austin Energy communications staff regularly review and make improvements to its draft communications that are prepared in advance of extreme weather events. These draft communications include customer reminders to charge phones, laptops and tablets if a storm is anticipated, to create a family emergency communication plan and to sign up to receive alerts and warnings.
Observation 1 – Community Communications	1.9	Outage Map	Resolve technical issues for outages not reflected on the map.	Qtr. 3, 2021	Completed	Austin Energy worked with its vendor to identify technical issues which had negatively impacted the accurate depiction of outages on the Austin Energy Outage Map. All technical issues (over 20 cases) were addressed and the associated corrections were successfully implemented. These corrections resulted in more accurate and improved Outage Map reporting of outages and counts of affected customers.
Observation 1 – Community Communications	1.10	Outage Map	Disable outage map elements that display shaded outage areas, which are not an industry practice in most dense metro areas.	Qtr. 3, 2021	Completed	Austin Energy worked with its vendor to disable Outage Map elements (polygons) that previously displayed shaded outage areas. This work was successfully completed and released into production in the third quarter of 2021.

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Observation 1 – Community Communications	1.11	Outage Map	Retrain all staff managing the Advanced Distribution Management System (ADMS) on internal processes to ensure outage information is entered timely and accurately, thus reflecting correctly on the outage map.	Qtr. 3, 2021	Completed	All staff managing ADMS were retrained on internal processes to ensure the timely and accurate entry of outage information. Six retraining sessions for System Operations staff were conducted between 7/9/2021 and 8/27/2021 covering multiple topics.
Observation 1 – Community Communications	1.12	Outage Map Text Alerts	Improve Austin Energy Website messaging to better educate the public regarding outages.	Qtr. 2, 2021	Completed	The Austin Energy IT Web Team implemented improved messaging on its website (5/7/2021) to better educate the public regarding outages.
Observation 1 – Community Communications	1.13	Outage Map Text Alerts	Update the "outage restored" text message to clarify the status and expectation to respond if a nested outage exists.	Qtr. 3, 2021	Completed	Austin Energy worked with its vendor to update the "outage restored" text message to clarify the status and expectation to respond in the event of a nested outage (outage within a larger restored outage area). Updates were released into Production in June, 2021.
Observation 1 – Community Communications	1.14	Outage Map Text Alerts	Resolve ADMS issues that caused messaging to be inconsistent with the customer's incident experience.	Qtr. 3, 2021	Completed	Following the Winter Storms, Austin Energy worked with its vendor to resolve ADMS issues. Updates were successfully released into Production in July, 2021.
Observation 1 – Community Communications	1.15	Outage Map Text Alerts	Continue delivery of the next Outage Map and Text Alert Application, scheduled to be upgraded in 2022. Expected benefits include features such as natural language processing, a highly configurable interface to create new map views on-demand, low-impact change product configuration updates, social media integration, a solution for displaying the magnitude of master metered properties on the outage map, and an improved graphical outage history tracking and improved user interface.	Qtr. 2, 2022	Completed	Since the Winter Storms, Austin Energy conducted a project to upgrade the Outage Map and Text Alert Application and project completion occurred in 2022. This project includes all benefits identified in this Action Item (natural language processing, a highly configurable interface to create new map views on-demand, low-impact change product configuration updates, a solution for displaying the magnitude of master metered properties on the outage map, and an improved graphical outage history tracking and improved user interface) except that the social media integration was determined not to be mature enough to be included within the scope of the current project. As a part of its normal operations, Austin Energy seeks to continually improve its tools and applications. Accordingly, if there are technological advances that would enable a social media integration into the Outage Map and Text Alert Application, then this integration will be reevaluated for implementation.

FEBRUARY WINTER STORMS

FOLLOW-UP ACTION
COMPLETION REPORT



Final Update



4 of 29

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Observation 1 — Community Communications	1.16	"Austin 3-1-1 Service"	Work with the COA's Communication and Technology Management Office (CTM) to designate all Austin 3-1-1 offices as Critical Load Customers to safeguard against power outages during Load Shed events.	Qtr. 3, 2021	Completed	Austin 3-1-1 worked with CTM to confirm that all Austin 3-1-1 offices were communicated to Austin Energy as Critical Load Customers to better protect these facilities against power outages during Load Shed events. CTM communicated these locations to Austin Energy in Qtr. 3, 2021.
Observation 1 — Community Communications	1.17	"Austin 3-1-1 Service"	Purchase and install portable generators for the two sites that complete the power requirements for the City Communication ring. The permanent generator build for these two sites is planned for 2024.	Qtr. 2, 2024	Completed	Since the Winter Storms, CTM initiated a project to purchase and install portable generators at two sites that will complete the backup power requirements for the City Communications ring. As a part of this project, repair of the backup on-site generator at the Austin 3-1-1 facility was completed. While Austin Energy's role in this project, as assigned by CTM, has been completed, Austin Energy will remain available to assist with the Communications Ring Project as needed or requested by CTM. CTM is on schedule to complete the Communications Ring Project during Qtr. 2, 2024.
Observation 1 — Community Communications	1.18	"Austin 3-1-1 Service"	SIP Trunking (a method of sending voice and other unified communications services over the internet) was implemented at Austin 3-1-1 to provide CTM the ability to reroute calls to an alternate location when a communications site failure occurs.	Qtr. 3, 2021	Completed	SIP Trunking was implemented at Austin 3-1-1 to provide CTM the ability to reroute calls to an alternate location when a communications site failure occurs. Austin 3-1-1 and CTM completed this work during Qtr. 3, 2021.
"Observation 2 — Other Utilities and COA Departments that Provide Public Services"	2.1	Texas Gas Service (TGS)	TGS and Austin Energy shared information pertaining to critical infrastructure as necessary for storm response while continuing to protect sensitive and critical infrastructure information that also possibly falls under Federal Electric or Gas Line regulatory agencies.	Qtr. 3, 2021	Completed	TGS designated a location for their Emergency Operations Center which meets the qualifications for Critical Load status. Accordingly, Austin Energy has designated the TGS Emergency Operations Center in the highest priority Critical Load tier, which provides increased protection during future Load Shed events.
"Observation 2 — Other Utilities and COA Departments that Provide Public Services"	2.2	TGS	TGS and Austin Energy worked collaboratively during the storm to address power supply issues that negatively affected TGS's ability to distribute gas. This process should continue.	Ongoing	Completed	Austin Energy and TGS have worked collaboratively since the Winter Storms to address power supply issues that negatively affected TGS's ability to distribute gas during the Winter Storms. Both utilities have identified primary points of contact for sharing of information regarding critical facilities and power supply issues and will, as a part of normal operations, continue to maintain these direct lines of communication.

4 of 29

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"Observation 2 — Other Utilities and COA Departments that Provide Public Services"	2.3	TGS	Austin Energy will continue to work with TGS to identify TGS's critical facilities, so that during storm events key natural gas distribution facilities are prioritized for receiving power and for power restoration following outages. This work will allow TGS to better maintain gas supply and address pressure challenges within affected areas in its service territory.	Ongoing	Completed	Austin Energy and TGS have continued to work collaboratively since the Winter Storms. During Qtr. 4, 2021, TGS worked to assemble a list of 10-12 natural gas distribution facilities that were expected to meet the criteria for Critical Load status. These sites have been included, as appropriate, on the Austin Energy Critical Load status lists to provide some protection from outages during Load Shed events. Austin Energy and TGS's designated primary points of contact will continue to collaborate and to routinely update this list of critical natural gas distribution facilities as a part of normal operations.
"Observation 2 — Other Utilities and COA Departments that Provide Public Services"	2.4.1	Austin Water (AW)	The following actions are underway at Ullrich WTP: OA 2.4.1 – AW and Austin Energy — Evaluate improved utilization of Bee Creek Substation circuits as well as the Ullrich WTP electrical system and develop an action plan.	Qtr. 3, 2021	Completed	Austin Energy and AW have assembled a formal working group and have held numerous working sessions. The team has developed a comprehensive plan to improve utilization of Austin Energy dual feed and the third Austin Energy back-up circuit. AW is working to further improve utilization of the Ullrich WTP electrical system by performing work that enables improved switching and automation within the facility.
"Observation 2 — Other Utilities and COA Departments that Provide Public Services"	2.4.2	AW	Implement auto switch for the backup circuit at Ullrich WTP for automatic operations after loss of either of the primary circuits	Qtr. 2, 2022	Completed	Austin Energy's modifications and upgrades to the substation breakers and switches serving the Ullrich WTP are complete. Planned substation feeder breaker refurbishment work was completed in 2021. Both transfer switches feeding Ullrich WTP have been upgraded with automatic transfer capabilities. Austin Energy work to implement auto switch for the backup circuit at Ullrich WTP for automatic operations after loss of either of the primary circuits is complete.
"Observation 2 — Other Utilities and COA Departments that Provide Public Services"	2.5.1	AW	The following actions are underway at Longhorn Dam: OA 2.5.1 – Austin Energy — Initiate a project to build a second electric circuit to Longhorn Dam. This is a challenging, multi-year project involving multiple COA departments as well as siting challenges for the circuit and electrical facilities. This project is funded. (Estimated 2023)	Ongoing	Completed	The installation of a second electric circuit to Longhorn Dam is a challenging, multi-year project involving multiple COA departments as well as siting challenges for the circuit and associated electrical facilities. This project is funded, the project team has been assembled and the project is underway. Austin Energy is nearing completion on finalizing the various design options and the site work necessary to bring a second feed to Longhorn Dam (estimated completion date is 2023). As a part of its normal operations, Austin Energy will continue to collaborate with AW to complete this project.

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"Observation 2 — Other Utilities and COA Departments that Provide Public Services"	2.5.2	AW	The following actions are underway at Longhorn Dam: 2 – AW — Evaluate the installation of backup generators at Longhorn Dam to safeguard the facility while the second circuit is being constructed.	Ongoing	Completed	Following a meeting with AW representatives in November, 2021, Austin Energy investigated the project requirements for the installation of a backup generator at Longhorn Dam. This investigation revealed that there is inadequate room on site for the installation of a backup generator. Meanwhile, Austin Energy initiated a project and is nearing completion on finalizing the various design options and site work necessary under this project to bring a second feed to Longhorn Dam to establish dual feed. As a part of normal operations, Austin Energy will continue to collaborate with AW to complete this project to establish a second electric circuit to Longhorn Dam.
"Observation 2 — Other Utilities and COA Departments that Provide Public Services"	2.6.1	AW	The following actions are underway for resilience improvements at lift stations: OA 2.6.1 – Austin Energy — Provide AW a list of lift stations that are currently on a Critical Load circuit. This action will assist AW to plan for future outage contingencies and help determine locations most and least likely to lose power in a similar event.	Ongoing	Completed	Austin Energy worked with AW to update Austin Energy's list of lift stations for inclusion in its Critical Load List. Austin Energy also contacted other water authorities within its service territory to obtain updated lift station location and contact information for all such facilities to ensure that each is afforded the appropriate Critical Load status and so Austin Energy has visibility of these facilities on the electric system. Every lift station was assigned a Critical Load designation in accordance with Austin Energy's Critical Load criteria. As a part of its normal operations, Austin Energy will continue to maintain and update lift station information.
"Observation 2 — Other Utilities and COA Departments that Provide Public Services"	2.6.2	AW	The following actions are underway for resilience improvements at lift stations: OA 2.6.2 – AW — Strategically site and increase the pool of available backup generators (either on-site or portable).	Ongoing	Completed	Austin Energy has worked with AW and other water authorities in the Austin Energy service territory to encourage water authorities to provide further resiliency through the installation of backup generation (on-site or portable) at water facilities. In addition, Austin Energy has created a new resiliency program offering known as the "Resiliency as a Service (RaaS)" that facilitates critical facility resiliency efforts. Under this program, Austin Energy will, as a part of its normal operations, continue to work with AW and other water authorities to implement resiliency improvements at water facilities.

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"Observation 2 – Other Utilities and COA Departments that Provide Public Services"	2.7	AW	The joint AW and Austin Energy team will identify, explore and recommend electrical improvements at the following sites to improve resiliency. OA 2.7.1 – Davis Water Treatment Plant. OA 2.7.2 – Walnut Creek Wastewater Treatment Plant. OA 2.7.3 – South Austin Regional Wastewater Treatment Plant. OA 2.7.4 – Handcox Water Treatment Plant.	Qtr. 1, 2022	Completed	During 2021, Austin Energy and AW assembled a formal working group which has conducted numerous working sessions to identify, explore and recommend electrical improvements for AW water and wastewater treatment plants (including Davis Water Treatment Plant, Walnut Creek Treatment Plant, South Austin Regional Wastewater Treatment Plant and Handcox Water Treatment Plant). Prior to the end of 2021, this team developed a comprehensive plan for electric service resiliency improvements at sites determined to require upgrades. This team meets on a regular basis to confer on the implementation of the plan and to confirm progress on the planned improvements and it will continue to meet until all planned improvements are complete. These four AW plants each have existing dedicated Austin Energy dual feed. Austin Energy and AW have enabled an automatic transfer scheme at each of the four plants that allows the electric load for each plant to be transferred to its respective second feeder in the event the first feeder loses power. At the South Austin Regional Wastewater Treatment Plant, AW is replacing one of their two incoming switchgear to allow automatic transfer between the two AE feeders serving that switchgear. The other incoming switchgear at this plant has the automatic transfer scheme enabled to be able to transfer the other two Austin Energy feeders.

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"Observation 2 — Other Utilities and COA Departments that Provide Public Services"	2.8	Austin Transportation Department (ATD)	Austin Energy and ATD are collaborating to develop methods to mitigate the impacts of electric outages on traffic light operations.	Ongoing	Completed	Since the Winter Storms, Austin Energy and ATD have collaborated to mitigate the risks and impacts of electric outages on traffic signal operations. These efforts have included the development of a process flow chart to improve communications between the departments. This process flow chart establishes clear lines of communication between departments for reporting traffic signal outages and outage response and restoration measures. ATD has also provided Austin Energy with information enabling the integration of priority traffic signals into the Austin Energy SCADA system. This integration allows Austin Energy to provide more detailed information to ATD during power outages and it expedites the response to and restoration of power to priority traffic signals. As a means of improving resiliency during long-term power outages, ATD has procured two portable generators and developed a process to attach the generators to priority traffic signals with heavy pedestrian use. ATD is working with Austin Energy to develop traffic signal construction standards that enhance traffic signal remote visibility. As a part of normal operations, Austin Energy and ATD will continue to collaborate to improve processes and standards to further mitigate the risks of power outages to traffic signals.
"Observation 2 — Other Utilities and COA Departments that Provide Public Services"	2.9	Communication Companies	Continue direct contact between the dedicated service team and these customers on a regular basis to resolve issues.	Ongoing	Completed	The Pole Attachment Services (PAS) workgroup is the dedicated Austin Energy team that provides customer service to the approximately 30 Communication companies that are licensed attachers to Austin Energy electric poles and other infrastructure. PAS provides these licensed attachers with regular daily customer support on make-ready design, compliance and construction issues, as well as on electric service issues. After the Winter Storms, PAS required each licensed attacher to designate a single point of contact (SPOC) for resolution of utility restoration issues. The PAS Distribution Construction Supervisor responsible for business process support has been assigned responsibility for regularly updating this SPOC list and for list verification during storm restoration events.
Observation 3 — Medically Vulnerable Registry (MVR)	3.1		Incorporate processes to check meter status, alert staff to outages among medically vulnerable populations and confirm a triage plan for wellness checks with internal teams and other COA departments.	Qtr. 4, 2021	Completed	Processes have been developed to check status of all MVR meters during a storm outage event and to alert staff to MVR outages. A triage process has been developed to identify the appropriate resources to conduct MVR wellness checks in various situations.

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Observation 3 — MVR	3.2		Work with other COA departments to establish a coordinated communication process to assist the medically vulnerable.	Qtr. 1, 2022	Completed	Austin Energy has made improvements to its MVR processes to proactively identify meters without service, to more regularly update customer emergency plans and contact information and to better track outreach efforts. A triage plan that establishes a coordinated communication process between COA departments has been created to identify when wellness checks are needed, to identify what resources are available and to communicate assistance needs through EOC liaisons to HSEM and other COA departments.
Observation 3 — MVR	3.3		Refine the existing MVR process to update contact information regularly through outbound call effort.	Qtr. 2, 2022	Completed	Austin Energy has refined its MVR process by instituting a practice of regularly updating MVR customer contact information at each outbound call made by staff.
Observation 4 — Incident Command	4.1		Review Incident Command Policy and Procedures and identify areas for improvement focusing on employee preparedness and emergency training including emergency role-playing exercises.	Qtr. 4, 2021	Completed	Incident Command Policy and Procedures have been reviewed and opportunities for improvement have been identified in emergency management training and for improvement implementation including: filling Incident Command Team vacancies promptly; implementing steps to ensure compliance with FEMA training requirements; and providing additional guidance to Incident Command Team members on specific tasks associated with assigned roles and responsibilities during Incident Command activations.
Observation 4 — Incident Command	4.2		Develop an ICS training plan for new team members, conduct training activities and exercises and review annually.	Qtr. 3, 2021	Completed	Austin Energy developed an Incident Command training plan for new team members which includes conducting training activities and the continuation of annual emergency response exercises and reviews. AE established a new monthly first response rotation in which the following have been enhanced and documented in Austin Energy's internal emergency response files: first-week confirmation of member contact information; review and refresher on essential staff policies; and first-week huddle.
Observation 4 — Incident Command	4.3		Promptly assign staff to fill vacancies in the Incident Command Team.	Ongoing	Completed	During 2021, all vacancies in the Austin Energy Incident Command organization chart were filled and some new positions created to formalize roles deemed necessary during the Winter Storms. It is part of Austin Energy's normal operations to work continually to fill vacancies as they occur and to assign multiple individuals in significant roles to build depth in the Incident Command team.

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Observation 5 – Management of ERCOT-Directed Load Shed	5.1	Load Shed	Review Austin Energy’s existing Load Shed Program and identify opportunities for improvement.	Qtr. 1, 2022	Completed	Austin Energy has reviewed its existing Load Shed Program in order to identify opportunities for improvement. This review indicated that Austin Energy’s Manual Load Shed and UFLS process and protection devices operated correctly during the Winter Storms and did not mis-operate. Based on this review and its evaluation of currently available alternative Load Shed programs, Austin Energy has determined that the continued use of its industry-tested computer-based Emergency Management System (EMS) Manual Load Shed program is prudent. Austin Energy will continue to monitor efforts by other electric utilities to pilot the use of ADMS or other Manual Load Shed programs for the performance of Load Shed.
Observation 5 – Management of ERCOT-Directed Load Shed	5.2	Load Shed	Refine customer communications in anticipation of Load Shed events to adequately communicate the possibility of prolonged outages and the importance of having robust emergency plans in place.	Qtr. 4, 2021	Completed	During 2021, Austin Energy PIO and Key Accounts staff continued existing customer communication programs and increased regular communications with customers. These continued and increased communications include preparing updated customer Alerts and NewsFlashes that are provided to all customers during extreme weather events. In addition, Austin Energy’s PIO works to ensure that all Media Communications, Customer Care and 3-1-1 messaging and Liaison talking points are regularly reviewed and revised during each extreme weather event. Regarding Key Accounts customers, Austin Energy conducts annual meetings individually with each customer as well as an annual general attendance Key Accounts customer meeting. In these meetings, Austin Energy reviews ERCOT issued forecasts and Austin Energy EEA processes. In addition Key Accounts staff regularly inform customers on: background information and the process for the issuance of Appeals for Energy Reduction and EEAs; the Resilience Offering (an Austin Energy program which focuses on the importance of installation of back-up generation and fuel storage as appropriate based upon the customer’s determination); and the development of appropriate Emergency Plans for emergency events (including safe storage of hazardous materials during power outages). At least once annually, Key Accounts staff also conduct detailed conversations regarding back-up generation with staff from AW and the Austin-Bergstrom International Airport and with industrial, grocery and Critical Load Customers.

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Observation 5 – Management of ERCOT-Directed Load Shed	5.3	Load Shed	Increase communications with Commercial and Industrial (C&I) customers on the need for emergency plans and backup generators to ensure that chemicals are stored safely in the event of a prolonged power outage.	Qtr. 4, 2021	Completed	During 2021, Austin Energy Key Accounts continued existing customer communication programs and increased regular communications with customers. These continued and increased communications include conducting individual meetings with customers that occur at least once annually and the conduct of at least one annual general attendance Key Account Customer meeting. In these meetings, ERCOT issued forecasts and Austin Energy EEA process are reviewed with customers. In addition Key Accounts staff regularly inform customers on: background information and the process for the issuance of Appeals for Energy Reduction and EEAs; the Resilience Offering (an Austin Energy program which focuses on the importance of installation of back-up generation and fuel storage as appropriate based upon the customer's determination); and the development of appropriate Emergency Plans for emergency events (including safe storage of hazardous materials during power outages). At least once annually, Key Accounts staff also conduct detailed conversations regarding back-up generation with staff from AW and the Austin-Bergstrom International Airport and with industrial, grocery and Critical Load Customers.
Observation 5 – Management of ERCOT-Directed Load Shed	5.4	Load Shed	Continue active engagement in the regulatory process, including ongoing and proposed changes at ERCOT and PUCT.	Ongoing	Completed	Since the Winter Storms, Austin Energy has continued its active engagement with the regulatory process. This engagement included the submittal of comments to the PUCT concerning the Review of Market Design Project. Additionally, Austin Energy, as a member of TPPA, collaborated with staff to provide comments on the Review of Market Design Project and 10 other PUCT projects focused on the response to the Winter Storms. Austin Energy actively participates in all levels of the ERCOT stakeholder process that develops and adopts revisions to the ERCOT Protocols and Operating Guides. The Texas Legislature responded to the events of the Winter Storms by reviewing existing and passing new laws and resulting regulations and continues to consider refinements of these laws and regulations. Austin Energy continues to be engaged in the legislative process, as a part of its normal operations, in all relevant regulatory rulemakings at the PUCT individually and as a member of the TPPA.

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Observation 5 – Management of ERCOT-Directed Load Shed	5.5	Load Shed	Continue to evaluate the Austin Energy electric system to identify circuits appropriate for sectionalization, and initiate projects to sectionalize additional circuits.	Ongoing	Completed	Additional customers have been added to the Austin Energy Critical Load List since the Winter Storms. To help offset these additions to Austin Energy's Load Shed protected electric load, Austin Energy evaluates its electric system as a part of its normal operations to identify circuits appropriate for sectionalization and initiates projects to sectionalize circuits. Since the Winter Storms, Austin Energy has initiated projects and will continue to work to identify opportunities to install reclosers, which section off non-critical loads downstream of Critical Load Customers. This allows the downstream non-critical load on these sectionalized circuits to be included in Austin Energy's shedable load.
Observation 5 – Management of ERCOT-Directed Load Shed	5.6.1	Critical Load	Evaluate further sectionalizing of circuits with Critical Load Customers. Actions are on a case-by-case basis and can include: initiating a project to identify whether critical customers could be moved onto dedicated circuits, and the required equipment and resources required to reconfigure circuits.	Qtr. 1, 2022	Completed	Additional customers have been added to the Austin Energy Critical Load List since the Winter Storms. To help offset these additions to Austin Energy's Load Shed protected electric load, Austin Energy has evaluated opportunities to sectionalize circuits with Critical Load Customers such that Critical Load Customers are consolidated on fewer dedicated circuits. Austin Energy has identified three circuits appropriate for consolidation. As of Qtr. 1, 2022, Austin Energy completed work on the three identified circuits to move Critical Load Customers to adjacent dedicated Critical Load circuits. By switching these Critical Load Customers off of circuits that have no other Critical Load Customers, these circuits can be used for Load Shed. The three identified feeders were optimized and are now available for Load Shed if needed. Austin Energy will continue to evaluate opportunities to sectionalize circuits with Critical Load Customers such that Critical Load Customers are consolidated on fewer dedicated circuits.

Observation	OA No.	Sub-Observation	Follow-up Action	Target Date	Status	Final Update
Observation 5 — Management of ERCOT-Directed Load Shed	5.6.2	Critical Load	Initiate a project to identify locations for the installation of equipment that will allow Austin Energy to shut off power to as many customers that are not critical customers but are on a critical circuit. Austin Energy is currently working on seven circuits where critical load customers are located near the head of circuit and switches are in place to switch off downstream customers that are not critical customers.	Qtr. 1, 2022	Completed	Additional customers have been added to the Austin Energy Critical Load List since the Winter Storms. To help offset these additions to Austin Energy's Load Shed protected electric load, Austin Energy evaluated its electric system to identify circuits appropriate for the installation of reclosers to allow Load Shed of loads downstream of high status Critical Load Customers. Austin Energy identified seven circuits where Critical Load Customers are located near the head of the circuit. With respect to five of these circuits, work is complete to enable Austin Energy to sectionalize each circuit downstream of Critical Load Customers in the event of ERCOT-mandated Manual Load Shed. The two remaining circuits that have been identified for sectionalization are included in the project to add reclosers at strategic locations downstream of Critical Load Customers. Work associated with addressing the remaining circuits includes engineering design work, material procurement and the installation of equipment in the field. This work will add additional load to Austin Energy's Load Shed portfolio.
Observation 5 — Management of ERCOT-Directed Load Shed	5.7	Critical Load	Evaluate inclusion of select Downtown Network loads in Load Shed programs and determine the feasibility of large customer voluntary load curtailment.	Qtr. 1, 2022	Completed	Austin Energy has evaluated the inclusion of large downtown network customers in a load curtailment program, and has determined that it is appropriate and feasible to develop a collaborative load curtailment program for non-critical load customers on the downtown network, as well as procedures for manual load shed on the network in extreme grid emergencies (Downtown Network Load Curtailment and Load Shed Program). Austin Energy hired a consultant to assist in the development and implementation of this program. The consultant and Austin Energy staff have developed a list of curtailment strategies for inclusion in this program, Downtown Network Load Curtailment and Load Shed Program guidelines, marketing materials and enrollment intake forms. Austin Energy continues to evaluate the inclusion of additional downtown network significant customers, such as multi-family residential customers, in its Downtown Network Load Curtailment and Load Shed Program.
Observation 5 — Management of ERCOT-Directed Load Shed	5.8	Critical Load	Evaluate refining the current processes for identifying Critical Load Customers and the implementation of an improved online process for Critical Load request intake to optimize Critical Load data handling.	Qtr. 4, 2021	Completed	Austin Energy evaluated its process for identifying Critical Load Customers in 2021 and completed a project in Qtr. 2, 2022 to implement an on-line process for identifying and qualifying Critical Load Customers. This on-line process can also be used by customers to apply for Critical Load Customer status.

Observation	OA No.	Sub-Observation	Follow-up Action	Target Date	Status	Final Update
Observation 5 – Management of ERCOT-Directed Load Shed	5.9	Critical Load	Communicate to Critical Load Customers the importance of installing their own backup generators to free up additional circuits for Manual Load Shed.	Qtr. 4, 2021	Completed	Materials have been prepared for use in communicating severe weather resiliency concepts, including the importance of the installation of backup generation and emergency planning, to Critical Load Customers. Austin Energy is also working with Critical Load Customers that provide essential services, such as grocery store chains and other public utilities, to communicate resiliency concepts. While this follow-up action is complete, these communication initiatives will continue beyond 2021.
Observation 5 – Management of ERCOT-Directed Load Shed	5.10	Critical Load	Improve education and communication outreach to Critical Load Customers to ensure they understand that there is always a possibility of an extended outage in extreme grid emergencies and encourage these customers to develop robust emergency plans, including back up generation, sufficient fuel or energy storage, and plans for emergencies lasting longer than 24 hours.	Qtr. 4, 2021	Completed	Materials have been prepared for customer meetings for communicating severe weather resiliency concepts, including the importance of the installation of backup generation and emergency planning, sufficient fuel or energy storage, and availability of ERCOT EEA app, to Critical Load Customers. Austin Energy is also working with Critical Load Customers that provide essential services, such as grocery store chains and other public utilities, to communicate that there is always a possibility of an extended outage in extreme grid emergencies and the importance of resiliency concepts. While this follow-up action is complete, these communication initiatives will continue beyond 2021.
Observation 5 – Management of ERCOT-Directed Load Shed	5.11	Critical Load	Review Austin Energy's ERCOT-mandated UFLS participation and work with ERCOT to jointly develop a strategy to enable greater flexibility around using UFLS circuits during ERCOT-directed Load Shed.	Qtr. 1, 2022	Completed	At the state level, Austin Energy has responded to ERCOT required submittals and Requests for Information (RFIs) to assess load shed capability across the state of Texas and has participated in multiple ERCOT Working Groups that reviewed various revisions to ERCOT rules. These revisions were proposed after the Winter Storms to allow utilities like Austin Energy greater flexibility to manually shed load connected to under-frequency relays during an energy emergency so long as each utility continues to meet its respective overall Under-frequency Load Shed (UFLS) requirement. ERCOT has now implemented new provisions contained in the ERCOT Nodal Operating Guides and Nodal Protocols that allow this flexibility. Accordingly, Austin Energy's efforts to work with ERCOT to enable greater flexibility around using UFLS circuits during an ERCOT-mandated Load Shed event are complete, and Austin Energy is currently working internally to implement the greater flexibility allowed under the new ERCOT Nodal Operating Guides and Protocols.

Observation	OA No.	Sub-Observation	Follow-up Action	Target Date	Status	Final Update
Observation 5 — Management of ERCOT-Directed Load Shed	5.12	Advanced Metering Infrastructure (AMI)	Conduct project feasibility discussions between Austin Energy and representatives of its AMI vendor to explore utilizing of AMI technology for Load Shed.	Ongoing	Completed	Austin Energy conducted feasibility discussions with its AMI vendor to explore utilizing AMI technology for Load Shed. Based on these discussions, Austin Energy determined that further investment in the currently available Radio Frequency (RF) network technology required to utilize AMI for Load Shed would not expand Austin Energy's capability to shed significant load under rapid response conditions. Austin Energy will continue to monitor technological advancements and periodically reassess the feasibility of the use of AMI technology for Load Shed.
Observation 5 — Management of ERCOT-Directed Load Shed	5.13	"Large C&I Customers"	Establish a collaborative Load Curtailment program for large C&I customers to safely increase the amount of power available for Load Shed during ERCOT-directed Load Shed events.	Qtr. 4, 2021	Completed	Austin Energy developed the Large C&I Customer Load Shed Curtailment Program in 2021 and finalized it in 2022 to safely increase the amount of power available for Load Shed during ERCOT-directed Load Shed events. To date, Austin Energy has discussed this program with several large C&I customers. To further reduce load during ERCOT-directed Load Shed events, Austin Energy developed a program for collaboration with large customers in downtown Austin. This program is known as the Downtown Ramp Down program. AE will commence performing broad customer outreach on both programs in Qtr. 4, 2022.
Observation 5 — Management of ERCOT-Directed Load Shed	5.14	"Large C&I Customer"	Identify large C&I customers that require coordination due to complex service arrangements or potential onsite hazards.	Qtr. 1, 2022	Completed	Austin Energy has identified large C&I customers that require coordination during Load Shed events due to complex service arrangements or potential onsite hazards (such as hazardous material storage).
Observation 5 — Management of ERCOT-Directed Load Shed	5.15	Downtown Underground Electric Network	Develop a communications protocol to engage Downtown Network customers on voluntary, collaborative, and customer-implemented reductions of power use. This includes shutting down all non-essential lighting and equipment.	Qtr. 4, 2021	Completed	Austin Energy has compiled a list of customers in large commercial buildings on the downtown network with which to engage in discussions of a voluntary load reduction program. For these customers, Austin Energy has developed communication protocols and materials for contacting building representatives individually. Communications materials for these customers mirror draft EEA communications.
Observation 5 — Management of ERCOT-Directed Load Shed	5.16	Downtown Underground Electric Network	Develop a method to manually cycle large commercial buildings for future load shed events.	Qtr. 4, 2021	Completed	Austin Energy staff have conducted on-site assessments at large commercial buildings in order to develop methods to manually shut off load during ERCOT directed Load Shed events. Methods were developed that considered variables such as Austin Energy crew logistics and optimum number of buildings to be shut off at any one time.



Observation	OA No.	Sub-Observation	Follow-up Action	Target Date	Status	Final Update
Observation 5 — Management of ERCOT-Directed Load Shed	5.17	Downtown Underground Electric Network	Initiate a project to document and formalize this manual process.	Qtr. 4, 2021	Completed	Austin Energy developed methods to manually shut off large downtown commercial buildings during ERCOT directed Load Shed events. These manual methods were documented and formalized.
Observation 6 — ERCOT Market and Generation Plants	6.1		Monitor and engage with regulatory changes in the Weatherization Preparation area.	Ongoing	Completed	Since the Winter Storms, Austin Energy has actively engaged with the regulatory process with respect to the weatherization and winter weather preparation of generation facilities, and worked to implement weatherization directives at its own generation facilities. Austin Energy's regulatory engagement included the submittal of comments to the PUCT concerning the development and adoption of the PUCT's Weatherization Rule and subsequent refinements of this rule. The Texas Legislature responded to the events of the Winter Storms by reviewing existing and passing new laws and resulting regulations and continues to consider refinements of these laws and regulations. Austin Energy continues to be engaged in the legislative process, as a part of its normal operations, in all relevant weatherization regulatory rulemakings at the PUCT individually and as a member of the TPPA.
Observation 6 — ERCOT Market and Generation Plants	6.2		Review and update the existing Plant Freeze Protection Checklists.	Qtr. 4, 2021	Completed	Austin Energy conducted an assessment of Plant Freeze Protection Checklists and all identified updates have been successfully implemented.
Observation 6 — ERCOT Market and Generation Plants	6.3		Assess heat tracing on lines at floors of gas Generation Plants and outside water piping and perform any necessary upgrades.	Qtr. 4, 2021	Completed	Austin Energy hired a third-party to perform an assessment of heat tracing at gas Generation Plants including on lines in floors and outside water piping. Upgrades and improvements identified in the assessment have been performed.
Observation 6 — ERCOT Market and Generation Plants	6.4		Review and evaluate the weatherization practices, including checklists and procedures for routine winter preparedness, at power generation facilities.	Qtr. 4, 2021	Completed	Weatherization practices, including checklists and procedures for routine winter preparedness, were evaluated at all power generation facilities.
Observation 6 — ERCOT Market and Generation Plants	6.5		Evaluate field instrumentation and conduct engineering analysis of winterization measures at all facilities. Implement the identified corrective and freeze protection measures.	Qtr. 4, 2021	Completed	An evaluation of field instrumentation was completed, and an engineering analysis of winterization measures was conducted and completed at all facilities. The identified corrective and freeze protection measures were successfully implemented.

Observation	OA No.	Sub-Observation	Follow-up Action	Target Date	Status	Final Update
Observation 6 — ERCOT Market and Generation Plants	6.6.1		At District Energy and Cooling facilities, review existing cooling tower procedures to include draining non-operational cooling towers and maintaining continuous flow in operational ones.	Qtr. 4, 2021	Completed	Cooling towers have been inspected and verified to be functional and ready for winter temperatures. Procedures are in place for draining non-operational cooling towers and maintaining continuous flow in operational towers. A final Standard Operating Procedure (SOP) is in place to operate the storage tanks as needed to keep towers warm in winter temperatures.
Observation 6 — ERCOT Market and Generation Plants	6.6.2		At District Energy and Cooling facilities, design and implement change controls to optimally run cooling towers when temperatures are below freezing.	Qtr. 4, 2021	Completed	Change controls have been designed and implemented for all District Energy and Cooling (DEC) facilities, so that DEC cooling towers will operate on "Auto Mode" and will be able to run in below freezing temperatures.
Observation 6 — ERCOT Market and Generation Plants	6.6.3		At District Energy and Cooling facilities, fabricate and install protection on a gas turbine inlet filter to prevent ice and snow buildup from entering a gas turbine and causing a power trip.	Qtr. 4, 2021	Completed	As the manufacturer has not approved a permanent solution for the fabrication and installation of protection on the gas turbine inlet filter to prevent ice and snow buildup from entering the gas turbine (potentially causing a power trip), measures are in place for the installation of a temporary shield to prevent snow from entering the gas turbine. Austin Energy DEC staff continue to work with the manufacturer on a permanent solution.
Observation 6 — ERCOT Market and Generation Plants	6.7		Recommission Nacogdoches Generation Facility in anticipation of 2021–2022 winter season.	Qtr. 4, 2021	Completed	Nacogdoches Generation Facility is in service and has been reported to the PUCT and ERCOT as available.
Observation 7 — Restoration Process	7.1	Damage Assessment Staff	Document expansion of the Incident Command Team to include damage assessment functions and responsibilities, to be activated during major storms and events.	Qtr. 1, 2022	Completed	The Austin Energy Incident Command Team organization was reviewed and damage assessment functions are performed by Patrolling Strike Teams identified in the current IC organizational chart. Responsibilities are defined in the Emergency Response Manual under the "Operations — Electric Service Delivery," section 4.2A. During Incident Command activations, these Patrolling Strike Teams are tasked with performing damage assessments as needed. Necessary equipment and applications have been acquired for these Incident Command positions.
Observation 7 — Restoration Process	7.2	Damage Assessment Staff	Expand damage assessment staffing with selected Engineering and Distribution Electrician staff in secondary roles.	Qtr. 2, 2022	Completed	During Incident Command activations, Austin Energy has expanded its damage assessment staffing with selected Engineering and Distribution Electrician staff in secondary roles. This staffing expansion will be continued as part of Austin Energy's normal operations.

FEBRUARY WINTER STORMS

FOLLOW-UP ACTION
COMPLETION REPORT



Final Update



18 of 29

Observation	OA No.	Sub-Observation	Follow-up Action	Target Date	Status	Final Update
Observation 7 — Restoration Process	7.3	Damage Assessment Staff	Document damage assessment role into the ADMS Field Client12 and implement this capability in ADMS.	Qtr. 1, 2022	Completed	The addition of damage assessor positions to the Austin Energy Incident Command organization has been documented. The associated work order process has been automated and has been implemented in ADMS. Candidates to perform damage assessments were identified among traditional and non-traditional crew positions (including: metering group, streetlight crews and home inspectors), and assigned to these roles. In December 2021, these candidates received field client training and other training needed to perform the damage assessment role. Necessary equipment and applications have been acquired for these new Incident Command positions.
Observation 7 — Restoration Process	7.4	Single Outage Process	Add the Single Outage Process to the Incident Command Process Catalog.	Qtr. 1, 2022	Completed	The Single Outage Process has been added to the Incident Command Process catalog. This process includes the performance of single-outage investigation and repair using AMI and ADMS.
Observation 7 — Restoration Process	7.5	Single Outage Process	Enhance the Single Outage System by integrating ADMS and the AMI Head End System (the front-end system that transmits meter data from the field). This integration will minimize or eliminate the need for manual intervention, resulting in increased efficiency and a more rapid response time.	Qtr. 2, 2022	Completed	Austin Energy's Single Outage System has an integrated ADMS and AMI Head End System (the front-end system that transmits meter data from the field). This integration minimizes or eliminates the need for manual intervention, resulting in increased efficiency, reduced truck rolls and a more rapid response time.
Observation 7 — Restoration Process	7.6	ADMS	Brief the Field Crews and Control Room Operators on the importance of promptly updating the work order status in ADMS.	Qtr. 1, 2021	Completed	Training on the proper methodology for updating ADMS (ADMS Updating Training) was provided to all field staff during their regularly scheduled Field Client/WebDMD training. ADMS Updating Training was also provided to Field Crews and Control Room Operators during their 2021 training on nested outages. ADMS Updating Training will continue to be conducted on an "as needed" basis.
Observation 7 — Restoration Process	7.7.1	ADMS	Address ADMS user screen issues as follows: A technical issue was identified and resolved by immediately installing a patch by the ADMS vendor during the Winter Storms event.	Qtr. 2, 2021	Completed	The ADMS software vendor identified a technical issue with user screens which was the result of a software error. The vendor created a patch to resolve this error, and the technical issue was resolved by the installation of the patch by the ADMS vendor.

18 of 29

Observation	OA No.	Sub-Observation	Follow-up Action	Target Date	Status	Final Update
Observation 7 – Restoration Process	7.7.2	ADMS	A production update that addressed screen issues was posted in Production.	Qtr. 2, 2021	Completed	The ADMS software vendor identified a technical issue with user screens which was the result of a software error. The vendor created a patch to resolve this error. The vendor then tested this patch and applied it to Austin Energy production ADMS environment during the Winter Storm event.
Observation 7 – Restoration Process	7.7.3	ADMS	ADMS outage-file-related issues that impacted the Outage Map and Outage Alert Texting were caused by file format and internal processing issues. These issues caused a group of affected customers to be unrepresented on the outage map and excluded from outage text alerts. A set of fixes was deployed.	Qtr. 3, 2021	Completed	The ADMS software vendor identified that the file the ADMS software sends to the Outage Map had misrepresented a subset of customers' outage status. The ADMS vendor determined the cause of this issue, created and tested a software patch, and then supplied these patches for application by Austin Energy. These fixes were successfully deployed by Austin Energy.
Observation 7 – Restoration Process	7.8	ADMS	Evaluate and improve existing restoration processes to include: Identification of factors that determine when ADMS should switch out of "tiered ETR" and back into normal operations mode. Information on truck availability. Automation of work orders. Implementation of a Distributed Dispatch Process.	Qtr. 2, 2021	Completed	An evaluation of existing storm restoration processes has been completed, and the following determinations and improvements have been made: An evaluation determined that the deactivation of the ADMS Storm Mode restoration process and shift to a "tiered ETR" restoration process is not appropriate at this time. Factors considered included the number and type of outages, the rate of outage acceleration or deceleration, and crew availability. Accordingly, the Energy Control Center will continue to use ADMS Storm Mode during major storms until such time as these factors change. Storm restoration work orders have now been automated in Field Client and Field Client training has been given to all appropriate staff. In addition, an Austin Energy On-Call Operations Dashboard has been created in Smartsheet and implemented. This Dashboard is the sole repository for crew numbers, crew make-up and work order automation. This Dashboard enables System Operations to assign crews to investigate incidents and to update reporting on incident restoration and close-out, and it also establishes a hierarchy for assignment of crews and communication of customer support needs. All follow-up actions have been completed.
Observation 7 – Restoration Process	7.9	ADMS	Identify activities that can be delegated to other roles to allow staff serving as Operators and Shift Supervisors additional bandwidth and conduct a Dispatcher training simulation.	Qtr. 2, 2021	Completed	The Single Outage Process is now complete. An evaluation of what activities can be delegated is also now complete. It has been determined that the existing SmartSheet Austin Energy On-Call Operations Dashboard is appropriate for use as the sole repository for crew make-up and numbers.

Observation	OA No.	Sub-Observation	Follow-up Action	Target Date	Status	Final Update
Observation 7 — Restoration Process	7.10	ADMS	Develop and formalize the Single Outage Process.	Qtr. 3, 2021	Completed	The development and formalization of the Single Outage Process is complete. To facilitate the automation of work orders, Field Client training has been given to all appropriate employees. System Operations staff can now assign crews to incidents and these crews are trained on the Escalation Process and can investigate, update, restore and close incidents, as appropriate.
Observation 7 — Restoration Process	7.11	ADMS	Evaluate and improve the Escalation Process, communicate with and train staff on the new Escalation Process.	Qtr. 3, 2021	Completed	The evaluation and the related incorporation of improvements to the Escalation Process are now complete. A Distributed Dispatch Process has been implemented and the roles of ADMS staff during a storm scenario have been identified. The flow of communication has also been mapped in order to avoid communication overload and to free up System Operations staff to work on other objectives.
Observation 7 — Restoration Process	7.12	ADMS	Develop and implement a tiered ETR process to be used during future storm restorations.	Qtr. 2, 2022	Completed	Austin Energy evaluated its storm restoration processes and determined that the deactivation of the ADMS Storm Mode restoration process and shift to a "tiered ETR" restoration process is not appropriate at this time. Accordingly, the AE Energy Control Center will continue to use ADMS Storm Mode during major storms. As a part of its normal operations, Austin Energy will periodically evaluate the prudence of implementing a tiered ETR process to be used for storm restorations.
Observation 7 — Restoration Process	7.13	ADMS	Develop tier levels (e.g., large groups, medium groups, small groups, singles.).	Qtr. 2, 2022	Completed	Austin Energy evaluated its storm restoration processes and determined that the deactivation of the ADMS Storm Mode restoration process and shift to a "tiered ETR" restoration process is not appropriate at this time. Accordingly, the Energy Control Center will continue to use ADMS Storm Mode during major storms. As a part of its normal operations, Austin Energy will periodically evaluate the prudence of implementing a tiered ETR process to be used for storm restorations.
Observation 7 — Restoration Process	7.14	ADMS	Establish Field Line Crew and Forestry Crew Liaisons in the Energy Control Center (ECC) during incident Command activations, as needed.	Ongoing	Completed	Austin Energy has created Field Line Crew and Forestry Crew liaison positions in the ECC for activation, as needed, during Incident Command activations.

Observation	OA No.	Sub-Observation	Follow-up Action	Target Date	Status	Final Update
Observation 7 — Restoration Process	7.15	Energy Management System/ Supervisory Control and Data Acquisition System (EMS/SCADA)	Continue to test and update the EMS/ SCADA System as necessary to maintain its effectiveness.	Ongoing	Completed	During 2021, Austin Energy conducted regular testing and updates to its EMS/SCADA System. This regular testing and updating is part of Austin Energy's normal operations and this work will continue to be performed as necessary to maintain the effectiveness of the EMS/SCADA System.
Observation 7 — Restoration Process	7.16	Cold Load Pickup	Continue to field sectionalize and restore circuits in increments where Cold Load Pickup is an issue in the short term, while evaluating long-term alternative processes.	Ongoing	Completed	Austin Energy has reviewed its process and determined that, during periods of extreme weather when Cold Load Pickup is a concern, it will continue to bring circuits back up incrementally or will bring circuits back up in segments using remote controls or by dispatching field staff to operate field sectioning devices. Austin Energy, as a part of its normal operations, has identified and will continue to work to identify and complete projects to add reclosers on distribution feeders so that it can remotely operate these devices instead of dispatching field staff during periods of inclement weather. These projects are expected to have benefits from a safety perspective and to improve restoration times.
Observation 7 — Restoration Process	7.17	Cold Load Pickup	Evaluate the Cold Load Pickup process to determine necessary changes and document the process for bringing back circuits when Cold Load Pickup may affect restoration.	Qtr. 1, 2022	Completed	Austin Energy has reviewed its process and determined that, during periods of extreme weather when Cold Load Pickup is a concern, it will continue to use its documented practices to bring circuits back up incrementally or it will bring circuits back up in segments by using either remote controls or by dispatching field staff to operate field sectioning devices.
Observation 7 — Restoration Process	7.18	Cold Load Pickup	Evaluate geographic areas with large penetrations of electric heating appliances and further analyze alternative relay settings and other mitigation factors, such as automated reclosers.	Qtr. 1, 2022	Completed	Austin Energy conducted an evaluation and analysis to determine the effectiveness of its practices to ameliorate the impact of significant penetrations of electric heating appliances on the electric system. This evaluation confirmed the effectiveness of Austin Energy's existing practices to address cold load by bringing back feeders through the use of field crews or through the use of automated controls on reclosers to sectionalize lines. These existing practices were determined to be effective and safe to bring back feeders with cold load pickup issues. Additionally, it evaluated and determined not to use, for the current time, the alternative practices of addressing cold load through the use of bypassing reclosers or by making adjustments to relay settings as these practices present operational risks.

Observation	OA No.	Sub-Observation	Follow-up Action	Target Date	Status	Final Update
Observation 7 – Restoration Process	7.19	Cold Load Pickup	Continue to communicate to the public, and to building operators and facility managers, the importance of turning off electrical devices and setting back thermostats when electric outages occur, and to slowly adjust thermostat settings after power is restored.	Ongoing	Completed	Austin Energy communications staff regularly communicate to the public, building operators and facility managers the importance of turning off electrical devices and setting back thermostats when electric outages occur and to slowly adjust thermostat settings after power is restored. Staff also, as a part of its normal operations, regularly review and make improvements to its draft communications that are prepared in advance of extreme weather events.
Observation 8 – Management of Vegetation Near Power Lines	8.1		Continue the Austin Energy vegetation management program cycle pruning program and maintain adequate clearances between trees and wires in accordance with the tree pruning clearances established in 2019.	Ongoing	Completed	Since the Winter Storms, the Austin Energy vegetation management program, in addition to performing spot pruning on underperforming circuits and on specific construction related projects, completed the pruning of 10 circuits at the clearance requirements that were established in 2019. As a part of its normal operations, Austin Energy will continue to perform spot pruning on underperforming circuits and on specific construction related circuits and will continue to perform cycle pruning in accordance with the tree pruning clearances established in 2019.
Observation 8 – Management of Vegetation Near Power Lines	8.2		Communicate to Homeowner's Associations and other community groups the pressing need for Austin Energy to prune regularly in accordance with its standard clearances to ensure that adequate tree and vegetation clearances are established and maintained around power lines.	Ongoing	Completed	Since the Winter Storms, multiple meetings with Homeowner's Associations (HOA's), community groups and citizens have been conducted for the purpose of collaborating with and notifying customers of the recommended standard clearance requirements for Austin Energy circuits. Austin Energy's vegetation management program continues to conduct meetings with HOA's, community groups and citizens for collaborative and information sharing purposes, and it will continue to do so as a part of Austin Energy's normal operations.

Observation	OA No.	Sub-Observation	Follow-up Action	Target Date	Status	Final Update
Observation 9 — Substations	9.1		Identify, through a dedicated Austin Energy team, remediation approaches for gas transmission breakers. These include monitoring and control changes, selected breaker replacements, etc. The team uses Electric Power Research Institute (EPRI) contacts and resource materials to develop these approaches.	Qtr. 1, 2022	Completed	Since the Winter Storms, Austin Energy identified remediation approaches for gas transmission breakers. These approaches included monitoring and control changes and selected breaker replacements. In addition to using EPRI contacts and resource materials, Austin Energy benchmarked with other electric utilities to identify remediation approaches for gas and pneumatic transmission breakers. During 2021, a project to apply remediation approaches to gas and pneumatic transmission breakers and to perform maintenance and replace selected breakers was funded, breakers requiring maintenance or replacement were identified and low gas trip control modification has been completed on 87 transmission breakers. Additional work on selected bus breakers (a scope of work added to this project to address slow breaker operations) is in progress, as necessary. Progress on this work to improve breaker operations has been operationalized and is routinely tracked by Austin Energy with project completion expected on or before December 2022.
Observation 9 — Substations	9.2		Develop, with a dedicated Austin Energy team, a distribution breaker refurbishment program and identify potential routine breaker maintenance improvements to reduce incidences of slow breaker operations. This team is also using EPRI contacts and resource materials to assist in resolution. As of mid-September 2021, this team has refurbished over 100 breakers using in-house technicians and an innovative program.	Qtr. 4, 2021	Completed	Utilizing EPRI contacts and resource materials, Austin Energy in 2021 developed a distribution breaker refurbishment program that has identified routine breaker maintenance improvements that are in accordance with manufacturers' and EPRI's recommendations for improving distribution breaker performance. Improvements have been implemented and these have successfully reduced incidents of slow breaker operations. The majority of the identified work was completed in 2021 and a schedule for completion of this work has been established.
Observation 10 — Transmission Lines	10.1		Coordinate with LCRA to replace damaged static conductors for 345kV lines on jointly owned transmission towers.	Qtr. 4, 2021	Completed	Damaged static conductors on 345kV lines have been repaired and all work is complete.
Observation 10 — Transmission Lines	10.2		Meet with LCRA to review emergency event response responsibilities for jointly owned facilities.	Qtr. 3, 2021	Completed	Austin Energy and LCRA have cooperated under the terms of an existing Interlocal Agreement to perform work on jointly owned facilities. Austin Energy representatives have verified that LCRA will continue to work cooperatively with Austin Energy to perform necessary future restoration and repair work on electric transmission facilities and to jointly execute emergency event response responsibilities.

Observation	OA No.	Sub-Observation	Follow-up Action	Target Date	Status	Final Update
Observation 10 — Transmission Lines	10.3		Evaluate the need for additional anti-galloping devices on affected circuits.	Qtr. 3, 2021	Completed	The evaluation of the need for additional anti-galloping devices on affected circuits is complete, and Austin Energy determined that no additional anti-galloping devices are needed.
Observation 11 — Black Start Process	11.1		Evaluate the existing Black Start Process to ensure consistency and continuity between the Black Start Process and Business Continuity Plans.	Qtr. 2, 2021	Completed	Austin Energy evaluated its Black Start Process to ensure consistency and continuity between its Black Start Process and Business Continuity Plans. The evaluation included 19 findings that were identified and addressed.
Observation 11 — Black Start Process	11.2		Develop scheduling scenarios for multiday emergency events that can be filled out ad-hoc and develop a process to track and identify available call center staff and other staff necessary to handle essential needs during emergency events.	Qtr. 4, 2021	Completed	Staffing scheduling scenarios have been developed for call center staff for use during multiday emergency events. Austin Energy has completed the development of new processes in which: 1) a framework for scheduling shifts for instances in which staffing coverage needs to expand to 7-days or to 24 hour/7-day operations; 2) days off are included in the scheduling options; 3) employees have the opportunity to review the expanded schedules and sign up for schedules that best meet their personal needs; and 4) form sign-up sheets have been developed and are accessible. The new processes were developed to provide better advance scheduling information for employees and to develop better work life balance for employees during emergency events.
Observation 11 — Black Start Process	11.3		Maintain and communicate a regularly updated list of available work sites and meeting locations for staff and team meetings.	Qtr. 4, 2021	Completed	The Emergency Management Coordinator maintains multiple designated primary and alternate meeting locations that are to be utilized during times of Incident Command activations.
Observation 11 — Black Start Process	11.4		Work with HSEM to develop a Grid Failure and Business Continuity seminar for stakeholders to strengthen organizational resilience, better coordinate decisions, and identify and address planning gaps.	Qtr. 4, 2021	Completed	Currently a series of exercises and “Grid Failure” informational and educational seminars are being developed with the COA and Travis County’s HSEM. The first of this series of seminars was held on December 15, 2021 and included a joint city and county Tabletop Exercise. The primary objective of this exercise and future exercises will be to identify planning gaps and resources shortages.
Observation 12 — Fleet Management	12.1		Identify and document the types of vehicles and winter storm equipment needed for major and prolonged storm events.	Qtr. 3, 2021	Completed	Austin Energy identified vehicles for winter event deployment. It acquired winter storm equipment and conducted employee training in January 2022.

FEBRUARY WINTER STORMS

FOLLOW-UP ACTION
COMPLETION REPORT



Final Update



25 of 29

Observation	OA No.	Sub-Observation	Follow-up Action	Target Date	Status	Final Update
Observation 12 — Fleet Management	12.2		Ensure Austin Energy and the COA's Fleet Department have clear lines of responsibility for ensuring that vehicles are winter storm ready and that winter storm related accessories and parts are readily available at appropriate Austin Energy facilities.	Qtr. 3, 2021	Completed	Austin Energy and the COA Fleet Department (Fleet) established clear lines of responsibility through Fleet Guidelines and Work Processes (GWPs) to ensure appropriate vehicle winterization. Additionally, contracts and acquisitions for winter weather vehicle accessories are in place, and winter equipment is readily available through AE Fleet Management and located at an Austin Energy service center.
Observation 12 — Fleet Management	12.3		Ensure that Austin Energy and the COA's Fleet Department have an established communication plan to coordinate support of the fleet being dispatched to the field during winter storm events.	Qtr. 4, 2021	Completed	Austin Energy developed a GWP that establishes coordination procedures and communications plans with Fleet for winter storm events.
Observation 12 — Fleet Management	12.4		Develop training on winter storm driving including how to drive with snow chains as well as support for how and when to install and remove snow chains.	Qtr. 4, 2021	Completed	Austin Energy developed procedures and training materials on snow chain installation and use. Austin Energy conducted associated training in February 2022.
Observation 12 — Fleet Management	12.5		Ensure fleet vehicles are made available to COA's Fleet Service Center Operations to ensure all appropriate preventative maintenance is performed seasonally and are complete prior to the winter season.	Qtr. 4, 2021	Completed	Austin Energy worked with Fleet to ensure fleet vehicles were available for the performance of all appropriate preventative maintenance in advance of the winter season. Austin Energy staff performs schedule coordination with Fleet for planned maintenance through vehicle schedulers to ensure timely maintenance.
Observation 13 — Vegetation Debris Resulting from Winter Storms	13.1		Collaborate with COA departments (including Austin 3-1-1) and communicate to the public on social media platforms on major storm debris pickup process.	Qtr. 4, 2021	Completed	Austin Energy communications staff have prepared draft communications that communicate to the public on social media platforms explaining the debris pickup process in effect during major storms. Austin Energy also collaborates with Austin Resource Recovery during major storms to communicate these processes.
Observation 13 — Vegetation Debris Resulting from Winter Storms	13.2		Update Austin Energy website to highlight the debris pickup process in effect during the major storms.	Qtr. 4, 2021	Completed	Austin Energy Tree Pruning and Vegetation Management website has been updated to highlight the debris pickup process in effect during major storms. The storm response and debris removal content has been emphasized by placing it in a highlighted and shaded box. The highlighted text includes a link to the debris removal guidance in the Austin Resource Recovery website.

25 of 29

Observation	OA No.	Sub-Observation	Follow-up Action	Target Date	Status	Final Update
Observation 14 — Emergency Critical Supplies	14.1		Determine a means of obtaining and storing safe drinking water for use during severe weather events. As of September 2021, approximately 70 pallets of shelf-stable drinking water have been obtained at no cost by the Austin Energy Emergency Management staff.	Qtr. 3, 2021	Completed	As of September 2021, approximately 70 pallets of shelf-stable drinking water were acquired and stored for future use by the Austin Energy Emergency Management staff.
Observation 14 — Emergency Critical Supplies	14.2		Determine a means of obtaining shelf-stable food supplies that can be stored for extended periods without damage or degradation.	Qtr. 2, 2022	Completed	Under contracts currently in place or through the utilization of purchasing processes, Austin Energy has established the contractual processes to secure shelf-stable food supplies that can be stored for extended periods without damage or degradation. The use of these processes, along with the practice of periodically identifying suitable vendors, is part of normal Austin Energy operations. This work includes tracking expiration dates and replacing food supplies as needed.
Observation 14 — Emergency Critical Supplies	14.3		Review current critical supply inventory list, determine minimum supply storage levels and determine firm schedule for refreshing inventory.	Qtr. 2, 2022	Completed	Austin Energy has reviewed its current critical supply inventory list (including generators, satellite phones and shelf-stable food and water) and determined minimum supply storage levels and a firm schedule for refreshing inventory. As part of Austin Energy's normal operations, minimum inventory supply storage levels will be reevaluated for sufficiency following each Incident Command activation.
Observation 14 — Emergency Critical Supplies	14.4		Review current vendors and caterers list; strengthen and establish vendor and caterer relationships and determine firm schedule for periodically updating the list of vendors and caterers.	Qtr. 2, 2021	Completed	Austin Energy reviewed its lists of vendors, caterers, restaurants and hotels, worked to strengthen relationships with these entities, and established a firm schedule for periodically updating its list of these providers. Austin Energy also updated its list of supplies appropriate to have on hand in advance of extreme weather and reviewed its processes for confirming arrangements with vendors, caterers, restaurants and hotels in advance of extreme weather.
Observation 15 — Employee Health and Well-Being	15.1		Continue having supervisors and leadership perform regular employee well-being check-ins to determine how employees are coping in the aftermath of the Winter Storms.	Qtr. 3, 2021	Completed	The performance of regular employee well-being check-ins has been added to the new Austin Energy shift change checklist. Wellness checks will be performed for employees calling in and those that are "No Call No Show." A list of services that are available for employees has been made available. This information was updated in the utility's shared network drive.



Observation	OA No.	Sub-Observation	Follow-up Action	Target Date	Status	Final Update
Observation 15 — Employee Health and Well-Being	15.2		Continue to reinforce the EAP as many employees were affected by the stress of the Winter Storms event.	Ongoing	Completed	During 2021, Austin Energy continued to reinforce knowledge and awareness of the EAP with its employees. It also implemented improvements including the addition of regular employee well-being check-ins to the new shift change checklist and the performance of wellness checks for employees calling in and those that are "No Call No Show." In addition, a list of employee services was made available to employees in Austin Energy's shared network drive. It is a part of Austin Energy's normal operations to communicate to employees on benefits provided by the EAP.
Observation 15 — Employee Health and Well-Being	15.3		Review existing employee support plans and procedures, update existing ones, and identify additional steps to support employees who carry out duties in extreme weather conditions, such as security guards stationed outside and the customer care team.	Qtr. 3, 2021	Completed	Existing employee support plans and procedures were reviewed and improvements were implemented. These improvements include the creation of a new shift change checklist for supervisors using the FEMA template. Corresponding updates have been made to the appropriate database and the customer care branch portion of the emergency response manual. These updates have been cascaded to supervisors. Within the new shift change checklist, wellness checks have been added that provide a list of services available for employees and the community.
Observation 16 — Remote Workforce	16.1		Continue supporting a remote workforce, including the final transition to notebook computers and further strengthen the IT infrastructure.	Ongoing	Completed	Since the Winter Storms, Austin Energy has continued to support a hybrid workforce by performing a final transition to notebook computers for Austin Energy staff where appropriate. In addition, Austin Energy has completed efforts that were ongoing at the time of the Winter Storms to improve support for its remote workforce by increasing inbound/outbound internet bandwidth by 90%, upgrading its firewalls, and by implementing additional tools to support remote assets.

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Observation 17 — Safety Management	17.1		Research and review other electric utility AARs and documented safety event synopses that were prepared following the Winter Storms and determine if any additional safety precautions can be implemented during future severe weather events.	Ongoing	Completed	Austin Energy contacted other utilities for guidance on their respective Emergency and Incident Response Plans for benchmarking purposes when Austin Energy's Safety Incident Action Plan was being developed. As a part of its normal operations, Austin Energy Safety staff regularly monitor industry safety associations and other industry resources for best practices in handling extreme weather events. Since the Winter Storms, Austin Energy has developed an internal practice for the bi-annual review of industry emergency response best practices. This practice was made a part of its normal operations by including the Austin Energy internal safety response plan in an automated internal tracking system that maintains the status of action items, triggers a regular review of industry best practices in utility emergency response, tracks lessons learned from after action reviews which are regularly conducted following Austin Energy Incident Command activations, and stores associated documents and records. This practice enhances the availability of critical emergency response information, resources and plans to Austin Energy staff. This Austin Energy practice was formally initiated in Q2 2022 and the first scheduled bi-annual review is scheduled for December 2022.
Observation 18 — Climate Event Risk Assessment	18.1		Enhance existing climate event risk analysis and vulnerability assessments to incorporate updated climate forecast data. Develop scenarios for planning purposes reflecting updated expectations for average climate conditions, extreme climate events and grid-scale impacts.	Qtr. 1, 2022	Completed	Since the Winter Storms, Austin Energy has enhanced its existing climate risk analyses and vulnerability risk assessments. It has developed scenarios for planning purposes reflecting updated expectations for average climate conditions, extreme climate events and grid-scale impacts. This assessment work is intended to establish a framework by which emerging data on climate model projections, climate-driven hazards, and associated vulnerabilities to Austin Energy infrastructure can be more effectively integrated into existing risk management and strategic planning processes.
Observation 18 — Climate Event Risk Assessment	18.2		Conduct formal risk assessments with these updated scenarios to understand impacts to Austin Energy from different types of climate events and develop mitigation measures.	Qtr. 1, 2022	Completed	Austin Energy has performed a formal risk assessment for extreme winter climate events. This assessment reflected potential causes and consequences of extreme climate events and it examined various asset-specific vulnerabilities to climate-driven hazards. This assessment included an examination of various mitigation measures.

Observation	OA No.	Sub-Observation	Follow-up Action	Target Date	Status	Final Update
Observation 19 — Collaboration with COA Departments	19.1		Develop a policy in coordination with the HSEM to determine in-person versus remote Emergency Operations Center (EOC) attendance.	Qtr. 3, 2021	Completed	During 2021, Austin Energy and HSEM successfully implemented remote attendance during Emergency Operations Center (EOC) activations. Remote versus in-person attendance will be decided on an event-by-event basis that takes into account all aspects of a particular event.
Observation 19 — Collaboration with COA Departments	19.2		Work with the City Controller's office to pre-establish reporting codes prior to a severe weather event to ensure proper tracking of activities and tasks.	Qtr. 3, 2021	Completed	A process has been created for Austin Energy Finance staff to confirm with the City Controller's office the next available reporting code in advance of each potential Citywide tracking event. If a task order is created prior to a reporting code being established, Austin Energy has confirmed the ability to modify the task order's funding as long as no reimbursement charges have been recorded into the City financial system.
Observation 19 — Collaboration with COA Departments	19.3		Support the development of a City-wide Resilience Hubs Network in accordance with the direction provided by City Council Resolution 20210408-028 passed in April 2021. The Resolution calls for COA departments to design and equip pilot resilience hubs that provide the community with resources during disasters. The Resolution also calls for COA departments to create a community-wide plan for more hubs sufficient to serve all Austinites during emergencies. This multi-department effort is being led by the Office of Sustainability with input from Austin Energy and other departments.	Ongoing	Completed	In accordance with the direction provided by City Council Resolution 20210408-028 passed in April 2021, Austin Energy representatives have worked with representatives of the City Office of Sustainability, multiple City departments, school districts and external partners to formulate plans for a City-wide Resilience Hubs Network. Austin Energy has operationalized its support for these efforts by assigning staff to work on an ongoing basis to collaborate with the Office of Sustainability to execute existing plans, to continue to develop new and evolving plans to prepare the community for emergency events and to establish clear plans for activating hubs in the event of a disruption.



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