BEFORE THE

LOUISIANA PUBLIC SERVICE COMMISSION

APPLICATION OF ENTERGY LOUISIANA, LLC FOR APPROVAL OF REGULATORY BLUEPRINT NECESSARY FOR COMPANY TO STRENGTHEN THE ELECTRIC GRID FOR STATE OF LOUISIANA	))))))	DOCKET NO. U-_____

DIRECT TESTIMONY

OF

STEVEN N. BENYARD

ON BEHALF OF

ENTERGY LOUISIANA, LLC

PUBLIC REDACTED VERSION

AUGUST 2023

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EXHIBIT

I. INTRODUCTION

Q1. PLEASE STATE YOUR NAME, BUSINESS ADDRESS, EMPLOYER, AND JOB TITLE.

A. My name is Steven Benyard. My primary business address is 4809 Jefferson Highway, Jefferson, Louisiana 70121. I am employed by Entergy Services, LLC ("ESL") as Vice President of Reliability for Entergy, in Louisiana.

Q2. WHAT ARE YOUR DUTIES AS VICE PRESIDENT OF RELIABILITY FOR LOUISIANA?

A. In this role, I am responsible for engineering, operation, and maintenance of the electric transmission and distribution systems across the Entergy service areas in Louisiana, including those of both Entergy Louisiana, LLC ("ELL" or the "Company") and Entergy New Orleans, LLC ("ENO").

Q3. PLEASE DESCRIBE YOUR EDUCATIONAL AND PROFESSIONAL BACKGROUND.

A. I received a bachelor's degree in electrical engineering from Florida International University and a Master of Business Administration from Nova Southeastern University's Huizenga College of Business and Entrepreneurship. I am a Certified Project Management Professional, and I have a Six Sigma Green Belt.

I have nearly two decades of experience leading various areas of operations including transmission, substation and distribution, along with engineering functions that included reliability performance. Prior to my employment with the Company, I

served in various distribution leadership positions at NextEra Energy for approximately 15 years, which included: General Manager of Major Projects and Construction Services, Area Manager, Operations Leader, Production Lead, Resource Lead, and Sr. Project Manager. After accepting a position with ENO, from February 2021 to June 2022, I served as Director of Distribution Operations, where I was responsible for the operation and maintenance of the distribution systems. From June to October 2022, I served as ENO's Director of Reliability, where I continued to be responsible for ENO's distribution system with the addition of the substation grid portfolio across the ENO footprint. In 2022, I was promoted to my current position as Vice President, Reliability (Transmission, Substation, and Distribution) for Louisiana, including New Orleans.

Q4. ON WHOSE BEHALF ARE YOU SUBMITTING THIS DIRECT TESTIMONY?

A. I am submitting this Direct Testimony to the Louisiana Public Service Commission ("LPSC" or the "Commission") on behalf of ELL.

II. PURPOSE AND OVERVIEW OF TESTIMONY

Q5. WHAT IS THE PURPOSE OF YOUR TESTIMONY?

A. My Direct Testimony supports the Company's Application in this proceeding, which seeks to implement a regulatory blueprint necessary for ELL to strengthen the electric grid for the State of Louisiana. As Company witness Phillip May describes, ELL has proposed to implement this blueprint, in part, by extending the Company's current Formula Rate Plan ("FRP"), subject to certain modifications (described by Company witness Alyssa Maurice-Anderson) that will be needed to support the Company's

necessary investments in the transmission and distribution systems that comprise the electric grid.[1] In relation to the Company's proposal, my testimony describes the nature and benefits of ELL's current and planned transmission and distribution investments for the State of Louisiana,[2] the costs and benefits related thereto, and the processes the Company uses to plan, prioritize, and implement investments that are necessary to maintain a reliable, resilient electric grid, while also considering the need to maintain affordable service for ELL's customers.

Transmission System and Operations: The proposed FRP would continue the Transmission Recovery Mechanism ("TRM"), which Ms. Maurice-Anderson's testimony describes. In support of this proposal, my testimony focuses on the transmission investments the Company has made during the term of the previous FRPs and those anticipated for the 2023-2027 time frame. As I discuss in detail, in the time the TRM has been in effect, the Company has made significant investments in its transmission system. These investments have provided material benefits to customers, most notably in the form of enhanced reliability and resiliency. For example, one such investment, the Lake Charles Transmission Project, survived the devastating impacts of Hurricane Laura largely unscathed due to the modern design standards used to construct the line, in stark contrast to the damage Laura inflicted on the older facilities. ELL's anticipated investment in the transmission system will similarly make use of these modern designs to increase the resilience of the Company's transmission system,

[1] Company witness Ryan O'Malley discusses the reasons extending and modifying the FRP is necessary to support the investments my testimony describes.

[2] My testimony also describes planned investments taken into consideration as related to the cost-of-service, or "Rate Case," that Mr. May's Direct Testimony also discusses.

thus improving reliability and potentially reducing the costs of repairing damage from future storms. Mr. O'Malley describes why continuing the TRM is necessary to allow the Company to make these significant investments in the Company's transmission facilities and provide the corresponding benefits to customers (which my testimony describes) while maintaining the creditworthiness of the Company.

My testimony describes (i) the transmission systems of ELL and the other Entergy Operating Companies[3] (together the "Entergy EOCs' transmission systems") and transmission-related organizations; (ii) the transmission planning process and how important that process is to ELL's transmission investments; (iii) the level of transmission investment the Company continues to make in the process of delivering reliable and efficient electric service to its customers; and (iv) the transmission-related costs that, as Ms. Maurice-Anderson notes, the Company is seeking to continue recovering through its TRM.

Distribution System and Operations: The proposed FRP includes a modified version of the previous FRP's Distribution Recovery Mechanism ("DRM"), which Ms. Maurice-Anderson also describes in her Direct Testimony. My testimony focuses on the distribution investments the Company has made during the term of the previous FRP and those anticipated for the 2023-2027 time frame. As I discuss in detail, the Company has made significant investments in its distribution system during the time the DRM has been in place. The need for these efforts and the associated investment in the Company's distribution facilities results from the unique challenges ELL faces

[3] The Entergy Operating Companies ("EOCs") include ELL; ENO; Entergy Arkansas, LLC; Entergy Mississippi, LLC ("EML"); and Entergy Texas, Inc. ("ETI").

in maintaining reliable service at the distribution level (severe weather, unique topography, and a rural service area), the aging of the Company's existing distribution infrastructure, and changes in technology occurring in the electric service industry. The benefits of the Company's distribution investments include increased reliability of the distribution grid, reduction of the frequency and duration of outages, reduction of the number of customer interruptions ("CIs") occasioned by outages, enhanced resilience, faster storm restoration, and increasingly data-driven preventative maintenance and system planning.

I describe examples of the types of projects ELL has undertaken to improve its distribution system, which projects have yielded numerous benefits. These examples provide helpful context for the types of distribution infrastructure upgrades ELL plans to deploy in the near-term and the expected benefits of such improvements on ELL's service quality. The need to continue making these kinds of investments during the next few years forms the basis for the Company's request for Commission approval to continue implementation of an expanded form of the DRM, the necessity of which is described in the Direct Testimony of Mr. O'Malley. I also briefly describe the Company's pending application to implement ELL's Resilience Plan, which is currently the subject of LPSC Docket No. U-36625, and the implications of which are discussed by Mr. O'Malley.

Additionally, I describe ELL's performance under the DRM Performance Accountability Standards adopted by the Commission in Docket No. U-35565 and describe the Company's proposal for the Commission to continue holding the Company accountable for delivering benefits to customers through its planned

distribution investments under metrics that more accurately reflect the Company's reliability performance. More specifically, I discuss the need to modify the metrics through which the Commission tracks ELL's progress under the DRM Performance Accountability Standards so that the Commission's assessment can measure the true progress ELL's modernization efforts have made in strengthening the reliability of the electric grid.

Q6. HOW IS THE REMAINDER OF YOUR TESTIMONY ORGANIZED?

A. In Section III, I describe the Power Delivery Organization, which is responsible for planning, operating, and maintaining ELL's transmission and distribution systems, as well as the Capital Projects Organization, which designs and constructs projects for ELL's transmission and distribution systems.

In Section IV, I provide an overview of the Company's transmission system, and I discuss ELL's transmission planning procedures, including transmission reliability planning in connection with ELL's participation in the Midcontinent Independent System Operator, Inc. ("MISO") Regional Transmission Organization ("RTO"). I also provide details about ELL's planned financial investment in maintaining and improving the reliability of its transmission system, which includes discussion of some of the major transmission improvement projects that ELL anticipates constructing in the coming years.

In Section V, I provide an overview of ELL's distribution system. I also provide details about ELL's planned financial investment in maintaining, modernizing, and improving the reliability of its distribution system.

In Section VI, I explain the unique challenges posed to ELL's distribution system, describe ELL's distribution reliability performance relative to the DRM Performance Accountability Standards adopted in Order U-35565, and discuss the accountability targets ELL proposes to put in place as part of its plan to continue, and expand, the DRM.

III. THE POWER DELIVERY ORGANIZATION

Q7. WHAT IS THE POWER DELIVERY ORGANIZATION?

A. The Power Delivery Organization, formed in 2022, is the business group responsible for the planning, management, and operations of the electric power grids owned by ELL and the other EOCs. This organization combined what had been the separate Distribution and Transmission organizations to achieve the following goals: (1) enhanced coordination between the Transmission, Distribution, and Capital Projects teams in order to deliver better service to customers; (2) improved resilience and reliability of the Company's transmission and distribution systems; (3) improved ability to manage changes to the grid, including electrification and integration of renewables; (4) higher safety performance; and (5) enhanced customer experience by more effective execution of planned and unplanned work.

The Power Delivery Organization is responsible for planning, operating, and maintaining ELL's transmission and distribution systems that provide power and energy to homes, businesses, and governmental entities within the Louisiana communities that ELL serves. As I describe in detail below, ELL faces several challenges to ensuring reliable delivery of energy over the transmission and distribution

systems, including severe weather (both in the form of hurricanes and other intense storms, as well as high concentration of lightening events), some of the most prolific vegetation growth in the country, and a service area that includes many rural and remote areas and which includes marshes and wetlands. The confluence of these issues means that ELL faces a unique challenge in providing reliable service to customers, which the Power Delivery organization seeks to address through a variety of actives.

The electric transmission and distribution systems require regular inspection and maintenance to preserve their integrity and ability to provide reliable service to customers. These maintenance activities are both preventative and reactive. Preventative maintenance includes equipment inspections and introducing new maintenance practices to enhance the overall operation and reliability of the electric 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 rights-of-way ("ROWs"). Should these inspections, monitoring by the control centers, or system events identify facilities not performing correctly, jobs are planned to upgrade or replace those facilities.

Moreover, to accommodate customer growth, ELL must continually add to or upgrade its distribution facilities. These additions, both major and minor, require constructing distribution line extensions or increasing the capacity of existing distribution 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 to all current and prospective customers. Power Delivery is responsible for these important activities.

Power Delivery also is responsible for setting and maintaining the engineering standards to be applied to the transmission and distribution systems, while also designing and constructing smaller projects, such as projects necessary to interconnect new customers and to replace failed equipment. Larger projects and programs involving more complex project management and engineering techniques are executed by the Capital Projects organization, subject to the standards set by the Power Delivery Engineering group.

Q8. HOW IS THE POWER DELIVERY ORGANIZATION ORGANIZED?

A. The Power Delivery Organization contains the following groups: (1) Power Delivery Engineering; (2) Project and Portfolio Development; (3) Power Delivery Services; (4) Storm Operations; and (5) Power Delivery Operations.

Q9. WHAT ARE THE RESPONSIBILITIES OF THESE GROUPS?

A. At a summary level, those responsibilities are as follows:

- The Power Delivery Engineering group assures that there are appropriate transmission and distribution engineering and construction standards and processes throughout the Power Delivery and Capital Projects organizations. The group sets the standard of work for all engineers in the Power Delivery and Capital Projects organizations. The standards set and maintained by the Power Delivery Engineering group meet or exceed all National Electrical Safety Code ("NESC") standards and are in accordance with other recognized industry standards.

- The Project and Portfolio Development group develops and prioritizes the portfolio of projects necessary to serve our customers reliably, including new facilities, the renewal and replacement of aging or poorly performing assets, the construction of facilities to support or enable economic growth, and the development of projects to address a range of other needs. This group is also charged with developing the strategies around maintaining and replacing assets and the overall design of the transmission and distribution systems.
- The Power Delivery Services group supports the Power Delivery Operations group, along with the Capital Project's project delivery organization, by centralizing certain functions such as safety, vegetation management, fleet management, field metering, environmental services, and right-of-way. This group also implements best practices to provide these services across the EOCs' transmission and distribution systems during the construction of new facilities as well as the renewal of and maintenance of these facilities.
- The Storm Operations group supports storm-related operations, such as planning for major storm events and implementing strategies to respond to them, while continuously monitoring and updating storm safety and performance metrics. This group, along with ESL and EOC employees who are involved in storm restoration, participate in the restoration strategy group, which is activated during severe weather such as widespread severe thunderstorms and hurricanes.

- The Power Delivery Operations Group oversees the day-to-day operations of the transmission and distribution systems and is responsible for a number of activities required to ensure reliable service, including constructing facilities to interconnect new customers, responding to and restoring outages, operating and monitoring the performance of the transmission and distribution systems, repairing and maintaining transmission and distribution assets and facilities, and an array of other support functions. The group also monitors the transmission and distribution system loads and voltage levels, along with other characteristics, to ensure there is adequate capacity to meet customer needs and that the quality of the energy delivered meets customer expectations. In addition, the group handles routine and emergency switching needed to maintain a continuous supply of electricity to customers and to address CIs as safely and quickly as reasonably possible. The Power Delivery Operations organization includes line workers; engineers; engineering associates; substation mechanics; technicians; operators; region, line, and construction supervisors; drafters; storekeepers; administrative assistants; and various others, as well as hundreds of contract personnel. 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 later in my testimony.

Coordination between these groups within Power Delivery, at both a centralized and localized level, allows for synergies among the various teams in the performance of

their duties, which are focused on delivering reliable, resilient service to ELL's customers at a reasonable cost.

IV. TRANSMISSION RECOVERY MECHANISM SUPPORT

A. Overview of the Entergy Transmission Systems

Q10. PLEASE PROVIDE A GENERAL DESCRIPTION OF THE ENTERGY EOCS' TRANSMISSION SYSTEMS, INCLUDING ELL'S.

A. The Entergy EOCs' transmission systems span portions of five states (Arkansas, Louisiana, Mississippi, Texas, and Missouri) and are comprised of approximately 16,100 circuit miles of transmission lines and 1522 substations.[4] Employees and assets based at various locations throughout the service area plan, design, construct, operate, and maintain the transmission systems.

Q11. WHAT GENERAL FUNCTIONS DO THE ENTERGY EOCS' TRANSMISSION SYSTEMS PERFORM?

A. The Entergy EOCs' transmission systems move high-voltage, bulk electric power produced by market participants within MISO and neighboring regions across an interconnected system of transmission lines and substations to distribution points for delivery to retail customers of the EOCs, as well as to wholesale customers such as municipalities and cooperatives, or to points of delivery into other transmission systems. The Entergy EOCs' transmission systems also deliver power directly to large

[4] This figure represents the total number of all five (5) EOCs' owned and operated substations and transmission lines as of August 20, 2023.

commercial and industrial retail customers of the EOCs. These customers include refineries, chemical plants, oil and gas processing facilities, pumping stations, and large manufacturing sites vital to the region and nation.

Q12. WHO OWNS THE TRANSMISSION ASSETS IN THE SYSTEM?

A. The EOCs own the transmission system assets located in their respective service areas, as well as other assets (such as computer systems) that support the operations of the transmission systems.

Q13. PLEASE DESCRIBE ELL'S TRANSMISSION SYSTEM SPECIFICALLY.

A. The ELL transmission system is comprised of approximately 5267 circuit miles of transmission lines. In addition to the lines, there are 575 substations in the system.[5] ELL's transmission system includes transmission lines and substations operating at voltages of 500 kiloVolts ("kV"), 345 kV, 230 kV, 138 kV, 115 kV, and 69 kV. The following Table 1 identifies ELL's circuit miles of transmission line by voltage class:

Table 1

Transmission Line Miles by Voltage					
69kV	115kV	138kV	230kV	345kV	500kV
883	1583	698	1472	16	615

The ELL transmission system is interconnected with the Entergy EOC's systems and other neighboring transmission systems (*i.e.*, American Electric Power (Southwestern

[5] This figure represents the total number of ELL's owned and operated substations and transmission lines as of August 20, 2023.

Electric Power Company), Cleco, DEMCO, Lafayette Utilities System (LUS), and Mississippi Power Company). ELL's transmission system also connects to various interconnected load-serving entities and municipalities. Some of the entities also own and maintain Bulk Electric System assets.

B. Transmission Planning

Q14. HOW ARE THE ENTERGY EOCS' TRANSMISSION SYSTEMS PLANNED, DESIGNED, CONSTRUCTED, OPERATED, AND MAINTAINED?

A. The transmission systems of all EOCs, including ELL's, are planned, designed, constructed, and operated by the Power Delivery Organization to function seamlessly within the broader Eastern Interconnection.[6] These broad activities include operating the facilities in the field that move energy to customers, monitoring the performance of the transmission systems, responding to outages, performing preventive maintenance on facilities to keep them in working order, managing vegetation, environmental services, and executing small projects. ESL's Capital Projects organization designs and constructs the transmission systems. These broad services include engineering the transmission lines and substations used to deliver energy as well as the project management services to ensure projects are delivered efficiently and on time.

[6] The Eastern Interconnection is a large-scale power grid that permits utilities in the eastern, southern, and midwestern United States and portions of eastern Canada to operate at the same frequency. The entire SERC Region and the entire MISO footprint are included within this broad geographic area.

Q15. PLEASE DESCRIBE GENERALLY HOW ELL'S TRANSMISSION SYSTEM IS PLANNED.

A. The process of transmission planning is essential to the EOCs' mission of providing safe and reliable electric service to customers at a reasonable cost. As I noted above, the Power Delivery Organization has a department that is responsible for Project and Portfolio Development, which includes the Planning and Asset Management Strategy groups. The transmission projects that are studied and prioritized by these teams are then executed by the Capital Project or Reliability departments. The Planning team is responsible for identifying the transmission system upgrades necessary to ensure that existing load and future load growth can be served safely and reliably. With membership in MISO, functional control of ELL's transmission assets with the exception of 69 kV facilities – including top-down transmission planning – lies with MISO. But ELL still has responsibility for local reliability planning, which continues to involve application of both the Reliability Standards of the North American Electric Reliability Corporation ("NERC") and ESL's local planning criteria. ELL is also actively participating in the MISO Transmission Expansion Planning ("MTEP") process that I discuss below, and which Company witness Laura Beauchamp also discusses. The Asset Management Strategy team is responsible for developing the plans to renew the EOC's transmission assets as they near end of life, and the maintenance strategies to optimize the performance and ongoing costs of those assets.

Q16. PLEASE DESCRIBE GENERALLY HOW THE TRANSMISSION SYSTEMS BELONGING TO THE INDIVIDUAL OPERATING COMPANIES ARE OPERATED.

A. The Entergy EOCs' transmission systems are operated consistent with the policies and guidelines of appropriate regulatory agencies and reliability organizations to meet customer needs. In coordination with MISO, ESL's Transmission organization's Operations group oversees the operation of the Entergy EOCs' transmission systems in real time through two Transmission Control Centers. The Northern Transmission Control Center ("TCC-N") is located in Little Rock, Arkansas, and the Southern Transmission Control Center ("TCC-S") is located in Jackson, Mississippi. These two centers share responsibility for real time operations of bulk power operations of the EOCs' transmission systems. The primary operational functions performed at both TCC-N and TCC-S include bulk power transmission operator functions and transmission switching functions.

Q17. PLEASE DESCRIBE THE ACTIVITIES OF THE REMAINING GROUPS WITHIN POWER DELIVERY THAT SUPPORT TRANSMISSION.

A. The Transmission Policy and Regulatory Support group provides services and support activities such as (i) development and administration of transmission business policies and (ii) regulatory support, including monitoring of policy trends, support for regulatory filings, and managing implementation of new and revised regulatory requirements. The Project Delivery group provides engineering, project management,

construction management, and procurement services that are necessary to complete capital additions to the transmission system.

Q18. DO TRANSMISSION RELIABILITY STANDARDS IMPLEMENTED BY NERC AFFECT TRANSMISSION INVESTMENT?

A. Yes. NERC, together with the SERC Reliability Corporation ("SERC"), continually develops, updates, and enforces reliability standards; monitors the system; assesses future adequacy of the system; audits owners, operators, and users of the system for preparedness; and educates and trains industry personnel. Currently, there are 85 reliability standards that define the requirements for planning and operating a Bulk Electric System ("BES").[7] The NERC Reliability Standards are comprised of approximately 300 requirements. As of June 2023, NERC has five (5) current, FERC-approved projects to modify 15 existing standards subject to future enforcement between 2023-2026. NERC also has an additional 22 projects in active formal development to modify existing standards or introduce new standards. The ELL transmission system is planned, designed, and operated in accordance with these standards and guidelines.

The EOCs' transmission capital budgets are heavily affected by these evolving compliance requirements, which require significant annual investments to ensure that

[7] The Bulk Electric System is defined by NERC in its "Glossary of Terms": "As defined by the Regional Reliability Organization, the electrical generation resources, transmission lines, interconnections with neighboring systems, and associated equipment, generally operated at voltages of 100 kV or higher. Radial transmission facilities serving only load with one transmission source are generally not included in this definition."

their transmission systems continue to be reliable and meet the performance requirements of these mandatory reliability standards. Indeed, as I explain in detail below, a significant portion of ELL's transmission capital budget in recent years has been directly or indirectly driven by those evolving compliance requirements.

Q19. DOES MISO COMPLY WITH NERC REQUIREMENTS?

A. Yes. MISO applies the same NERC standards I described above and oversees the reliability plans of all of its members, including ELL, to ensure that reliability is maintained and to ensure that plans are coordinated and optimized. MISO will independently determine if the projects proposed by transmission owners, such as ELL, appropriately and adequately address the reliability requirements of the NERC standards and do not adversely impact other portions of the interconnected transmission system.

In addition, it is possible that MISO or its stakeholders could identify other projects, such as Market Efficiency Projects ("MEPs") and Multi Value Projects ("MVPs") through its "top down" planning process that ELL would be obligated to undertake, subject to internal Company approval and required regulatory approvals. These types of projects are justified based on their abilities to provide economic, policy, or other benefits to MISO members.

MISO has functional control of ELL's transmission assets. ELL's transmission system therefore is planned in accordance with MISO's Open Access Transmission, Energy and Operating Reserve Markets Tariff ("MISO Tariff"). The Company and the other EOCs oversee the preparation of annual assessments of their transmission

facilities and remain responsible for conducting local reliability planning through MISO's reliability planning process. To do so, ELL applies the same NERC and SERC reliability standards in order to identify upgrades needed to maintain reliable service. The set of upgrades comprises the local reliability plan that is provided to MISO for use in its overall regional planning process.

Q20. DO MISO'S ECONOMIC TRANSMISSION PLANNING ACTIVITIES HAVE AN EFFECT ON ELL'S TRANSMISSION CAPITAL SPENDING?

A. Yes, they do. Because MISO's planning process addresses both reliability planning and economic transmission planning, it has a critical impact on ELL's transmission capital spending. Once MISO includes projects in Appendix A of the MTEP, the selected developer is obligated to make good faith efforts to construct the facility. The selected developer could be ELL, or a third party. Any project, including an economic project, may reduce loading on facilities in the future that, but for the economic project, would need to be upgraded to meet reliability standards, reducing future capital needs. Alternatively, the addition of a project may change the characteristics of adjacent facilities such that they become more critical to protect from cyber or physical attack, requiring ELL to invest in assets to protect those facilities. Protecting assets from cyber threats can be significant and typical cyber projects often require tens of millions of dollars to construct.

C. Transmission Capital Investment

Q21. PLEASE DESCRIBE THE COMPANY'S RECENT INVESTMENT IN AND IMPROVEMENT OF ITS TRANSMISSION SYSTEM.

A. The Company's transmission capital investment can be divided into several primary categories: (1) projects that ensure the transmission system meets NERC standards for bulk electric system reliability through new lines, substations, and equipment upgrades; (2) projects that improve reliability through replacement of aging equipment; (3) projects that go beyond basic NERC reliability to enhance the reliability of critical infrastructure or improve customer experiences; (4) projects needed to interconnect new facilities such as new generators or new customers; and (5) projects that build new facilities to reduce congestion on the system to ensure customers have access to the lowest cost power.

As detailed in Table 2 and Figure 1 below, for the period starting 2016 through 2022, the Company invested approximately $2.8 billion in its transmission system. It should be noted that the totals in Table 2 do not include certain costs associated with major storms that have impacted the Company's service area, including, more recently, costs that have been addressed through securitization financing in LPSC Docket No. U-35991 (Hurricanes Laura, Delta, and Zeta, and Winter Storm Uri in 2020) and LPSC Docket No. U-36350 (Hurricane Ida in 2021).

Table 2

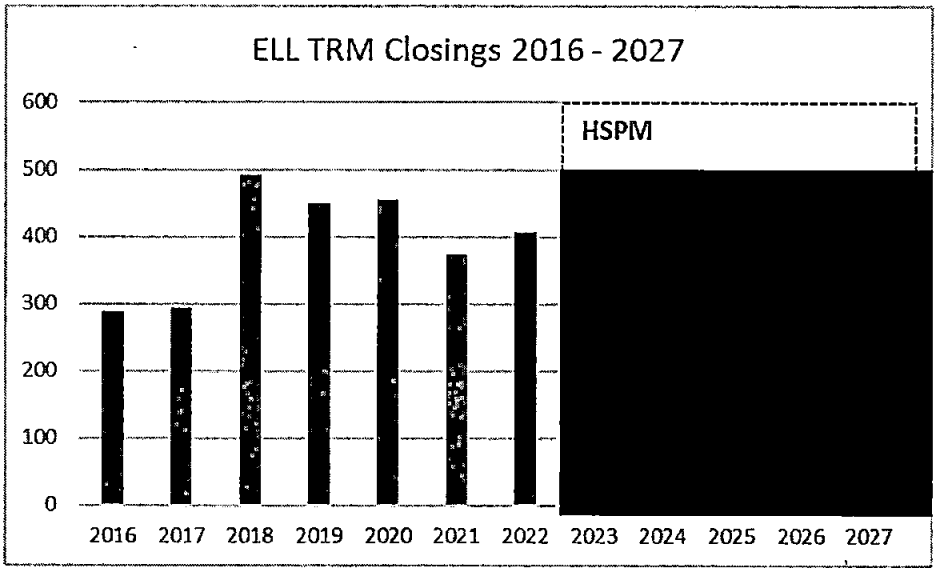
ELL Transmission Recovery Mechanism Capital Closings
Values in $Million

HIGHLY SENSITIVE PROTECTED MATERIALS

2016	2017	2018	2019	2020	2021	2022	[redacted]
289	293	492	450	454	374	407	

*Note: These totals exclude amounts related to major storm damage. Totals for 2023-2027 represent projected closings, not actual closings.

Figure 1



The need for this level of investment was driven by many factors, including reliability planning, load growth, infrastructure maintenance and reliability needs, economic transmission investments (i.e., investments that produce cost savings to customers), and generation interconnection projects. Examples of the type of work recently performed to promote the reliability and resilience of the Company's transmission system include:

- Updating and replacing certain older "legacy" lattice and wooden structures with steel monopole or multipole framings;
- Maintaining or exceeding NESC wind speed design standards, with most coastal areas being designed to withstand 140-150 mph winds; and
- Installing 30-to-60-foot steel caisson foundations for new transmission structures located in coastal areas.

Q22. PLEASE DESCRIBE ELL'S TRANSMISSION PROJECTS THAT CLOSED TO PLANT DURING THE TERM OF THE MOST RECENT FRP (2020-2022).

A. The total transmission capital additions for ELL during this time period were approximately $1.2 billion. I provide the following examples of critical transmission projects that the Company invested in during the effective period of the current FRP, as enabled by the TRM:

- **Jefferson Parish Area Reliability Plan Phase 1:** This project was approved by MISO in December 2017 as a baseline reliability project required to comply with NERC Reliability Standards. This project was completed in 2020, including the construction of three new 230 kV substations, as well as the conversion of two 115 kV lines to 230 kV operation, which has improved reliability to the industrial and residential customers south of New Orleans.
- **West Monroe Area 230 kV Reliability Improvement Plan:** This project was approved by MISO in December 2017 as a baseline reliability project required to comply with NERC Reliability Standards. This project

expanded the Perryville EHV station to accommodate new 230 kV facilities and install a 500/230 kV autotransformer at Perryville. It included the construction of approximately three (3) miles of double circuit 230 kV line out of Perryville Substation; the connection of one circuit into the current Sterlington – Selman Field 115 kV (which is constructed to 230 kV specifications); construction of approximately eight (8) miles of new 230-kV line to tie the other circuit into the 230-kV constructed Swartz – Dunn line; the removal of Sterlington – new Perryville injection cut-in; the installation of a 230/115 kV autotransformer at Dunn Substation, the construction of 230-kV facilities at Selman Field and the replacement of the 115/69 kV autotransformer with a 230/69 kV, and the installation of a 230/115 kV autotransformer at Rilla Substation to operate the Selman Field – Rilla line at 230 kV. The project was completed in 2022.

- **Golden Meadow to Clovelly 115 kV Rebuild:** This project was approved by MISO in December 2021 as an "other reliability" project. Due to hurricane damage in the region, this line was rebuilt to current wind standards to reliably serve the area. This project consisted of rebuilding approximately 7 miles of 115 kV line from Golden Meadow Substation to the Clovelly Substation. This line was built to 230 kV specifications for future needs. The project was completed in 2022.

Q23. HAVE THESE TRANSMISSION INVESTMENTS YIELDED BENEFITS FOR ELL'S CUSTOMERS?

A. Yes. The projects I described above, as well as other projects the Company has undertaken within that time frame, have produced benefits for customers, many of them immediately realized, in the form of increased security, reliability, and resiliency.

Q24. DID THE PERFORMANCE OF THE COMPANY'S TRANSMISSION SYSTEM DURING HURRICANES LAURA AND IDA DEMONSTRATE THE RESILIENCE BENEFITS OF THESE INVESTMENTS?

A. Yes. The Company's experience during Hurricanes Laura and Ida demonstrated that transmission lines built to the Company's modern design standards performed well.

Hurricane Laura was a high-end category 4 hurricane that made landfall at Cameron, Louisiana, on August 27, 2020. The region of southwest Louisiana in and around Lake Charles took the brunt of the storm's force. The eye wall, which brings the most damage winds and intense rainfall, passed directly over Lake Charles causing widespread damage to the area and ELL's transmission system. Despite the damage, the Company's recent investments in modern transmission structures paid off, as those assets withstood the storm's impact and remained intact. For example, as I noted above, the Lake Charles Transmission Project (a significant portfolio of transmission projects that were designed to higher wind-loading standards) withstood the storm's impact and survived, essentially intact, and enabled restoration to proceed much more quickly than if the project had not been in service.

Hurricane Ida, another Category 4 hurricane, made landfall near Port Fourchon, Louisiana, on August 29, 2021. In terms of maximum sustained winds, it was the strongest hurricane on record to make landfall in Louisiana. The Company's more recently installed facilities that were designed and constructed under current standards performed well during Hurricane Ida, largely remaining intact and requiring repairs as opposed to full scale replacement (as shown in Exhibit SNB-1). For example, along a transmission path where the storm made landfall along the coast, fewer than 1% of the newer, more resilient structures were destroyed. In addition, the Bayou Vista – Terrebonne 230kV transmission line, (a new line built on structures designed to withstand winds of up to 150 mph), which runs right through the heart of the Bayou region that took a direct hit from Hurricane Ida's winds, sustained minimal damage. Another example is the Valentine – Clovelly 115 kV transmission line, which was also in the direct path of Hurricane Ida and took a direct hit from the storm yet sustained no damage.

By way of further example, in recent years, the transmission system had been hardened into the Fourchon area with only one section remaining that was not built to the modern, more resilient design. All sections constructed to the more resilient design survived, with the exception of two structures (less than two (2) percent of the line) that were impacted by what is believed to be a barge that had broken free from its mooring and collided with the transmission structure. While there were damages to minor facilities, primarily insulators impacted by flying debris, the transmission structures themselves were upright and undamaged, which resulted in restoration timelines being reduced from months to days.

Q25. DOES THE COMPANY ANTICIPATE THAT IT WILL CONTINUE TO INVEST IN THE TRANSMISSION SYSTEM AT THE SAME LEVEL DURING THE PERIOD 2023-2027?

A. Yes. As detailed in Table 2 above, the Company anticipates that the level of transmission plant that will be placed in-service during 2023-2027 will be approximately [redacted]. The level of investment anticipated for 2023-2027 will be driven by reliability planning, infrastructure maintenance and reliability needs, and generation interconnection projects. It is anticipated that these investments will provide contemporaneous and continuous benefits to customers, primarily in the form of increased security, resilience, and reliability.

Q26. PLEASE PROVIDE EXAMPLES OF MAJOR TRANSMISSION PROJECTS THAT ELL PLANS TO PLACE IN SERVICE IN THE 2023-2027 TIME FRAME.

A. Examples of projects planned for the 2023-2027 time frame include the following:

- **Mud Lake-Big Lake 230-kV Line project:** This project involves the construction of a new 230-kV transmission line, approximately 10 miles in length, from Mud Lake Substation to Big Lake Substation. This project is necessary to mitigate a potential load loss of approximately 800 MW in the Lake Charles area under the contingency loss of the Calcasieu to Pecan Grove 230-kV line and the Carlyss to Solac 230-kV line. The project will require an investment of approximately [redacted].
- **Phase 2 of the Jefferson Parish Reliability Improvement Plan:** This project involves the construction of the new 230-kV Munster Substation in

between the areas of Chalmette and Meraux, and the construction of a 3,000 Amp 230-kV breaker and a half bus to accommodate six 230-kV lines with room for expansion. The Michoud to Meraux and the Meraux to Oaks 230-kV lines will be reconfigured and looped into and out of Munster Substation. Two new 230-kV lines will be constructed from the new 230-kV substation and tie-in with the existing 230-kV lines that come out of Michoud Substation. Over 400 MW of load would be at risk without this project, as there is no generation re-dispatch or system reconfiguration option that avoids load shed under certain system contingencies. This project is necessary to alleviate the forecasted thermal overloads and voltage violations, and to comply with NERC Reliability Standard TPL-001 and Entergy's local transmission planning criteria. The project will require an investment of approximately [redacted].

- **Capital Asset Management Program:** In addition to major transmission projects such as the above-described examples, ELL has a capital Asset Management Program for the replacement of aging infrastructure before it fails through Asset Renewal Programs. Expenditures on these projects are prioritized around the risk of CIs and the balancing of costs customers realize from extending the life of transmission assets and/or replacing assets with new modern equipment to reduce maintenance costs with respect to those assets. This work includes:

- The Transmission Line Equipment Renewal program, which includes costs associated with replacing structures, conductor, shield wire and insulators with modern equipment to meet our current design criteria.
- The Transmission and Distribution Substation Equipment Renewal program, which includes costs related to major substation equipment, such as auto-transformers, power transformers, high-voltage and low-voltage circuit breakers and relays. This program also encompasses the application of animal mitigation devices to prevent animal-induced outages.

Details about these and other anticipated transmission projects are submitted with the Company's Construction Plan Advance Notice Report Summary, which is filed annually with the LPSC on February 1 pursuant to Commission Order R-26018.

Q27. IS THE COMPANY PROPOSING AS PART OF THE RELIEF REQUESTED IN THIS PROCEEDING THAT THE TRM BE APPROVED FOR INCLUSION IN THE PROPOSED FRP?

A. Yes. Mr. O'Malley explains why the TRM should be approved in order to allow for implementation of the projects that I have described and other future projects.

V. DISTRIBUTION RECOVERY MECHANISM SUPPORT

A. ELL's Distribution System and Operations

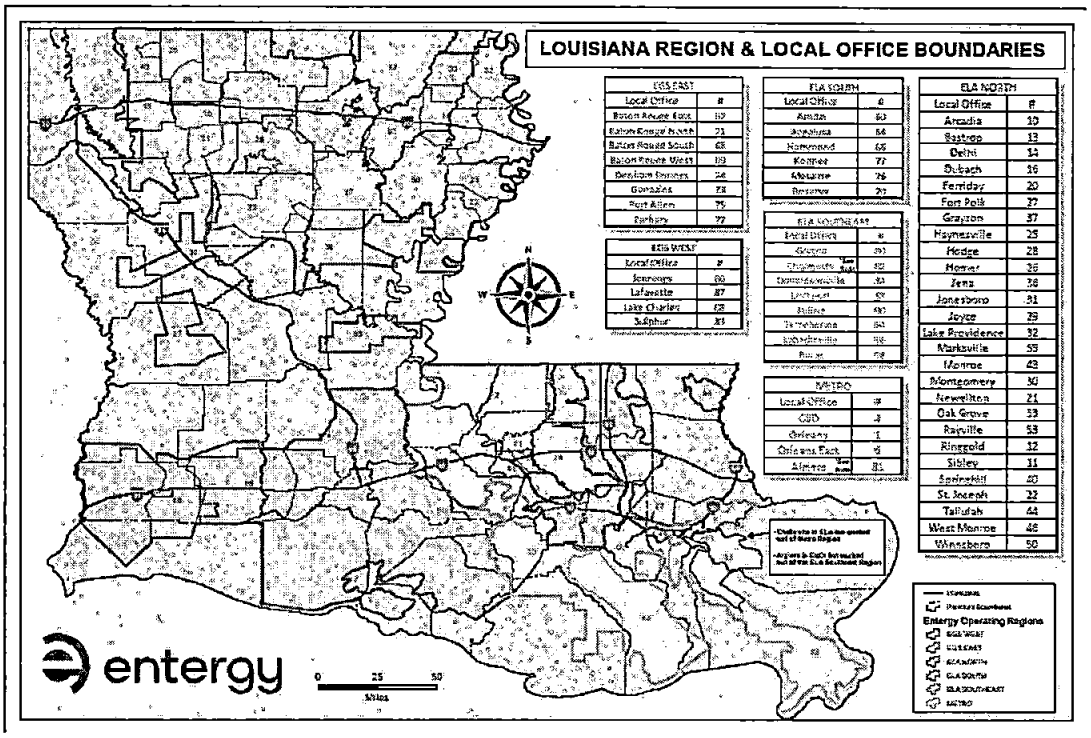
Q28. PLEASE DESCRIBE ELL'S DISTRIBUTION SYSTEM AND THE GENERAL FUNCTION IT SERVES.

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.[8] ELL's electric distribution system is the portion of the electric grid operating at voltage levels below 69,000 volts (69 kV). ELL's distribution system serves approximately 1.1 million customers. There are approximately 500 ELL substations that supply power to approximately 1,200 distribution circuits, consisting of over 32,000 distribution circuit miles, of which approximately 28,000 are overhead circuit miles, and approximately 4,000 are underground circuit miles.

ELL is geographically divided into five (5) regions consisting of 28 networks, and their respective geographical boundaries are depicted in the map in Figure 2.

[8] Some of ELL's largest commercial, governmental, and industrial customers are connected directly to the Company's transmission system. It should be understood, however, that an interconnectivity exists between the bulk transmission and distribution systems, which must operate in balance with one another in order to ensure safe and reliable power delivery.

Figure 2
Map of ELL's Geographical Regions



Q29. WHAT IS THE STATUS OF ELL'S 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 resilience of the distribution grid as well as to support the integration of distributed energy resources. On average, the Company invested approximately $301 million annually in capital spending for its distribution system for the six-year period

of 2017 through 2022, with distribution line plant closings increasing from $177 million in 2017 to $464 million in 2022.[9]

Like many of its utility peers, ELL has an aging distribution system that is in a period of significant modernization as it evolves to address changes in customer expectations and grid technologies, and the increasing frequency and severity of named storms and other extreme weather events, as evidenced by recent Atlantic hurricane seasons and tornadoes that have impacted Louisiana.

Q30. YOU NOTED ABOVE THAT YOUR TESTIMONY SUPPORTS CONTINUATION OF THE DRM COMPONENT OF THE FRP. ARE YOU AWARE OF WHY THE DRM WAS PROPOSED?

A. Yes, although Mr. O'Malley discusses the necessity of the DRM in his Direct Testimony. It is my understanding that the DRM was proposed by the Company, and approved by the LPSC, to support increased levels of distribution investment needed to modernize the Company's distribution grid without harming ELL's financial condition, as was fully explained in the testimony in Docket No. U-35565 where the DRM was initially proposed and ultimately adopted. During the initial term of the DRM, the Company has undertaken substantial investments to modernize and improve its distribution grid, as was detailed extensively in Docket U-35565, and is discussed further below.

[9] Distribution capital additions for 2017-2022 exclude amounts related to storm damage and Advanced Metering System ("AMS") investments.

Q31. ARE THE COMPANY'S GRID MODERNIZATION EFFORTS STILL UNDERWAY?

A. Yes. The Company continues to invest in modernized equipment for its distribution grid that can and will facilitate advanced functionalities such as Smart Grid technology and infrastructure, including equipment and tools, as well as specialized sensors and software, that perform more advanced technological functions than the Company's traditional distribution infrastructure. The technological advancements afforded by grid modernization investments are expected to provide additional signals, data, information, and insights that will facilitate improved reliability performance and allow for the integration of distributed energy resources.

Q32. ARE GRID MODERNIZATION TECHNOLOGIES THE ONLY TYPES OF INVESTMENTS ELL WILL BE MAKING IN THE DISTRIBUTION GRID FROM 2023-2027?

A. No. ELL will also need to continue investing in more traditional grid reliability programs and infrastructure needed to maintain and improve its distribution system, in addition to its proposed Resilience Plan. ELL's distribution planning efforts, therefore, combine grid modernization work with traditional reliability and infrastructure programs, while attempting to perform these functions at a reasonable cost to ELL's customers.

Q33. PLEASE ELABORATE ON THE COMPANY'S TRADITIONAL RELIABILITY AND INFRASTRUCTURE PROGRAMS.

A. ELL currently implements several programs to improve reliability and maintain infrastructure. Its work generally falls into two categories. The first is reactive, meaning that the actions taken are in response to devices that have failed and/or outages that have occurred, and the second is preventative, meaning that the actions taken are an attempt to prevent devices from failing and/or outages from occurring.

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. The program excludes Major Events[11] and outages caused by external factors like vehicle accidents in order to target the circuits on which FOCUS work can bring fast reduction to the number of CIs. A list of FOCUS devices is then created, prioritized by CIs, inspected, and areas behind the devices are then selected for work 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

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

[11] The FOCUS program relies on the classification of Major Event as defined by the Beta methodology promulgated by the Institute of Electronic Engineers, which is different than the method used for designating Major Event Days in the Commission's Reliability General Order (*See*, General Order (April 30, 1998), *In re*: Ensuring Reliable Electric Service, LPSC Docket No. U-22389 ("Reliability General Order"). The Reliability General Order's definition is discussed further below.

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 the Reliability General Order. The Company's FOCUS Program has led to reliability improvements by reducing CIs on devices and circuits that have undergone FOCUS improvements.

Strategic Reliability Plan – Multipart program using device reliability performance to prioritize general reliability improvement projects that target decreasing CIs and outage durations. Programs that are part of the Strategic Reliability Plan (implemented in 2021) include:

- 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 an above-average number of outages, which is defined as four (4) or more outages that have occurred within a two (2) year period no matter the CI count.
- Outage Follow-Up – Reliability projects driven by large Customer Interruption ("CI")[12]/Customer Minutes ("CM")[13] 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 CIs.

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

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

- Five (5) Percent Worst Performing – Reliability projects driven by an annual look back at ELL's five (5) percent 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 customers in the surrounding area are restored to improve customers' quality of service. Since 2019, ELL has installed 265 reclosers as part of the Distribution Automation Program. Along with installing new reclosers, we have also deployed 92 self-healing networks and connected 1370 (inclusive of the 265) reclosers to the distribution operation centers for remote visibility and control. These reclosers have produced 45,763 avoided CIs for the twelve months ending July 31, 2023.

Sectionalization Program – Involves the placement of sectionalizing devices (pole top switches, reclosers, TripSavers,[14] etc.) to improve restoration times for customers, which as I explain below can have the effect of reducing the likelihood of classified Major Event Days under the Commission's Reliability General Order.[15] This

[14] A TripSaver is a specific type of cutout mounted recloser that uses automated functionality to help reduce the number of customers affected by faults by eliminating momentary outages.

[15] *See,* Reliability General Order §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.").

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.

Pole Program – 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. The Pole Program inspects approximately 10 percent of the distribution pole assets on a yearly basis. The 2023 program year is year five (5) of the first ten-year cycle, which will end in 2028, at which time the program will begin the second ten-year cycle and will repeat thereafter. After the first ten-year cycle is completed in 2028, and as the second ten-year cycle proceeds, the Company expects that pole rejection rates will decrease by approximately 60 percent, as compared to the rejection rates found during the first ten-year cycle.

Equipment Maintenance Program – Includes annual inspections on reclosers, switch cabinets, capacitor banks, and voltage regulators to ensure operational performance. Inspections can result in either replacement or repair of the equipment.

Underground Residential Distribution ("URD")/Cable Program – 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.