upgrades over the next few years, the removal of OROW vegetation hazards. Furthermore, 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 resilience, and the Resilience Plan thus includes such coordination and tree removal work as part of the proposed projects for which it provides.

2. Storm Hardening of the Distribution System and New Engineering Standards

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. As I will discuss further below, ELL has made changes over time 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 1 poles for three-phase distribution feeder construction for selected circuits (*e.g.*, feeders immediately adjacent to the coast).

Also, ELL's recent experience with 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 has historically gone 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;[21]
- 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
- Hardening existing service centers and building new ones to withstand winds up to 145 mph.

In addition, new facilities, rebuilt facilities, and, to the extent possible, facilities restored after any storm have been constructed and/or upgraded to meet then-current design standards, except in rare instances where performing the upgrades would result in extreme service disruptions or prohibitive costs.

In October 2018, the Entergy Distribution Design Basis 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

[21] 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.

has the ability to tie with any other three-phase line from another circuit, when needed.

- Nothing smaller[22] than Class 3 poles should be used for all primary applications.

Finally, Mr. Meredith describes in his testimony the Company's recent adoption of revised wind loading guidelines for transmission and distribution assets. From my perspective, the revised guidelines will allow the Company to improve the resilience of its system.

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

[22] "Smaller" in this sense characterizes strength. A Class 1 pole is stronger than a Class 3 pole. The standard sets out that the minimum strength for all primary applications must be Class 3 strength.

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.[23]

Because underground facilities are typically multiple times the cost of overhead, the Company would not recommend wholesale conversion of overhead to underground. We must balance the benefits of investment in hardening with the need to ensure that electricity remains affordable for our customers. However, installing underground

[23] *See* Staff Report (January 28, 2009), *In re: Identification and Evaluation of Potential Methods to Decrease the Vulnerability of Electric Utility Distribution Infrastructure in Response to Severe Weather Events, Docket No. R*-30821.

facilities will be pursued if determined to be cost-effective for strategic hardening initiatives, such as with the interstate crossings I mentioned previously as well as a recently-completed reliability project involving the burial of two primary feeders across Bayou Lafourche in Lockport, Louisiana. Additionally, following Hurricane Ida, the Company completed a $52.5 million underground project in Grand Isle, which involved burying 12.5 miles of three-phase distribution line in connection with rebuilding and strengthening the distribution system in that community.

Moreover, Messrs. Meredith and De Stigter discuss the inclusion of certain undergrounding projects as projects to be evaluated for potential inclusion in of the Comprehensive Hardening Plan. The 1898 report that Mr. De Stigter sponsors provides a methodology to guide the Company's decision-making process regarding when an undergrounding project should be pursued as part of the Comprehensive Hardening Plan. It should be noted that it would not be cost-beneficial to convert all potential overhead Comprehensive Hardening Plan projects into underground projects. The cost of only constructing underground Comprehensive Hardening Plan projects would be prohibitive. A goal of the Comprehensive Hardening Plan is to mitigate risk in a cost-effective manner, and if the Company were to invest all dollars into underground work, far fewer resilience projects could be pursued (barring a drastic budget increase), which would unreasonably leave a larger number of ELL customers exposed to storm risk.

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. In fact, the purpose of the Company's Application in this docket is to obtain Commission approval for ELL to execute its plan to conduct extensive hardening and resilience work that will reduce the vulnerability of the Company's infrastructure to storms. That work will benefit not only the Company, but also the Company's customers and the communities that the Company serves, as well as other utilities served by ELL's transmission system. Mr. Meredith describes the Company's plan in detail, and I generally discuss and support that plan later in my testimony.

That being said, evaluating the costs and benefits of potential hardening activities is an ongoing process for the Company, and the Commission recently opened a general rulemaking 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. 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.

C. ELL's Transmission System & Operations

Q30. PLEASE PROVIDE A GENERAL DESCRIPTION OF THE ENTERGY TRANSMISSION SYSTEMS.

A. The 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 approximately 1,500 substations. Employees based at various locations throughout the service area plan, design, construct, operate, and maintain the transmission systems.

Q31. WHAT GENERAL FUNCTIONS DO THE EOCS' TRANSMISSION SYSTEMS PERFORM?

A. The EOCs' transmission systems move high-voltage, bulk electric power produced by market participants within the Midcontinent Independent System Operator, Inc. Regional Transmission Organization 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 transmission systems also deliver power directly to large 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.

Q32. 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.

Q33. PLEASE DESCRIBE ELL'S TRANSMISSION SYSTEM SPECIFICALLY.

A. The ELL transmission system is comprised of over 5,000 circuit miles of transmission lines and approximately 500 substations operating at voltages of 500 kV, 345 kV, 230 kV, 138 kV, 115 kV, and 69 kV. The ELL transmission system is interconnected with the transmission systems of EAL, ENO, EML, ETI, Lafayette Utilities System, Louisiana Generating LLC, Cleco Power LLC ("Cleco"), Louisiana Electric Power Authority, Mississippi Power Company, and Southwestern Electric Power Company.

Q34. WHY IS ELL'S TRANSMISSION SYSTEM INTERCONNECTED WITH OTHER TRANSMISSION SYSTEMS?

A. ELL's transmission system is interconnected with other transmission systems primarily to promote system reliability. The interconnection of transmission systems also provides access to other power suppliers, some of which may provide more economic sources of power than what is available on-system.

Q35. HOW IS THE ENTERGY TRANSMISSION SYSTEM PLANNED, DESIGNED, CONSTRUCTED, OPERATED AND MAINTAINED?

A. The transmission systems of all EOCs, including ELL's, are planned, designed, constructed, and operated to function as a single integrated transmission system within the broader Eastern Interconnection. The Power Delivery organization is responsible for the planning, operation, and maintenance of those systems. 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. The 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. The roles and responsibilities of both ELL and ESL personnel are designed to avoid duplication.

Q36. PLEASE DESCRIBE THE COMPANY'S RECENT INVESTMENT IN AND IMPROVEMENT OF ITS TRANSMISSION SYSTEM.

A. Transmission capital investment can be divided into a few 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. For the period 2013 through October 2022, the Company invested approximately $3.4 billion in its transmission system. Note that the totals in Table 2 below 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 Capital Closings (Non-Major Storm)

Values in $M

2013	2014	2015	2016	2017	2018	2019	2020	2021	2022*	Total
168.3	198.1	188.3	288.6	291.8	490.8	449.4	521.9	377.3	416.3	3,391.0

* Includes actuals through October 2022.

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 mono-pole or multi-pole 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.

Q37. CAN YOU PROVIDE SPECIFIC EXAMPLES OF TRANSMISSION PROJECTS RECENTLY COMPLETED BY THE COMPANY?

A. Yes. The Company recently completed a transmission system upgrade in Lafourche Parish in south Louisiana that is designed to improve resilience and reliability of the local power grid for customers in the Bayou region. The Company's transmission lines were upgraded and approximately 80 steel structures between Cut Off and Golden Meadow were replaced with infrastructure built to withstand winds of up to 150 mph. In particular, new infrastructure was placed into steel caissons to create strong foundations.

Another example is the West Monroe Reliability Improvement Project that spans across Ouachita Parish and positions the region for economic growth and increased resilience and reliability. New transmission equipment was installed and portions of the existing, local transmission system were upgraded. Major components of the project include:

- Upgrading 4 transmission lines to 230kV,
- Construction of a new 3-mile 230kV transmission line, and
- Upgrading or expanding 5 substations.

This work made the electric system in the area more interconnected with higher capacity, which will help the Company deliver power now and into the future by way of clean generating resources like solar, for example. Also, while the project enhances service reliability, it can also help import lower-cost power to keep the region attractive to existing or new customers, including those turning to electrification to reach sustainability goals, and is an important step in the Company's modernization of the electric system in north Louisiana.

Another recently-completed project is the Waterford – Vacherie 230 kV line upgrade. This project, located in southeast Louisiana, involved upgrading the Waterford – Vacherie 230 kV line to a higher rating to address future load growth and reliability needs.

As I noted above, ELL has also made significant investments in its transmission system during the past several years utilizing modern design standards. The Company evaluates hardening strategies from a customer perspective, weighing the benefits of fewer and shorter outages against the increased costs of hardening the

system, which our customers ultimately must bear. Maximizing resilience on every aspect of the grid is not cost-effective for customers. In other words, ELL continually searches for ways to improve the resilience of its transmission system while also managing and balancing the resulting effects on the rates that are paid by customers. Furthermore, all of the Company's transmission facilities are designed and constructed to meet or exceed the applicable design standards at the time of construction.

Q38. CAN YOU EXPLAIN WHAT YOU MEAN BY APPLICABLE DESIGN STANDARDS?

A. Yes. Referring specifically to the transmission system in southeast Louisiana that was impacted during Hurricane Ida, that system was designed under different sets of standards. Older structures, for example those installed prior to 1997 when the various standards were unified, were designed to either the Louisiana Power & Light ("LP&L") or the New Orleans Public Service Inc. ("NOPSI") standards that were in effect at the time of construction, which have been grandfathered into ELL's system. These standards were developed under earlier versions of the NESC, and, therefore, structures built under each set of standards were designed to withstand different wind loadings. Transmission facilities designed and constructed more recently utilized the unified Entergy Design Standard implemented in 1997.

In any event, the unified Entergy Design Standard required all transmission lines built or substantially upgraded in southeast Louisiana to be designed for at least 110 mph, with the majority being designed for 125 mph or 140 mph winds. Older

transmission lines located in south Louisiana that were designed and constructed before the development of the unified Entergy Design Standard were based on legacy LP&L or NOPSI design standards. All lines, regardless of vintage, meet or exceed the NESC requirements in effect at the time of their construction. As Mr. Meredith discusses in his direct testimony, the Entergy Design Standard was recently replaced by revised wind loading guidelines for transmission lines.

Q39. PLEASE DESCRIBE THE COMPANY'S MAINTENANCE PROGRAMS AND PRACTICES APPLICABLE TO ITS TRANSMISSION SYSTEM.

A. The Company utilizes several types of inspections for its transmission line structures, including routine aerial patrols leveraging both helicopters and Unmanned Aerial System ("UAS") technology, wood pole groundline treatment and inspection, climbing inspection (for wood poles), and comprehensive aerial inspection (for concrete and steel poles). Climbing and comprehensive aerial inspections are triggered by the performance of the lines and through conditions found during routine aerial patrols, outage patrols, and groundline inspections. As it relates to the Company's preparation for storms, the Company typically completes at least one cycle of transmission aerial inspections prior to June of each year.

The Company flags corrective maintenance items identified through inspections that are then prioritized for remediation into the following categories:

- Priority 1 – emergency work to begin within 0-24 hours from the time work is identified;

- Priority 2 – urgent work to begin within 14 days from the time work is identified;
- Priority 3 (High) – work identified to be planned, scheduled, and work to begin within 90 days from the time work is identified;
- Priority 3 (Medium) – work identified to be planned, scheduled, and work to begin in the next calendar year; and
- Priority 3 (Low) – work identified to be planned, scheduled, and bundled with other work.

Q40. PLEASE DESCRIBE THE COMPANY'S VEGETATION PROGRAMS AND PRACTICES APPLICABLE TO ITS TRANSMISSION SYSTEM.

A. To keep ROWs in proper condition, the Company typically performs at least two aerial patrols of all transmission lines each year to inspect the ROWs and identify any areas requiring corrective maintenance. Vegetation is maintained in a manner that keeps it clear from growing into the transmission lines and causing associated electrical interruptions based on proximity. A combination of traditional trimming and herbicides are used to maintain the ROWs, and the Company implements an inspection program to identify and remove trees located outside of the Company's ROWs that may endanger the conductor zone. Through that inspection program, the Company works to proactively mitigate high risk trees outside of our ROWs with customer permission; however, obtaining customer consent to trim beyond our ROWs can, at times, pose a challenge.

IV. THE COMPANY'S PROPOSED INCREASE IN VEGETATION MANAGEMENT EXPENDITURES SHOULD PROVIDE BENEFITS THAT COMPLEMENT THE COMPANY'S RESILIENCE EFFORTS

Q41. PLEASE DESCRIBE THE COMPANY'S PROPOSED SPENDING INCREASE FOR VEGETATION MANAGEMENT AND RIGHT OF WAY MANAGEMENT.

A. As described more fully in Mr. Meredith's testimony, the Company is proposing enhancements to its current vegetation management programs to accelerate trim cycles and to implement additional program elements. Specifically, on the distribution system, the Company is proposing to (i) reduce its trim cycle to five years; (ii) implement mid-cycle herbicide treatments; (iii) implement a backbone "skylining" project; [24] (iv) implement additional programs to target poor performing species of trees and danger trees (including work performed OROW); and (v) increase reactive trimming efforts. On the transmission system, the Company is proposing to increase its OROW work and implement air-saw trimming of vegetation along transmission lines.

Q42. ARE THESE ENHANCEMENTS BEING PROPOSED BECAUSE THE COMPANY'S CURRENT VEGETATION MANAGEMENT PRACTICES ARE INADEQUATE?

A. No. The Company's current vegetation management practices, which I describe above, are reasonable and help the Company provide its customers with safe, reliable power at the lowest reasonable cost. The programs and enhancement to current

[24] "Skylining" refers to the removal of all overhanging limbs above identified areas on an electric line.

practices that are being proposed in this filing were identified as opportunities based on the Company's experience with prior storms to further improve system resilience in the face of major weather events rather than to address any inadequacies or gaps in the Company's current practices.

Q43. CAN ANY INSIGHTS BE DRAWN FROM THE COMPANY'S EXPERIENCE WITH PRIOR STORMS THAT SUGGEST THE PROPOSED ENHANCEMENTS WILL HELP IMPROVE SYSTEM RESILIENCE?

A. Yes. The Company's experience with prior storms has demonstrated that OROW trees can be significant contributing factors to damage to the Company's facilities during major storms. For example, the Company's damage assessment after Hurricane Ida did not indicate that the Company had inadequate vegetation management in its distribution or transmission line ROWs, but rather revealed that the storm brought significant vegetation-related damage to ELL's facilities from downed trees that came from outside of the Company's ROWs. 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. 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 resilience.

Q44. WHAT ARE THE ANTICIPATED BENEFITS OF THE COMPANY'S VEGETATION MANAGEMENT PROPOSAL?

A. The vegetation management enhancements that the Company is proposing under the Resilience Plan are expected to increase overall system resilience. For example, the Company is proposing to implement a backbone skylining project over five years, performing skylining on approximately twenty percent of the Company's backbone distribution lines annually. By removing all overhanging limbs from these distribution lines, the Company expects to reduce the outages and damage these limbs could cause during major storms. Similarly, the Company is proposing to identify species of trees that have historically caused major damage (*i.e.,* Water Oak trees in urban areas with high customer counts) and target those trees for removal. By removing these trees before they fail during a major event, the Company can mitigate threats from expected sources of storm damage. As a result, the Company expects that these efforts should reduce the number and duration of outages following a major storm.

Q45. HOW DOES THE COMPANY'S VEGETATION MANAGEMENT PROPOSAL COMPLEMENT THE COMPANY'S OTHER PROPOSALS, INCLUDING THE PROPOSED STORM HARDENING?

A. The proposed vegetation management enhancements work hand-in-hand with the Company's overall resilience plan to address the multifaceted threats posed by a major storm. Specifically, as discussed by Mr. Meredith, the Company's overall plan is the result of a holistic review of the Company's assets and vulnerabilities in the

light of the changing circumstances illustrated by the extreme weather events of recent years. From that review, the Company identified the overarching portfolio of projects that comprise the Resilience Plan. A large portion of that Resilience Plan is designed to accelerate storm hardening of transmission and distribution assets so that the *assets* themselves (and, in turn, the entire distribution and transmission systems) can better withstand and better recover from the conditions caused by extreme weather events, including interference from vegetation. The vegetation management portion of the Company's proposal is a logical complement to the Company's hardening efforts by addressing some of the potential *causes of outages* themselves. While the Company cannot control all of the conditions caused by major storms (such as extreme winds and flooding), the Company can take steps to limit the potential for vegetation to cause damage during major events by taking proactive actions, including "skylining" a large portion of its distribution lines, working to remove danger trees, and removing other identified "problem species" of trees. Similarly, the use of an air-saw to further assist transmission line trimming can help reduce the threat of damage posed by vegetation near the Company's transmission lines, including in generally inaccessible areas. In this way, the vegetation work complements the hardening effort by helping to decrease the number of times that the Company's storm-hardened assets will be tested by vegetation during and after a major storm.

V. THE NEED FOR THE COMPREHENSIVE HARDENING PLAN AND THE BENEFITS THAT THE PLAN WILL PROVIDE

Q46. DOES ELL'S STORM EXPERIENCE INDICATE THAT THE COMMISSION SHOULD CONSIDER WHETHER ELL SHOULD UNDERTAKE THE COMPREHENSIVE HARDENING PLAN OR SOME MEANINGFUL AND COMPREHENSIVE INITIATIVE TO ACCELERATE RESILIENCE FOR THE BENEFIT OF CUSTOMERS?

A. Yes. As is discussed by Company witness Phillip R. May, over the last few years, hurricanes, winter storms, and other severe storm activity has created significant concerns about the increasing intensity, frequency, and cost of extreme weather events. Beginning with Katrina and Rita and most recently with Laura and Ida – both Category 4 hurricanes hitting in back-to-back years – the Company and its customers and communities have incurred billions of dollars in storm-related restoration and outage costs, with power sometimes being out for extended periods of time before it could be restored. It is evident that an accelerated approach to hardening/resilience is appropriate, and it is time for the Company, in collaboration with the Commission, to embark upon a program to proactively address the risks that the electric system is exposed to by these increasingly intense weather events. Because major storm events are occurring more frequently and with more intensity, it is very likely that the Company will incur costs, one way or another, to improve the resilience of the electric system. That is, either it will incur these costs as part of a comprehensive, accelerated plan to improve resilience, or it will incur these and additional costs after major events strike without achieving the same level of resilience. However, as

Company witness Sean Meredith discusses in more detail in his direct testimony and as I discuss below, there are obstacles and challenges in the aftermath of a major storm event that make it difficult to perform work as efficiently and with the level of management oversight and coordination that is possible if the work is performed proactively.

The purpose of the Comprehensive Hardening Plan is to improve resilience more efficiently by directing our efforts with careful controls and strategically-planned design as opposed to performing work urgently, over a compressed timeframe, and under the exigent circumstances that exist after a major storm event – when the focus and priority must necessarily be to repair facilities and restore service as quickly and safely as possible. By implementing the Comprehensive Hardening Plan, the Company can construct more resilient facilities such that damages after major events are less severe and easier and quicker to recover from. If the Company does not more aggressively plan and construct these facilities to more storm resilient standards, it will likely pay more to repair them during future crises arising from major storm events like we have experienced over the past few years. In fact, Mr. De Stigter notes in his direct testimony that the projects contained in ELL's Comprehensive Hardening Plan are reasonably projected to produce a reduction in storm restoration costs of approximately 50 percent. Moreover, the projects identified in the Comprehensive Hardening Plan are reasonably projected to produce a decrease in the projected CMI after a major storm by approximately 55 percent over the next 50 years. Those cost and customer outage reductions would be transformative. I endorse the Comprehensive Hardening Plan that Messrs. Meredith and De Stigter

describe in their direct testimony, and I generally discuss below the benefits that the Comprehensive Hardening Plan will provide.

Q47. HOW ARE ELL'S PAST AND PRESENT RELIABILITY EFFORTS DIFFERENT FROM THE COMPANY'S PROPOSED COMPREHENSIVE HARDENING PLAN'S RESILIENCE ACTIONS?

A. Reliability improvements can reduce certain customer interruptions and their duration, but they do not produce the above-discussed, post-storm cost savings and outage reductions resulting from resilience work. Although resilience work and reliability work may look the same and involve the same activities, such as replacing a utility pole, the analyses and drivers supporting that work are very different. For example, reliability may be diminished on a distribution circuit due to a poorly-performing device such as a recloser (a device that temporarily turns off power to allow the system to return to normal and then restores power automatically). A poorly performing recloser may fail to open a circuit causing upstream devices to operate instead, interrupting more customers than necessary. It may also open inadvertently thus interrupting customers unnecessarily. A project born from a strategy to improve reliability would likely include replacing the recloser, and potentially the pole it was mounted on, if inspection of the pole determines that the pole is not up to standards. The new recloser would improve the reliability in that area. By comparison, a resilience-focused strategy would identify degraded poles, as well as otherwise-functioning poles that did not meet current standards, and target them for replacement. If the poles include devices that need replacement, such as the

faulty recloser in this example, they would be replaced when the poles were replaced. In instances where equipment has not reached the end of its life, but was not designed to meet the more stringent wind loading design standards that Mr. Meredith discusses, the Company will likely replace that equipment to meet the new standards if that equipment poses a material risk to the recovery after an event. In all, the approach the Company proposes would result in improved reliability, but also in a more resilient system due to the pole upgrades. The reliability approach would result in nearly the same reliability performance during thunderstorms, or mild weather incidents, as the resilience approach. However, the resilience approach would yield the additional benefits of being more capable of withstanding extreme events.

Q48. WILL ELL'S PROPOSED PLAN TO IMPROVE RESILIENCE DETRACT FROM ITS COMMITMENTS TO PROGRAMS DESIGNED TO IMPROVE RELIABILITY?

A. No. In fact, the Comprehensive Hardening Plan will coexist with and complement ELL's programs targeted to improve reliability. First, the facilities identified as highly valuable for resilience upgrades overlap significantly with facilities targeted for reliability improvements in the future. For example, the FLIP identified several feeders that would see improved reliability if the entire feeder were upgraded to new standards to address aging facilities such as crossarms and poles, as well as the equipment operating on the feeder, such as reclosers and regulators. In fact, 90 percent of the feeders identified in the FLIP program are identified in the Comprehensive Hardening Plan as valuable from a resilience perspective. Similarly,

ELL's programs to replace poles involve inspecting poles and then either extending the life of them through treatment or replacing them when treatment will not maintain adequate strength. The Comprehensive Hardening Plan includes the replacement of lower strength poles with poles meeting the new extreme wind guidelines. The Comprehensive Hardening Plan introduces a new facet into how ELL's transmission and distribution systems are planned, designed, and constructed. Projects that were and will be developed to improve reliability will be designed to withstand higher wind loading, thus improving resilience. Projects identified as highly valuable from a resilience perspective for facilities with high levels of reliability already will be prioritized and evaluated based on their resilience benefits alone, and thus lower in priority than projects with immediate reliability and longer-term resilience benefits. Similarly, a project to improve reliability located on facilities that are already designed to be resilient would slot behind a project that had reliability and resilience attributes. It is important to understand that the Comprehensive Hardening Plan and the programs already underway will be prioritized based on reliability and resilience attributes. While there are certainly needs to enhance the resilience of ELL's electric system, improvements in reliability are also needed. Thus, projects will continue to be developed that provide the highest value to ELL's customers. The Comprehensive Hardening Plan will introduce projects that have resilience benefits that will complement the programs historically developed to improve reliability. Thus, the Comprehensive Hardening Plan will not detract from reliability efforts.

Q49. WHAT ARE THE BENEFITS OF PERFORMING RESILIENCE WORK IN THE CONTEXT OF A RESILIENCE EFFORT SUCH AS THE COMPREHENSIVE HARDENING PLAN?

A. Generally speaking, there are two categories of benefits that arise by virtue of the Company performing "blue sky"[25] resilience work as compared to performing reactive, post-storm restoration work. The first category of benefits relates to the fact that "blue sky" restoration work can be more carefully planned, executed and overseen as compared to reactive, post-storm restoration work where the Company is working as quickly and safely as possible to restore power, often in highly unattractive conditions that I will discuss later in my testimony. Moreover, to expedite restoration of outages, some components of post-storm restoration work must be performed by third-party contractors and mutual-assistance resources that are not necessarily as familiar with the Company's system, standards, operating procedures, and safety rules. The Company educates those third-party workers about those matters, and the Company incurs additional costs to ensure the efficiency and quality of the work performed in the immediate aftermath of a major storm, often by tens of thousands of contract workers. Those costs can be minimized and/or avoided when the Company executes comparable work in "blue sky" conditions when the work can be planned and executed without the urgency that accompanies widespread outages.

[25] "Blue sky" work means work that is planned and performed under normal weather conditions.

The second category of benefits relates to cost. Specifically, and as is discussed in the direct testimony of Company witnesses Mr. Meredith and Mr. De Stigter, "blue sky" work can typically be executed at a reduced cost as compared to post-storm restoration work.

Q50. PLEASE DISCUSS THE FIRST CATEGORY OF BENEFITS.

A. As noted above, "blue sky" restoration work can be more carefully planned, executed and overseen as compared to reactive, post-storm restoration work. Specifically, in "blue sky" conditions, the Company can more methodically and efficiently identify, plan and execute projects, as compared to the hectic, post-storm restoration environment when the Company is working as quickly and safely as possible to restore power, often in highly unattractive conditions and with tens of thousands of contract workers laboring simultaneously across a vast area impacted by a major storm.

Q51. CAN YOU ELABORATE ON THE HIGHLY UNATTRACTIVE CONDITIONS THAT CAN EXIST IN THE AFTERMATH OF A STORM?

A. Yes. After a major storm, there are often significant obstacles that the Company encounters that hinder and complicate the restoration work. For example, hurricane-caused obstacles include the delay in deploying resources that may result if a major storm maintains hurricane strength into inland areas of our service area; obstacles to

mobility such as trees and debris across roadways as well as flooded roadways;[26] trees and debris across or blocking access to ROWs; saturated ground from rains preventing truck access; trees and debris cluttering work sites; flooding along the coastal areas; domestic livestock and wildlife (alive and dead) displaced by hurricane or storm surge impeding access to roads, ROWs, and work sites; and storm surge damage to infrastructure such as roads and bridges.

Other obstacles relate to the accessibility of our infrastructure. These obstacles would exist even without the devastation of a hurricane, but they can be exacerbated by hurricane debris. An example of this was the difficulty after Hurricane Ida to make repairs to facilities located in rear lots, alleys, or off-road. In those cases, truck access was often not available or was blocked by customer buildings and debris. This type of construction required that most work be done by carrying specialized equipment and materials to the rights-of-way and manually reconstructing the facilities without the assistance of trucks for digging holes, erecting poles, and lifting workers and equipment into position on the poles. Even under normal operating conditions, these types of facilities are more difficult and time-consuming to restore, but the time and cost of repairing these facilities increases due to post-storm conditions.

[26] For example, in Hurricane Ida, Interstate 10 between New Orleans and Baton Rouge was temporarily closed because of flooding, with water reported to be 4 feet deep in one location.

Q52. ARE THERE ANY OTHER CHALLENGES FACED BY THE COMPANY DURING POST-STORM RESTORATION?

A. There are. Another significant challenge after a storm is providing support to the workforce necessary that restores power to ELL's service area, often in the extreme heat and humidity experienced in southeast Louisiana during the summer and early fall. The main example is the significant operational challenge involved in managing and maintaining logistical support for thousands of workers from outside the local area. The provision of lodging, meals, ice, laundry, parking, fuel, and other resources required to support this effort present unique challenges. For example, at the Distribution-level, over 24,000 workers responded to Hurricane Ida in Louisiana. Restoration workers came from 41 states to assist in the restoration efforts following Hurricane Ida. This includes mutual-assistance and off-system resources that were acquired through our memberships and contracts with the Southeast Electric Exchange ("SEE"), the Edison Electric Institute ("EEI"), the Midwest Regional Mutual Assistance Group, Regional Equipment Sharing for Transmission Outage Restoration ("RESTORE"),[27] and the Texas Regional Mutual Assistance Group. While the help of these resources is always needed and greatly appreciated, it is more difficult to plan and execute work in difficult, post-storm conditions with all of the above-discussed logistical issues that complicate storm restoration. Simply put, there are fewer distractions when performing work in "blue sky" conditions.

[27] RESTORE is sponsored by the North American Transmission Forum ("NATF"). NATF members include investor-owned, state-authorized, municipal, cooperative, U.S. federal, and Canadian provincial utilities. The NATF promotes excellence in the reliability and resiliency of the electric transmission system.

Q53. CAN YOU PLEASE PROVIDE MORE INFORMATION ON THE MUTUAL-ASSISTANCE AND OTHER THIRD-PARTY RESOURCES WHO ASSIST WITH STORM RESTORATION?

A. Yes. With respect to mutual-assistance resources, Entergy is a party to mutual-assistance agreements, and for safe, timely, and efficient restoration from major storms, our industry depends on off-system mutual assistance resources to support restoration efforts. Over the years, Entergy has assisted many other electric utilities by sending support to aid in their restoration efforts. Mutual-aid support typically consists primarily of line crews supplied from other utilities. Other third-party resources can include (1) damage assessment contractors; (2) line contractors; (3) vegetation contractors; (4) logistics contractors that provide support to staging areas such as mass housing, catering, and other logistics coordination and procurement; (5) investment recovery contractors who assist in the recovery and disposal of damaged equipment and debris; (6) fuel suppliers; (7) trucking and equipment contractors that move equipment, material and supplies; (8) security services; and (9) transportation contractors that repair/replace damaged tires and dead batteries, and perform other minor vehicle repairs.

Q54. ARE THESE THIRD-PARTY RESOURCES NECESSARILY AS FAMILIAR WITH THE COMPANY'S SYSTEM, STANDARDS, OPERATING PROCEDURES AND SAFETY RULES?

A. No. These third-party contractors and mutual-assistance resources are not necessarily as familiar with the Company's system, standards, operating procedures, and safety rules as the Company's own employees. While the Company makes every reasonable effort to ensure that those workers are adequately trained and educated on those standards, procedures, and rules, and while the Company actively manages and oversees the work of those third parties to ensure adherence, it is more reasonably practicable and effective for the Company to ensure the efficiency and quality of the work in "blue sky" conditions when the Company's employees and base load contract partners are performing the work. This is particularly true given the scope and scale of post-storm work that is performed in far-from-ideal conditions. By contrast, "blue sky" work can be conducted more methodically, and over a longer period time, than can post-storm restoration work. For all of the above reasons, as compared to post-storm restoration work, resilience work that is performed in "blue sky" conditions can be more efficiently managed, and the quality of that "blue sky" work can be obtained on a less-costly basis.

Q55. CAN YOU PLEASE DISCUSS THE SECOND CATEGORY OF BENEFITS OF "BLUE SKY" RESTORATION WORK, AS COMPARED TO POST-STORM RESTORATION WORK?

A. Yes. Comparatively speaking, as is discussed in the direct testimony of Mr. Meredith, "blue sky" work can typically be executed at a reduced cost as compared to post-storm restoration work. Specifically, after a major storm, there are often hundreds of thousands of customers without power. 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. To restore service as safely and quickly as possible, ELL will often use every available resource to the maximum extent, which includes long hours by every worker and expedited delivery of materials from every source reasonably available.

Q56. HOW DOES 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. The additional or incremental costs often incurred to restore service after a major storm event, and not generally incurred for "blue sky" work, include items such as:

Additional Crews – With extensive damage to vegetation and to the Company's distribution and transmission facilities, the Company often must significantly supplement its existing workforce to clear debris, assess damage

to facilities, and repair those facilities simultaneously so that service can be restored. As I discuss above, to complete a prompt restoration, the Company will engage mutual-assistance utility partners and third-party line/vegetation contractors.

Overtime/Premium Pay – Instead of working typical 40-hour weekly work shifts, employees and contractors can work significantly more hours and incur substantial overtime. For example, after Hurricane Ida, 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 engage 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 and other related costs to support the crews.

Meals – In addition to lodging, all of the restoration personnel have to be fed, often when restaurants are not open due to the effects of the storm.

Increased Materials Prices – Due to the ongoing pandemic, some essential materials were in high demand after the storms experienced in 2020 and 2021. 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 – After a storm, the Company needs to acquire significant amounts of fuel to support restoration efforts. For example, after Hurricane Ida, ELL acquired 3,071,338 gallons of fuel.

Q57. HOW ELSE CAN THE POST-STORM ENVIRONMENT INCREASE COSTS?

A. The Company exercises diligence to source services and materials at the lowest reasonable cost. However, given the urgent demand for timely service restoration after a storm, in such circumstances the Company sometimes is required to pay more for services and materials than it would for work performed in the normal course of business. The priorities of service restoration, protecting public health and welfare, preserving strategic energy supplies, and supporting emergency responders can take precedence over obtaining potential cost reductions. That being said, the Company has years of experience in emergency restoration procurement, and, as a highly-skilled purchaser of these services and materials for its facilities, the Company is very familiar with the costs of the products and services of the vendors with which it is working. Accordingly, while post-storm costs can increase, the Company is in a position to ensure that the prices and terms under which it purchases services and

materials are fair and reasonable under the extreme circumstances. There may be instances in which the Company might have to pay higher prices than it would have in a non-emergency situation; however, the Company's processes and experience ensure that the prices and costs it does pay are reasonable under the circumstances.

Nonetheless, for the reasons I discuss above, "blue sky" work can typically be executed at a reduced cost as compared to reactive, post-storm restoration work.

Q58. BASED ON YOUR EXPERIENCE WITH STORMS, CAN YOU PROVIDE SOME SPECIFIC EXAMPLES OF TYPES OF BENEFITS THE COMPREHENSIVE HARDENING PLAN WILL BRING?

A. Building a more resilient transmission and distribution system will allow the Company to more quickly and efficiently restore power to the communities it serves after major events and will improve the reliability of these systems. Major events such as hurricanes can inflict damages to these systems that require thousands of resources and hundreds of millions of dollars in replacement materials. The largest costs are associated with replacing transmission structures and distribution poles that have been destroyed. While damages to minor materials such as insulators, shield wires, conductors, etc. may still occur after resilience investments are made, repairing these types of damages takes much less time and much fewer resources. We have recent real-world examples of how resilient designs and construction techniques can result in quicker and more efficient restorations.

Just prior to the landfall of Hurricane Laura, a new transmission project, the Lake Charles Transmission Project ("LCTP") was completed. The LCTP was

constructed to support industrial expansion in the Lake Charles industrial area and was designed and constructed to the modern standards being proposed by the Comprehensive Hardening Plan. The eye of Hurricane Laura passed directly over this new transmission facility with winds estimated to exceed 125mph when it impacted the LCTP. All structures constructed on the LCTP survived with only minimal damages. Within a day or two, the LCTP portion of the transmission system in Lake Charles was ready to move energy. This provided a path to begin the restoration, and the LCTP proved to be integral to the restoration. Once less resilient interconnecting facilities were repaired, the LCTP was used to interconnect Lake Charles to undamaged parts of the system to the west of Lake Charles. The LCTP was the only undamaged transmission line in the immediate area. Had more facilities in the Lake Charles area been hardened in the same manner as the LCTP, the "first lights" in the Lake Charles area would have likely occurred in less than five days, as opposed to the thirteen days experienced after Laura.

A similar example of the benefits of resilient designs occurred after Hurricane Ida in the Port Fourchon area. 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 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. There were damages to minor facilities, primarily insulators impacted by flying debris, but the structures were

upright and undamaged, which resulted in restoration timelines being reduced from months to days.

VI. CONCLUSION

Q59. DOES THIS CONCLUDE YOUR DIRECT TESTIMONY?

A. Yes, at this time.

AFFIDAVIT

STATE OF MISSISSIPPI

COUNTY OF HINDS

NOW BEFORE ME, the undersigned authority, personally came and appeared, **CHARLES W. LONG,** who after being duly sworn by me, did depose and say:

That the above and foregoing is sworn testimony in this proceeding and that knows the contents thereof, that the same are true as stated, except as to matters and things, if any, stated on information and belief, and that as to those matters and things, verily believes them to be true.

Charles W. Long

SWORN TO AND SUBSCRIBED BEFORE ME
THIS 12 DAY OF DECEMBER, 2022

Brittney King
NOTARY PUBLIC

My commission expires: June 14, 2026

STATE OF MISSISSIPPI
NOTARY PUBLIC
ID # 124361
BRITTNEY B. KING
Commission Expires
June 14, 2026
MADISON COUNTY

BEFORE THE

LOUISIANA PUBLIC SERVICE COMMISSION

***IN RE*: APPLICATION OF ENTERGY LOUISIANA, LLC FOR APPROVAL OF THE ENTERGY FUTURE READY RESILIENCE PLAN (PHASE I)**	))))	**DOCKET NO. U-_____**

EXHIBIT CWL-1

DECEMBER 2022

Charles Long's Prior Testimonies
(Updated 12/15/2022)

1. DOCKET NO. 43958 – Testimony on behalf of Entergy Texas, Inc. at the Public Utility Service Commission of Texas
   - Application of Entergy Texas, Inc. For Approval Of An Amendment To Certificate Of Convenience And Necessity And For Public Interest Determination For Purchase Of Unit 1, Union Power Station
2. DOCKET NO. 46416 – Testimony on behalf of Entergy Texas, Inc. at the Public Utility Service Commission of Texas
   - Application Of Entergy Texas, Inc. For A Certificate Of Convenience And Necessity To Construct Montgomery County Power Station
3. DOCKET NO. 51997 – Testimony on behalf of Entergy Texas, Inc. at the Public Utility Service Commission of Texas
   - Application Of Entergy Texas, Inc. For Determination of System Restoration Costs
4. DOCKET NO. 09-084-U – Testimony on behalf of Entergy Arkansas, Inc. at the Arkansas Public Service Commission
   - Direct (September 2009)
   - Supplemental Direct (March 2010)
   - Sur-Reply (April 2010)
   - Application of Entergy Arkansas, Inc for Revenue to Recover a Retail Revenue Deficiency (rate case)
5. DOCKET NO. 09-127-U – Testimony on behalf of Entergy Arkansas, Inc. at the Arkansas Public Service Commission
   - Direct (December 2009)
   - Application of Entergy Arkansas, Inc. For A Certificate of Convenience and Necessity to Construct Cabot Substation
6. DOCKET NO. 09-110-U – Testimony on behalf of Entergy Arkansas, Inc. at the Arkansas Public Service Commission
   - Direct (October 2009)
   - Application of Entergy Arkansas, Inc. for A Certificate of Convenience and Necessity to Construct Osage Grandview Switching Station
7. DOCKET NO. 10-011-U – Testimony on behalf of Entergy Arkansas, Inc. at the Arkansas Public Service Commission
   - Supplemental (October 2013)
   - In The Matter Of A Show Cause Order Directed To Entergy Arkansas, Inc. Regarding Its Continued Membership In The Current Entergy System Agreement, Or Any Successor Agreement Thereto, And Regarding The Future Operation And Control Of Its Transmission Assets
8. DOCKET NO. 10-050-U – Testimony on behalf of Entergy Arkansas, Inc. at the Arkansas Public Service Commission
   - Direct (June 2010)
   - Application of Entergy Arkansas, Inc. for A Certificate of Convenience and Necessity to Construct Transmission Line and Associated Facilities in Lonoke, Pulaski and Faulkner Counties

9. DOCKET NO. U-33244 – Testimony on behalf of Entergy Louisiana, LLC. at the Louisiana Public Service Commission
    - Joint Application of Entergy Louisiana, LLC and Entergy Gulf States, L.L.C. for Approval of Business Combination, for Related Relief, and for an Interim Order Regarding the Companies' 2014 Test Year Formula Rate Plan Filings
10. DOCKET NO. U-33770 – Testimony on behalf of Entergy Louisiana, LLC at the Louisiana Public Service Commission
    - Ex Parte: Joint Application Of Entergy Louisiana, LLC, Entergy Gulf States Louisiana, L.L.C., And Entergy Louisiana Power, LLC For Approval To Construct St. Charles Power Station, And For Cost Recovery
11. DOCKET NO. U-34283 – Testimony on behalf of Entergy Louisiana, LLC. at the Louisiana Public Service Commission
    - Application Of Entergy Louisiana, LLC For Approval To Construct Lake Charles Power Station, And For Cost Recovery
12. DOCKET NO. U-34631 – Testimony on behalf of Entergy Louisiana, LLC. at the Louisiana Public Service Commission
    - Entergy Louisiana, LLC, Ex Parte. Application Of Entergy Louisiana, LLC For Extension And Modification Of Formula Rate Plan
13. DOCKET NO. U-34472 – Testimony on behalf of Entergy Louisiana, LLC. at the Louisiana Public Service Commission
    - Application Of Entergy Louisiana, LLC For Approval To Acquire Washington Parish Energy Center And For Cost Recovery
14. DOCKET NO. 2010-UA-171 – Testimony on behalf of Entergy Mississippi, LLC at the Mississippi Public Service Commission
    - Direct Testimony (April 2010)
    - Entergy Mississippi, Inc. Petition for A Certificate of Convenience and Necessity foe Transmission Line and Related Facilities and Rights-of-Way in Holmes and Attala Counties
15. DOCKET NO. 2014-UN-132 – Testimony on behalf of Entergy Mississippi, LLC at the Mississippi Public Service Commission
    - Notice Of Intent Of Entergy Mississippi, Inc. To Modernize Rates To Support Economic Development, Power Procurement, And Continued Investment
16. DOCKET NO. UD-14-02 – Testimony on behalf of Entergy New Orleans, LLC. at the Council of the City of New Orleans
    - Application Of Entergy Louisiana, LLC For Approval Of Business Combination, And For Related Relief
17. DOCKET NO. UD-16-02 – Testimony on behalf of Entergy New Orleans, LLC. at the Council of the City of New Orleans
    - Application Of Entergy New Orleans, Inc. For Approval To Construct New Orleans Power Station And Request For Cost Recovery And Timely Relief