BEFORE THE

LOUISIANA PUBLIC SERVICE COMMISSION

***IN RE:* APPLICATION OF ENTERGY LOUISIANA, LLC FOR RECOVERY IN RATES OF COSTS RELATED TO HURRICANE IDA AND FOR RELATED RELIEF**	)))))	**DOCKET NO. U-36350**

DIRECT TESTIMONY

OF

JOHN W. HAWKINS, JR.

ON BEHALF OF

ENTERGY LOUISIANA, LLC

APRIL 2022

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EXHIBIT LIST

I. INTRODUCTION AND BACKGROUND

Q1. PLEASE STATE YOUR NAME, POSITION, AND BUSINESS ADDRESS.

A. My name is John W. Hawkins, Jr. I am employed by Entergy Services, LLC ("ESL")[1] as Vice President, Distribution Operations – Louisiana. My business address is 4809 Jefferson Highway, Jefferson, LA 70121.

Q2. ON WHOSE BEHALF ARE YOU TESTIFYING?

A. I am submitting this Direct Testimony on behalf of Entergy Louisiana, LLC ("ELL" or the "Company").

Q3. PLEASE DESCRIBE BRIEFLY YOUR EDUCATIONAL BACKGROUND AND PROFESSIONAL EXPERIENCE.

A. I earned a Bachelor of Science degree in Electrical Engineering Technology from Purdue University in 2001 and a Master's degree in Business Administration from the Kelley School of Business at Indiana University in 2007. I am a registered Professional Engineer in both Texas and Ohio.

Prior to joining ESL in May of 2020, I held the position of Senior Director of Distribution Operations in the North and West service territories for Florida Power & Light Company ("FPL") from 2018 to 2020, where I was responsible for planning, directing, and coordinating all Distribution construction, maintenance, trouble restoration, major system improvement, service planning, and engineering activities to ensure the safe, efficient

[1] ESL is a service company to the Entergy Operating Companies ("EOCs"), which are Entergy Arkansas, LLC; Entergy Louisiana, LLC; Entergy Mississippi, LLC; Entergy New Orleans, LLC ("ENOL"); and Entergy Texas, Inc.

operation of the company's facilities. From 2017 to 2018, I held the position of General Manager of Reliability for FPL, where I directed, managed, and coordinated multi-million-dollar reliability programs in support of Distribution, Transmission, and Substation Operations. Additionally, I helped to develop and support key initiatives that enabled the successful deployment and implementation of programs that addressed the reliability of the Distribution system and the overall Bulk Electric System.

Prior to the positions mentioned above, I held positions of increasing responsibility in Distribution, as an Area Manager, and in Transmission Field Operations for both FPL and Lone Star Transmission, which is a subsidiary of NextEra Energy. I also held positions in Substation Operations and Maintenance, Engineering, and Protection and Control for Duke Energy in Indiana from 2001 to 2012.

Q4. WHAT ARE YOUR CURRENT JOB RESPONSIBILITIES?

A. I am responsible for overseeing all aspects of safely delivering reliable electric service and excellent customer service within the operating companies covering Louisiana (ELL) and New Orleans (ENOL). Specific activities for which I am responsible within the Distribution organization include financial planning, forecasting, management, and reporting; establishing service to customers; designing, engineering, constructing, operating, and maintaining the distribution facilities and infrastructure of today and the future; and preparing for and executing response to outage and emergency events ranging from localized to catastrophic.

With respect to emergency response and restoration, I am the State Incident Commander for Louisiana under Entergy Corporation's Utility Incident Response Plan.

During an emergency event, I report directly to the Company's President and CEO and to the System Incident Commander. My duties include, but are not limited to, ensuring incident safety; pre-storm preparation activities, including requesting and coordinating resource needs in preparation for a major event; the evacuation of employees and equipment from flood prone areas along the Louisiana coastal territories; the pre-staging of restoration resources; damage assessment following a storm; the coordination of restoration activities; and effective resource deployment to ensure a safe and prompt restoration for all of ELL's customers. I also perform all roles and responsibilities of the System Incident Commander, as discussed below, when Louisiana is the only area involved in a particular incident and there is no System Command activation.

II. PURPOSE AND SUMMARY OF TESTIMONY

A. Purpose of Testimony

Q5. WHAT IS THE PURPOSE OF YOUR TESTIMONY?

A. My testimony supports ELL's reasonable and necessary distribution-related storm costs for Hurricane Ida. My testimony covers five main topics. First, I provide an overview of ELL's distribution system, and I describe the Distribution Operations Organization, which is responsible for planning, constructing, operating, and maintaining ELL's electric distribution system. I also provide details about the Company's restoration plans and the implementation of those plans. Second, I review the impacts of Hurricane Ida on ELL. Third, I describe the Company's interaction with stakeholders before, during, and after the storm made landfall. Fourth, I discuss the significant restoration work done by the Company following Hurricane Ida and describe in detail the challenges associated with this work and the workforce assembled to carry out the extensive restoration efforts. Finally, I provide the associated costs incurred by the Company as a result of the restoration efforts following Hurricane Ida. In particular, I sponsor the Distribution class of storm costs incurred by the Company.

As discussed in my testimony, the storm costs that the Company incurred after Hurricane Ida were necessary to repair in the most reasonable and expeditious manner possible the damage sustained by the Company's infrastructure and to safely restore service to our customers.

B. Summary of Distribution Storm Costs

Q6. WHAT WERE THE DISTRIBUTION STORM COSTS INCURRED BY ELL RELATED TO HURRICANE IDA, INCLUDING THE ESTIMATED COSTS, THAT YOU ARE PRESENTING IN THIS PROCEEDING?

A. The distribution-related storm costs incurred as a result of Hurricane Ida that are presented in my testimony are summarized in Table 1 below.

Table 1

Costs Incurred Through March 31, 2022	Estimated Costs to be Incurred After March 31, 2022	Total Distribution Storm Costs
$2,091,506,659	$124,320,478	$2,215,827,137

These dollar amounts are reflected in Exhibit JWH-1 and in the cost summary presented by Company witness Sarah M. Harcus as Exhibit SMH-1 to her Direct Testimony.

C. Summary of Restoration Resources and Challenges

Q7. PLEASE SUMMARIZE THE MAGNITUDE OF PERSONNEL RESOURCES UTILIZED BY ELL IN RESTORING ITS DISTRIBUTION FACILITIES AFTER HURRICANE IDA.

A. As shown in Table 2 below, ELL utilized over 24,000 personnel to restore the distribution system after Hurricane Ida.

Table 2

Hurricane Ida Personnel Numbers	
Entergy Line Workers	649
Entergy Scouts	133
Off-System and Base-load[2] Line Contractors	9,411
Off-System and Base-load Scouts	707
Mutual-Assistance Personnel	2,213
Vegetation Workers	2,269
Other Support	9,112
Total	24,494

Q8. WHAT WERE THE PRIMARY "COST DRIVERS" THAT AFFECTED THE HURRICANE IDA STORM COSTS INCURRED BY ELL?

A. There were three primary cost drivers that affected the restoration efforts: (1) the intensity of Hurricane Ida and the widespread and significant damage sustained; (2) restoring service in southeast Louisiana during COVID-19; and (3) the urgency of ELL's response. I summarize here the manner in which those cost drivers affected the storm costs that I sponsor.

2 In this context, "Base-load" refers to contractors with existing agreements with the Company or the EOCs that work on the Company's system during both storm and non-storm conditions.

- **<u>The Nature and Magnitude of the Hurricane and the Damage Sustained</u>**: Hurricane Ida, a Category 4 hurricane with sustained winds of 150 miles per hour, tied 2020's Hurricane Laura as the most intense hurricane to make landfall in Louisiana since 1856. Most hurricanes rapidly weaken following landfall, limiting the most extensive damages to at or near the coastline. Hurricane Ida did not follow this pattern. Instead, Hurricane Ida maintained its catastrophic Category 4 strength for six hours after landfall, inflicting extensive damage well inland of the Louisiana gulf coastline. The storm severely damaged ELL's distribution infrastructure, including nearly 30,000 poles, over 5,500 transformers, nearly 35,000 spans of conductor, and over 21,000 cross-arms. The damage from Hurricane Ida further required the Company to rebuild portions of its distribution system altogether in the hardest-hit areas, including Port Fourchon and Grand Isle, which work could not begin until the damaged infrastructure was removed and, in certain areas, flooding or other hazards were abated. The magnitude of the storm required ELL to utilize a large amount of resources – approximately 27,000 workers from 41 states (including scouts, field workers, vegetation workers, and support staff at both the distribution- and transmission-levels) – to restore service in a timely manner.
- **<u>Restoring Service in Southeast Louisiana during COVID-19</u>**: The magnitude of the damage to the distribution system in southeast Louisiana in particular brought unique challenges. Special equipment was required to access damaged lines in wetlands and coastal areas. And acquiring the materials to repair damaged facilities placed an additional burden on an already fragile supply chain, requiring the need for support from manufacturers and mutual aid utilities to meet the demand

for the materials that were needed. In addition, the logistical challenges of mobilizing, housing, boarding, and feeding the largest restoration workforce in Company history were further complicated by COVID-19 and the necessary safety protocols for travel, logistics, and lodging it requires. Such safety measures, including alternative lodging, extended travel, and personal protection equipment, resulted in increased costs to support the restoration effort. Keeping workers hydrated in hot and humid conditions was also a safety top priority.

- **The Urgency of ELL's Response**: The Company understands the importance of quickly and safely restoring service to protect the health and safety of its customers, including essential state and local emergency facilities. It is also critical to restore service to key facilities that have a significant impact on the regional and national economies. ELL was aware before Hurricane Ida made landfall that rapid restoration of service would be required. To prepare, ELL pre-staged as many materials and workers as possible, and restoration began as soon as it was safe to proceed. To restore service as quickly as possible, ELL used every available resource to the maximum extent, which included long hours by every worker and expedited delivery of materials from every source reasonably available. Had ELL not gone to these lengths, restoration of service would have taken significantly longer. Through these efforts, ELL was able to restore service to nearly all customers who were able to accept it by September 27, 2021.

Q9. HOW DID THE NEED TO QUICKLY RESTORE SERVICE AFFECT COSTS?

A. Restoring power in a prompt manner after a major storm requires the Company to incur significant costs over and above the costs of its normal operations. In addition, as I noted above, the restoration of the Company's distribution system following Hurricane Ida required clearing out, removing, and then rebuilding infrastructure that had sustained severe damage, as opposed to merely re-stringing new distribution wire to restore service to customers. The additional or incremental costs to support all such efforts include items such as:

- **Additional Crews** – Given the extensive damage to vegetation and to the Company's distribution facilities, the Company had to significantly supplement its existing workforce to clear debris, assess damage to facilities, and repair those facilities so that service could be restored. To complete a prompt restoration, the Company had to engage mutual-assistance utility partners and third-party line/vegetation contractors that the Company had used in the restoration following past storms. In all, mutual assistance from 40 other utilities and 195 off-system contracting companies were utilized to restore the Company's distribution system.
- **Overtime/Premium Pay** – Instead of working typical 40-hour weekly work shifts, employees and contractors worked up to 112-hour weekly work shifts (16 hours per day, 7 days per week) to restore service as quickly and safely as possible. ELL was therefore required to pay overtime labor rates to these workers. A 112-hour weekly work shift is nearly three weeks of work compressed into a single week. In addition, some of the contractors we engaged require a single premium rate for storm restoration that is applied to all hours. This practice is becoming more

common for storm response crews, and it is generally one and one-half to two times the normal straight-time rate.

- **Lodging** – When personnel and crews are brought into the Company's service area, the cost of this temporary work force includes not only labor costs, but also the expense of housing, feeding, and other related costs to support the crews. Lodging restoration workers after Hurricane Ida was challenging due to the social distance measures required by COVID-19. Hotel lodging was utilized where available, but the Company was also competing for rooms with hurricane evacuees from the surrounding areas, as well as essential workers from local industries, and other first responders.
- **Meals** – In addition to lodging, all of the restoration personnel had to be fed, as local restaurants were not available. ELL provided 1,064,616 meals to workers engaged in the restoration effort.
- **Increased Materials Prices** – Due to the ongoing pandemic, some essential materials were in high demand. As the demand became greater for the materials, ELL had to engage supply vendors that it had not normally used to supplement its established vendors. In those instances where ELL had to acquire materials from any vendor with which it did not have a pre-existing contract, prices for materials were compared to prices of similar materials that ELL typically secures under contract and further weighed against ELL's experience and the exigent circumstances.
- **Fuel** – ELL acquired 3,071,338 gallons of fuel to support restoration efforts.

Q10. WOULD SERVICE RESTORATION HAVE TAKEN SIGNIFICANTLY LONGER HAD THE COMPANY NOT INCURRED THESE INCREMENTAL COSTS?

A. Yes, without question. If ELL had utilized only its existing crews, service restoration for Hurricane Ida would have taken months longer than it did, which simply would not have been acceptable for our customers and the communities we serve. Even if ELL had utilized the outside contractor resources that it did, but without working any overtime hours, the restoration of its distribution system would have taken significantly longer, with corresponding increases in logistics costs. In fact, many of those contractors would not have been willing to provide their crews had ELL not committed to utilize them on an overtime basis since the loaning entity needed them to return to normal duty as soon as possible. Moreover, it is simply more efficient for crews to work long hours due to the nature of the work, and the activities that are required, to repair the type of damage caused by hurricanes like Ida. I discuss the sorts of activities involved in restoring the Company's distribution system in greater detail below.

Q11. WHY DID THE COMPANY DEEM IT IMPERATIVE TO RESTORE SERVICE TO ITS CUSTOMERS AS QUICKLY AS POSSIBLE?

A. Electricity is an essential for everyday life, especially in Louisiana where the summer heat can be oppressive. The availability of electric service following a storm of the magnitude of Hurricane Ida is critical to the initial recovery process for the affected areas, including the regional economic recovery. City and local areas have essential infrastructures that are electric-dependent, such as water, sewage, communications, radio, television, and hospitals. Additionally, ELL has numerous large energy-related customers, such as the

Department of Energy's ("DOE") Strategic Petroleum Reserve, the Louisiana Offshore Oil Port, petrochemical plants, refineries, and transmission pipeline facilities located on its system that are essential to the national economy, and any delays in getting these units back in service could have had potentially serious consequences not only to Louisiana but to the whole nation. For these reasons, the importance of restoring service as quickly as possible was reinforced daily (via e-mail updates and other communications) with Louisiana Public Service Commission ("LPSC" or "Commission") Staff and the Governor's Office of Homeland Security and Emergency Preparedness personnel.

Q12. WOULD YOU TRY TO RESTORE SERVICE JUST AS QUICKLY IF YOU HAD TO DO IT OVER AGAIN?

A. Yes. Restoring service following major storms that cause severe damage, especially during the months when high temperatures are still peaking, is not just a factor of economics or weighing the storm costs against the economic benefits of having electricity. A paramount concern is the health and safety of the community, which requires restoring service to hospitals, water facilities, and other critical facilities, as well as social infrastructure such as grocery stores, gas stations, and pharmacies. Our overriding concern was to get the lights back on as quickly and safely as possible, which was a message reinforced routinely by governmental officials. That is not to say that we proceeded indiscriminately regarding costs, safety, and efficiency. To the contrary, we paid considerable attention to those concerns. We restored power as quickly, safely, and efficiently as we could, and we would do so again if faced with a major hurricane today.

Q13. IN THE LIGHT OF THE CIRCUMSTANCES (AND THE NEED TO RESTORE SERVICE AS QUICKLY AS POSSIBLE), DID THE COMPANY ACT REASONABLY IN ACQUIRING RESOURCES TO RESTORE SERVICE TO ITS CUSTOMERS?

A. Yes. The Company recognized the importance of restoring service as quickly as possible not only for the health, safety, and convenience of our customers, but also for the sake of the regional and national economies. Nonetheless, the Company was cost-conscious throughout the process, utilizing less expensive resources first, when possible, and continually re-assessing the level of human resources employed so that the Company did not have more resources at its disposal than it actually needed and could productively utilize. I discuss the steps the Company took to this end in greater detail below.

III. ELL'S DISTRIBUTION SYSTEM & OPERATIONS

A. Overview, Status, and Evolution of ELL's Distribution System

Q14. PLEASE DESCRIBE ELL'S DISTRIBUTION SYSTEM AND THE GENERAL FUNCTION IT SERVES.

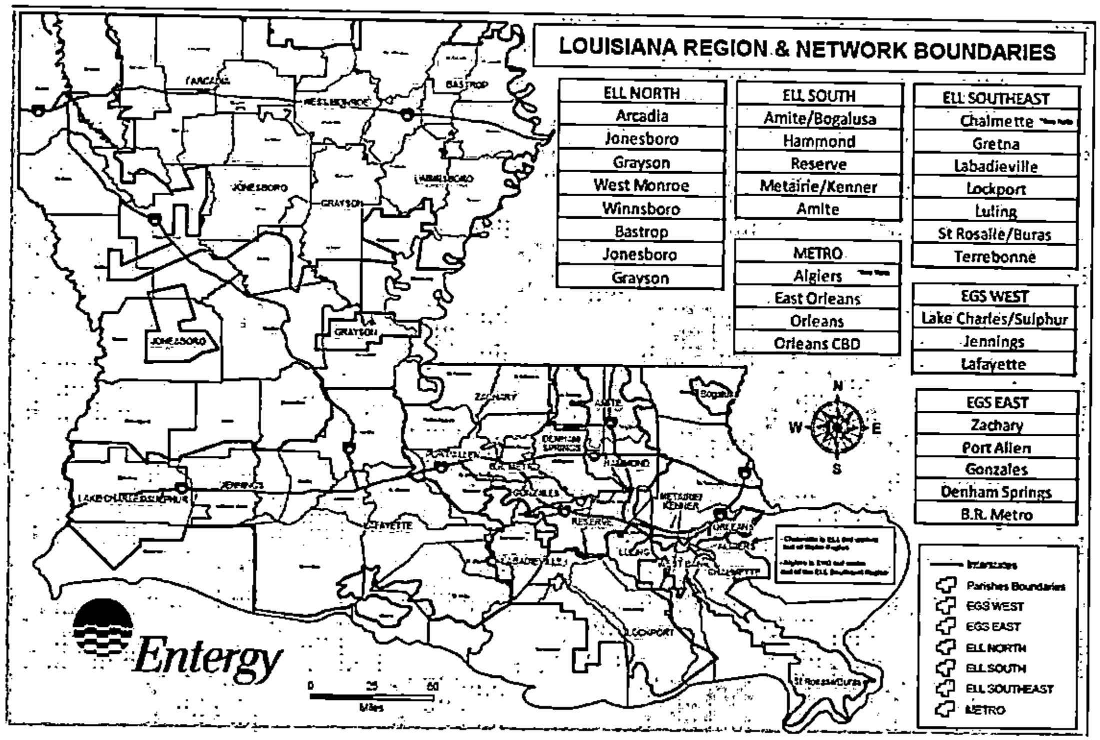
A. The distribution system is the infrastructure that ultimately delivers electric power to most of ELL's customers. ELL's distribution system begins at the substations, where power is transformed from transmission-level voltage into distribution-level voltage, suitable for delivering power directly to residential, and certain commercial, governmental, and industrial customers.[3] ELL's electric distribution system is the portion of the electric grid operating at voltage levels below 69,000 volts (69 kV). The predominant operating

[3] Some of ELL's largest commercial, governmental, and industrial customers are connected directly to the Company's transmission system.

voltages of the Company's distribution circuits are 13.2 kV, 13.8 kV, and 34.5 kV (nominal, phase-to-phase). ELL's distribution system serves over 1.1 million customers. There are nearly 500 ELL substations that supply power to approximately 1,200 distribution circuits, consisting of approximately 32,000 distribution circuit miles, of which approximately 28,000 are overhead circuit miles, and approximately 4,000 are underground circuit miles.

ELL's Distribution Operations Organization, which I describe further below, operates local Service Centers throughout the areas served by ELL. These local service centers and the distribution facilities they support are divided between five larger geographic operating regions consisting of 28 networks, and their respective geographical boundaries are depicted in the map in Figure 1.

Figure 1
Map of ELL's Geographical Regions



Q15. WHAT IS THE STATUS OF ELL'S INVESTMENT IN ITS DISTRIBUTION SYSTEM?

A. ELL has ramped up the pace and level of its distribution investment in recent years and plans to continue making significant investments to modernize and improve the reliability and resiliency of the distribution grid. On average, the Company invested approximately $267 million annually in capital spending for its distribution system for the five-year period of 2017 through 2021, with distribution line plant closing increasing from $177 million in 2017 to $377 million in 2021.[4]

[4] Distribution capital additions for 2017-2021 exclude amounts related to storm damage and Advanced Metering System ("AMS") investments.

Like many of its utility peers, ELL has an aging distribution system that is now in a period of significant modernization as it evolves to address changes in customer expectations and grid technologies, opportunities to maximize the benefits of the Company's investment in AMS,[5] and the increasing frequency and severity of named storms and other extreme weather events, as evident in the past two Atlantic hurricane seasons and in the recent tornadoes that have impacted southeast Louisiana as described by Company witness Phillip R. May.

As I discuss further below, ELL's distribution plan combines system hardening and grid modernization efforts with traditional reliability and infrastructure programs with an objective to improve the overall service quality provided to customers. This plan involves a coordinated effort to undertake replacement and hardening of aging distribution infrastructure and deployment of devices that enable functionalities associated with the concept of grid modernization.

Q16. CONCERNING SERVICE QUALITY, HAS ELL TRADITIONALLY PROVIDED RELIABLE SERVICE TO ITS CUSTOMERS?

A. Absolutely. ELL has a long track record of providing reliable service to its customers. In its General Order of April 30, 1998, issued in Docket No. U-22389, the Commission set minimum distribution reliability performance standards that were phased-in over a period

[5] The Commission approved ELL's AMS in LPSC Order No. U-34320, *In Re: Application of Entergy Louisiana, LLC for Approval to Implement a Permanent Advanced Metering System and Request for Cost Recovery and Related Relief*, dated August 25, 2017.

of seven years to reach the current metrics: an annual SAIFI[6] score of 2.28 and an annual SAIDI[7] score of 2.87 hours, or 172.2 minutes. In the two decades since that order was issued, ELL has consistently exceeded the LPSC's minimum performance levels. ELL's SAIFI score was significantly lower (and therefore better) than the LPSC's minimum performance level in each year. Although there were exceptions in 2018 and 2019, years when ELL's SAIDI score was not also within the Commission's performance target have been very rare.[8] Furthermore, the 2018 and 2019 SAIDI scores reflected the implementation of updated safety practices for lineman and distribution workers, and there were fewer events in those years that met the Major Event exclusion of the Commission's General Order.[9] That certainly reflects that 2018 and 2019 did not have the sort of Atlantic hurricane season that we experienced in 2020 and again in 2021, but ongoing efforts to modernize the grid also minimize the impact of outages by decreasing the number of

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[6] SAIFI, which stands for System Average Interruption Frequency Index, is used to measure the number of outages or interruptions per customer per year. Most electric utilities use this measurement as a tool to assess the reliability of their electrical system, excluding major outage events that cause interruptions to a significant portion of their customer base. SAIFI is calculated by adding up the number of customers experiencing a sustained outage longer than 5 minutes during the reporting period and then dividing it by the average annual number of electric customers.

[7] SAIDI, which stands for System Average Interruption Duration Index, measures the number of outage minutes per customer per year. Most utilities also use this measurement when reviewing the reliability of their electrical system, excluding outage events that cause interruptions to a significant portion of their customer base due to extreme weather or unusual events. SAIDI is calculated by adding up the outage minutes of all the customers that have been without power during a sustained outage longer than 5 minutes and then dividing by the average annual number of electric customers.

[8] The highest contributing outage categories to both frequency and duration of customer interruptions in 2018 and 2019 were consistent with historical interruption patterns, including primary conductor equipment failure, the presence of vegetation from outside of ELL's rights-of-way ("OROW") falling onto the Company's distribution lines, lightning, and vehicle incidents. The Company's SAIDI scores for 2020 and 2021 were within the Commission's performance target.

[9] *See* LPSC General Order (4/30/98) at §2 ("**Major Event:** A catastrophic event that exceeds the design limits of the electric power system, such as an extreme storm. These events shall include situations where there is a loss of service to 10% or more of the customers in a region, and where full restoration of all affected customers requires more than 24 hours from the beginning of the event.").

affected customers. So, although ELL continues to provide reliable service as measured by the Commission's established requirements, SAIFI and SAIDI scores should not be viewed in isolation from the challenges that ELL faces in providing reliable service or the industry transformation that is underway to modernize the distribution grid.

Q17. WHAT DO YOU MEAN BY THE TERM GRID MODERNIZATION?

A. Grid modernization refers to upgrading and redesigning distribution infrastructure while also adding new technologies and intelligent devices (*i.e.*, devices equipped with communicative capabilities) that can facilitate safe multi-directional energy flows, automate operations, enable remote control operation, increase operational efficiency, reduce outage frequency and duration, improve quality of service, increase reliability and resiliency, expand options for and enhance communications with customers, and improve storm and outage response restoration times. Grid modernization is a fundamental change to the way electric utilities evaluate, invest in, operate, and maintain the distribution system, while monitoring and responding to the rapid pace of technological innovations and evolution of customer needs and expectations. This change involves adapting a more customer-centric strategy for designing and maintaining the distribution grid – one which seeks to minimize interruptions experienced by customers regardless of fluctuating conditions on the distribution system.

The technology and infrastructure components that comprise a modernized grid can be thought of in three broad categories: Smart Grid Infrastructure, Smart Grid Technology, and Advanced Distribution Planning.

The first category, Smart Grid Infrastructure, includes assets capable of supporting increased bi-directional power flow and which facilitate optimization of distributed energy resources ("DERs") like solar power photovoltaic and battery storage systems. Examples of Smart Grid Infrastructure assets include conductors with increased load carrying capacity, electronic reclosers to sense and isolate issues, and smart tie switches allowing alternate energy paths.

The second category, Smart Grid Technology, represents the specialized sensors, collectors, and associated software systems that collect, analyze, and deliver information for real-time decision-making and automation. Examples of technologies in this category include: (i) Smart Grid Sensors: small communication nodes that serve as detection stations in a sensor network, which enable the remote monitoring of equipment such as transformers and power lines; (ii) Distribution Automation ("DA") Enabled Devices: distribution grid devices, such as reclosers, regulators, and capacitors, that are equipped with smart controls that enable the devices to communicate with utility software solutions and perform real-time sensing and reconfiguration of the distribution system; and (iii) Data Analytics Software: computer programs that use data from smart devices to identify portions of the distribution system reporting abnormal conditions and enable proactive engineering analyses to prevent outages in these areas by replacing equipment before it fails.

The third category, Advanced Distribution Planning, represents a transition from peak-based analysis of the system in order to leverage additional data captured from AMS and DA to perform more robust analysis during multiple time periods and under differing load conditions to ensure infrastructure upgrade projects meet future load scenarios.

Q18. PLEASE ELABORATE ON HOW THIS MORE CUSTOMER-CENTRIC STRATEGY MARKS A FUNDAMENTAL CHANGE FROM THE INDUSTRY'S TRADITIONAL APPROACH TO DISTRIBUTION ASSET MANAGEMENT.

A. Although there have certainly been exceptions over time, the electric utility industry traditionally has not replaced or reconfigured distribution assets until they fail. This approach has been considered cost-effective for customers and reflects the balance that utilities must strike between reliability and cost. As I indicated above, however, the industry is evolving and modifying that approach by deploying new technology and preventive elements. This new approach is being enabled by new technology and developed in response to increasing customer expectations for reliability enhancements aimed at preventing outages altogether (as opposed to reactive measures designed to minimize customers impacted by, and shorten the recovery time associated with, an outage). This approach requires a more modern, responsive, and resilient grid.

Q19. CAN YOU PROVIDE ANY EXAMPLES OF THE TYPES OF PROJECTS THAT ELL IS UNDERTAKING TO IMPROVE ITS DISTRIBUTION SYSTEM?

A. Yes. ELL is constructing new substations and distribution circuits in Calcasieu, Ouachita, and Lafourche Parishes to increase the resiliency of its system. In Calcasieu Parish, the Company is constructing the new Goos Ferry substation and installing more than 3 miles of new distribution circuits that will provide electricity from the substation to area homes and businesses in the Gillis, Moss Bluff, and north and east Lake Charles areas.

In Ouachita Parish, the Company is constructing the new Cotton substation and installing nearly 10 miles of new distribution circuits to serve customers south of West

Monroe. In addition to the Cotton substation's two transformers, several reclosers are being installed to incorporate automation and create Self-Healing Networks, the details and benefits of which I describe in my testimony below.

I also discuss the work being done in Lafourche Parish in more detail below, including how that project will aid in the area's recovery following Hurricane Ida. These projects will not only improve service reliability, but also will support economic growth in Calcasieu, Ouachita, and Lafourche Parishes.

B. Distribution Organization

Q20. PLEASE DESCRIBE ELL'S DISTRIBUTION OPERATIONS ORGANIZATION.

A. ELL's Distribution Operations organization is responsible for operating, planning, designing, constructing, and maintaining the electric distribution system that provides power and energy to homes, offices, businesses, and governmental entities in ELL's service area. The Distribution Operations organization consists of two ongoing core business functions: (i) engineering and (ii) operations, maintenance, and construction. The Distribution Operations organization utilizes the work of over 900 employees, including engineers; engineering associates; construction and maintenance mechanics; operators; region, line, and construction supervisors; drafters; storekeepers; administrative assistants; and various others, as well as nearly 400 contract resources. These employees and contractors provide support for ELL in the areas of engineering, design, operations, accounting, customer service, and other miscellaneous areas and perform these activities for the five ELL regions identified above. Coordination between these employees, at both a centralized and localized level, allows for synergies between the various teams in the performance of their duties.

Exhibit JWH-2 shows the Distribution Operations Organization's organizational chart. As the Vice President, Distribution, I report to the Vice President of Distribution Operations for ESL, and I work closely with and functionally report to the President and CEO of ELL.

Q21. WHAT ACTIVITIES ARE INCLUDED WITHIN THE FIRST OF THESE CORE BUSINESS AREAS, THE ENGINEERING AREA?

A. The engineering group designs projects to serve new customers, replace aging infrastructure, improve reliability, and serve area load growth. This group also supports state and local infrastructure relocations. The work groups use ELL's design and construction standards, which comply with all National Electric Safety Code ("NESC") standards and are in accordance with other recognized industry standards.

Q22. PLEASE DESCRIBE THE ACTIVITIES WITHIN THE SECOND OF THESE AREAS, OPERATIONS, MAINTENANCE, AND CONSTRUCTION.

A. The electric distribution system consists of an electric grid that supplies electric energy and power to ELL's customers. The operations group monitors the distribution system loads and voltage levels to ensure there is adequate capacity to meet customer needs. In addition, the operations area handles routine and emergency routing to maintain a continuous supply of electricity to customers and to address customer interruptions as safely and quickly as reasonably possible when they do occur.

The electric distribution system requires regular inspection and maintenance to preserve its integrity and its ability to provide reliable service to customers. These maintenance activities are both preventative and reactive, as discussed later in my testimony. Preventative maintenance includes equipment inspections and introducing new maintenance practices to enhance the overall operation and reliability of the distribution system, whereas reactive repairs and upkeep are required when service is interrupted due to strong winds, lightning, or other types of damage. Maintenance activities also include routine vegetation management along right-of-ways ("ROWs").

Finally, to accommodate customer growth, ELL must continually add or upgrade its distribution facilities. These additions, both major and minor, require constructing distribution line extensions or increasing the capacity of existing facilities. Construction also includes clearing new ROWs of vegetation. The construction of new or enhanced distribution lines is part of ELL's goal to provide safe and reliable service at the lowest reasonable cost, and on a non-discriminatory basis, to all current and prospective customers.

Q23. PLEASE ELABORATE ON THE COMPANY'S EFFORTS TO MAINTAIN AND IMPROVE ITS DISTRIBUTION SYSTEM.

A. ELL currently implements several programs to improve reliability and maintain infrastructure. As I noted above, many of these efforts are reactive, meaning that the actions taken are in response to devices that have failed and/or outages that have occurred, while others are preventative, meaning that the actions taken are an attempt to prevent devices from failing and/or outages from occurring. Together, these programs helped to mitigate the effects of Hurricane Ida on the Company's infrastructure, and I describe them briefly below. In fact, grid investments implemented by the EOCs avoided an estimated 24,321 customer interruptions during Hurricane Ida as a result of new reclosers and Self-Healing Networks.

- **FOCUS Program**[10] – Targeted inspection based on repeated, prioritized outages. The program identifies devices (*e.g.*, breakers, reclosers, line fuses, and sectionalizers) where reliability has been adversely affected. A list of FOCUS devices is then created, prioritized by customer interruptions, and areas behind the devices are then selected to have work performed during the calendar year. The intent of the FOCUS Program is to improve the reliability performance of the selected FOCUS-identified devices; it is not a full feeder inspection. Remediation plans include: replacing damaged equipment; installing animal guards and/or protective covers to mitigate outages caused by animals; shielding, installing, or relocating lightning arrestors; and addressing target vegetation issues. The FOCUS Program also addresses ELL's worst-performing distribution circuits and devices, as identified annually in accordance with Commission orders in Docket Nos. U-22389 and U-33244.
- **Strategic Reliability Plan** – Multi-part program using device reliability performance to prioritize general reliability improvement projects that focus on decreasing customer interruptions and outage durations. Programs that are part of the Strategic Reliability Plan (implemented in 2021) include:

[10] "FOCUS" stands for "Find the device, Observe the condition, Collect the damages, Understand the value, Succeed with the results."

- Repeat Devices – Projects driven by repeated historical outages that may not qualify for other reliability programs. Designed to be a quick-reacting trigger for reliability improvement work for customers that see above-average outages counts.
- Outage Follow Up – Reliability projects driven by large Customer Interruption ("CI")[11]/Customer Minutes ("CM")[12] outages (>500 CI and >50,000 CM).
- Network Identified – General reliability work that is not triggered by device performance but is based on addressing point-specific reliability concerns before they turn into customer interruptions.
- 5% Worst Performing – Reliability projects driven by an annual lookback at ELL's 5% poorest-performing feeders. The poorest-performing devices on those feeders are slated for work unless previously identified as part of another program.

- **Distribution Automation Program** – Includes identification and implementation of Self-Healing Networks (also known as automatic load transfer systems). Self-Healing Networks include a compilation of devices such as reclosers, switchgear, switches, and a network of communication devices used to automatically reconfigure the source of power after isolating an outage so that all other unaffected

[11] Customer Interruption is defined as the number of customers experiencing the outage.

[12] Customer Minutes is defined as the duration of the outage in minutes multiplied by the number of customers experiencing the outage.

customers in the surrounding area are restored to improve customers' quality of service.

- **<u>Sectionalization Program</u>** – Involves the placement of sectionalizing devices (pole top switches, reclosers, etc.) to improve restoration times for customers. This program is designed to fast track installation of a DA communications system to reap the benefits of increased sectionalization in advance of full grid modernization in an area.
- **<u>Feeder Level Investment Plan</u>** – Identifies and addresses all reliability concerns at the feeder breaker level based on historical performance and other factors.[13]
- **<u>Pole Program</u>** – Consists of a visual inspection of the pole and, where appropriate, excavation or reinforcement. ELL maintains a cyclical pole inspection program that uses an outside vendor to inspect a portion of ELL's poles each year. The recommended program actions depend on the findings of the inspection and the age of the pole. Poles judged to be sound receive no further action. Those 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.
- **<u>Equipment Maintenance Program</u>** – Includes annual inspections on reclosers, switch cabinets, capacitor banks, and voltage regulators to ensure operational

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[13] The Feeder Level Investment Plan replaced the Company's Backbone Program in 2021. The Backbone Program was a proactive infrastructure program designed to inspect and address the portion of selected circuits from the substation breaker up to and including the first protective device that has the responsibility of isolating the remainder of the circuit.

performance. Inspections can result in either replacement or repair of the equipment.

- **<u>Underground Residential Distribution ("URD")/Cable Program</u>** – Involves the splicing or replacement of failed primary URD cable. Replacement of failed URD cable is performed in lieu of splicing when possible to prevent future outages.
- **<u>Vegetation Management Program</u>** – Consists primarily of a cycle-based proactive element, but it also includes a reactive, customer-driven component and a selective herbicide program. The proactive trim cycles are examined annually and are determined by several factors, including growth rates, type and density of side and floor vegetation, vegetation-related outage information, and time since last maintenance. Identified circuits or areas are maintained using a combination of both conventional side trimming and herbicides depending on the specific application. The reactive component of the program consists of investigating potential problem areas that are identified by Company personnel and/or stakeholders and determining a remedial course of action when the potential problem involves the Company's facilities. For example, ELL seeks to address through this reactive component reports of damaged, dying, diseased, decayed, leaning, or otherwise compromised trees located outside its ROWs[14] that might endanger the Company's conductors and structures, particularly during storm events. Because those efforts seek to remove trees from private property, they require negotiations with OROW property owners. The remedial work itself

[14] Vegetation located outside of ELL's ROWs is referred to herein as "OROW" vegetation.

involved with removing such danger trees can be considered preventative because it may avoid future damage to the distribution system (and the associated cost of repair).

Q24. PLEASE ELABORATE ON THE STANDARDS AND PRACTICES THAT APPLY TO ELL'S VEGETATION MANAGEMENT PROGRAM.

A. There are several standards and practices that ELL observes and follows in its vegetation management program.[15] The Company and its vegetation contractors follow applicable guidelines established by the Occupational Safety and Health Administration and industry-accepted standards, including (1) American National Standards Institute ("ANSI") A300 – Tree, Shrub, and Other Woody Plant Maintenance – Standard Practices (Pruning); and (2) ANSI Z133 – Pruning, Repairing, Maintaining, Removing Trees, and Cutting Brush – Safety Requirements. All utilities in Louisiana must also perform their vegetation work in accordance with the Louisiana Department of Agriculture and Forestry's Horticulture Commission Law (La. Rev. Stat. §§ 3:3801-3816) and the Horticulture Commission's Rules and Regulations. In addition, all work plans must comply with the Entergy Safe Work Rules Manual.

The target distribution pruning cycle is determined for each individual circuit based on its own unique characteristics (*i.e.*, last cycle pruning, actual clearances achieved from conductor, tree growth rates, percentage of fast-growing tree species, side/floor vegetation, etc.) and historical reliability information. Target pruning cycles can range from two (2)

[15] The Company filed its current vegetation management plan ("Entergy's Line Clearing Program Overview for 2021") with the Commission on September 30, 2021, pursuant to the Commission's General Order.

to eight (8) years. Urban circuits, where trimming rights are often more restrictive, are on a more frequent schedule due to the more limited clearance that the Company is able to achieve. Unless a previous trim point allowed for greater clearance (which ELL would maintain), the Company generally trims to provide minimum below and side clearance of six (6) to fifteen (15) feet between a tree and a primary conductor and twenty (20) feet between an overhanging limb and a primary conductor. The minimum general clearance depends on the rate of tree growth (slow or fast) and location (*i.e.*, smaller ROW widths in predominantly urban areas and larger ROW widths in rural areas).

From time to time, as required, the Company will initiate a focused effort to address areas where the cycle-maintenance vegetation program may not adequately address reliability needs. For example, in early 2021, the Company inspected and identified work on several circuits that had a high number of vegetation-related outages in 2020 (including circuits located in areas that ultimately would be impacted by Hurricane Ida later that year). Vegetation-related work (beyond routine tree trimming) was identified and completed prior to the 2021 hurricane season on these circuits in order to improve overall reliability. As a result of this work, we saw a 75% reduction in customer interruptions and a 43% reduction in outages on those circuits from 2020 to 2021. We also performed additional danger tree removals and skyline trimming on certain targeted devices beginning in May of 2021 and continued that work until Hurricane Ida made impact.

Q25. WAS THE DAMAGE TO THE COMPANY'S DISTRIBUTION SYSTEM FROM HURRICANE IDA DUE TO INADEQUATE VEGETATION MANAGEMENT?

A. No. Our damage assessment observations after Hurricane Ida did not indicate that we had inadequate vegetation management in our distribution line ROWs. Hurricane Ida is tied with 2020's Hurricane Laura as the most powerful hurricane to strike southeast Louisiana since 1856, and its force did catastrophic damage to parts of the distribution system. The storm also brought significant vegetation-related damage to our facilities from downed trees that came from outside of the Company's ROWs. Indeed, under major storm force winds, uprooted trees and the loss of large structural limbs cause the most substantial vegetation-related damage to the overhead distribution system. Again, the Company works to mitigate OROW danger trees with customer permission; however, obtaining customer consent is often difficult.

In its May 2020 filing in Commission Docket No. U-35565, noting that the increased investment that ELL was making in its distribution system would provide additional opportunities to identify and address danger trees as more work is done to modernize the grid, the Company set forth a proposal to coordinate with grid upgrades over the next few years the removal of OROW vegetation hazards. And in its report filed on December 3, 2021, in Docket No. U-35565, ELL advised the Commission that for the 6-month period ending November 30, 2021, the Company removed a total of 2,933 trees outside of its ROWs with the consent of property owners or pursuant to a contractual right to do so. In the light of its experience during the 2020 and 2021 Atlantic hurricane seasons, ELL expects that coordinating removal of OROW danger trees with future infrastructure upgrades can help prepare the distribution system for future storms and improve system resiliency.

Q26. HOW ARE THE GRID MODERNIZATION EFFORTS THAT YOU DISCUSSED ABOVE AND ONGOING MAINTENANCE AND RELIABILITY WORK COORDINATED AND EXECUTED?

A. A dedicated Utility Grid Modernization and Capital Projects group supports ELL's and the other EOCs' distribution grid modernization efforts and other long-term distribution grid infrastructure projects. The focus of this organization is to create a strong energy grid that provides customers safe, reliable, and affordable products and services. This group not only oversees grid modernization projects, but also coordinates with ELL's Distribution Operations Organization, which remains responsible for the ongoing, routine maintenance and reliability efforts. This structure provides resources dedicated to both maintaining the distribution grid and responding to outages, as they do today, with a set of dedicated resources focused on the strategic long-term planning and modernization of the distribution grid, enabling the Company to better meet customers' expectations for safe, reliable service. The collaboration between these groups also helps to ensure that these efforts are being conducted in a coordinated, conjunctive, and strategic manner that enables efficiencies in the deployment of investments in the distribution grid and minimizes the number of service interruptions needed to perform work.

C. Storm Hardening of the Distribution System

Q27. CONSIDERING LOUISIANA'S SUSCEPTIBILITY TO HURRICANES, HAS THE COMPANY TAKEN STEPS TO REDUCE THE VULNERABILITY OF ITS DISTRIBUTION INFRASTRUCTURE TO STORMS?

A. Yes. In addition to the Company's traditional reliability and infrastructure improvement programs that I discussed previously, storm hardening strategies and investments implemented after Hurricanes Katrina, Rita, Gustav, Ike, and Isaac proved successful during Hurricanes Laura, Delta, and Zeta in 2020 and once again during Hurricane Ida in 2021. In particular, based on ELL's experience with those storms, ELL made changes to its construction methods in the coastal areas including:

- Targeting coastal lines with severe or repeat damage for scheduled rebuilds to hardened design levels (double guys and larger class poles).
- Using only Class 3 (or larger) poles for three-phase distribution feeder construction for selected circuits (*e.g.*, feeders immediately adjacent to the coast).

Also, ELL's experience with those hurricanes reinforced its historical decision to follow two practices:

- ELL has always designed its distribution lines to meet or exceed the requirements of the NESC. Structures for distribution applications utilize pressure-treated wood poles or tubular steel poles. All structures are designed at installation to meet or exceed the wind requirements of the NESC.
- For years, ELL has installed storm guying on distribution feeders located in open marshy terrain immediately adjacent to the coast except where not practical due to ROW considerations or where not required due to soil conditions. Storm guying

refers to the practice of installing down guys and anchors on each side of a pole, perpendicular to the direction of the conductors. The purpose of storm guying is to help strengthen the line of poles against winds blowing laterally against the conductors. Distribution lines located in open marshy coastal terrain are especially prone to being blown over during tropical storms and hurricanes due to (1) proximity to the coast and the associated higher winds during storms, (2) the general lack of tree protection from the winds, and (3) the softness of the ground itself.

Beyond the coast, ELL is going beyond NESC requirements by hardening structures to withstand strong winds that accompany hurricanes long after landfall. Additional actions, designs, or practices have included the following:

- Replacing support circuits crossing interstate highways with steel or concrete structures instead of wood as well as burying certain interstate crossings;
- Using steel distribution poles for new interstate crossings along major hurricane evacuation routes;[16]
- In substations in coastal areas, raising water-sensitive equipment several feet above the flood levels that have been experienced in recent years due to storm surge or erosion;
- Designing new substations so that water-sensitive equipment will be above those same flood levels; and

[16] The purpose of using steel poles for this application is to eliminate the possibility of weakened poles due to future rot at the ground line for these new crossing poles.

- Hardening existing service centers and building new ones to withstand winds up to 145 mph.

In addition, new facilities, rebuilt facilities, and facilities restored after any storm are all constructed and/or upgraded to meet enhanced design standards expected to result in resilient facilities in flood and storm risk areas.

Finally, in October 2018, the Entergy Standards Department released a new pole philosophy:

- Only Class 1 poles are to be used for feeder poles in the zone along the coast. For this application, a feeder pole is any pole in that part of the circuit protected by a substation breaker or any pole with three phases of primary that has the ability to tie with any other three-phase line from another circuit, when needed.
- Nothing smaller than Class 3 poles should be used for all primary applications.

Q28. HAS THE COMPANY CONSIDERED THE BURIAL OF ITS OVERHEAD DISTRIBUTION LINES AS A MEANS TO FURTHER DECREASE THE VULNERABILITY OF ITS DISTRIBUTION SYSTEM TO HURRICANES AND OTHER SEVERE WEATHER EVENTS?

A. Yes. After Hurricane Gustav in 2008, the Commission opened a rulemaking docket (R-30821) to explore the potential costs and benefits of investments to decrease the vulnerability of electric utility infrastructure to severe weather events. In response to certain questions posed by the Commission regarding the potential hardening of distribution facilities through undergrounding, the Company noted that there would be considerable expense to placing overhead electric distribution facilities underground.

Recovery of this expense would have a significant effect on customer bills. Moreover, burying lines does not fully mitigate the exposure of electric systems to storms and may adversely affect reliability by increasing the duration of outages. In particular, storm damage to source transmission lines and substation facilities will cause outages to the distribution lines fed from these systems even though the distribution facilities may be completely intact. Also, underground distribution facilities still can be damaged by flooding, storm surge, and heavy equipment used to remove storm debris, in addition to damage from trees uprooted during storm events.

Among the many conclusions reached by the LPSC Staff in their report was the following:

> Different weather events create advantage for underground distribution systems versus overhead and vice versa. Clearly, it would not be prudent to install underground distribution systems in areas that are prone to flooding since underground distribution systems are susceptible to damage by flooding. The fact that different terrains and areas present advantages for underground versus overhead distribution systems supports providing utilities with the flexibility to plan their systems in a manner that best meets the needs and environmental factors present. In addition, it supports the idea that a state-wide mandate for underground retrofit should not be enacted by the Commission. Moreover, for the same reasons, a mandate for utilities to implement underground distribution systems on a prospective basis for new construction should not be required either.[17]

Because of the extremely high cost of converting overhead distribution line facilities to underground facilities, the Company would not recommend such a wholesale conversion. We must balance the benefits of investment in hardening with the need to ensure that electricity remains affordable for our customers. However, installing appropriate

[17] LPSC Docket No. R-30821, Report by Staff dated January 28, 2009.

underground facilities is and will remain a consideration for strategic hardening initiatives, as with the interstate crossings I mentioned previously; a recently-completed reliability project involving the burial of two primary feeders across Bayou Lafourche in Lockport, Louisiana; and as is being done in Grand Isle in connection with rebuilding and strengthening the distribution system in that community following Hurricane Ida. I discuss the specific efforts to increase the resiliency of the electric grid serving Lockport and Grand Isle below.

Q29. HAS THE COMPANY EVALUATED OTHER POTENTIAL ACTIVITIES OR PROJECTS THAT MAY FURTHER REDUCE THE VULNERABILITY OF THE COMPANY'S INFRASTRUCTURE TO THE DAMAGING EFFECTS OF STORMS?

A. Yes. Evaluating the costs and benefits of potential hardening activities is a continual process for the Company and the Commission recently opened a docket to look at statewide hardening and resilience. Within the past decade, ELL also has targeted approximately 25 critical substations in Louisiana for additional storm hardening. The Company has built structures to elevate critical equipment at existing substations with a potential for flooding, constructed levees around substation equipment to protect infrastructure from flooding, and designed many new substations to sit above the 100-year flood plain, raised the site, or, when possible, located the site out of the flood plain. In one unique case, ELL designed and built a portable control house. This mobile unit can be removed and transported to higher ground if a storm surge is expected.

By way of further example, after Hurricane Katrina, the Company's service center in Chalmette was elevated to provide protection from storm surge inundation during severe weather events. Those storm hardening efforts protected that service center during the 2021 storm season, facilitating the overall restoration efforts. The Chalmette service center sustained no major damage during Hurricane Ida, and the Company was able to utilize the building as a home base for planning and execution of our storm restoration. In addition, we also had two Customer Service Managers in place and customers were able to visit the service center in person after the storm to inquire about their accounts and expected restoration times.

D. Storm Restoration Plan

1. The Company's Incident Response Plan

Q30. PLEASE DESCRIBE THE COMPANY'S GENERAL PLANNING TO ADDRESS MAJOR STORMS.

A. Entergy Corporation currently maintains a single, integrated response plan, the Utility Incident Response Plan ("IRP"), which applies to all EOCs and business functions. The IRP 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, and/or security related events that affect normal operations.[18] The IRP is organized into five (5) phases of incident management – the Ready phase (preparation), the React phase (initial response to an incident), the Respond phase

[18] The IRP defines an "incident" as unique set of circumstances or a single occurrence that diverts attention and requires a response above "business as usual."

(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 to specific incidents have also been developed, including a Storm Incident Specific Response Plan ("Storm IRP"). The Storm IRP focuses primarily on the restoration of transmission and distribution infrastructure and service, and it also addresses coordination with the gas, power generation, nuclear, and other critical operations.[19]

Q31. PLEASE DESCRIBE THE ORGANIZATIONAL STRUCTURE EMBEDDED IN THE INCIDENT RESPONSE PLAN.

A. 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.[20] 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.

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[19] In addition, as discussed by Company witness Michelle P. Bourg, there is a separate Transmission Incident Response Plan that is utilized by the Transmission Business Function as necessary in response to an incident.

[20] A component of the ICS, called the Unified Command ("UC"), is a structure that brings together the Incident Commanders of all major groups involved in an incident to coordinate an effective response while still meeting their own responsibilities. The UC is responsible for overall management of the incident. The UC structure is a vehicle for coordination, cooperation, and communication which are essential for a safe and effective incident response. When multiple states/business functions and system ICS organizations are activated, the UC is utilized, and the overall Incident Commander is at the system level.

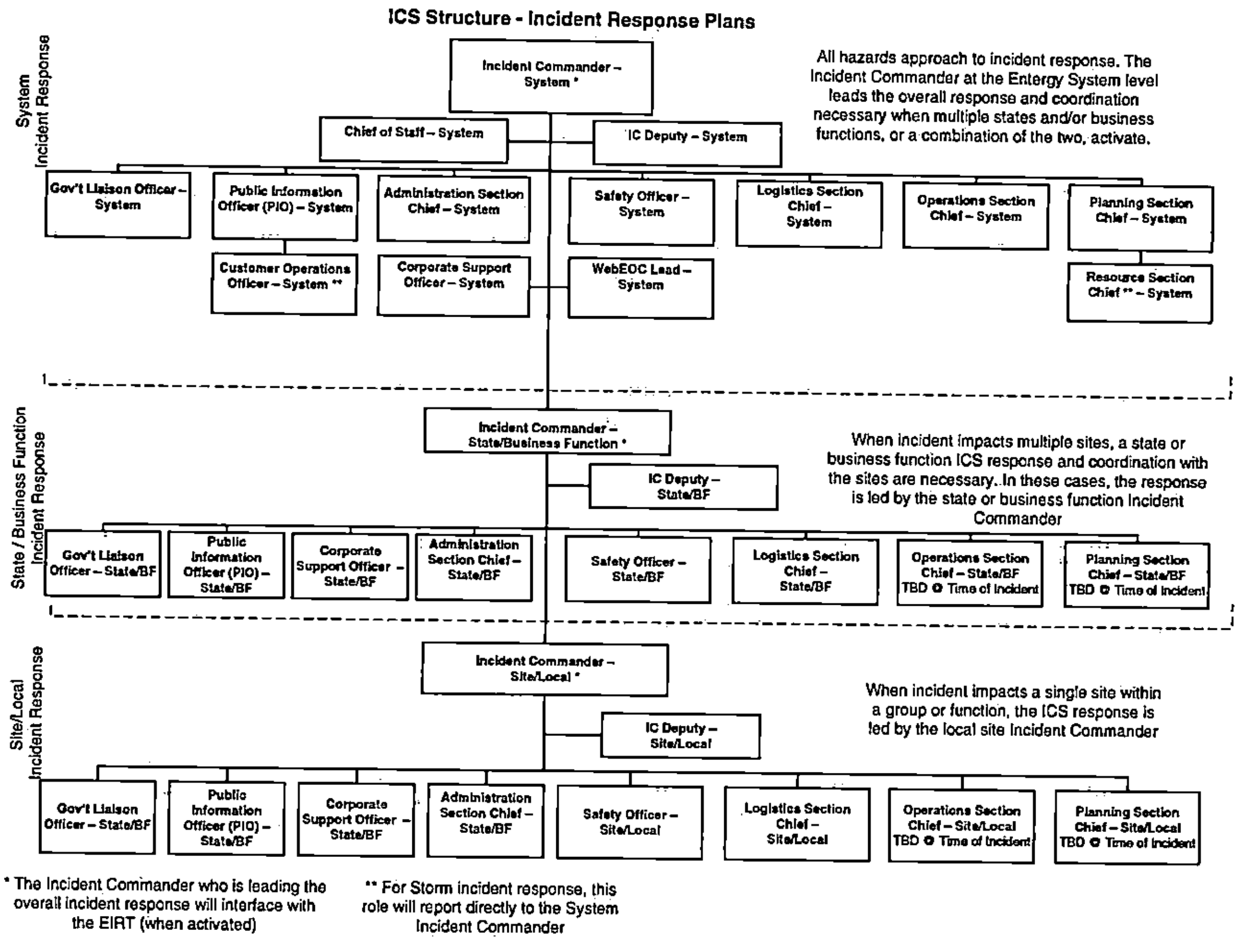
Major incident response often requires management at both the System and State levels. Soon after an Incident Commander implements their IRP, they will notify the next highest Incident Commander, potentially up to the System Incident Commander as circumstances require.[21] However, State/Business Function 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.

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.

Figure 2 below is a high-level organizational chart that shows the ICS structure under the current IRP.

[21] Incidents that have the potential to cause the most significant impact to Entergy, 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 IRP and ICS organizations across Entergy Corporation as necessary and appropriate during incidents that require oversight at the corporate-wide level. Soon after an IRP 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.

Figure 2



Q32. WHAT ARE THE RESPONSIBILITIES OF THE INCIDENT COMMANDER?

A. The Incident Commander 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.[22] Specific responsibilities of the Incident Commander may include, but are not limited to: coordinating incident response with other activated

[22] If the EIRT is activated, the Incident Commander takes strategic guidance from the EIRT.

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

Q33. WHAT IS THE SYSTEM COMMAND CENTER AND WHERE IS IT LOCATED?

A. 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 System (or other) 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 (an Entergy 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.

Q34. WHERE IS THE STATE COMMAND CENTER FOR LOUISIANA LOCATED?

A. The Louisiana State Command Center is located at the Pecue Office in Baton Rouge, which is where I was stationed for Hurricane Ida when I was not in the field personally observing the level of damage from the storm and assessing the field restoration progress as I describe below.

Q35. PLEASE EXPLAIN THE ROLES OF THE FIVE OFFICERS THAT MAY BE ACTIVATED DURING AN INCIDENT.

A. 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 Entergy's business continuity. The Customer Operations Officer ensures that accurate information is provided to customers and is responsible for close monitoring of key customer support systems.

Q36. PLEASE EXPLAIN THE ROLES OF THE FIVE SECTIONS THAT MAY BE ACTIVATED DURING AN INCIDENT.

A. 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 and provisions to support the incident.

- The Administration Section Chief is responsible for proactively managing the financial accounting and expense processing and reporting and recording of an incident.

Each Section Chief reports directly to the System or State Incident Commander.

Q37. DOES THE INCIDENT RESPONSE PLAN CONTAIN ANY GUIDANCE WITH RESPECT TO COVID-19 PROTOCOLS?

A. Yes. The IRP contains specific guidance with respect to such issues as command center activation, instructing that activation of a command center based on traditional criteria must be weighed against the risk of viral spread and employee infections. Physical and social distancing mitigation efforts are challenging to implement in most command center environments given the long hours, mental focus, and potential for fatigue commonly experienced by command teams. The IRP also includes information on the specific guidelines (such as self-screening, social distancing, and face coverings) with which off-system contractors and mutual-aid companies are expected to comply when responding to Entergy's request for restoration assistance.

Q38. WHEN THE ENTERGY SYSTEM COMMAND CENTER AND THE LOUISIANA STATE COMMAND CENTER WERE ACTIVATED IN ADVANCE OF HURRICANE IDA, WHAT COVID-19 MITIGATION MEASURES WERE UTILIZED TO PROTECT EMPLOYEE SAFETY?

A. As detailed in the IRP, the following mitigation measures were strictly followed by all personnel upon activation of the Entergy System Command Center and the Louisiana State Command Center:

- Physical/social distancing was maintained.
- All Command Center personnel wore face coverings if working in or transiting a common area.
- Daily questionnaires and temperature screenings.
- Touching of common surfaces was minimized.
- Self-cleaning of work areas was conducted.
- A roster of personnel on-site each day was maintained.

Q39. DOES THE COMPANY CONDUCT STORM PREPAREDNESS AND PLANNING ACTIVITIES?

A. Yes. The EOCs have 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. The training and drill focus on all aspects of storm planning, preparation, resources, operations, damage assessment, logistics, accounting, and administrative functions. The EOCs in Louisiana also conduct their own separate drill and regional exercises.

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. The COVID-19 pandemic was included as a component in the 2021 storm drill exercise.

Q40. PLEASE DESCRIBE THE STORM DRILL THAT WAS CONDUCTED IN 2021.

A. The annual storm drill for 2021 was conducted on May 12, 2021. It included a large Category 4 hurricane that made landfall in southeast Louisiana. Given the prevailing circumstances in 2021, the storm drill also incorporated planning and training to address COVID-19 safety and health protocols. This training assisted Distribution Operations in preparing for the circumstances of Hurricane Ida efficiently and safely. The focus topics of the 2021 storm drill were as follows:

- Relocation (evacuation) of responders, equipment, and materials.
- Requesting resources and equipment both from within a business unit and from business units other than distribution and transmission.
- Utilization of check-in sites for off-system contractor check-in with limits on concurrent access to reduce COVID-19 risk.
- Delivery and validation of worker storm safety orientation training.
- Generating plant shutdown planning, including strategies for delivering power to customers while generation capability is reduced.
- Black start process in the face of significant damage to transmission lines.

- Processes and strategies to manage loss of communications disruption.
- Material management, material restocking, and supply chain practices.
- Sourcing and rapidly standing up teams to address major challenges during a response that exceed normal response capabilities, require special knowledge, or require significant priority and attention.
- Mitigation of impacts to company operations due to employee needs.
- Management of damage assessment, including restoration of DA-enabled devices.
- Storm cost administration resources, management, and reporting.
- Investment recovery contractors and post-storm cleanup operations.

Q41. PLEASE DESCRIBE THE COMPANY'S LESSONS-LEARNED PROCESS FOLLOWING A STORM EVENT.

A. The lessons-learned process, or the Review phase described in the IRP, covers the time spent following ICS deactivation and returning back to the Ready phase. During the Review phase, members of the ICS identify any learnings and improvement opportunities, including those pertaining to technical, process, or IRP planning issues. Identification of these improvement opportunities is the responsibility of each Office and Section.

Q42. WHAT LESSONS WERE LEARNED DURING THE HURRICANE IDA RESTORATION?

A. The success of the Company's restoration efforts following Hurricane Ida affirmed the importance of the Company's storm restoration plan and the steps taken by the Company to implement that plan. In connection with the lessons learned process that I describe above, the Company has concluded that the following practices, procedures, and relationships worked well:

- A daily press conference with ELL and ENO leadership, public officials, and the media was initiated for Hurricane Ida and has been identified as a best practice to be utilized for future storms.
- A daily call that was coordinated by the American Public Power Association was also established to provide detailed information and estimated restoration times to the electric cooperatives and municipal utilities in the area.
- The use of estimated restoration maps by area proved to be very helpful to stakeholders.
- The Company utilized a daily practice of monitoring and rapidly addressing safety incidents which proved to be very beneficial in maintaining safety.

There are always opportunities for improvement, however, and the Company identified the following areas of focus for long-term improvement:

- Meeting evolving and real-time customer expectations during storm restoration, including improvements to the View Outage map.
- Improving distribution damage assessment accuracy, level of detail, and speed to better forecast personnel and material needs by area during a restoration event.
- Enhancing logistics opportunities for restoration workers.

- Improving communications impacted by damage to communications infrastructure (resulting in internet and phone shortages) during storm restoration, including increased use of disaster-resilient communication devices.
- Improving the communication of System Incident Response Levels across the entire organization as incident command ramps up or down, continuing until restoration is complete.

Q43. HAS ENTERGY RECEIVED RECOGNITION FOR ITS STORM RESPONSE AND IMPLEMENTATION OF ITS STORM PLAN?

A. Yes. The EOCs continue to be nationally recognized for their 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 the Institute established the award.

Table 3
Entergy Restoration Awards

Year	**Edison Electric Institute (EEI) Emergency Response Award(s)**
2022	Emergency Response Award, after Hurricane Ida
2021	Southeastern Electric Exchange Industry Excellence Award (Transmission-Line Category), after Hurricane Laura; Restoration Emergency Recovery Awards, after Hurricane Laura and severe thunderstorms in April 2020; Emergency Assistance Awards for Hurricanes Sally, Isaias, and Hanna
2020	Emergency Recovery Award, after Hurricane Barry; Emergency Assistance Award, after severe windstorm in Dallas in June 2019
2019	Emergency Assistance Award, Duke Energy Carolinas and South Carolina Electric & Gas, after Hurricane Florence
2018	Emergency Recovery Award, after Hurricane Harvey; Emergency Assistance Award, after Hurricane Irma
2017	Emergency Recovery Award, after severe thunderstorms and flooding in Summer 2016; Emergency Assistance Award, Duke Energy Florida and

	Carolina, Florida Power & Light, Georgia Power and South Carolina Electric & Gas, for Hurricane Matthew
2016	Emergency Recovery Award, after severe storm in April 2015; Emergency Assistance Award, Alabama Power Company, after severe thunderstorms in July 2015
2015	Emergency Recovery Award, after five severe storms over the course of 2014
2014	Emergency Recovery Award, after a widespread winter storm and tornadoes in December 2012; Emergency Assistance Award, Alabama Power Company, after severe storms in March 2013
2013	Emergency Recovery Award, after Hurricane Isaac; Emergency Assistance Award, PHI, PECO, Public Service Gas & Electric, and Consolidated Edison, after Hurricane Sandy; and Kentucky Power and Appalachian Power, after June 2012 derecho weather event
2012	Emergency Recovery Award, after numerous severe weather events in 2011, including tornadoes, winter storms, river flooding, severe thunderstorms, a drought, and Tropical Storm Lee; Emergency Assistance Award, Atlantic City Electric, after Hurricane Irene
2011	Emergency Assistance Award, American Electric Power Co., after December 2009 snowstorm
2010	Emergency Recovery award, after January 2009 ice storm
2009	Emergency Recovery Award, after Hurricanes Gustav and Ike; Emergency Assistance Award, AEP Texas, after Hurricane Dolly
2008	Emergency Assistance Award, Public Service of Oklahoma, after severe winter ice storms
2007	Emergency Assistance Award, Ameren, after back-to-back severe Midwestern thunderstorms
2006	Emergency Recovery Award, after Tropical Storm Cindy, and Hurricanes Katrina and Rita; Emergency Assistance Award, Florida Power & Light, after Hurricane Wilma
2005	Emergency Assistance Award, numerous Florida-based utilities, after Hurricanes Charley, Frances, Ivan, and Jeanne
2004	Emergency Assistance Award, Dominion Virginia and Baltimore Gas & Electric, after Hurricane Isabel
2003	Emergency Assistance Award, Kansas City Power & Light and Oklahoma Gas & Light, after an ice storm
2002	Emergency Recovery Award, after Entergy's 2000 ice storm
2001	Emergency Assistance Award, Florida Power & Light, after Hurricane Irene
2000	Emergency Assistance Award, Florida Power & Light, after Hurricane Floyd
1999	Emergency Recovery Award, after Hurricane Georges