## Mississippi Public Service Commission June 2023 Storms Report







### **Table of contents**

Executive summary		
Section I	<b>Preparedness</b> A. Entergy Mississippi's transmission and distribution system investments and operations	1
	<ol> <li>Distribution reliability programs</li> <li>Distribution infrastructure programs</li> <li>Vegetation management</li> </ol>	4 9 13
	B. Storm response and restoration planning	16
	<ol> <li>Incident response plan</li> <li>Training</li> <li>EML crews and contractors</li> <li>Damage assessment and restoration</li> <li>Storm tracking</li> <li>Communications</li> <li>Technology: AMI and ADMS</li> </ol>	16 23 23 24 26 27 29

Continued on next page



### **Table of contents**

Section II	June 2023 storms responseA. Outage causes and damageB. Performance of newer investmentsC. Weather trackingD. RestorationE. AMI and ADMSF. Communications	34 34 38 53 56 60
Section III	Lessonslearned	64



## **Executive summary**

According to the National Weather Service, the State of Mississippi, including Entergy Mississippi, LLC's service territory, experienced "unprecedented, historically destructive severe weather" in June 2023. The National Weather Service in Jackson issued 221 severe thunderstorm warnings, 14 tornado warnings, 7 flash flood warnings and 21 severe thunderstorm or tornado watches in June 2023. The impact of the June 2023 storms alone exceeded total storm damage for the year of 2022, with the June 2023 storms causing the most damage to EML's system in the Jackson metro area since Hurricane Katrina. There are typical storm occurrences in June, and then there was June 2023 -"[w]hen taking a look at what transpired . . . it quickly becomes apparent this was a series of weather events that was exceptionally rare for the month of June."



#### The State of Mississippi,

including Entergy Mississippi, LLC's ("Entergy Mississippi," "EML," or "the Company") service territory, experienced "unprecedented, historically destructive severe weather" in June 2023. US National Weather Service Report ("NWS Report") (attached as Exhibit A). The National Weather Service in Jackson issued 221 severe thunderstorm warnings, 14 tornado warnings, 7 flash flood warnings and 21 severe thunderstorm or tornado watches in June 2023 ("June 2023 storms").

June 2023 set the record for most June tornadoes ever recorded in the State of Mississippi. Moreover, wind damage was reported on fourteen days of the month; damaging winds were widespread and cumulative. Mississippi endured several cases of hurricane-level winds, measuring 80+ miles per hour ("MPH") and straight-line wind gusts as high as 90MPH in Warren and Hinds counties, in the early morning hours of June 16, 2023. The NWS reported higher winds in Jackson, Mississippi during June 2023 than during Hurricane Katrina. The impact of the June 2023 storms alone exceeded total storm damage for the year of 2022, with the June 2023 storms causing the most damage to EML's system in the Jackson metro area since Hurricane Katrina.

There are typical storm occurrences in June, and then there was June 2023 – "[w]hen taking a look at what transpired . . . it quickly becomes apparent this was a series of weather events that was exceptionally rare for the month of June." NWS Report.



Entergy Mississippi, along with its sister operating companies, continues to be nationally recognized for its leadership and excellence in utility emergency restoration events. The Entergy System is the only utility group to receive awards from the Edison Electric Institute ("EEI") for response excellence every year since EEI established the award. Consistent with these awards, when the extraordinary June 2023 storms hit EML's service territory, the Company's dedicated workforce, along with its contract partners, put forth outstanding effort to restore power to customers. Unfortunately, their outstanding effort was overshadowed by Automated Distribution Management System ("ADMS") software complications, discussed -later in this report, which ultimately resulted in the Company's outage management system not operating as designed and creating customer communication challenges.

The purpose of this Report is to respond to the Mississippi Public Service Commission's (the "Commission") inquiries by providing a deeper understanding of: (1) Entergy Mississippi's extensive investment in the infrastructure and operations that result in bestin-class preparation for all storms, (2) the extraordinary challenges that June's treacherous weather brought into Entergy Mississippi's service area, (3) the challenges the Company faced when the ADMS software system experienced complications, which impacted EML's ability to identify whether outages existed and to provide customers with information about their outages and estimated restoration timelines, and (4) the strategies EML quickly implemented to avoid further confusion for our customers.

Just as Entergy Mississippi demonstrates excellence with storm restoration, the Company strives to provide excellent communication to its customers and will continue to explore ways to keep customers well informed during storm events. EML recognizes that, while it executed well on its storm response plan, it did not meet customer expectations for storm communications.







# I. Preparedness

### **Preparedness**

Transmission and distribution system investments and operations

Storm response and restoration planning

#### I. PREPAREDNESS

#### A. EML's Transmission and Distribution System Investments and Operations<sup>1</sup>

Entergy Mississippi's distribution system begins at the substation level, where power is transformed from transmission-level voltage into distribution-level voltage, suitable for delivering power directly to residential, commercial, governmental, and industrial customers. EML's distribution system serves approximately 461,000 customers in parts of 45 counties in western Mississippi. There are approximately 795 distribution circuits, consisting of approximately 18,562 circuit miles (length is equivalent to <sup>3</sup>/<sub>4</sub> of the Earth's circumference), of which 15,869 are overhead circuit miles, and 2,693 are underground circuit miles. There are approximately 485,000 distribution poles in the EML distribution system.

EML's Distribution Operations Organization operates local Service Centers throughout the areas served by EML. These local service centers and the distribution facilities they support are divided between 3 larger geographic operating regions consisting of 13 networks, and their respective geographical boundaries are depicted in the following map:

<sup>&</sup>lt;sup>1</sup> Entergy Mississippi provides detailed, annual reports on its transmission and distribution investments, including programs and operations, with its November Transmission and Distribution Report filing, November Energy Delivery Plan filing, and March Formula Rate Plan filing.



EML has and continues to modernize its distribution grid. On average, EML has invested approximately \$162 million annually for its distribution system for the five-year period 2018-2022.<sup>2</sup> In late 2019 to early 2020, EML began exploring a multi-year customer-centric strategy for grid modernization. At that time, EML determined that certain foundational enhancements to the grid could benefit future grid modernization efforts. These enhancements would make the

 $<sup>^2</sup>$  EML has spent approximately \$216 million for its distribution system for the five-year period 2018-2022 when including capital spent for storm restoration.

grid more reliable and provide additional flexibility necessary to take full advantage of future smart devices and other smart grid technologies. Accordingly, EML increased its spending in its distribution recurring programs to improve reliability for customers. This grid modernization involves upgrading and redesigning grid infrastructure while also adding new technologies and intelligent devices that facilitate safe multi-directional energy flows, automate operations, enable remote control, increase operational efficiency, improve quality of service, and increase reliability and resiliency. This change involves adopting a more customer-centric strategy for designing and maintaining the energy grid, one which seeks to minimize interruptions experienced by customers regardless of fluctuating conditions on the system.

The objective of EML's distribution capital spend plan is to meet the electric service needs of customers and ensure the distribution system continues to operate reliably over time at a reasonable cost. To help meet this objective, EML manages numerous projects that facilitate improvement of its distribution infrastructure. These project-types fall into the following general categories: service to new or existing customers; relocation of infrastructure requested by customers or required by government-mandated projects (e.g., road widening or relocations, etc.); maintenance of existing infrastructure to ensure reliable performance; and repair of infrastructure due to public-inflicted or weather-related damage. These investments include, but are not limited to poles, cross-arms, conductor, lower voltage transformers, underground cable and associated equipment, sectionalizing and isolation equipment, voltage regulation equipment, automated transfer systems, and rights-of-way.

EML regularly evaluates the effectiveness of its efforts through its recurring capital investment programs and makes spending and strategic decisions based upon the results of that evaluation. EML's primary source of data used to evaluate its recurring programs and determine

goals for the upcoming year is EML's SAIFI and SAIDI performance. In general, EML's goal is to enhance the customer experience by reducing both the frequency (SAIFI) and duration (SAIDI) of outages caused by factors within EML's control. To this end, EML carries out recurring Distribution reliability programs. EML's short-term reliability goals are to improve reliability performance (SAIFI and SAIDI) recognizing the importance of making prudent investments to maintain reasonable rates, while operating a distribution system in the challenging weather and vegetation environment of the Southeastern United States.

#### **1. Distribution Reliability Programs**

EML's Distribution Reliability programs target specific outage drivers to obtain the greatest performance improvement while managing customer costs. Accordingly, the spending target for these programs is based not only on historical trends but also on data and engineering analysis. Descriptions of the Distribution Reliability programs included below.

#### a. FOCUS Program

The FOCUS program, which stands for Find, Observe, Collect, Understand, and Succeed, is a reliability program developed to address issues on circuits/devices which have been performing sub-optimally over a given time frame. The program efforts were established to speed up the ability to address targeted devices in a timelier manner while still providing a quick response to address emerging devices. This program addresses those devices with the intent to resolve reliability issues identified under the current Distribution Lines Reliability Inspections procedure while also encouraging opportunities to identify other proposals to improve overall reliability of a feeder or other devices. The Distribution Lines Reliability Inspections procedure is a process for assigning, conducting, and documenting inspections of overhead distribution facilities.

4

The intent of the program is to inspect a set of feeders and devices based on an algorithmic approach which determines those candidates that meet criteria correlating to specific customer counts experiencing a preset number of outages over a given timeframe. EML utilizes two different steps to the algorithm. The first step is to exclude major events and limit the number of events associated with outages caused by protection devices such as line fuses, reclosers and breakers so that multiple outage events in a 24-hour period are only counted once in the algorithm. The second part of the algorithm considers the "number of customers" with the "number of outages" over a "period of time." From the algorithm, EML selects projects generated from an automated report and applies the specific approach to the circuit inspection, which has proven effective.

The FOCUS program identifies about 400 devices each quarter that need review. The reliability indicator used to identify devices is the number of customer interruptions over the two years prior to the last closed quarter. Each quarter, new devices are identified; other devices are excluded because they no longer meet the program screening criteria; and some remain from the previous quarter. To measure the effectiveness of this program, EML compares the number of device outages and customer interruptions before and after the selected project work has been completed. The results of each device are aggregated together to measure the effectiveness of the program.

Project completion will vary from year to year due to actual costs of the projects versus approved budgets. EML consistently reviews the recurring program spending to make sure all program spending will be maintained within approved funding. Project completion will vary due to many factors, for example, cost overruns due to scope change and unforeseen issues. This will limit the ability to complete additional projects within a program year. The scope and size

5

of a project will create variations in determining what projects get worked. When EML makes the decision to prioritize projects, EML places emphasis on working the projects with the most anticipated value regarding customer interruptions and customer minutes.

EML's evaluation of the effectiveness of the first generation of FOCUS projects led the Company to consider additional factors. For example, first generation projects did not consider the relocation of distribution facilities. An example of the first-generation FOCUS project was to rebuild in place while addressing all issues via the inspection process. An example of the revised FOCUS philosophy takes into consideration the thought process of shifting the distribution facilities to a more prime location for increased customer satisfaction, better reliability, and operational efficiency. This could be the result of off right-of-way sections being shifted to the road due to vegetation concerns or backyard sections being rebuilt at a more accessible location.

#### b. Automated Load Transfer (Self-Healing Network) Program

The automated load transfer ("ALT") program involves the targeted reconfiguration of distribution circuits to use the ALT systems to reduce the number of customers affected by outages and shorten the duration of outages. In general, "smart" ALT systems automatically isolate a fault on a circuit and restore power without human intervention to a portion of the customers affected by a fault. Not all EML distribution circuits are candidates for ALT systems because these systems require two circuits with an interconnection point and available circuit and substation capacity to serve the transferred load. Thus, distribution circuit modifications would have to be made before ALT systems could be installed on a larger scale throughout the distribution system.

This program is an example of distribution modernization projects that EML expects to continue to pursue in the future, which has been enhanced upon the implementation of Advanced Metering Infrastructure ("AMI") and Distribution Automation<sup>3</sup>. EML will review each circuit by the criteria previously mentioned to maximize the reduction of customer outages and customer minutes where equipment addition is deemed to be the most effective approach to improve performance. EML measures the impact of the ALT program by measuring the impact of each device on an individual circuit basis, essentially comparing the SAIFI and SAIDI performance using twelve months of data.

Future projects selected are expected to be measured on a similar basis. EML and the Distribution Automation department continue to work with the vendors to better understand ALT system programs and how EML can better use the systems to improve performance. As part of the collaboration, EML and the Distribution Automation department enhanced the existing ALT program and renamed it the Self-Healing Network ("SHN") program. SHNs consist of a compilation of devices including modern reclosers, switchgear, switches, and a network of communication equipment used to automatically reconfigure the source of power after isolating an outage so that all other unaffected customers in the surrounding area continue to receive service so that customers' quality of service is improved.

From 2021 through September 15, 2022, EML has placed 45 SHN projects online. In 2021, these projects successfully operated at 64.7% and avoided approximately 5,400 Customer Interruptions ("CIs") with 482,330 Customer Minutes Interrupted ("CMIs"). Similarly in 2022,

<sup>&</sup>lt;sup>3</sup> Distribution Automation involves installation of automated devices, such as switches and reclosers, on existing distribution facilities, which can be remotely operated so that service can be restored more efficiently after an outage.

these projects successfully operated at 68.6% and avoided approximately 9,770 Customer Interruptions with 916,600 Customer Minutes Interrupted.

#### c. Sectionalization Program

The Sectionalization program installs equipment that is expected to reduce customer exposure in the event of an outage by "sectionalizing" distribution assets. The goal of this program is to reduce the number of customers affected by an outage by isolating the problem through the installation of sectionalizing devices. This program also has the advantage of reducing the area required to "trouble shoot" the outage and therefore leads to reduced outage times. EML will review each device by the criteria previously mentioned to maximize the reduction of customer outages and customer minutes where equipment addition is deemed to be the most effective approach to improve performance. In most instances, the area selected for a device(s) is based on a reactive event. There are some cases where the planning of sectionalizing assets is considered if conditions of the system are changing, and the changes allow the opportunity to add a device.

Projects were developed with the goal of maximizing improvements in CIs and CMIs based upon estimated costs. EML determines CIs and CMIs by review of outage data. EML completed 53 projects in 2018, 56 projects in 2019, 12 projects in 2020, and 17 projects in 2021. No additional projects were installed in 2022 as the focus was shifted to the Distribution Automation program with the intent of placing legacy devices on Supervisory Control and Data Acquisition ("SCADA") control.

EML tracks the impact of the Sectionalization program by measuring the Avoided Customer Interruptions, essentially comparing the customer interruptions of the upstream protective device before the project installation and the customer interruptions after the project

installation. The 2018 projects resulted in 26,663 Avoided Customer Interruptions in 2019. The 2018 and 2019 projects resulted in a combined 41,275 Avoided Customer Interruptions in 2020. The 2018 – 2021 projects resulted in a combined 41,843 Avoided Customer Interruptions in 2021 and 24,057 Avoided Customer Interruptions thus far in 2022. This data demonstrates that the 2018 – 2021 devices have decreased customer interruptions on average by 158% compared to the planned Avoided Customer Interruptions.

#### 2. Distribution Infrastructure Programs

EML's Distribution Infrastructure programs addresses the need for distribution asset renewal and seeks to reasonably minimize the failure of aging equipment and facilities by maintaining or replacing the equipment and facilities before failure with the objective of reducing the potential for customer interruptions. Accordingly, the spending target for these programs is based not only on historical trends but also on data and engineering analysis. These programs include the visual and infrared inspection and correction of critical items in the "backbone" of the distribution system. The backbone is the three-phase section of the line from the substation to the first isolating device. An outage in such a section could impact thousands of customers.

This program also includes the annual inspection of all capacitors, large reclosers, and regulators, as well as a percentage of the existing distribution wood poles. In addition, the program addresses replacement of underground residential distribution cable based on life expectancy or poor performance. The increased spending for Distribution Infrastructure is intended to address equipment issues with the backbone section of a distribution line, underground cable that has reached the end of its useful life, and the movement of the former Conductor Replacement Program to the Distribution Infrastructure programs.

9

Below are descriptions of each program or project in the Distribution Infrastructure category:

#### a. Backbone Program

EML is transitioning the Backbone program to be subsumed into the FOCUS and the Feeder Level Investment programs. The Backbone program is an infrastructure program designed to address only that portion of the circuit that has the largest potential for customer impact. This generally limits the reliability inspection to the first protective device that has the responsibility of isolating the remainder of the circuit. In 2020, EML completed 20 backbone projects. In 2021, EML completed the final two backbone projects.

Prior to 2019, EML intended to measure the impact of the Backbone program by measuring the impact of the project on an individual device basis, essentially comparing the SAIFI and SAIDI performance before and after project completion using twelve months of data. After review of the program effectiveness in 2018, the Company made the decision to change the way the program would be managed to improve performance of future projects. EML utilized a new project selection method like that used in the FOCUS program beginning in 2019. The new method is an algorithmic approach, considering circuit performance, work history, and the targeted work cycle. Balancing between performance and cycle can be difficult; to help manage that process, the Asset Management organization created a scoring system to assist in project identification and prioritization.

Backbone candidates are eligible if they have not had a prior backbone project within half the target average cycle time, or in EML's current case six years. Projects performed prior to 2014 are not counted towards eligibility status. Ineligible projects will still be scored but will not be available for selection.

The program results will be managed in the Backbone database. The database is an access database incorporated into the Asset Management Database where the FOCUS database is housed. This incorporation allows for automatic elimination of overlap between the FOCUS and Backbone programs, standardized reporting between FOCUS and Backbone, and automatic inspection quality checks. The program houses the algorithms noted above along with the associated eligible and ineligible Backbone projects. The data is reviewed on a routine basis to better ensure that project selection and work improve Backbone circuit performance.

#### b. Equipment Inspection Program

The Equipment Inspection program is an annual inspection of all reclosers greater than 100A, line capacitors, and regulators on the distribution line system. The program also addresses and corrects identified failures during inspection.

#### c. Wood Pole Inspection Program

The Wood Pole Inspection program is a preventative program that targets a certain percentage of the Company's distribution poles for inspection resulting in a planned inspection cycle. The program consists of a visual inspection of the complete structure, which includes the pole, cross-arms, insulators, selective boring, etc. The recommended actions depend on the findings of the inspection. Poles judged to be sound receive no further action. Those that have been identified as needing additional attention are either treated in the field or reinforced, depending on the condition of the pole. Those that are deemed beyond treatment or reinforcement are prioritized for replacement.

#### d. Underground Cable Replacement Program

The underground renewal program addresses underground cables meeting certain performance criterion that is targeted for replacement done in both segment and half loop projects.

#### e. Underground Secondary Network Program

This program is designed to improve the reliability and upgrade the infrastructure in underground secondary and radial network systems of the central business district of Jackson, Mississippi.

#### f. Feeder Level Investment Program

In 2021, EML introduced a new program called Feeder Level Investments. The program's objective is to target entire feeders to improve holistically their reliability and resiliency through infrastructure upgrades. The Feeder Level Investment program uses practices from the Sectionalization, Self-Healing Network, FOCUS, and Backbone programs. Through a reliability analysis, EML determines which specific feeder to target for upgrades by applying one or more of the nine following packages:

- i. Repair/Replace Wire updating older, poor performing wires to reduce conductor failure;
- Basic Insulation Level ("BIL") improve the BIL to address feeders with significant lighting, storm and animal outages;
- iii. Feeder Hardening strengthen/upgrade poles to increase resiliency and address storm or third-party damage outages;
- iv. Add Sectionalizing Devices add smart sectionalizing devices to poorly performing feeders with high customer count to reduce impact;

- v. Add a Tie or SHN add tie between two or more feeders to create redundancy and enable load shifting to reduce impact of frequency of outages;
- vi. Divide/Break Feeder split long feeders with high customer exposure to limit outages impact; assumes sufficient substation capacity;
- vii. Relocate Feeder re-route feeder or bring feeder to the road, after considering expanding right-of-way ("ROW") or undergrounding a segment;
- viii. Underground Feeder underground shorter feeders with the most problematic vegetation or third-party damage issues where relocation or expanding ROW is not feasible; and
- ix. Add a Source apply, as a last resort, a new source to long, remote feederswith no other realistic alternatives to improve reliability.

In 2022, EML targeted three feeders as part of the Feeder Level Investment program with one of them expected to be completed in 2023 and the other two in 2024.

The two largest drivers for outages are vegetation and equipment failures. The capital programs described above address equipment failures, and EML executes a set of vegetation management programs in its Distribution Operations and Maintenance ("O&M") budget to address vegetation-related outages and issues.

#### 3. Vegetation Management

Historically, there have essentially been four components to EML's Distribution vegetation management expenses: (1) cycle (recurring) trim, (2) herbicide, (3) danger tree/skyline, and (4) reactive. Funding levels for EML's cycle trim plan have allowed vegetation management to trim on a 4.2-year cycle, which equates to trimming approximately 3,800 circuit miles per year (approximately the distance from Jackson to Hawaii). In addition to cycle

13

trimming, herbicide efforts have transitioned most of the Company's right-of-way ("ROW") from a thick wood stem ROW to a more herbaceous ROW, allowing for quicker assessment and safer restoration efforts.

Skylining refers to the removal of overhanging limbs that are beyond normal trim specifications. Skylining is performed to reduce the damaging impacts of limbs that overhang conductors and structures and can cause damage to assets and outages to customers. Danger trees refer to those trees outside the Company's ROW that are damaged, dying, diseased, decayed, leaning, or otherwise compromised that might endanger the Company's conductors and structures. Because those efforts seek to remove trees from private property, they require negotiations with off-ROW property owners. The Company's cycle pruning program generally trims to provide minimum vegetation clearances above, below, and to the side of primary conductors, but it does not address danger trees outside the ROWs. Further, danger trees often become compromised due to factors such as drought or damaging insects and need to be identified and addressed in a manner that does not align directly with the Company's pruning cycles.

A significant portion of the vegetation-related customer interruptions in 2022 were caused by overhanging trees or trees outside of the Company's ROWs. Although these interruptions likely would not have been prevented by EML's normal cycle pruning programs, they might have been prevented by the skylining or danger tree removal programs. While skylining and danger tree work are magnitudes more expensive than the Company's cycle pruning program, they also provide long-term improvements in the reliability of the distribution system. EML worked with the Commission early in 2023 to address the recovery of costs

associated with skylining and danger tree removal in order to help mitigate the rate volatility for the benefit of customers.

Figure 1 Vegetation Management O&M Summary by Component (\$ millions)							
Year	Cycle Trim	Herbicide	Hazard Tree/Skyline	Reactive	Total Veg		
2021 Actual Spending	13,189,280	508,714	3,506,309	511,937	17,716,322		
2022 Actual Spending	15,464,638	522,234	1,708,221	1,088,029	18,783,122		
2023 Planned Spending	13,437,380	500,000	3,332,750	500,000	17,770,130		

Below is a breakdown of the budgets for these expenses for 2021 through 2023.

The decision to maintain the overall level of planned spending is supported by ongoing reviews of outages by cause, customer interruptions by cause, preventable customer interruptions, and other data. Data is compared to historical data and analyzed for any trends that would demonstrate the effectiveness of any recent changes in procedure, policy, or spending levels and reveal where additional funds could have a measurable impact on performance. EML uses this detailed information to make the decision to determine its spending levels each year.

As shown below, EML saw a significant decrease in vegetation-caused customer interruptions beginning in 2020. This improvement is a result of cycle trimming and skylining efforts. EML will continue to monitor vegetation outage and customer interruption data to see if further adjustments in spending levels are necessary.<sup>4</sup>

<sup>&</sup>lt;sup>4</sup> From 2020 - 2022, EML encountered challenges due to municipal restrictions on vegetation management activities. These restrictions have since been lifted by the municipality due to the adverse impact on customers. In one specific municipality, EML saw vegetation-related interruptions increase significantly since 2020. In fact, approximately 44% of EML's total increase in vegetation-related customer interruptions results from this area.



#### **B.** Storm Response and Restoration Planning

#### 1. Incident Response Plan

Entergy Corporation currently maintains a single, integrated response plan, the Utility Incident Response Plan ("UIRP"), which applies to all Entergy Operating Companies ("EOCs") and business functions. The UIRP provides the basic structure, processes, guidelines, responsibilities, and reference data necessary for appropriate stages of emergency preparedness and response to be followed for the orderly transition from routine business operations to emergency operations and restoration in the event of either the threat or impact of incidents such as severe weather, other natural disasters, pandemics, and/or security related events that affect normal operations.<sup>5</sup> The UIRP is organized into five (5) phases of incident management – the Ready phase (preparation), the React phase (initial response to an incident), the Respond phase (investigate and contain), the Recover phase (bring back to normal), and the Review phase (identify lessons learned actions that remain to be taken). Targeted incident response plans tied

<sup>&</sup>lt;sup>5</sup> The UIRP defines an "incident" as unique set of circumstances or a single occurrence that diverts attention and requires a response above "business as usual."

to specific incidents have also been developed, including a Storm Incident Specific Response Plan ("Storm Incident SRP"). The Storm Incident SRP focuses primarily on the restoration of transmission and distribution infrastructure and electric service to customers, and it also addresses coordination with the gas, power generation, nuclear, and other critical operations.<sup>6</sup>

Major incident response often requires management at both the System and State levels. Soon after an Incident Commander implements their UIRP, they will notify the next highest Incident Commander, potentially up to the System Incident Commander as circumstances require.<sup>7</sup> However, State/Business Function Incident Commanders perform all roles of the Incident Commander in their respective organizations when a single business function or State is the only area involved in a particular incident.

ICS Activation Levels	Trigger	State / Business Function ICS	System ICS
Level I	Impact area(s) affecting single site.	Virtual Mode. Minimal staffing as required	Virtual Mode. Minimal staffing if required
Level II	Impact area(s) affecting two or more sites within a single state or business function	State / business function IRP and ICS organization activated with partial staffing	Virtual Mode. Core ICS staffing as required
Level III	Impact area(s) affecting two or more sites in multiple states / business functions	States / business function IRPs and ICS organizations activated full staffing	System IRP and ICS activated with partial staffing as required
Level IV	Impact area(s) affecting multiple sites in multiple states / business functions	States / business functions IRPs and ICS organizations activated full staffing	System ICS activated with full staffing

<sup>&</sup>lt;sup>6</sup> In addition, there is a separate Transmission Incident Response Plan that is utilized by the Transmission Business Function as necessary in response to an incident.

<sup>&</sup>lt;sup>7</sup> Incidents that have the potential to cause the most significant impact to EML, its employees, customers, and the public, are also overseen at the corporate-wide level by the Emergency Incident Response Team ("EIRT"). The Emergency Incident Response Team Plan ("EIRTP") works in conjunction with the UIRP and ICS organizations across Entergy Corporation as necessary and appropriate during incidents that require oversight at the corporate-wide level. Soon after an UIRP has been implemented, the state/business function or system Incident Commander will contact the EIRT Coordinator and assist in determining if the EIRT needs to be engaged and at what level. If the EIRT is activated, the highest activated Incident Commander will become a member of the EIRT and should coordinate localized response activities based on any strategic direction provided by the EIRT.

When the need arises, the Incident Commander can establish five separate Sections (Planning, Resource, Operations, Logistics, and Administration) and five Offices (Safety, Public Information, Government Liaison, Corporate Support, and Customer Operations) to organize the ICS staff. The Section Chiefs may further delegate management authority for their areas, as required.

A successful restoration plan depends on strong leadership and decision-making as well as coordination and cooperation. To ensure clear, coordinated lines of responsibility across all levels of the organization, Entergy Corporation has adopted the Incident Command System ("ICS") structure that is a key feature of the Federal government's National Incident Management System. The ICS organizational structure is modular, extending to incorporate all elements necessary for the type, size, scope, and complexity of an incident. It builds from the top down, with responsibility and performance beginning with the Incident Commander.

Below is a high-level organizational chart that shows the ICS structure under the current UIRP.



The Incident Commander, with the support of the Incident Commander Deputy, is responsible for providing tactical leadership and coordination for the ICS team throughout an incident and establishing the incident's tactical objectives and strategies. The Incident Commander has the flexibility to activate only those ICS roles that are needed for a given incident. Specific responsibilities of the Incident Commander may include, but are not limited to: coordinating incident response with other activated Incident Commanders from site/local operations, state/business function(s), and/or system, as well as the EIRT Coordinator (if appropriate); ensuring local emergency response (fire, police, etc.) have been notified, if needed; determining staffing levels and which ICS organizations to activate and when; coordinating with ICS organization to assess the business and environmental impact of the incident, identifying additional specialized resources when necessary; and approving and implementing incident

19

action plans. The System ICS, if activated, provides system coordination, oversight and support while allowing state/business functions and site/local operations to manage emergency restoration and operations.

The System Command Center ("SCC") provides centralized System coordination, management, and support for emergency operations and restoration of transmission and distribution infrastructure and service. The SCC establishes an emergency management organization that utilizes all available Entergy Operating Company and system resources and effectively responds to the emergency in a rapid and orderly manner. The primary location of the SCC is either at the Power House (a conference facility located in Jackson, Mississippi, that has meeting spaces, a cafeteria, and sleeping facilities) or the Transmission Headquarters Building in Jackson, Mississippi, depending upon the activation level required for a particular event. The primary location of the EML State Incident Command Center is located at the EML Distribution Operations Center in Jackson, MS.

The Safety, Public Information, Government Liaison, Corporate Support, and Customer Operations Officers are assigned to carry out staff functions needed to support the Incident Commanders. The Safety Officer is responsible for overall safety and health activities associated with emergency operations and restoration. The Public Information Officer is responsible for coordination, development, and communication of response and restoration information with employees, customers, and the media. The Governmental Liaison Officer is responsible for providing accurate and timely information to key governmental officials and agencies before, during, and after an incident. The Corporate Support Officer acts as a point of contact for support function activities in maintaining business continuity for all Entergy operating

companies. The Customer Operations Officer ensures that accurate information is provided to customers and is responsible for close monitoring of key customer support systems.

The Planning, Resource, Operations, Logistics, and Administration Sections are responsible for the functional aspects of the incident command structure. Each Section Chief is responsible for the overall function processes, staffing, training, and execution for the incident.

- The Planning Section Chief is responsible for the collection, evaluation, and dissemination of operational information related to the incident, as well as for the preparation and documentation of the incident action plan. The Planning Section Chief helps ensure that incident responders have accurate information. This Section also maintains information on the current and forecasted incident situation and on the need for, and status of, resources assigned to the incident.
- The Resource Section Chief is tasked with coordinating with external contractors and mutual assistance partners to fulfill the personnel needs of the Planning and Operations sections.
- The Operations Section Chief is responsible for proactively utilizing resources (people, materials, and machinery) to ensure safe work practices are implemented and meeting the incident's tactical objectives and strategies for returning to "normal or new normal operations." Typically, the Operations Section Chief is the person with the greatest tactical, operational, and/or technical expertise in dealing with the incident being managed.
- The Logistics Section Chief is responsible for enhancing productivity during the lifecycle of the incident by providing for the logistical needs of resources utilized in the response to an incident. The Logistics Section Chief's responsibilities

include the procurement of commercial lodging and feeding and/or the delivery of needed facilities, parking, and provisions to support the incident. Each Section Chief reports directly to the System or State Incident Commander.

Entergy operating companies are part of several regional mutual assistance groups in addition to the contracted relationships it maintains with resource vendors. The mutual assistance process is governed by a national level agreement to equitably share resources between utilities. The process is triggered anytime a utility is unable to acquire a desired number of resources or projects such as in the case of a major hurricane or other severe weather events and it has exhausted its internal capability to acquire the needed resources. Resource acquisitions are made utilizing operational experience and data provided by predication tools. The accuracy of prediction tools various widely depending on the type of weather system. Tropical systems offer the highest degree of prediction accuracy due to the strong and consistent weather patterns present in hurricanes. Winter weather storms have less predication accuracy due to the very small window in which icing conditions are present. A minor change in several factors can mean the difference between no ice and significant ice accumulation. Thunderstorms offer the least amount of predictability from available tools due to the extreme instability present in the systems. Thunderstorms can have small, isolated packets of very strong winds which may exists for only moments and/or may sporadically impact across an area as the system moves through a region. This requires utilities to rely on operational experience and situational awareness tools to determine the number of needed resources before an impact or during the early onset of a storm response. These determinations are evaluated for adequacy as damage assessment data is collected in the time following a storms impact.

#### 2. Training

EML has a robust storm preparedness and planning regimen that includes training, annual storm drills, and exercise sessions. The storm drills take place prior to hurricane season each year. In addition to testing storm readiness, the annual drills also function as a training opportunity for the employees and a chance to uncover any potential opportunities for improvement that require attention. The training and drill focus on all aspects of storm planning, preparation, resources, operations, damage assessment, logistics, accounting, and administrative functions.

#### 3. EML Crews and Contractors

Similar to peer utilities, EML has faced the industry-wide issue of a significant portion of its workforce at or near retirement age. EML has been able to successfully maintain its overall headcount, including its Power Delivery team. "Power Delivery" includes the line workers, engineers and other roles in EML's distribution and transmission functions. As the below chart demonstrates, EML's Power Delivery team has grown slightly since 2018. EML's full-time employee headcount has also remained steady for the past five years.



Over the last several years, EML has partnered with a number of Mississippi third-party utility contractors to assist in power delivery operations, including storm restoration. B&B Electrical and Utility Contractors, Chain Electric Company, Irby Construction Company, and Southern Electric Corporation are contract partners with Mississippi roots that support EML with maintaining facilities and restoring power after storm outages occur. EML's partnership with these companies and others allows EML to bring the right resources to assist with reliability and restoration work, so that EML is not over-staffed when there is little or no storm restoration work. At the same time, EML has the benefit of this partnership to staff-up its restoration resources during periods of heavy storm activity.

#### 4. Damage Assessment and Restoration

During a storm, limited utility crews that stay on location begin patrolling and visually inspecting feeder trunks from their vehicles as long as it is safe to do so. Although it has been widely publicized that aerial bucket restoration activities cannot commence until winds subside below 30 mph (i.e., the manufacturer's limitation on handling material with aerial lift equipment), initial damage assessments and power restoration take place at times when wind

24

speeds may exceed this threshold. Scouts, who can operate in small trucks, cars, and on foot, are able to initiate assessments as the weather allows. Nevertheless, safety is of the utmost importance for all restoration workers. Scouting and assessment activities commence or continue during a major storm event provided it is safe to do so. Any number of variables, including flooding, falling or flying debris, wind speed/gusts, visibility, driving conditions, navigability of city streets, and fatigue of the work force, could stop scouting operations if conditions are no longer safe.

Once the storm passes through the Company's service areas and additional scouts begin arriving, a full-scale damage assessment to the affected infrastructure can commence. At that point, helicopters or drones may be mobilized to expedite the damage assessment process which significantly improves EML's ability to perform damage assessments in areas where teams cannot safely scout. On the distribution system, scouts first patrol backbone feeders serving critical customers, followed by the rest of the feeder backbones. Major branches of each circuit (laterals) are inspected next, with individual customer service lines being assessed last. Assessment data is used to create a high-level summary of damage for poles, cross-arms, transformers, spans of wire, and vegetation needs. These summaries are used to plan material and equipment acquisition along with resource allocations. Circuit mapping captures detailed repair needs by location and is an essential planning tool used by the field management team on a daily basis. If additional storms pass through an area after it has been assessed, the area likely would need to be re-scouted to identify any damages that may have resulted from the subsequent storm.

At the distribution level, work is generally dispatched to storm crews to repair damage to equipment affecting the greatest amount of customers, starting with substations, feeder trunk

circuits, lateral and sub-lateral circuits, transformers, and service drops. EML also considers critical customers and facility characteristics, and the general public welfare was of highest priority as resources were directed to restore critical governmental, military, police, fire, medical, flood control, water/sewer, food, and communications systems and services, as well as commercial and industrial customers impacting storm restoration and basic services.

#### 5. Storm Tracking

Entergy Mississippi has a contract vendor, StormGeo<sup>8</sup>, that supplies a daily weather report indicating the chance for severe weather in each Network. The Company monitors these reports to make decisions on staffing levels to ensure EML is ready to respond if the need arises. Additionally, StormGeo will provide additional reports for specific storm systems that may impact the EML service territory.

The StormGeo daily weather briefing provides a color-coded indicator for each network in EML's system. Descriptions for the color-coded indicators are as follows:

- $\circ$  Gray = No risk
- $\circ$  **Blue** = Excessive Rain Risk
- Yellow = Slight chance for Strong to Severe Thunderstorm Risk (or other, which will be specified)
- **Red** = Moderate Chance for Severe Thunderstorms (or other, which will be specified)
- **Black** = High risk/chance for Severe Thunderstorms (or other, which will be specified)

EML makes varying decisions based on the daily storm briefing colors:

- Gray – No action

<sup>&</sup>lt;sup>8</sup> StormGeo partners with over 100 North American Utilities including EML, Southern Company, Exelon, Centerpoint, and PSEG.

- Blue Typically no action is taken as there is not a risk to Entergy operating company facilities. If flooding is occurring (river flood), EML will take action to implement flood plans and mitigation as needed to protect Entergy operating company facilities.
- Yellow Limited actions taken to raise awareness of potential weather threats.
   Depending on the timing of the threat, some crew schedules may be adjusted to provide additional resource coverage.
- Red Action is taken to raise awareness to the weather threat. Contract resources are notified of potential need to respond. In cases where EML sees impacts to other areas outside EML territory, EML may take action to hold crews and acquire incremental resources depending on the number of networks projected to be impacted.
- Black Action is taken raising awareness of the projected impacts. On-System (baseload) contract crews are relocated to projected impact areas as needed. Incremental resources are requested and pre-staged for restoration response.

#### 6. Communications

Communications planning is an integral part of EML's storm preparation process. The company maintains general storm restoration and safety talk points, as well as an emergency outage response communications plan, detailed communications templates, and social media content for use in extreme weather. These templates enable EML to quickly customize information for the specific storm situation and convey updates to customers, such as safety messaging, how to report outages, how to get outage updates and other critical information before, during, and after a storm. EML uses its own communications channels, such as social media and the EML newsroom and storm center, to amplify its own restoration information to the public. EML also regularly amplifies content from trusted third-party sources, such as the National Weather Service and Edison Electric Institute, via social media to convey additional publicly available information that can help customers prepare for severe weather. The Entergy Storm Center provides 24/7 access to storm preparation, safety and response information and resources, as well as latest storm updates. The Company also relies on mass media channels like television, radio and print media to share information on its behalf. When needed, EML

27

leverages paid advertising to reach affected stakeholders. In addition to external communications, EML shares updates, as appropriate, internally via the Company's intranet and via email.

When severe weather like a tropical system or extreme temperatures are expected, EML has the opportunity to deploy communications in advance of the weather striking its service area. Advance communications for other extreme weather systems, like thunderstorms, are more difficult to plan because the expected impact and location of the storms are more unpredictable. While storm preparation tips are shared year-round, EML begins ramping up those communications when there is high confidence a storm may strike in its service area and continues with additional storm and safety messaging until the restoration is complete. This may include owned (EML channels), earned (mass media coverage) and paid (purchased placements) media. Once a storm strikes, the number of customer outages, apparent severity of damages and other factors help inform the Company's initial decisions about frequency of mass communication and appropriate distribution channels for those messages.

EML utilizes direct message communications to contact customers with the number registered by the customer via text or phone call, their preferred method of communication, where applicable, to provide outage related information. Customer accounts identified to be without power are grouped by circuit, equipment, or device, to receive the message specific to their outage. Information included in the direct message communication can provide Estimated Restoration Times (ERTs) for the respective customers and also includes where customers can find updated restoration information on EML websites and by calling EML's customer outage and emergency phone lines.
#### 7. Technology: AMI and ADMS

## a. AMI

AMI is comprised of advanced integrated electric meters (including the network interface card or "NIC"), the communication network (Access Points and Relays), a Head End System (HES), and a Meter Data Management System (MDMS). The AMI applications are integrated into other enterprise systems/applications such as the Customer Care System for billing information, the outage management system for outage & restorations messages, and the enterprise asset management system. These components are integrated through the enterprise service bus. These components are illustrated below.



The advanced meters record meter data at 15- and 5-minute intervals for residential and commercial customers, respectively. The meter data (including interval data, daily register reads, and events/alarms) is sent every 4 hours through the NIC. The advanced meters also send data that is near real time such as last gasp messages identifying a customer outage. EML can also send signals and commands to its meters to check status, upgrade software, and to start and stop service.

The meter data is sent over the mesh network, which is made up of other electric meters, relays/repeaters, and access points. The data packets hop on their designated path to their assigned access point, where the backhaul transmits the information to the Head End System (HES). The HES has some basic validations, reporting, and monitoring capabilities. The HES also has cyber security protections in place as well as a filter for outage information to ensure verified service outages are routed to the outage management system (ADMS or DMS/OMS). This outage information is used by the ADMS to inform the outage prediction model. All restoration messages are also delivered to the AMDS to aid in closing outage cases as customer are restored. The ADMS also has the ability to ping meters to get status information and perform on-demand reads to get voltage information for troubleshooting.

Once the meter data is received in the HES, the data is exported every 4 hours to the MDMS. The MDMS performs Validations, Estimations, and Editing (VEE) on the meter data to ensure it is ready for billing. The meter data is also sent to the Company's customer-facing portal to allow customers to view their usage and set alerts/alarms. Entergy Operating Companies' data lakes to enable additional reporting and analytics.

#### b. Third-Party Software Platform – ADMS

EML uses an Automated Distribution Management System ("ADMS") which, among other services, assists the Company in storm restoration. ADMS is a third-party software platform used by electric utilities to monitor, control, and optimize the distribution of electricity across their networks. A visual representation of the way ADMS integrates within the overall outage management processes and customer experience is captured below.

30



ADMS is a complex program that aggregates data from multiple sources, including meters and the Company's SCADA systems, and identifies where outages exist and the assets that may be involved with the outage. ADMS provides the data EML provides to customers about outages and is used to develop EML's estimated restoration timeline. EML's ADMS system is a state-of-the-art program. Key features of an ADMS typically include:

i. Monitoring and Visualization: ADMS provides real-time monitoring and visualization of the distribution network, allowing operators to observe the status of equipment, voltage levels, power flows, and other crucial parameters.

- **ii. Fault Detection and Isolation**: ADMS incorporates fault detection and isolation capabilities to quickly identify and locate faults or disruptions in the distribution system. This helps operators take prompt actions to restore power and minimize downtime.
- **iii. Outage Management**: ADMS enables efficient outage management by automating outage detection, tracking customer complaints, estimating the affected area, and optimizing restoration strategies.
- **iv. Distribution Network Control**: ADMS allows operators to remotely control distribution equipment, such as switches, reclosers, and capacitor banks. This capability helps optimize the network's performance, voltage levels, and power flows.

Part of the ADMS portfolio used by EML manages outage response. The outage response system uses data from the ADMS system to support the timely dispatch of field crews to restore service. The outage response system manages the entire lifecycle of an outage: (1) the initial phone call or AMI notification, (2) crew assignment and status updates, (3) Estimated Restoration Time (ERT) revisions, and (4) the final outage closeout process. Users have access to real-time network data, customer calls and comments, real-time crew locations and status updates, and they are able to capture detailed restoration information associated with the outage. The outage response system allows electric utilities to decentralize outage dispatch and rapidly expand their outage response workforce during times of intense activity. The outage response system also optimizes existing control center staff by allowing them to focus on high-priority, high-impact outages, while off-loading much of the routine outage and crew management work to other users in the control center, business center, or offsite locations.

32

As shown in the graphic above, the ADMS system helps provide ERTs that are shared with customers via the View Outage Map, through text or e-mail alerts, through the MyEntergy portal, or through customer contact centers. Automating this process with an ADMS system allows EML to provide estimated restoration times more quickly than was possible before AMI, and as new damage is detected or as work progresses more quickly than expected, allows for more timely updates to customers' ERTs.



# II. June 2023 storms response

## June storms response

Outage causes and damage Performance of newer investments Weather tracking Restoration Communications AMI and ADMS

In these **3 weeks** of storms, EML repaired or replaced more poles, spans of wire, damaged transformers and crossarms than ALL the damage from storm activity in 2022.

COMMANDER

#### **II. JUNE 2023 STORMS RESPONSE**

#### A. Outage Causes and Damage from June 2023 Storms

#### 1. Outage Causes

As background, EML field personnel must choose from a pre-selected list of outage cause codes when assessing and repairing storm damage. They can provide additional context about what they observe in a notes section, but the "outage code" has limited options. Field personnel are trained to categorize outages based on what they observe in the field, which involves judgment calls. For example, when a tree falls due to a storm, but is not found directly on a line, and there is also damage to the Company's equipment, the field personnel must make a judgment call about whether the outage cause was vegetation or lightning. Further, if there is no apparent cause clearly visible to the line worker, the outage may be classified as "other."

During the June 2023 storm events, vegetation caused more customer outages than any other single outage cause, resulting in 69% of the total EML customer outage minutes during the storms, because vegetation-related interruptions typically result in longer restoration times than other types of outages. As described in Section I. (A)(3), the largest driver of outages on the EML system are vegetation related. EML's vegetation management program seeks to minimize vegetation related outages. However, during a severe weather event with winds that, at times, exceeded 80MPH, vegetation-related damage (including damage from healthy "green" trees) is prevalent. The vegetation outage categories that contributed to these outages is summarized in a chart below.

34



The "lightning category," is also storm related, accounting for 21% of June 2023 outages and more than 14% of EML customer outage minutes. EML's restoration workers also categorized approximately 13% of the June 2023 outages as being caused by "equipment failure" and almost 29% under the "other," category (used when the cause is not clearly visible). Most of these outages are also likely to be storm related, although they accounted for less than 5% of all customer outage minutes. Finally, less than a percent of EML customer outage minutes were classified by lineman as caused by issues more likely than not<sup>9</sup> to be storm (including scheduled outages, animal, public damages, human error, and foreign trouble), accounting for only 0.3% of EML customer outage minutes.

<sup>&</sup>lt;sup>9</sup> Since categorizing outage causes involves a judgment call by restoration workers, even a category like "public damage" could be storm related if, for example, a car ran into a utility pole due to the storm.

Moreover, of the vegetation-related outages – the single largest source of customer outages and outage duration – over 56% of these outages were caused by trees outside EML's right-of-way, impacting EML power facilities. Thirty-two percent of outages were caused by limbs that were overhanging EML's facilities, which overhanging limbs are beyond the scope of EML's cycle trim vegetation management, described in Section I. (A)(3). The chart below depicts vegetation-related outage causes:



#### 2. Damage

Damage caused by the June 2023 storm events alone is shocking, compared to the entire years of 2020, 2021 and 2022. For context, 2020 was the second worst storm year EML has seen in a decade, and it included four hurricanes and two tropical storms. 2021 brought with it Winter Storm Uri and Hurricane Ida. With the overall context of these recent storm years in mind:

- EML had approximately 342,000 customer interruptions (which represents almost 90% of the total number of EML's residential customers) during the June 2023 storms as compared to approximately 200,000 customer interruptions during Winter Storm Uri and approximately 106,000 customer interruptions during Hurricane Ida.
- EML has repaired or replaced more poles, conductor span, damaged transformers and cross arms as a result of the June 2023 storms than all storm activity in 2022.
- As a result of the June 2023 storms, EML replaced 103% of the total number of transformers as compared to the entire year of 2020, and 68% as compared to the entire year of 2021
- As a result of the June 2023 storms, EML replaced 65% of the total spans of wire as compared to the entire year of 2020, and 70% as compared to the entire year of 2021. If EML laid out the wire replaced by its restoration workers in June 2023, it would stretch from Jackson to Grenada.
- As a result of the June 2023 storms, EML replaced 89% of the total number of poles as compared to the entire year of 2021.



#### **B.** Performance of Newer Investments

The overall impact of EML's FOCUS projects, discussed in Section I. (A)(1)(a) above, demonstrates the value of EML's investment in its distribution system, as evidenced by a significant reduction in customer interruptions. EML tracks devices in the FOCUS program, and when including major weather events, devices in the FOCUS program show significantly improved performance. Considering all FOCUS program devices with an in-service-date of 2019 or after, the number of devices with zero outages since their in-service date (the FOCUS program "success rate") is 53%.

With regard to program effectiveness, EML has seen a decline in customer interruptions every year that it has invested in projects in the FOCUS program.

	Completed Projects	Customer Interruptions 3Yr Prior to Project**	Customer Interruptions After Project	Program Effectiveness						
2018	132	54,251	20,439	-62.3%						
2019	47	18,983	7,929	-58.2%						
2020	89	47,830	9,418	-80.3%						
2021	40	23,600	6,949	-70.6%						
2022*	23	10,402	177	-98.3%						
Total	331	155,066	44,912	-71.0%						
* Data is throu	gh September 15, 2022	2.	-							

#### C. Weather Tracking

The NWS Report (attached as Exhibit A) confirms the "unprecedented" nature of the "historically destructive" June 2023 storms. The National Weather Service in Jackson issued 221 severe thunderstorm warnings, 14 tornado warnings, 7 flash flood warnings and 21 severe thunderstorm or tornado watches in June 2023. June 2023 set the record for most tornadoes in the State of Mississippi. Wind damage was reported on fourteen days during June 2023. The damaging winds were widespread and cumulative. There were several cases of wind swaths of 80+ MPH and straight-line wind gusts as high as 90MPH in Warren and Hinds counties in the early morning hours of June 16, 2023. The impact of these storms rivaled the entire storm damage seen for the entire year of 2022, with the totality of the June 2023 storms causing the most damage to EML's system in the Jackson metro area since Hurricane Katrina.

Not only was the June 2023 weather "exceptionally rare," it also was not predicted to

be so severe by weather professionals. Utilizing the color-coded Daily Weather briefings from

StormGeo, described in Section I. (B)(5) above, EML received the following weather reports

during the June 2023 storms:<sup>10</sup>

- June 7 briefing indicated no threat for 7 days.
- June 8 briefing indicated a slight risk of severe weather on 6/10 for the Brookhaven, Clinton, Greenville, Natchez, and Vicksburg networks.
- June 9 briefing indicated a slight risk of severe weather on 6/10 for all networks except Grenada, Senatobia, and Southaven. The timing of the threat showed to start at noon and continue through 2 AM on June 11. June 11 also indicated a slight risk from noon to 11 PM in the Cleveland, Greenville, Grenada, Mid-State, Senatobia, and Southaven networks. June 12 – 15 indicated no risk.
- June 10 briefing indicated a slight risk of severe weather on 6/10 for all networks except Senatobia and Southaven. The timing of the threat had changed to starting at 6 PM and continued to 4 AM on June 11. The slight risk started again on June 11 from 3 PM to mid-night in the Cleveland, Grenville, Grenada, Madison, Mid-state, Senatobia, and Southaven networks. June 12 indicated a slight risk from noon to 11 PM in all networks except Cleveland, Greenville, Grenada, Mid-state, Senatobia, and Southaven. June 13 – 16 indicated no risk.
- June 11 briefing showed a moderate risk of severe weather in Cleveland, Grenada, Mid-State, Senatobia, and Southaven networks beginning in the afternoon/evening. All other networks except Natchez had a slight chance of severe weather. The briefing indicated a slight risk in all networks except Cleveland, Grenada, Mid-State, Senatobia, and Southaven for Monday, June 12. All networks except Southaven indicated a slight risk on Tuesday, June 13 except Southaven. June 14 thru June 17 indicated no risk of severe weather.

<sup>&</sup>lt;sup>10</sup> A complete copy of the daily reports that StormGeo sent to EML during the June 2023 storms is attached as Exhibit C.

- June 12 briefing indicated a slight risk of severe weather beginning at noon in all networks except Cleveland, Grenada, Mid-State, Senatobia, and Southaven. All networks showed a slight risk of severe weather in all networks for Tuesday, June 13. Wednesday June 14 indicated a slight risk in all networks except Natchez, Senatobia, and Southaven. June 15 thru June 18 did not indicate a chance of severe weather.
- June 13 briefing indicated a slight chance of severe weather in all networks except Southaven. For June 14, the briefing indicated a moderate risk for severe weather in Clinton, Jackson, Madison, Mid-State, Rankin, and Vicksburg networks. All other networks except Senatobia and Southaven indicated a slight risk. For June 15, the briefing indicated a slight risk in all networks except Cleveland, Greenville, Grenada, Senatobia, and Southaven. The briefing indicated no risk for June 15-19.
- June 14 briefing indicated a moderate risk for all network except Cleveland, Grenada, Senatobia, and Southaven. These four networks indicated a slight risk. June 15 indicated a slight risk of severe weather beginning mid-day and continuing through the evening. June 16 indicated a slight risk for all networks except Natchez between noon and 11 PM. The briefing did not indicate a risk from June 17 – 20.
- June 15 briefing indicated a slight risk in the Brookhaven, Clinton, Jackson, Madison, Mid-State, and Rankin networks beginning at noon and ending at 10 PM. The briefing indicated a slight risk on June 16 beginning at noon thru 11 PM in all networks. June 17 indicated a slight risk from noon to 10 PM in all networks except Grenada, Senatobia, and Southaven. A slight risk was indicated for June 18 beginning at 1 Pm through 10 PM in Cleveland, Greenville, Grenada, Madison, Mid-State, Senatobia, and Southaven networks. June 19-21 did not indicate a risk of severe weather.
- On June 16, at 4:00am, EML received an update from StormGeo about severe thunderstorms <u>already underway</u> in EML's service territory. This update is included on page 47 below.
- June 16 briefing indicated a slight risk from 4 AM to 8 AM in Brookhaven, Clinton, Natchez, Rankin, and Vicksburg networks. The briefing indicated a second timing of slight risk beginning at noon and continuing through 11 PM. On June 17, the briefing indicated a slight risk in all networks except Grenada, Senatobia, and Southaven from noon thru 10 PM. June 18 indicated a risk from 1 PM to 10 PM. June 19-22 indicated no risk.
- June 17 briefing indicated slight risk in all networks except Senatobia and Southaven between 1 PM and 10 PM. June 18 indicated a slight risk between 2 PM and 10 PM in all networks. June 19 indicated a slight risk between 7 AM and 7 PM in all networks except Cleveland, Greenville, Grenada, Senatobia, and Southaven. June 20-23 indicated no risk.
- June 18 briefing indicated a moderate risk from 7 AM to 11 PM in all networks except Southaven which indicated a slight risk. June 19 indicated a slight risk in the

Brookhaven network from 6 AM to 7 PM. The briefing indicated **no risk** from June 20-24.

- June 19 indicated a slight risk from 4 AM to 11 PM in the Brookhaven and Natchez networks. June 20 indicated a slight risk in the Brookhaven and Natchez networks from noon to 9 PM. The briefing indicated no risk June 21-25.
- June 20 briefing indicated a *slight risk* from 1 PM to mid-night in the Brookhaven and Natchez networks. June 21-26 indicated **no risk**.
- June 21 briefing indicated **no risk** for seven days.
- June 22 briefing indicated **no risk** for seven days.
- June 23 briefing indicated **no risk** for seven days.
- June 24 briefing indicated a *slight risk* from 11 AM to 11 PM in all networks. June 25 indicated a *slight risk* from 1 PM to 10 PM in the Grenada, Senatobia, and Southaven networks. June 26-30 indicated *no risk*.
- June 25 briefing indicated a moderate risk from 2 PM to 10 PM in the Cleveland, Greenville, Grenada, Mid-State, Senatobia, and Southaven networks. All other networks indicated a **slight risk** for the same period. June 26 – July 1 did not indicate a risk.
- June 26 briefing indicated a slight risk from 4 AM to 11 AM in the Brookhaven, Clinton, Jackson, Natchez, Rankin, and Vicksburg networks. June 27 July 2 indicated no risk.
- June 27 briefing indicated **no risk** for seven days.
- June 28 briefing indicated a slight risk between 3 AM and noon in all networks except Brookhaven, Natchez, and Rankin. June 29 July 4 indicated no risk.
- June 29 briefing indicated **no risk** for seven days.
- June 30 briefing indicated **no risk** for seven days.

StormGeo charts and maps associated with key storm days follow, along with a reminder

of the color-coded indicators described in Section I. (B)(5) of this Report.

- $\circ$  Gray = No risk
- $\circ$  **Blue** = Excessive Rain Risk
- Yellow = Slight chance for Strong to Severe Thunderstorm Risk (*or other, which will be specified*)

- **Red** = Moderate Chance for Severe Thunderstorms (*or other, which will be specified*)
- Black = High risk/chance for Severe Thunderstorms (or other, which will be specified)

EML makes varying decisions based on the daily storm briefing colors:

- Gray No action (No Risk)
- Blue Typically no action is taken as there is not a risk to EML facilities. If flooding is occurring (river flood), EML will take action to implement flood plans and mitigation as needed to protect EML facilities.
- Yellow Limited actions taken to raise awareness of potential weather threats. Depending on the timing of the threat, some crew schedules may be adjusted to provide additional resource coverage (*Slight Risk*)
- Red Action is taken to raise awareness to the weather threat. Contract resources are notified of potential need to respond. In cases where EML sees impacts to other areas outside EML territory, EML may take action to hold crews and acquire incremental resources depending on the number of networks projected to be impacted (*Moderate Risk*)
- Black Action is taken raising awareness of the projected impacts. On-System (baseload) contract crews are relocated to projected impact areas as needed (Severe Risk)

EML Incident Command also used televised weather reports from the local weather

stations and networks as a comparison for weather forecasting. As demonstrated in the charts below and Exhibits B and C, storm forecasts support the actions that Entergy Mississippi took at the time, with the knowledge available to the Company. Below is the color-coded chart that EML received on June 10, 2023, projecting risk for June 10 - 16, 2023 by area. The gray and yellow codes indicated either no risk or a slight chance of strong to severe thunderstorms.

	Sat 06/10		Sun 06	Sun 06/11				Mon 06/12				Tu	Tue 06/13				Wed 06/14	Wed 06/14				Thu 06/15					Fri 06/36			
Brookhaven Network	0	6 12	18		6	12	18		0	1	12				6 1:		28		6	12	18	°			12	18		6	12	14
Cleveland MS Network	0	6 12	28		0	12	18		0	4	12	18	Ì		6 11		24	İ	6	12	18			•	12	10		6	12	14
Clinton Network	0	6 12	18		6	12	18		0	6	12				6 1:	2	10		5	12	18	°		6	12	18		6	12	-14
Greenville Network	0	6 12	18		6	12	18		0	6	12	18			6 1:		14	,	6	12	18	°			12	18		) 6	12	14
Grenada Network	0	6 12	18		6	12	10		0	6	12	10			6 1:		20	i	6	12	18			5	12	18		6	12	14
Jackson Network	0	6 12	18		6	12	18		0	6	12		ĺ		6 13		13		6	12	18	°		6	12	18		6	12	13
Madison Network	0	6 12	10		,	12	18		0	1	12		ĺ		0 13		14		6	12	18	°			12	10		) 6	12	
Mid-state Network	0	6 12	18		6	12	18		0	6	12	18			6 11	2	18	,	6	12	18			6	12	18		0 6	12	14
Natchez Network	0	6 12	18		8	12	18		0	6	12		Ĵ		6 11		15	Ĵ	6	12	18	°		6	12	18		6	12	14
Port Gibson MS	0	6 12	18		6	12	18		0	4	12				6 1:		18	İ	6	12	18			,	12	18		, , ,	12	:4
Rankin Network	0	6 12	18		6	12	18		0	6	12				6 11	2	13	İ	6	12	18			6	12	18		6	12	10
Senatobia Network	0	6 12	15	i	6	12	18		0	1	12	18			0 11		18	i	6	12	18				12	18		, .	12	14
Southaven Network	0	6 12	28		6	12	18		0	c I I I I I I I I I I I I I I I I I I I	12	18			6 13		18		6	12	10			:	12	10		6	12	10
Vicksburg Network	0	6 12	18		6	12	18		0	6	12		ĺ		6 13	2	13		6	12	18	•		6	12	18		6	12	10

StormGeo also provides periodic weather reports throughout the day for updates to any systems being monitored. On June 10, StormGeo was monitoring three events and provided mid-day updates, which are included in Exhibit C.

In the days that followed, EML received additional, color-coded charts projecting risk for its service territories. These charts are included below.

June 14 Daily Briefing, forecasting weather for June 14 – 20, 2023:



43



## June 15 Daily Briefing, forecasting weather for June 15 – 21, 2023:

On June 15, 2023, EML received a Storm Geo update at 1:00pm, updating the weather threat. The map shows the highest weather risk in Oklahoma City, Oklahoma. A detailed excerpt from these reports is included below.

#### June 15-16 - Severe Thunderstorms - Plains / Lower Mississippi Valley 🗅



**Timing:** 03PM Jun 15 to 05AM Jun 16, 2023 CDT

Discussion: Forecast Confidence Moderate

#### **Changes From Previous Forecast**

Expanded the slight risk area a bit farther southeastward across east Texas and central Louisiana. Expanded moderate and high risk areas southward.

## **Our Forecast**

Scattered thunderstorms are forecast to develop across the Plains during the early to middle afternoon hours today. These storms will initially be capable of very large hail, damaging wind gusts, frequent lightning, and tornadoes. Storms will organize into a cluster or line by late afternoon or early evening and will track eastsoutheastward through the Southern Plains and into the Lower Mississippi Valley through the night. This line of storms will be capable of very strong, damaging wind gusts, frequent lightning, and hail. An isolated tornado cannot be ruled out.

## Main Impacts

A localized and generally brief threat of power outages, travel delays, and business disruptions in the slight risk area. Impacts could become more widespread in the moderate and high risk areas where the threat for damaging winds, large hail, and tornadoes is highest.

Meteorologist: D. Piech



June 15 - Severe Thunderstorms - Tennessee Valley / Deep South / Southeastern U.S. 1

Discussion: Forecast Confidence Moderate

Changes From Previous Forecast Expanded northward.

## **Our Forecast**

Scattered thunderstorms will continue to develop across the area today as an approaching disturbance interacts with daytime heating. Conditions will be favorable for a few of these storms to produce damaging winds, frequent lightning, hail, and tornadoes. The risk for severe weather will be highest wherever storms can organize into line segments or clusters; the chance of this occurring will be highest along the Gulf Coast.

## **Main Impacts**

A localized and generally brief threat of power outages, travel delays, and business disruptions.

Meteorologist: D. Piech

On June 16, 2023, at 4:00am, EML received an update from StormGeo that severe thunderstorms were already underway in EML's service territory. This was a significant and unanticipated change from the previous day's forecast.<sup>11</sup> The June 16 storms caused the most significant damage to EML's system of any single day during the June 2023 storms. The detailed StormGeo update is included below.

## June 16th StormGeo Update at 4 AM

#### June 16 - Severe Thunderstorms - Lower Mississippi Valley 1





## Discussion: Forecast Confidence High

## Changes From Previous Forecast Ended event a few hours later. Adjusted risk area based on current storm location.

# Our Forecast A line of thunderstorms in northwestern Louisiana has been producing wind gusts

<sup>&</sup>lt;sup>11</sup> This statement is meant in no way as a criticism of StormGeo or its forecasting capability. It merely shows the difficulty in accurately forecasting this type of severe weather.

of 70+ mph, as well as frequent lightning and hail. These storms will likely maintain their intensity for a few more hours as they track southeastward across the area. The storms are expected to begin to weaken as they approach the Gulf Coast later this morning.

## **Main Impacts**

A localized and generally brief threat of power outages, travel delays, and business disruptions in the slight risk area. Impacts could become more widespread in the moderate risk area.

Meteorologist: A. Lyles



#### June 16 - Heavy Rainfall - Deep South / Gulf Coast 1

Discussion: Forecast Confidence High

### **Changes From Previous Forecast**

Reduced additional expected rainfall totals. Trimmed the northern extent of the risk.

## **Our Forecast**

A frontal boundary is forecast to remain draped across the region today, resulting

in additional rounds of shower and thunderstorm activity. Average rainfall amounts of around 1-2 inches can be expected, although some more localized areas could see heavier totals on the order of 4+ inches. This additional rainfall falling over increasingly saturated soils may result in some areas of flash flooding.

## **Main Impacts**

Urban and small stream flooding possible, especially in low lying and flood prone areas. Larger streams and rivers could see prolonged high water and could reach flood stage. Some minor to moderate travel delays possible.

**Meteorologist: A. Lyles** 

June 16 - Severe Thunderstorms - Lower Mississippi Valley / Deep South 🗅



Timing: noon Jun 16 to 11PM Jun 16, 2023 CDT

Discussion: Forecast Confidence Moderate

## **Changes From Previous Forecast**

Trimmed the northern extent of the risk area slightly.

#### **Our Forecast**

A few clusters of thunderstorms are ongoing across the area this morning. Once these dissipate by mid-morning, look for additional scattered thunderstorm development by the afternoon, with strong daytime heating and lingering, smallscale boundaries from previous storms helping to support a risk for severe weather. The strongest storms this afternoon could produce damaging winds, frequent lightning, large hail, and tornadoes.

Main Impacts A localized and generally brief threat of power outages, travel delays, and business disruptions.

Meteorologist: A. Lyles

Several days later, StormGeo provided EML with a summary of June storm events,

covering activity through June 19, 2023 (attached as Exhibit B), which included radar images of

the June 16 storm systems, shown below.



## **Radar Images of June 16th**







## **D.** Restoration

EML's response to the June 2023 storms was aligned with the Company's storm processes and procedures, which have repeatedly resulted in industry recognition. Beginning June 10, EML monitored the weather forecast in preparation for additional, potential weather events. The weather systems that impacted EML's service territory were exceptionally rare, both in terms of consecutive impact and severity. Each daily forecast indicated 2-3 days of a slight risk of potential impact from severe storms. Historically, slight risk predictions rarely produce severe storm impact. Additionally, the storm activity produced multiple impacts to the same areas across EML's service area.

Upon the initial impact of the storms, EML personnel began immediately implementing the Company's storm response plan. On June 10, EML's State Incident Command team communicated, by telephone, the team's decision to activate on-site command beginning June 11 at 6:00am. EML's State Incident Command operated on-site daily from June 11 - 23, 2023, and

again from June 26 – June 29, 2023. EML activated internal and contract resources on June 10 to begin damage assessment and restoration, along with a request for incremental resources to aid in restoration. "Incremental resources" means workforce outside of Mississippi's internal and contract workforce; this can be supplied by other Entergy operating companies, procured contractors, and/or mutual assistance from other utilities. EML shifted resources throughout the daily weather events to impacted locations. Impacted locations shifted daily around EML's service territory, unfortunately resulting in some customers seeing multiple outages throughout the June 2023 storms. Resources often traveled to an impacted area for restoration and then had to travel back to the same area (where restoration was completed for earlier storm damage) to restore outages caused by subsequent storm damage.

In the days leading up to the June 16 storms, weather forecasters reduced the risk of severe weather. June 16, 2023, however, was the most severe weather impact to EML's service territory during the June 2023 storms. EML immediately requested additional incremental resources to assist with damage assessment, vegetation, and distribution line repairs. The Company increased the resource requests on June 17, based on field assessments and continued weather impacts delaying restoration. As new storms entered areas with existing outages, restoration was slowed or halted to protect EML's workers from lightning and high winds. Although EML was able to procure incremental resource requests, the availability of these incremental resources was limited EML's region due to the weather impacts other utilities were experiencing, as well as travel times for other restoration workers. For example, EML received line resources from both Entergy Arkansas and Entergy Texas, but they had to return home to assist with storm damages or predicted storms in their home territories. Also, American Electric Power had a resource request acquiring resources from Entergy Mississippi's region, and

54

Southern Company held resources due to potential storm impact. On June 18, more than 500,000 customers were reported out in Oklahoma, Louisiana, Texas, and Arkansas, which resulted in a regional mutual assistance call between impacted utilities. EML's resource team was able to acquire additional resources to replace those leaving. This resulted in longer arrival times than normal for the incremental resources due to the distance crews had to travel for support. As crews became available within a reasonable reporting distance, EML continued adding to its storm restoration response. Once the incremental crews arrived, EML was able to complete safety orientations and assign the resources to outages for restoration.

The restoration work itself progressed well given the challenges of daily repeat weather events and challenges understanding the full impact of customer outages caused by the storms.<sup>12</sup> By the end of the June storms, EML had acquired over 2,000 resources from 44 companies, originating from 14 states: Alabama, Georgia, Arkansas, Florida, Illinois, Indiana, Kentucky, Louisiana, Mississippi, Missouri, Ohio, Oklahoma, Tennessee, and Texas. The chart below depicts the number of resources dedicated to June 2023 storms, including Entergy Mississippi employees and contractors, procured contractors, other Entergy operating company crews, and mutual assistance restoration workers. Although weather forecasts did not indicate severe weather that would require crews to relocate to areas projected to be impacted, EML immediately activated resources upon the initial impact of the storms.

<sup>&</sup>lt;sup>12</sup> As discussed in more detail in Section, EML experienced issues with its outage management software, ADMS. The ADMS complications resulted in the need to reassess damages in some areas due to data loss and also resulted in duplicate cases that led to multiple crews being assigned to the same outage.



## E. AMI and ADMS

It is important to note that the issues experienced with ADMS did not result from the deployment of AMI meters. Indeed, EML's AMI system, as described in Section I. (B)(7)(a) above, operated as designed during the June 2023 storms. This is reflected through a couple of data points. First, EML is currently able to communicate remotely with approximately 98.7% of AMI meters, which is roughly the same percentage from prior to the June 2023 storms. This number remained consistent through the storm as EML was able to communicate remotely with 98.7% of meters on June 12 and 18, 2023; EML was able to communicate remotely with 97.8%

of meters on June 23, 2023. Second, EML was able to record customer usage from AMI meters during the June 2023 storms. Between June 10 - 25, 2023, EML recorded usage for over 200,000 accounts, and over 98.5% of these accounts were successfully read remotely. Finally, EML was able to successfully perform over 8,000 remote connects and disconnects during this period, with a nearly 98% success rate of remote connect/disconnect attempts.

Further, AMI supported EML's restoration efforts as personnel were able to check meter connectivity to confirm if meters were energized. This allowed restoration workers to spend more time restoring service, rather than having to manually verify the reconnects.

The ADMS system, which as explained previously receives data from AMI, experienced complications that resulted in the outage system not operating as designed. This malfunction impacted EML's ability to quickly and accurately determine total customer outages and estimated restoration times, which adversely impacted EML's ability to communicate with customers about their outages.

Beginning in 2021, the Entergy Operating Companies began to deploy new technologies in order to modernize the electric grid and better align with industry standards. The Operating Companies have upgraded a number of aspects that go along with such technologies, including upgrades to the Entergy Operating Companies' ADMS and the implementation of a new technology EML uses to manage restoration work. For its customers, EML also added enhancements to its view outage map, including a series of layers that are intended to provide customers more relevant and timely detail around the status of their electric service during severe weather events. The enhancements included an additional feature on View Outage, called the Damage Assessment View. The Damage Assessment View is intended to provide customers with an overall level of damage in a specific area when personalized information is not available.

57

While customers are familiar with and prefer the Street View Map, which gives them detailed and personalized outage and restoration information, during events with high damage, that level of information is not always available. EML acknowledges that customers may not have understood the Damage Assessment View, and, in hindsight, the Company could have provided customers with more information – in advance – about the difference in the levels of information available to them based on the types of events that the Company faces.

During the June 2023 storms, the State Incident Command realized that they were receiving inconsistent outage data from the ADMS. As described earlier in this report, EML's ADMS is a state-of-the-art technology system that pulls data from meters and devices throughout the electric grid in order to provide real time information regarding the status of grid operations. The ADMS system populates work tickets for areas that are experiencing outages (among other functionalities), to help keep customers informed about ERTs.

For a reason that was not known at the time, EML's ADMS provided information that ultimately resulted in the same loss of facilities being recorded as multiple outages. Due to the automated nature of the Company's AMI, ADMS, and customer communications channels, this issue resulted in some customers receiving multiple, and sometimes inconsistent, messaging about their power status. This malfunction also corrupted the data being used to update the View Outage Map. Internal teams working on behalf of EML identified technical issues with ADMS as the cause of the incorrect data that was populating the View Outage map, generating the outage information used to communicate with customers, and creating duplicative and sometimes incorrect work tickets for restoration work. The ADMS used by EML and its sister Operating Companies is one used widely in the utility industry. The primary cause of the technical issues experienced in the ADMS system was associated with a major technology

58

upgrade deployed by EML in the spring of 2023. The upgrade was provided by the ADMS vendor to all of their utility clients using its ADMS system, which is part of routine maintenance and support they provide in releasing major and minor software releases that address remediated system defects and added capabilities.

Through Entergy Services, EML is working proactively with the vendor to identify and remediate all of the technical issues. Progress is being made, but it is expected that the full remediation and testing will not be complete until Q1 of 2024. As illustrated earlier in the report, a graphic that captures the functioning of the ADMS system is included for reference, below. The graphic indicates where EML experienced technical issues.



The Entergy Operating Companies are implementing corrective actions and mitigation plans to help minimize the effects customers experience during a severe weather event in the short-term. Should its service area experience a high volume of outages, EML is prepared to deploy its business continuity plans, including more manual modes of managing outages. EML is also continuing to work on a permanent, long-term solution with the software provider.

#### F. Communications

EML's mass communication efforts during the series of storms that pelted its service area in June 2023 began as a typical response, with social media posts, Storm Center updates, poststorm safety advertising and responding to media inquiries as early as June 12 and continued to escalate to meet communications needs. After the June 15-16 storms, EML began communicating with the public at a level typically employed for hurricane response threats, including a news conference with EML's CEO and Vice President Reliability and proactive outreach to print, radio, online and television media in EML's coverage area. EML's proactive social media messaging increased from its typical eight posts across all channels per day to 15-20 proactive social media posts across its channels per day.

During restoration, customers were unable to receive accurate or timely information due to issues with upstream systems and associated data feeding EML's View Outage map and the automated messaging system. Specifically, with regard to the View Outage map, an online tool used to inform customers of outages and estimated restoration times, customers observed multiple icons on the map for the same locations that may have contained conflicting restoration times. This may have resulted in an inflation of outage cases and customer counts displayed on the map. With regard to automated messaging, customers reported receiving multiple text messages with incorrect outage status information. Customers also may have received delayed

60

messages due to the volume of messages being generated by widespread outages. The automated messaging system was overwhelmed by this volume, resulting in message delays.

As discussed above, the Company's teams have identified technical issues with the system EML uses to provide data to the View Outage map as the source of these upstream data issues. These are known system issues that the vendor is aware of, and Entergy Operating Companies are proactively working with the vendor to address them. Despite the ADMS challenges, EML provided extensive communications to customers throughout the June storm events, as evidenced by the Communications Timeline attached as Exhibit F to this Report. Although customers were not able to receive specific restoration estimates due to the ADMS challenges, EML kept customers updated through a variety of channels, including its Storm Center website, press conferences, social media and local print, television, radio, and online news programs. Examples of what customers would have seen on EML's Storm Center website are attached as Exhibit D. Key examples of these communications follow:

- 250 proactive social media posts on anticipated severe weather, storm preparation tips, EML's restoration process, customer storm safety (avoiding downed lines, generator and equipment safety, food safety, medical needs), reporting and getting outage updates, and other relevant topics before, during and after the storms. (Attached as Exhibit E)
- Media interviews on storm preparation and the restoration process, including that while restoration occurs simultaneously with damage assessment, it can take three days for crews to full assess damage after every storm passes.
- Entergy Mississippi press conference about severity of the storm effects an impact it hadn't seen since Hurricane Katrina and the dynamic state of the multiple storms causing reset of EML's restoration progress in many cases, its restoration process and what customers could expect, as well as acknowledging the lag in information and that EML is working to address those issues. This event was covered by all the television stations in Jackson.
- EML President and CEO participation in City of Jackson press conference as well as interviews with SuperTalk, WMPR, Northside Sun, The Magnolia Tribune, The Clarion-Ledger and other outlets to address customer concerns.

- EML President and CEO open letter to customers distributed to media throughout the Company's service area.
- Radio and social media safety advertising in counties hardest-hit by storms.
- A total of 16 storm updates posted to the EML newsroom.

EML's proactive news releases, storm center updates, press conference, media interviews, social media, and advertising combined with responding to media inquiries resulted in 1,318 points of mass external outreach to the public.

Further, EML communicated directly with customers about the status of their outages and estimated restorations, to the extent the Company had accurate data. Estimated restoration times ("ERTs") were shared with customers through the view outage map ("VOM") from June 10 -June 14, 2023. Initial ERTs were listed in the VOM, consistent with standard practice. New storms during the evening of June 11 resulted in new outages, with June 12 initial ERTs as well; these were also listed in the VOM. New storms on June 12 in the Southern and Northern regions of EML resulted in new outages with initial ERTs posted in the VOM for June 13. After another round of thunderstorms impacted the EML service territory on June 13, EML posted initial ERTs in the VOM, with some areas expected to carry over to June 14. Yet another round of thunderstorms impacted the EML service territory on June 14, and EML posted initial ERTs in the VOM for June 14, June 15, and June 16. Initial damage assessment identified significant damage that warranted an ERT to be determined after further assessment. This also resulted in some areas reflecting an undetermined ERT. Therefore, EML set a "blank" ERT, which is what customers saw. To facilitate communication of the widespread impact and ERTs for areas to be determined, EML implemented an alert message in the VOM on the evening of June 15. EML posted alert messages – many times twice a day – from June 15 through June 23, and then again from June 26 through June 30. EML sent direct messaging to customers either by text or phone
call to customers without power, beginning June 16 through June 22, and then again on June 27. EML resumed its outbound communications to customers with ERT updates on June 30.



## **III. Lessons learned**

\*\*MPSC Electronic Copy \*\* 2018-AD-141 File Mississippi Public Service Commission • June 2023 Storms Report

## III. LESSONS LEARNED

Immediately following the June 2023 storms, EML began implementing improvements and a mitigation plan to address the dissatisfaction EML heard from customers during a severe weather event. For example, EML will provide additional resources to customers educating them on the Damage Assessment View of the View Outages Map, so customers will become more familiar with and better understand this enhancement to the map. Additionally, Entergy Services, LLC's ("ESL") information technology ("IT") department is asking the software provider to bring an on-site triage team so that when severe weather strikes, its personnel are onhand and available to troubleshoot in-the-moment. ESL's IT department also implemented a series of software updates to help avoid some of the data errors EML experienced during the June 2023 storms. Should the Company's service area experience a high volume of outages that cannot be processed by ADMS, EML is prepared to deploy its business continuity plan, including more manual modes of managing outages. While manual processes may be more time intensive for some aspects of restoration work, they can lead to more accurate ERTs for customers.

EML's Power Delivery personnel are developing and training on back-up methods to minimize impact to safe and timely power restoration for customers, while also trying to provide customers with the most up-to-date information feasible. EML also understands how important it is that customers know what is happening in their area during a storm, and EML is committed to keeping them updated on its progress throughout each day of a storm restoration by sending text messages, making calls, publishing information on the View Outage Map, Storm Center websites, and sharing information on social and other media channels.

64

EML is also conducting drills and training exercises throughout the year to focus on different types of weather events including, but not limited to, summer storm risk, winter weather, and cyber events. Each of these events includes components of drill, training, process improvement, and lessons learned with follow up actions. EML will interact with different parts of the Company at different points in time throughout the year, instead of just an annual summer storm drill, so EML resources have more frequent touchpoints with the processes. The Company will conduct branch-specific training sessions to train participants on the expectations of the processes associated with the various branches like operations, resources, logistics, and planning. This training sometimes includes joint training between different branches (for example, resources and logistics). Finally, EML is conducting role-specific training so individuals know how to execute their roles within their branch.

EML is currently evaluating what, if any, additional storm hardening, vegetation management or other upgrades to the distribution system could provide greater resiliency from high impact severe storms. EML's review is still ongoing, but EML will include this topic in its upcoming annual Transmission and Distribution Plan Filing.

EML's preparations for storm seasons are performed throughout the year – from yearround grid inspections and vegetation management to training, storm simulations, and industry collaboration. EML's Power Delivery group continues to train its personnel and contract partners with respect to safe and efficient work practices to further develop workers' skills and experience levels.

As EML does with so much of its business, EML will continue to provide additional information to the Commission and Public Utilities Staff and to incorporate appropriate feedback in a timely manner.

65



## We power life.<sup>™</sup>

Select an icon to visit the Entergy website or to join us on social media.





Entergy Corporation ©2023 Entergy Services, LLC. All rights reserved.