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March 5, 2024

By Hand Delivery

Mr. Brandon Frey
Louisiana Public Service Commission
Galvez Building, 12th Floor
602 North Fifth Street
Baton Rouge, LA 70802

Re: ***In Re*: Application of Entergy Louisiana, LLC for Approval to Construct Bayou Power Station, and for Cost Recovery**
(LPSC Docket No. U-_____)

Dear Mr. Frey:

I have enclosed, on behalf of Entergy Louisiana, LLC ("ELL" or "Company"), the original and three copies of a Non-Confidential Public Version of the Company's Application for Approval to Construct Bayou Power Station, and Cost Recovery, along with the Direct Testimony and Exhibits of Laura K. Beauchamp, Ryan D. Jones, Gary C. Dickens, Samrat Datta, Phong Nguyen, and Sean Meredith. Please retain the original and two copies for your files and return a date-stamped copy to our by-hand courier.

I have also enclosed five copies of the Confidential Version of the referenced filing, which is being provided under seal pursuant to the provisions of the LPSC General Order dated August 31, 1992, and Rules 12.1 and 26 of the Commission's Rules of Practice and Procedure. The confidential materials included in the filing consist of competitively sensitive market information or sensitive infrastructure information, the disclosure of which may create an artificial target for suppliers/vendors or create physical security risks. For this reason, this material is confidential and commercially sensitive. The disclosure of the information contained herein would subject not only the Company, but also its customers, to a substantial risk of harm. Accordingly, it is critical that this information remain confidential.

Please retain the appropriately marked Confidential Version for your files and return a date-stamped copy our by-hand courier. The three additional confidential copies are for the Administrative Law Judge, Staff Attorney, and Research Attorney. Additional copies of the Confidential Version of this filing will be provided to the appropriate representatives of the Louisiana Public Service Commission Staff and made available to intervenors once a suitable Confidentiality Agreement has been executed by the parties.

If you have any questions, please do not hesitate to call me. Thank you for your courtesy and assistance with this matter.

Sincerely,

D. Skylar Rosenbloom

DSR/kll
Enclosures

cc: LPSC Commissioners (Public version only by email)
Phillip R. May
Lawrence J. Hand, Jr.

BEFORE THE

LOUISIANA PUBLIC SERVICE COMMISSION

***IN RE*: APPLICATION OF ENTERGY LOUISIANA, LLC FOR APPROVAL TO CONSTRUCT BAYOU POWER STATION, AND FOR COST RECOVERY**	**))))**	**DOCKET NO. U-_____**

APPLICATION OF ENTERGY LOUISIANA, LLC
FOR APPROVAL TO CONSTRUCT THE
BAYOU POWER STATION, AND FOR COST RECOVERY

Entergy Louisiana, LLC ("ELL" or the "Company")[1] respectfully submits this Application seeking approval and certification of construction of the Bayou Power Station (the "Project" or "BPS"), a proposed new 112 megawatt ("MW") aggregated capacity generating station consisting of six natural-gas fired reciprocating internal combustion engines ("RICE") with black-start capability in Leeville, Louisiana and an associated microgrid that would serve downstream of the Clovelly substation, including Port Fourchon, Golden Meadow, Leeville and Grand Isle. This Application, filed in accordance with the Louisiana Public Service Commission's ("Commission") General Order dated September 20, 1983 (the "1983 General Order"),[2] requests certification that the public convenience and necessity would be served by construction and deployment of BPS. In addition to certification under the 1983 General Order, the Company respectfully requests, among other relief, a finding that the Project qualifies for an exemption from the Commission's Market-

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[1] ELL is a limited liability company duly authorized and qualified to do and doing business in the State of Louisiana, created and organized for the purposes, among others, of manufacturing, generating, transmitting, distributing, and selling electricity for power, lighting, heating, and other such uses. ELL also engages in the local distribution of natural gas to residential, commercial, municipal, and other customers in East Baton Rouge Parish.

[2] LPSC General Order dated September 20, 1983 (*In re: In the Matter of the Expansion of Utility Power Plant; Proposed Certification of New Plant by the LPSC*), as amended by General Order (Corrected) in Docket No. R-30517 (*In re: Possible modifications to the September 20, 1983 General Order to allow (1) for more expeditious certifications of limited-term resource procurements and (2) an exception for annual and seasonal liquidated damages block energy purchases*) dated May 27, 2009.

Based Mechanisms General Order ("MBM Order") under the circumstances,[3] findings relating to appropriate cost recovery, and the development of a schedule and procedures to permit this Application to be considered on a timely basis, as follows:

INTRODUCTION

I.

ELL is a limited liability company duly authorized and qualified to do business in the State of Louisiana, created and organized for the purposes, among others, of manufacturing, generating, transmitting, distributing, and selling electricity for power, lighting, heating, and other such uses.

II.

The Project consists of three parts: (1) the power barge, including six Wartsila 18V50SG RICE generators, two Generator Set Up ("GSU") transformers, supporting auxiliary equipment, and barge hull to support top side erection of the Wartsila equipment; (2) transmission interconnection and Leeville substation expansion; and (3) a microgrid control system implementation to allow isolation of the power barge from the Eastern Interconnection if the radial transmission line is out of service. During an outage, the microgrid would be capable of serving the areas downstream of the Clovelly substation, including Port Fourchon, Golden Meadow, Leeville, and Grand Isle.

III.

Company witness Laura K. Beauchamp explains that ELL serves a diverse mix of approximately 7,000 residential, commercial and industrial customers downstream of the Leeville

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[3] General Order, Docket No. R-26172 Subdocket A, *In re: Development of Market-Based Mechanisms to Evaluate Proposals to Construct or Acquire Generating Capacity to Meeting Native Load,* Supplements the September 20, 1983 General Order, dated February 16, 2004 (as amended by General Order, Docket No. R-26172 Subdocket B, dated November 3, 2006, and further amended by the April 26, 2007 General Order, and the amendments approved by the Commission at its October 15, 2008 Business and Executive Meeting and now in General Order, Docket No. R-26172, Subdocket C dated October 29, 2008).

substation, including industrial customers vital to the nation's economy and oil and gas infrastructure at Port Fourchon. Port Fourchon services 90% of all deepwater oil and gas activity in the Gulf of Mexico, and ELL's customers at Port Fourchon provide more than 18% of the nation's oil and gas supply through its oil service and extensive pumping infrastructure. The area includes the Louisiana Offshore Oil Port ("LOOP"), the nation's only deepwater oil import facility, which uses Port Fourchon as its land base. LOOP is connected to fifty percent of the nation's refineries, making Port Fourchon an intermodal hub critical for the nation's oil and gas industry.

IV.

Port Fourchon is also a commercial and recreational fishing destination, serving as a land base for more than 250 companies, and the Greater Lafourche Port Commission is engaged in numerous environmental efforts, including the construction of a Coastal Wetlands Park near the main entrance of the port along with the recent announcement of a wind turbine that will sit adjacent to this park. The region also includes Grand Isle, which depends almost entirely on tourism, the seafood industry, and oil field-related operations. Finally, Golden Meadow is the last incorporated town on Bayou Lafourche, and it is a major seafood sales and processing center for Louisiana.

V.

The region has a number of unique electrical needs and challenges. As explained by Mr. Datta, before Hurricane Zeta, the region was served by a 115 kV transmission system that included two transmission sources to the Golden Meadow substation and a single radial transmission line to the Fourchon substation. The Golden Meadow – Barataria line sustained critical damage during Hurricane Zeta, and it has since been retired. With that line out of service, the transmission system in Lafourche Parish cannot support incremental load growth without the transmission facilities in the area exceeding their thermal capacities.

VI.

As discussed in this Application and in the accompanying testimony, the need for this Project has arisen from the extensive damage to the Golden Meadow – Barataria 115 kV transmission line that occurred during Hurricane Zeta in 2020. As discussed in greater detail in the direct testimony of Mr. Datta, ELL analyzed various ways to increase the load serving capability of the transmission system downstream of Valentine. The two solution sets that were analyzed in detail were a transmission-only solution and a corresponding microgrid alternative that is anchored by a 112 MW power barge.

VII.

The transmission solution was designed to restore the second transmission source to Golden Meadow and to enable additional load serving capability. The transmission-only portfolio consisted of rebuilding the Golden Meadow – Barataria line to 230 kV standards, the conversion of the Golden Meadow – Barataria line from 115 kV to 230 kV operation, the conversion of the Golden Meadow-Clovelly-Valentine lines from 115 kV to 230 kV operation, and the addition of reactive power support at Clovelly. The non-wires alternative, BPS, was analyzed for its efficacy in increasing load serving capability in the system downstream of the Clovelly substation and providing increased reliability and resiliency during severe weather events.

VIII.

As discussed in greater detail in the direct testimony of Company witness Phong Nguyen, the results of the economic analysis show the net cost of BPS is on par with the cost of the transmission alternative. This is likely a conservative estimate relative to the BPS because BPS net cost includes conservatively higher marine insurance expense (insurance is not available for the transmission infrastructure except substations) and excludes any positive net terminal value that may be associated with the barge. As discussed by Mr. Datta, the alternate transmission solution cost estimate is also likely understated given that it includes some high-level assumptions that will have to be updated prior to project execution and the marshlands topography may present construction challenges that would increase costs. Should the BPS insurance costs be removed and evaluated on a similar risk perspective as the transmission alternative, and should the alternative transmission or avoided combustion turbine costs be higher than estimated, the BPS project economics would improve and result in even higher net benefits relative to the transmission alternative. In addition, the BPS may qualify for property tax abatement under the Louisiana Industrial Tax Exemption Program ("ITEP"), and if it does qualify for ITEP, the BPS project would result in higher net benefits relative to the transmission option.

IX.

Through this Application and in the accompanying testimony, ELL is taking the necessary steps to implement its supply plan and satisfy its obligation to be prepared to reliably and efficiently serve all load that materializes in its service area. In addition to helping the Company meet its overall long-term need for capacity and energy, BPS would address specific supply conditions and planning. This Project will directly address critical oil and gas customers in the system at Port Fourchon. The interconnection of the Project will add a resilient power source to the ELL grid and enable storm restoration options, following a significant weather event, owing to the inherent black-start capability of the Project. Finally, the quick-start and fast ramp-up and ramp-down capabilities of the Project will add flexible capacity to the system, enabling the grid to accommodate future intermittent renewable energy.

X.

In addition to the RICE units, the Project will include a regional microgrid control system. The microgrid will allow BPS to island from the broader transmission system in the event of an outage to the Valentine – Clovelly transmission line. Once islanded, BPS would be able to start up and provide the necessary load to support customer needs until the transmission line is back in service and the system is functioning as normal.

XI.

As discussed by Company witnesses Gary Dickens, development and deployment of utility-scale generation and transmission projects is a time-consuming process that must begin several years in advance of the need-by date. If there are no unanticipated project delays due to the inability to obtain all necessary regulatory approvals, permits, materials, and equipment, BPS is expected to enter service in the second half of 2028. Mr. Dickens discusses the Project's schedule in his testimony and the importance of issuing a timely full notice to proceed. As discussed by Company witness Ryan Jones, the Company, accordingly, is requesting that the Commission direct or establish a Procedural Schedule that is consistent with the 120-day certification period set forth in the 1983 General Order.

XII.

BPS will serve the public interest by providing a reliable, resilient, and economic solution to meet the important and unique needs of ELL's diverse customer base in the Port Fourchon region and across the ELL system for reasons explained in this Application and supporting testimony. In the Port Fourchon region, BPS will support the specific needs of the growing and thriving industrial development and commercial activities, allowing the Company to continue to provide reliable electric service to its customers at a reasonable cost. In addition, BPS will also help ELL meet its long-term capacity needs, which benefits all customers. BPS also benefits all customers by avoiding the need and cost to upgrade the transmission system to import power to this region from other resources on ELL's system.

XIII.

With this Application, the Company submits the Direct Testimonies of Laura Beauchamp, Ryan Jones, Gary Dickens, Samrat Datta, Phong Nguyen, and Sean Meredith. The purpose of the testimony of each witness is as follows:

- Laura Beauchamp – Director, Resource Planning and Market Operations at ELL. Ms. Beauchamp provides an overview of the application and introduces the other witnesses. Ms. Beauchamp addresses the Company's long-term resource plan, capacity needs, and anticipated load growth in the region. She explains the need for distributed generation in the region and the advantages of BPS's setup.

- Ryan Jones – Manager, Regulatory Affairs at ELL. Mr. Jones enumerates the regulatory approvals the Company is seeking, discusses the Company's compliance with applicable Commission General Orders and the exemption from the Commission's MBM Order the Company is requesting for this Project, and explains why approval of the Project is in the public interest. Mr. Jones also proposes a plan by which the Commission Staff can monitor the progress of the construction. Finally, Mr. Jones provides the estimated first-year revenue requirement associated with the Project and explains the proposed cost recovery.

- Gary Dickens – Vice President, Project/Construction Management, New Generation Program Execution at Entergy Services, LLC ("ESL").[4] He provides an overview of the proposed Project and describes and supports the EPC contract to construct BPS, including the process used to select the EPC contractor and the management of EPC work. In addition, Mr. Dickens describes the construction schedule and management, explains how the cost estimates associated with the Project were developed, and provides the current total cost estimate associated with the Project. Finally, Mr. Dickens addresses costs and discusses the estimated non-fuel operation and maintenance ("O&M") costs for the Project.

- Samrat Datta – Director of Advanced Network Planning for the System Planning Organization at ESL. Mr. Datta explains the alternatives the Company considered and the reasons why ELL determined that constructing BPS is the preferred alternative. Mr. Datta also discusses the development of the cost estimate for the transmission-only alternative and the cost of transmission substation upgrades necessary for interconnection.

[4] ESL is an affiliate of the Entergy Operating Companies ("EOCs") and provides engineering, planning, accounting, technical, and regulatory-support services to each of the EOCs. The five EOCs are Entergy Arkansas, LLC, ELL, Entergy Mississippi, LLC, Entergy New Orleans, LLC, and Entergy Texas, Inc.

- Phong D. Nguyen – Director, Advanced Economic Planning at ESL. Mr. Nguyen describes the economic evaluation of the Project compared to potential alternatives.

- Sean Meredith – Vice President, System Resilience at ESL. Mr. Meredith explains how the Project incorporates the Company's resilience goals.

As required by the 1983 General Order, this Application and the supporting testimony include the specific data that the Company relied upon to justify the Company's decision to construct BPS, an estimate of the costs to construct BPS, ELL's estimated first-year revenue requirement associated with BPS, the estimated in-service date, and the construction schedule and milestones.

OVERVIEW OF RESOURCE

XIV.

As described in more detail by Mr. Dickens in his Direct Testimony, BPS is a proposed new 112 MW aggregated capacity generating station consisting of six natural-gas fired RICE units with black-start capability and an associated microgrid control system. BPS will be constructed offsite and then moored in Leeville, Louisiana by qualified, local contractors, which means that local economies, including the Port Fourchon area, will benefit from the jobs created during the construction and the tax revenues generated as a result of their construction. BPS will be interconnected to the broader transmission system at the existing Leeville substation, which will need to be modified and expanded to support this interconnection. Finally, the investments will support additional construction for barge mooring, gas interconnection, and permitting to support BPS's operation. In addition to the RICE units, the Project will include a regional microgrid control system. The microgrid will allow BPS to island from the broader transmission system in the event of an outage to the Valentine – Clovelly transmission line. Once islanded, BPS will be able to start up and provide the necessary load to support customer needs until the transmission line is back in service and the system is functioning as normal.

XV.

As discussed in greater detail in the Direct Testimony of Mr. Dickens, the current estimate of the costs to complete BPS, based on the estimated EPC Agreement, is approximately $411.3 million, inclusive of, among other things, expenses related to seeking Commission certification, costs related to transmission interconnection to the switchyard, contingency, allowance for funds used during construction ("AFUDC"), and regulatory costs. This amount includes $374.3 million associated with the generation portion of the Project, or roughly $3,318 per kW. The Grand Isle Shipyards, LLC ("GIS") EPC contract accounts for a significant portion of the overall estimated cost of the Project.

XVI.

The estimated costs of operating and maintaining BPS are detailed in the Direct Testimony of Mr. Dickens, and these costs are reflected in the estimated first-year revenue requirement set forth in the Direct Testimony of Mr. Jones.

FACILITY DESCRIPTION

XVII.

The Project site is in Leeville, Louisiana. The floating power facility will be located across from the Leeville substation yard. As Mr. Datta discusses in his testimony, BPS will be connected to the 115 kV Leeville substation.

XVIII.

The Project equipment is expected to meet all current environmental regulations. As Mr. Dickens explains in his testimony, the process for obtaining pre-construction environmental permits has been initiated to ensure the permits are issued prior to the scheduled project start of construction. BPS will be subject to permitting and regulatory oversight by the Commission, the

Port Fourchon Parish Police Jury, the Louisiana Department of Environmental Quality ("LDEQ"), Louisiana Department of Natural Resources ("LDNR"), the United States Environmental Protection Agency ("EPA"), Office of Coastal Management ("OCP"), and the United States Army Corps of Engineers ("USACE"). ELL will obtain a Title V (Part 70) New Source Review ("NSR") Air Operating Permit for BPS issued by the LDEQ. ELL will also need to obtain an LDNR Office of Coastal Management ("OCM") Coastal Use Permit ("CUP"), a modification to its LDEQ water discharge (Louisiana Pollutant Discharge Elimination System ("LPDES")) permit; and LDEQ construction storm water general permit. Finally, ELL will need to obtain a United States Army Corps of Engineers ("USACE") Section 404 permit if jurisdictional wetlands and/or waters of the US are impacted.

The pre-application meeting for the air permit for the BPS was held with LDEQ in 2020. A new pre-application meeting will be held with LDEQ to refresh any requirements that may have changed since the prior meeting. As discussed above, BPS will apply for a LPDES permit, which will be submitted to the LDEQ in late 2024 or early 2025. The Company has evaluated the project area for its effect on jurisdictional wetlands and waters of the U.S. and is in the process of updating the draft Joint Permit Application to be submitted to the USACE, LDNR, and OCM with an anticipated submittal date in Summer 2024.

PROJECT EXECUTION AND MANAGEMENT

XIX.

As explained in the Direct Testimony of Mr. Dickens, the Project will be primarily constructed by GIS under a fixed-price, fixed-schedule duration EPC Agreement. Under the fixed-price EPC Agreement structure, GIS will act as an independent contractor with respect to the engineering, procurement, and construction services defined in the scope of work. GIS also will procure the six Wartsila 18V50SG engines, six generators, two GSU transformers, supporting auxiliary equipment, and barge hull to support top side erection of the Wartsila equipment from the original equipment manufacturers ("OEMs"). Firm, fixed prices for this equipment are included in GIS's fixed-price, and craft labor wage and per diem rates will be adjusted as specified in the EPC Agreement prior to FNTP.

XX.

As discussed in the Direct Testimony of Mr. Jones, the Company proposes a Monitoring Plan patterned after the monitoring plan approved by the Commission relating to other recent certification dockets, including Lake Charles Power Station, Docket No. U-34283. The Monitoring Plan contemplates a semiannual report providing detailed information on the status of BPS, its costs, and other activities that are critical to completing the Project in a timely manner. It is not contemplated that there would be any litigation concerning these reports and there would be no formal discovery process. The Monitoring Plan includes appropriate confidentiality restrictions designed to address any competitive concerns that would arise with respect to intervenors who are also participants in the power market.

<u>THE PLANNING PROCESS AND RESOURCE NEEDS</u>

XXI.

In order to continue meeting the power needs of customers reliably at the lowest reasonable cost, the Company must maintain a portfolio of generation resources that includes the right amount and types of capacity. With respect to the amount of capacity, Ms. Beauchamp explains that the Company must maintain sufficient generating capacity to meet its projected peak load plus a planning reserve margin. With respect to the type of capacity, BPS will be a highly flexible resource capable of quickly providing incremental energy with the ability to cycle back down quickly. Such highly flexible resources serve an important role in supporting the integration of intermittent resources into the grid.

XXII.

As described in detail in ELL's Final 2023 IRP,[5] the record of Commission Docket No. U-36190 (in which the Commission approved ELL's 2021 Solar Portfolio),[6] and ELL's applications and testimony in Docket Nos. U-36685 and U-36697, ELL is projected to need additional long-term generating capacity over the course of the long-term planning horizon to replace deactivated capacity and address load growth in order to reliably serve customers. To illustrate the extent of the Company's need, ELL witness Ms. Beauchamp uses the load forecast from ELL's Business Plan 2024 ("BP24"), with consideration of current owned and contracted resources as well as those future resources that have been approved by the LPSC, to show the resource deficit from 2024 through 2035. In terms of resource availability, Ms. Beauchamp's analysis shows that with the unit deactivation assumptions from BP24 and existing PPAs that are assumed to expire on stated expiration dates, ELL will need additional capacity.

XXIII.

As discussed in greater detail in Ms. Beauchamp's Direct Testimony, it is not prudent or economic for ELL to attempt to address its long-term capacity need through the purchase of capacity credits in the Midcontinent Independent System Operator ("MISO") seasonal Planning Resource Auction ("PRA") rather than through BPS. While the MISO PRA provides an avenue to correct short-term imbalances, over-reliance on the short-term market in lieu of a long-term

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5 *See* Final 2023 IRP (May 22, 2023), *2023 Integrated Resource Plan-Final Report for Entergy Louisiana, LLC Pursuant to the General Order No. R-30021*, Docket No. I-36181. The Final 2023 IRP was acknowledged by the LPSC on February 21, 2024.

6 Order No. U-36190.

resource planning strategy is an imprudent and risky practice – especially at a time when market conditions are tightening. The MISO PRA is not designed to ensure that an adequate amount of, or appropriate types of, resources will be available in the long-term. As a result, leaning on the MISO PRA involves greater risk compared to a long-term resource such as BPS. Unlike a long-term resource, purchasing capacity credits in the MISO PRA does not provide any additional capacity, and provides no energy benefits or local area benefits. Rather, purchasing capacity credits satisfies only the financial requirement of the MISO PRA construct. Long-term resource planning is essential to ensure reliable electric service at the lowest reasonable costs.

XXIV.

Physical generation, like BPS, is necessary to generate electricity that can be transported to customers for consumption. Therefore, even if ELL could be assured that sufficient capacity was available to meet ELL's current needs through the MISO PRA, this would still not address the local voltage issues or the anticipated load growth in the region. Further, significant tightening has been noted in Local Resource Zone ("LRZ") 9 (in which Louisiana is located) since MISO implemented the seasonal PRA. MISO's data show that the capacity surplus that MISO LRZ 9 previously enjoyed, has significantly decreased.

XXV.

In addition, while the precise timing of market equilibrium is unknown, there is an expectation that market conditions in the MISO market will tighten in the coming years, which is expected to lead to higher capacity prices. Moreover, unlike reliance on the capacity auction, the construction of BPS will provide customers with a highly flexible resource that produces energy revenues to offset the cost of purchasing energy in the MISO day-ahead energy market and thereby protects customers from increasing energy prices in the market. In contrast, capacity credits provide no energy revenues to offset the cost to ELL customers of purchasing energy in the MISO market.

XXVI.

Finally, BPS will help ELL meet its three key planning objectives (reliability, environmental stewardship, and affordability) for building a sustainable portfolio. In terms of reliability, the Project will compliment other planned projects to meet the long-term capacity needs Ms. Beauchamp discusses in her Direct Testimony. The Project will address the specific energy needs of ELL's customers in the region and support electric reliability across the state of Louisiana. In addition, it will help improve the energy coverage ratio and add beneficial diversity and support in the region. As a black-start resource, it will bolster the resilience of the electric system in the Fourchon – Valentine corridor and potentially shorten restoration times in this economically-significant area of the state. As a quick-start and fast ramping resource, it will be a valuable asset in future enhancements to the MISO ancillary service market. It will also add synchronous inertia and short circuit capability to the system, both of which will be increasingly valuable ancillary services in sustainable futures.

XXVII.

As to environmental stewardship, the RICE generators will have hydrogen co-firing capabilities of up to 25% by volume, though additional infrastructure investment would be required, which costs and equipment are not included in the current scope or cost estimate. This dual-fuel capability could decrease ELL's carbon footprint while also increasing reliability in the future. BPS will add a flexible resource that will enable the integration of intermittent renewable resources in the grid. With respect to affordability, ELL has determined BPS to be the lowest reasonable cost alternative to meet the unique needs of customers in the region while also providing a solution to the challenging geography in the area.

MBM ORDER EXCEPTION

XXVIII.

As Mr. Jones discusses in his Direct Testimony, the Company is seeking an exemption from the Commission's MBM Order because of the unique circumstances addressed by the Project, which indicate that a formal RFP would not be in the public interest. The Commission's current version of the MBM Order augments the procedures of the 1983 General Order and requires a utility proposing to acquire or build new generating capacity to "employ a market-based mechanism" consisting of a "Request For Proposal ("RFP") competitive solicitation process."[7] However, the MBM Order recognizes the occasional need for exemptions and grants the Commission broad authority to grant exemptions and modify the requirements of the MBM process. Specifically, the MBM Order provides that the "utility may propose an alternate marked-based mechanism or procedure if it can demonstrate that circumstances indicate that a formal RFP would not be in the public interest."[8]

XXIX.

As demonstrated in the testimony of Ms. Beauchamp, Mr. Meredith, Mr. Nguyen, Mr. Datta, and Mr. Jones, the Company demonstrated that a formal RFP would not be in the public interest under the unique circumstances presented and addressed by the Project. That is, given the specific need, location, and type of resource that can accommodate that need and location, an RFP under the MBM Order would not be necessary to identify the lowest reasonable cost alternative. What

[7] MBM Order, at p. 5.

[8] MBM Order at p. 3.

was needed was to identify qualified contract partners who could build and install the desired solution at a price competitive with other barge-mounted Warstila RICE plants, and further market testing would not have revealed any new information necessary for the Commission and the Company to determine that the construction of BPS is consistent with the Company's planning objectives and the objective of providing service at the lowest reasonable cost. In this case, without compromising its requirement that the selected contractors be qualified and that their pricing be competitive, ELL was able to identify Louisiana-based contractors who will perform the bulk of the work, which means more of the economic benefit stemming from construction costs stays in Louisiana. Accordingly, the additional cost and delay created by the RFP process for this very specific solution to a local capacity need would not be in the public interest and, as explained by Ms. Beauchamp, would place both existing load and future beneficial load growth at greater risk.

TRANSMISSION

XXX.

As Mr. Datta explains in his Direct Testimony, BPS has secured Energy Resource Interconnection Service ("ERIS") in the MISO market, which gives the resource the ability to inject power to the grid. ELL has already signed a Generator Interconnection Agreement ("GIA") for BPS with MISO. In addition, ELL also secured a 30-year Network Integration Transmission Service ("NITS") to the ELL load commencing in 2026, thereby making BPS a network resource for ELL. With respect to the upgrades that will be required for BPS, there are expected to be two transmission lines that will connect BPS to the Leeville 115 kV substation. The Leeville substation will have to be expanded to include circuit breakers and additional substation bays into which the two generator tie-lines from BPS will interconnect. The total cost associated with this interconnection is expected to be $37 million.

COMPLIANCE WITH APPLICABLE COMMISSION RULES AND ORDERS

XXXI.

For the reasons discussed previously and in detail in the accompanying testimony, BPS serves the public convenience and necessity, is in the public interest, and is therefore prudent, and should be certified in accordance with the Commission's 1983 General Order. As discussed above, the Project will add a resilient power source to the ELL grid and enable storm restoration options following a significant weather event. The quick-start and fast ramp-up and ramp-down capabilities of the Project will add flexible capacity to the system, enabling the grid to accommodate future intermittent renewable energy. Moreover, BPS will support system reliability by adding necessary capacity within the load constrained region and represents the lowest reasonable cost option to address the needs in this region.

PROPOSED RATE RECOVERY

XXXII.

As explained by Mr. Dickens, while ESL, on behalf of ELL, is exploring the possibility of executing a long-term service agreement ("LTSA") with Wartsila for BPS, no agreement has been reached at this time. However, as explained by Mr. Jones, should an LTSA for BPS be executed in the future, ELL requests that, consistent with past Commission practice, the LTSA costs be recovered through the Fuel Adjustment Clause ("FAC"). Variable costs such as LTSA costs are properly recovered through the FAC, and the Commission has previously authorized FAC recovery for similar costs for ELL's Ninemile 6 CCGT,[9] St. Charles Power Station,[10] and Lake

9 Commission Order No. U-31971.

10 Commission Order No. U-33770.

Charles Power Station,[11] as well as several other facilities, including Perryville, Acadia Power Block 2, Ouachita Unit 3, Calcasieu, and Union Power Blocks 3 and 4.[12]

XXXIII.

As detailed in the Direct Testimony of Mr. Jones, the Company proposes a one-step regulatory approval process whereby the Commission would issue a decision, supported by the evidence and sound regulatory principles, finding that the construction of the Project is in the public interest and therefore prudent. ELL further proposes that, as part of this decision, the Commission would approve the proposed rate recovery and approve a Monitoring Plan whereby the Company would make periodic progress reports to Staff during the construction phase, and make appropriate findings that will reasonably ensure that the Company will be permitted to recover the prudently-incurred costs associated with BPS.

XXXIV.

As part of the proposed rate recovery, the Company is proposing cost recovery that will permit the timely inclusion of the BPS costs in rates. As discussed in the Direct Testimony of Mr. Jones, the plan assumes, first, that ELL will have a Formula Rate Plan ("FRP") in place, which requires an annual filing as occurs currently for ELL. Given that assumption, the Company proposes that 12 months prior to the expected commercial operation date, ELL will make a compliance submission in this docket providing the then-best estimate of BPS's first-year revenue requirement and supporting data ("Revenue Requirement Submission"). The parties to this docket would have an opportunity to request information regarding the revenue requirement calculation

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[11] Commission Order No. U-34283.

[12] Commission Order No. U-27836 (May 3, 2005) (Perryville); Commission Order No. U-30422-A (October 31, 2009) (Ouachita); Commission Order No. U-31196-C (February 9, 2011) (Acadia); Commission Order No. U-32759-A (November 21, 2013) (Calcasieu); Commission Order No. U-33510 (November 5, 2015) (Union).

and to propose corrections. An additional update to the estimated first-year revenue requirement would be submitted in this docket 60 days prior to the commercial operation date ("Final Estimate Update") and, again, the parties would have an opportunity to request information regarding the revenue requirement calculation and to propose corrections. Absent proposed adjustments, the Final Estimate Update would serve as the basis for the amount that is included in rates the first billing cycle following the unit's placement in service.

XXXV.

In the event adjustments to the Final Estimate Update are proposed, any adjustments agreed upon by ELL would be reflected in the rates that are implemented with the first billing cycle following placement of the Project in service. To the extent there are unresolved issues regarding a proposed adjustment, the revenue requirement included in the Final Estimate Update would be implemented, subject to refund, and resolution would take place in the subsequent FRP in accordance with the dispute resolution process provided for therein. Any changes to the revenue requirement that result from that process would be reflected in the FRP outside of sharing, just as the revenue requirement would have been initially reflected in FRP rates.

XXXVI.

After the first full year of operation of BPS, the Company will true up all components of the first-year retail revenue requirement to reflect the actual first-year revenue requirement. This true-up would be implemented outside the FRP sharing mechanism. Thereafter, the Evaluation Report for the applicable FRP and corresponding prospective rates will reflect the realignment of the Project-related revenue requirement and will be taken into account within the bandwidth calculation of the applicable FRP (i.e., inside of sharing) through the subsequent FRP Evaluation Period with any required change in rates taking effect with the corresponding Evaluation Period rate effective date. This procedure will allow for the synchronization in rates of the costs of the Project with the normal FRP cycle, and coordinates recovery from customers of the non-fuel costs at the same time customers receive the benefits from the Project beginning commercial operation. It should be noted that this ratemaking treatment is consistent with that approved by the Commission in connection with ELL's construction of Ninemile 6, the St. Charles Power Station, and the Lake Charles Power Station and most recently the Sterlington Solar Facility. For the reasons explained earlier regarding the need for timely recovery of the Project-related revenue requirement, the Company specifically requests that the Commission approve this procedure to implement the necessary change in rates contemporaneous with the commercial operation of the Project.

XXXVII.

Timely implementation of a rate change under the FRP process would avoid the need for a deferral order from the Commission because cost recovery would begin contemporaneously with the commercial operation of the unit. However, in the alternative, if the Company is unable to begin recovering Project costs when BPS is placed in service, then the Company requests that the Commission authorize the Company to defer all non-fuel costs, including a full return on the investment, until such time as those costs can be reflected in rates. Such a deferral would include the accrual of carrying charges at the full Commission-authorized rate of return. In that scenario, the specific terms of the future rate recovery would be the subject of a future rate proceeding such as a base rate case.

XXXVIII.

In the alternative, ELL may also deem it necessary to file a general rate case prior to the anticipated commercial operation date of the Project with pro forma adjustments to the test year to reflect the estimated first-year revenue requirement of the Project if it is determined that the effect of regulatory lag associated with a project of this size is too significant for ELL not to receive timely recovery in rates contemporaneously with when the Project begins commercial service.

XXXIX.

The Company proposes a Monitoring Plan patterned after the monitoring plan approved by the Commission relating to other recent certification dockets, including Lake Charles Power Station, Docket No. U-34283. The Company's proposed Monitoring Plan is attached to the Direct Testimony of Mr. Jones as Exhibit RDJ-2. The Monitoring Plan contemplates a semiannual report providing detailed information on the status of BPS, its costs, and other activities that are critical to completing the Project in a timely manner, and it includes appropriate confidentiality restrictions designed to address any competitive concerns that would arise with respect to intervenors who are also participants in the power market. The Monitoring Plan will serve as an "early warning system," and the Company commits to providing the Commission in the semiannual reports an affirmation as to whether continuing the Project is, in the Company's opinion, in the public interest.

XL.

As explained in the Direct Testimony of Mr. Jones, in the event the Company believes it to be in the public interest to cease construction and cancel the Project, it will make a filing in this proceeding seeking Commission approval of that recommendation. In this Application, the Company seeks approval of this procedure.

<u>REQUEST FOR TIMELY TREATMENT</u>

XLI.

The Company is requesting that the Commission direct or establish a Procedural Schedule in accordance with the 120-day certification period set forth in the 1983 General Order. As Mr.

Jones discusses in his Direct Testimony and as discussed by other witnesses, there are financial and operational implications for ELL's customers if BPS is not constructed on the timetable proposed. And as discussed by Mr. Dickens in his Direct Testimony, development and deployment of significant generation and transmission projects is a time-consuming process that must begin several years in advance of the need-by date. The 120-day requirement in the Commission's 1983 General Order recognizes the importance of timely action from the Commission because, if the Commission determines that a proposed resource option is found not to serve the public interest, the Company must then pursue other options to maintain reliable, affordable electric service.

XLII.

In the case of ELL's needs in the southern half of Lafourche parish in southeast Louisiana, the Company must either construct new generation in the region or rebuild and upgrade the Golden Meadow – Barataria line, as discussed by Mr. Datta. While the Company believes there is clear and compelling evidence that the construction of BPS is the preferred, lowest reasonable cost alternative means to meet this need, that is ultimately a question for the Commission to decide; it is critical that the Commission make this decision in a timely manner, consistent with the 120-day certification period set forth in the 1983 General Order.

<u>SERVICE OF NOTICES AND PLEADINGS</u>

XLIII.

The Company requests that notices, correspondence, and other communications concerning this Application be directed to the following persons:

ELL requests that the foregoing persons be placed on the Official Service List for this proceeding and respectfully requests that the Commission permit the designation of more than one person to be placed on the Official Service List for service in this proceeding.

Lawrence J. Hand, Jr. Stacy Castaing Entergy Louisiana, LLC 4809 Jefferson Highway Mail Unit L-JEF-357 Jefferson, Louisiana 70121 Telephone: (504) 840-2528 Facsimile: (504) 840-2681 lhand@entergy.com scastai@entergy.com	Skylar Rosenbloom Matthew T. Brown Entergy Services, LLC 639 Loyola Avenue Mail Unit L-ENT-26E New Orleans, Louisiana 70113 Telephone: (504) 576-2603 Facsimile: (504) 576-5579 srosenb@entergy.com mbrow12@entergy.com	Scott Olson Carey Olney Duggins Wren Mann & Romero, LLP 600 Congress Ave., Suite 1900 Austin, Texas 78701 Telephone: (512) 744-9300 Facsimile: (512) 744-9399 solson@dwmrlaw.com colney@dwmrlaw.com

REQUEST FOR CONFIDENTIAL TREATMENT

XLIV.

Portions of Company's evidence supporting the Application contain information considered by the Company to be proprietary and confidential. Disclosure of certain of this information may expose the Company and its customers to an unreasonable risk of harm. Therefore, in light of the commercially sensitive nature of such information, the Company has submitted two versions of each of the affected documents, one marked "Non-Confidential Redacted Version" and the other marked "Confidential Version." In anticipation of the execution of a suitable confidentiality agreement in this docket, the Confidential Versions bear the designation "Highly Sensitive Protected Materials" or words of similar import. Although the confidential information and documents included with this Application may be reviewed by appropriate representatives of the LPSC Staff and intervenors pursuant to the terms and conditions of a suitable confidentiality agreement once such an agreement has been executed in this Docket, this confidential information also is being provided pursuant to, and shall be exempt from public disclosure pursuant to, the Commission's General Order dated August 31, 1992 and Rule 12.1 of the Rules of Practice and Procedure of the Commission.

PRAYER FOR RELIEF

XLV.

WHEREFORE, for the foregoing reasons, Entergy Louisiana, LLC respectfully requests that, after due and lawful proceedings are held, its Application be approved. In particular, the Company requests that the Commission:

1. Find that the Company's construction of BPS serves the public convenience and necessity and is in the public interest, and is therefore prudent, in accordance with the Commission's 1983 General Order;
2. Find that the selection of the Project qualifies for an exemption from the terms of the Commission's MBM Order;
3. Find that, if there is an FRP in place, that the retail revenue requirement associated with the Project (to be determined in a subsequent revenue requirement filing) is deemed eligible for recovery in the first billing cycle of the month following commercial operation of BPS via Rider FRP, and that such recovery will be outside of any FRP sharing mechanism and outside of any cap;
4. To the extent cost recovery does not occur via an FRP in the manner described in Paragraph 3, above, authorize (i) deferral of the non-fuel revenue requirement (i.e., costs that are not eligible to be recovered through the FAC) associated with BPS until such time as the cost of BPS is reflected in the Company's retail rates; and (ii) an accrual of carrying charges at the full Commission-authorized rate of return,

commencing on the date of commercial operation of BPS and continuing until such time as such costs of BPS are reflected in the Company's retail rates;

5. Find that the relief requested in Paragraphs 3 and 4, above, is without prejudice to ELL seeking full or partial cost recovery in a base rate proceeding to the extent ELL determines that alternative method of cost recovery is necessary or appropriate under the circumstances.
6. Approve recovery, though the FAC, of the variable expenses incurred under an LTSA applicable to BPS, should an LTSA for BPS be executed in the future;
7. Approve the Monitoring Plan under which the Company will report to the Commission Staff on a semiannual basis the status of BPS, including schedule, costs, and other critical associated activities;
8. Find that, with respect to BPS, the Company has complied with, or is not in conflict with, the provisions of all applicable LPSC Orders, to the extent applicable;
9. Find that the confidential testimony, exhibits, and other materials referenced in this Application shall be exempt from public disclosure pursuant to the Commission's General Order dated August 31, 1992, and Rule 12.1 of the Rules of Practice and Procedure of the Louisiana Public Service Commission;
10. Direct the procedural steps necessary to facilitate a Commission decision on the Company's Application consistent with the 120-day requirement in the Commission's 1983 General Order;
11. Direct that notice of all matters in these proceedings be sent to Lawrence J. Hand, Jr. and Stacy Castaing, as well as to Skylar Rosenbloom, Matthew T. Brown, Scott Olson, and Carey Olney, as representatives of Entergy Louisiana, LLC; and

12. Grant such other relief to which the Company shows itself to be entitled.

Respectfully submitted,

____

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ATTORNEYS FOR
ENTERGY LOUISIANA, LLC

BEFORE THE

LOUISIANA PUBLIC SERVICE COMMISSION

***IN RE*: APPLICATION OF ENTERGY LOUISIANA, LLC FOR APPROVAL TO CONSTRUCT BAYOU POWER STATION, AND FOR COST RECOVERY**	**))))**	**DOCKET NO. U-_____**

DIRECT TESTIMONY

OF

LAURA K. BEAUCHAMP

ON BEHALF OF

ENTERGY LOUISIANA, LLC

PUBLIC REDACTED VERSION

MARCH 2024

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EXHIBITS

Exhibit LKB-1	List of Prior Testimony
Exhibit LKB-2	Business Plan 2024 – Load & Capacity, Energy Coverage (HSPM)
Exhibit LKB-3	Supply Plan (2024-2035) (HSPM)
Exhibit LKB-4	Overview of the Company's Current Generation Portfolio

I. INTRODUCTION

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

A. My name is Laura K. Beauchamp. I am employed by Entergy Louisiana, LLC ("ELL" or the "Company") as the Director, Resource Planning and Market Operations, a role I assumed in March 2022. My business address is 4809 Jefferson Highway, Jefferson, Louisiana 70121.

Q2. ON WHOSE BEHALF ARE YOU FILING THIS DIRECT?

A. I am filing this Direct Testimony on behalf of ELL.

Q3. PLEASE DESCRIBE YOUR EDUCATIONAL BACKGROUND AND PROFESSIONAL EXPERIENCE.

A. In 2000, I earned a Bachelor of Science in Management degree with a concentration in Finance and in 2004 I was awarded a Master of Business Administration degree with a concentration in Energy Finance; both of these were granted by Tulane University's A. B. Freeman School of Business.

I have been employed by affiliates of Entergy Corporation since 2000 and have held various roles of increasing responsibility in Accounting, Finance, Regulatory, and Innovation. From 2009 through 2014, I served as the Manager of Regulatory Affairs for Entergy Louisiana, LLC and Entergy Gulf States Louisiana, L.L.C. ("EGSL"), a role in which I was responsible for providing regulatory support services to those utilities, including in rate proceedings and associated regulatory filings with the Louisiana Public Service Commission ("LPSC" or "the Commission"). Later, from

2016 through 2018, I served as the Finance Director for ELL. From 2018 through 2022 I held roles as the Director of Utility Finance and Strategy for Entergy Services, LLC and as Director of Innovation Strategy and Consulting at KeyString Labs, Entergy's innovation center.

Q4. PLEASE DESCRIBE YOUR CURRENT RESPONSIBILITIES.

A. As the Director of Resource Planning and Market Operations for ELL, I am responsible for managing the planning of generation, transmission, and wholesale power activities for ELL. This involves working closely with Entergy Services, LLC's ("ESL") generation and transmission planning organizations on these activities.[1]

Q5. HAVE YOU PREVIOUSLY TESTIFIED BEFORE THE COMMISSION?

A. Yes. A list of my prior testimony is attached as Exhibit LKB-1.

Q6. WHAT IS THE PURPOSE OF YOUR TESTIMONY?

A. My testimony supports the Company's Application in this proceeding, which seeks, among other things, approval to construct and operate the Bayou Power Station ("BPS" or the "Project"), which is a proposed new 112 megawatt ("MW") aggregated capacity power barge generating station consisting of six natural-gas fired reciprocating internal combustion engines ("RICE") with black-start capability in Leeville, Louisiana and an

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[1] ESL is an affiliate of the Entergy Operating Companies ("EOCs") and provides engineering, planning, accounting, technical, and regulatory-support services to each of the EOCs. The five EOCs are Entergy Arkansas, LLC, ELL, Entergy Mississippi, LLC, Entergy New Orleans, LLC, and Entergy Texas, Inc.

associated microgrid that would serve downstream of the Clovelly substation, including Port Fourchon, Golden Meadow, Leeville, and Grand Isle. Specifically, in Section II, I address the Company's long-term resource plan, capacity needs, and anticipated load growth in the region. In Section III, I explain the need for distributed generation in the region, and I also explain how a power barge is uniquely suited to meet those needs. Finally, in Section IV, I provide an overview of the Application and introduce the other witnesses.

Q7. CAN YOU FIRST PROVIDE AN OVERVIEW OF THE REGION AND ITS CUSTOMERS AND ACTIVITIES?

A. ELL serves a diverse mix of approximately 7,000 residential, commercial, and industrial customers downstream of the Leeville substation, including industrial customers vital to the nation's economy and oil and gas infrastructure at Port Fourchon. Port Fourchon services 90% of all deepwater oil and gas activity in the Gulf of Mexico, and ELL's customers at Port Fourchon provide service for more than 18% of the nation's oil and gas supply through its oil service and extensive pumping infrastructure. According to the Greater Lafourche Port Commission ("GLPC"), this translates into a direct daily impact of $46 million on the oil and gas industry and infrastructure and a $500 million daily impact on the national GDP.

The area includes the Louisiana Offshore Oil Port ("LOOP"), the nation's only deepwater oil import facility, which uses Port Fourchon as its land base. LOOP is connected to fifty percent of the nation's refineries, making Port Fourchon an intermodal hub critical for the nation's oil and gas industry. Indeed, if Port Fourchon was unable to service the outer continental shelf ("OCS") industry and infrastructure, all of the remaining United States Gulf of Mexico port facilities combined would only be capable of fulfilling twenty-five percent of the national need for these services. Researchers with the Louisiana State University's Center for Energy Studies have studied the impact of disruptions related to Hurricane Ida, finding that each day LOOP was offline led to an additional $200 million in fuel costs nationwide.[2]

Port Fourchon is also a commercial and recreational fishing destination, serving as a land base for more than 250 companies, and the GLPC is engaged in numerous environmental efforts, including the construction of a Coastal Wetlands Park near the main entrance of the port along with the recent announcement of a wind turbine that will sit adjacent to this park. According to the GLPC, the turbine will collect data and also include the ability to use the energy offtake to aid in powering the Port's nearby

2 David E. Dismukes and Gregory B. Upton, Jr., LSU Center for Energy Studies, *The National Importance of Post-Storm Electricity Restoration to Critical Energy Infrastructure* (March 31, 2022).

emergency operations building as well as provide port officials a guide as to how wind-related energy can be integrated into the grid to make the port a greener port. Between these initiatives and an eventual plan to place several transportation electrification stations in the port and its many continual mitigation efforts where the GLPC is participating in coastal land rebuilding/renourishment projects, it is clear that the GLPC is taking steps to not only increase its sustainability, but also reduce its overall carbon footprint by incorporating meaningful steps into its overall port development plan.

Kayakers at the Coastal Wetlands Park

The region also includes Grand Isle, which is Louisiana's last inhabited barrier island with only one road in and one road out. Grand Isle's economy depends almost entirely on tourism, the seafood industry, and oilfield-related operations. Finally, Golden Meadow is the last incorporated town on Bayou Lafourche, and it is a major seafood sales and processing center for Louisiana.

Q8. WHAT ARE THE UNIQUE ELECTRICAL NEEDS OF, AND CHALLENGES IN, THAT REGION?

A. As explained by Company witness Samrat Datta, the Golden Meadow – Barataria line sustained critical damage during Hurricane Zeta, and it has since been retired. Retirement of this line means that the area downstream of the Golden Meadow substation is now served by only one transmission source, and it cannot support incremental load growth without causing the transmission line connecting the Clovelly and Golden Meadow substations to exceed its capacity. This limitation threatens industrial growth in the Port Fourchon region, raises the possibility of North American Electric Reliability Corporation ("NERC") reliability violations, and it means that the Port Fourchon region downstream of the Golden Meadow substation will be without power if the sole transmission source to Golden Meadow is out of service.

In addition, as Mr. Datta explains, the topography in this region is particularly challenging for transmission projects. These lines traverse marshlands and open water, which is not compatible with the heavy machinery used in both construction and maintenance of transmission lines. These challenges can make routine maintenance more difficult and delay restoration after storms, which can lead to longer and more sustained outages in the region. Given the vital role this region plays in the national and state economy, reliability and resiliency in this region are critical.

Q9. WHAT SOLUTIONS WERE CONSIDERED FOR ADDRESSING THE NEEDS AND CHALLENGES IN THE PORT FOURCHON AREA?

A. The Company's transmission and generation planning teams explored alternative options available to provide reliable service to the growing load in the Port Fourchon area, ultimately focusing on either rebuilding the Golden Meadow – Barataria line (transmission-only solution) or constructing a floating power barge with an associated microgrid (BPS).

Q10. WHY WAS THE BPS SELECTED AS THE PREFERRED ALTERNATIVE?

A. The team's analysis showed that BPS was consistent with, and uniquely suited to meet, the needs of the region when compared to the transmission-only solution. As discussed in greater detail by Mr. Datta, the microgrid aspect of the Project will allow ELL to operate the entire area downstream of Clovelly as an "island" from the rest of the transmission grid during outages caused by a trip of the Golden Meadow – Valentine transmission line. That is, BPS will be capable of restoring power to the region without any assistance from the grid by way of power for auxiliary systems of the generator that are necessary to start the generator and will be capable of sustaining the electrical load in the region without the benefit of being connected to the rest of the ELL electrical system while the line and substation repairs are being carried out. Once islanded, BPS would be able to start up and provide power and necessary voltage support for customer needs in the region until transmission service is restored. In particular, this configuration will allow industrial customers at Port Fourchon, including LOOP, to continue their operations and support the national oil and gas infrastructure.

In addition to providing these significant reliability benefits to the region, the Project will provide essential benefits related to capacity, energy, and resiliency. The Project will be capable of providing quick voltage recovery and will add synchronous inertia and short-circuit capability to the system. As a quick-start resource with fast ramp rate capability, it will be available much faster than generators with slower ramp rates and will be easily dispatchable by Midcontinent Independent System Operator, Inc. ("MISO") to ensure reliability when intermittent and inverter-based resources (e.g., wind resources) are unavailable.

The Project will provide generation capacity that will assist ELL in addressing its long-term capacity need. In particular, as I explain below, it will help address ELL's current short position with respect to peaking and reserve resources, which neither a transmission-only solution nor purchased capacity credits would resolve. In addition, the Project will also provide energy when it is dispatched as a lowest variable cost resource.

As discussed by Company witness Sean Meredith, the Project is expected to offer resilience benefits to the region as it would be the only generation source in the area, thereby acting as a distributed energy resource. Further, the Project's design as a floating power plant in an area prone to flooding, coupled with its black-start capabilities and the characteristics afforded by the microgrid, will assist the Company's efforts to prepare for, adapt to, and recover from extreme weather events. The transmission-only alternative simply would not provide these benefits that are essential to the region and the state.

ELL also performed an economic analysis comparing the customer net benefit for the Project relative to a transmission alternative that would increase the load-serving capability with alternative generation capacity provided outside the region in the form of a generic new-build combustion turbine ("CT"). As discussed in greater detail in the Direct Testimony of Company witness Phong Nguyen, the results of the economic analysis show the net cost of BPS is on par with the cost of the transmission alternative, which is likely conservative relative to the BPS considering the conservative nature of many of the cost estimates used in the analysis and that BPS may qualify for property tax abatement.

Based on those qualitative and quantitative reasons, and in addition to helping meet ELL's long-term resource needs as I discuss below, Company witness Ryan Jones concludes that BPS represents the lowest reasonable cost option to address the needs in this region and is in the public interest.

Q11. DO YOU AGREE WITH MR. JONES'S ASSESSMENT?

A. Yes. The Project provides a reliable, resilient, and economic solution to meet the important and unique needs of ELL's diverse customer base in the Port Fourchon region and across the ELL system. In the Port Fourchon region, the Project supports the specific needs of the growing and thriving industrial development and commercial activities. The Project also helps ELL meet its long-term capacity needs, which benefits all customers. BPS also benefits all customers by avoiding the need and cost to upgrade the transmission system to import power to this region from other resources on ELL's system. Finally, as it relates to the siting of the Project, Mr. Datta explains the siting of the microgrid to enable servicing the power needs of the area as well as proximity to transmission lines, the substation, and access to natural gas pipelines. These considerations also support the Project as the lowest reasonable priced option to address the needs of the region.

II. RESOURCE PLANNING NEEDS MET BY BPS

Q12. WHAT IS THE GOAL OF ELL'S RESOURCE PLANNING?

A. ELL's resource planning efforts are driven by the fundamental goal to deliver a resource portfolio that is centered on customer outcomes and the safe, reliable delivery of electricity. Building a robust portfolio requires that ELL carefully balance three key objectives: reliability, affordability, and environmental stewardship. This balance looks at both the near-term and long-term benefits and risks associated with each key objective.

ELL's portfolio development places an emphasis on customer needs and preferences. ELL recognizes that customer expectations for electric service will continue to change alongside advancements in technology and evolving market and policy considerations both in and out of the traditional utility framework. Accordingly, ELL aims to meet customers' needs for reliable, reasonably priced electric services and energy solutions both today and in the future.

Initially, the need for the Project arose after extensive damage to the Golden Meadow – Barataria 115 kilovolt ("kV") transmission line that occurred during Hurricane Zeta in 2020. With that line out of service, the service area is now supplied by only one source of transmission, the Valentine – Clovelly 115 kV transmission line.

This Project will increase the load-serving capability of the transmission system downstream of the Clovelly substation, including Port Fourchon, Golden Meadow, Leeville, and Grand Isle, in a cost effective and reliable manner.

Q13. PLEASE ELABORATE ON THE THREE KEY OBJECTIVES YOU MENTIONED FOR BUILDING A SUSTAINABLE PORTFOLIO.

A. Reliability as a planning objective means ensuring that the stability of the grid is maintained through adequate resources to meet capacity and energy needs along with adequate transmission and distribution systems to ensure that power is reliably delivered to customers. Ensuring that there are adequate resources to meet customer demand is more than just supplying a certain number of megawatts or zonal resource credits. Resource adequacy must consider the diversity of the supply portfolio—both in technology type and operational characteristics—combined with customer-targeted energy efficiency and demand-side resources. It also must consider the location of resources, proximity of those resources to customer load, and the availability of those resources under various conditions. The ability of the transmission and distribution system to deliver those resources to customers is also a key aspect of maintaining reliability, and the careful integration of generation, transmission, and distribution ensures that this reliability can be delivered at the lowest reasonable cost.

Affordability as a planning objective means keeping customer costs reasonable, considering current and expected cost impacts of infrastructure improvements made on behalf of our customers and taking advantage of scale to provide cost synergies. ELL recognizes the importance of maintaining affordable rates for customers and prides itself on the ability to maintain rates amongst the lowest in the country and well below the national average. This requires balancing of various cost components such as capital investment, operations and maintenance expense, and fuel costs. Cost stability requires that ELL examine its portfolio over a variety of futures to ensure the long-term supply productivity of the resource.

Environmental stewardship as a planning objective refers to the use and protection of the natural environment, ensuring compliance with existing and likely regulations, adaptability of resources, and paths towards a lower-carbon economy. Portfolios that are capable of adapting and remaining sustainable over the long-term horizon bring customers increased benefits and help to manage long-term cost-stability. When considering our environmental stewardship objective, we also monitor customers' desire for decarbonization through lower emission generation, local renewables, and offerings that allow customers to meet their own sustainability goals in partnership with their utility. ELL's customers have publicly stated their intent to reduce the carbon intensity of their operations. The Greater Lafourche Port Commission, a political subdivision of the state of Louisiana tasked with facilitating the economic growth of the communities in which it operates, is also working to reduce greenhouse gas emissions to, among other things, address the wellbeing of the port tenants and the surrounding rural communities near the port. With our ability to provide broad access to customers, ELL stands in a unique position to enable and extend a lower carbon economy to customers and the communities it serves.

Appropriately balancing these three objectives with consideration of the near-term and long-term risks associated with each result in the lowest reasonable cost portfolios for customers.

Q14. PLEASE DESCRIBE ELL'S LONG-TERM RESOURCE PLANNING PROCESS.

A. The core elements of ELL's resource planning process are: (1) a determination of the capability of the Company's current resources, (2) a forecast of the peak load plus reserve margin and energy that the Company expects to serve over the planning horizon, and (3) a determination of the amount and types of additional supply-side and demand-side resources that will be needed to meet the Company's load and energy requirements.

As part of its resource planning efforts, ELL has developed and continues to refine an Integrated Resource Plan ("IRP"), which is filed at the LPSC pursuant to the Commission's IRP rules.[3] ELL's most recent submission of an IRP to the Commission was on May 22, 2023 (ELL's "Final 2023 IRP") and reflects inputs and assumptions that were established based on ELL's Business Plan 2022.[4] Given the uncertainty and fluidity inherent in long-term resource planning, ELL's IRP provides a framework for the Company to plan for resources over the next several years but does not and cannot reasonably serve as a prescriptive plan to address ELL's long-term generation needs

[3] See Corrected General Order No. R-30021 (April 20, 2012), LPSC, Ex Parte, In re: Development and Implementation of Rule for Integrated Resource Planning for Electric Utilities, Docket No. R-30021.

[4] See Docket No. I-36181 (May 22, 2023), Ex Parte: In Re: 2021 Integrated Resource Planning ("IRP") Process for Entergy Louisiana, LLC Pursuant to the General Order No. R-30021. The Final 2023 IRP was acknowledged by the LPSC on February 21, 2024.

and options for meeting those needs. Circumstances will necessarily change, and to be reasonable and prudent, resource procurement decisions must be made based on the best information reasonably available at the time those decisions are made. ELL presents those decisions and the support for them to the Commission when seeking resource certifications required under applicable General Orders and does not seek certification via the IRP (nor, per my understanding of the Commission's IRP rules, does the Commission's acknowledgement of an IRP confer such approval).

ELL also has presented results of certain aspects of its continuous resource planning efforts outside of the formal IRP process to the Commission. For example, ELL recently received LPSC approval for its 2021 Solar Portfolio, which consists of four solar photovoltaic resources with a total nameplate capacity of 475 MW as well as ELL's Geaux Green Option ("Rider GGO") green tariff.[5] Further, on January 24, 2024, the LPSC approved ELL's 2022 Solar Portfolio, which consists of two solar photovoltaic resources with a total nameplate capacity of 224 MW.[6] Finally, the Company has two applications pending before the Commission to enable additional

[5] See Order No. U-36190 (October 14, 2022), In re: Application for Certification and Approval of the 2021 Solar Portfolio, Rider Geaux Green Option, Cost Recovery and Related Relief, Docket No. U-36190. The facilities are 1) the Sunlight Road Facility, 2) the Vacherie Facility, 3) the Elizabeth Facility, and 4) the St. Jacques Facility.

[6] See Docket No. U-36685 (February 28, 2023), Ex Parte: Application of Entergy Louisiana, LLC for Approval of the 2022 Solar Portfolio, Expansion of the Geaux Green Option, Cost Recovery and Related Relief. The resources at issue in that docket are the Iberville Facility and the Sterlington Facility.

resources via ELL's 2023 Solar Application and ELL's 3 GW filing, Docket Nos. U-37071 and U-36697 respectively.[7]

As described in detail in ELL's Final 2023 IRP, the record of Commission Docket No. U-36190 (in which the Commission approved ELL's 2021 Solar Portfolio),[8] and ELL's applications and testimony in Dockets Nos. U-36685, U-37071 and U-36697, ELL is projected to need additional long-term generating capacity over the course of the long-term planning horizon to replace deactivated capacity and address load growth in order to reliably serve customers.

Q15. PLEASE DESCRIBE THE COMPANY'S CURRENT RESOURCE PORTFOLIO.

A. ELL controls approximately 11 GW of in-service capacity through direct ownership, capacity contracts with third parties, life-of-unit contracts with other Entergy Operating Companies, or Demand Response Resources. Over the last fifteen years, ELL has transformed and modernized its generation portfolio to support existing customers' needs and address significant current and expected industrial load growth in Louisiana by adding reliable and more efficient CT and combined cycle gas turbine ("CCGT") generating units to meet its supply needs. More recently, and as I noted above, ELL has begun its transition to more renewable resources, including:

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[7] See Docket No. U-37071 (December 18, 2023), Ex Parte: Application for Approval of the Mondu Solar Power Purchase Agreement, Expansion of the Geaux Green Tariff, and Cost Recovery. This application involves the purchase power agreement for the Mondu Facility; Docket No. U-36697, In re: Application of Entergy Louisiana, LLC for Approval of Alternative Process to Secure up to 3,000 MW of Solar Resources, Certification of those Resources, Expansion of the Geaux Green Option, Approval of a New Renewable Tariff, and Related Relief.

[8] See Order No. U-36190 (October 14, 2022), In re: Application for Certification and Approval of the 2021 Solar Portfolio, Rider Geaux Green Option, Cost Recovery and Related Relief, Docket No. U-36190.

- the 50 MW Capital Region Solar facility in Port Allen, Louisiana, a Power Purchase Agreement ("PPA") that commenced in 2020;
- a 475 MW solar portfolio that consists of 4 solar resources to be developed in the State of Louisiana, which the LPSC approved in 2022; and
- an additional 224 MW of solar to be developed in Louisiana that the Commission approved in January 2024.

Table 1 below shows ELL's current (as of 2023) resources by fuel type, including demand-side resources and supply-side resources owned by ELL and under contract through PPAs.

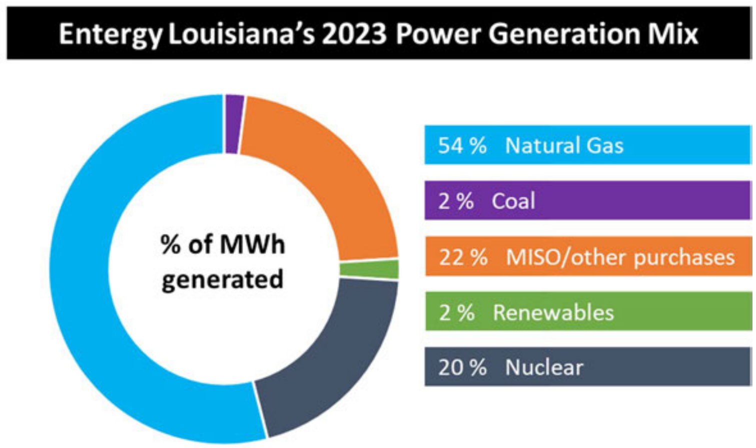
Table 1

2023 ELL Resource Portfolio			
		Summer Seasonal Accredited Capacity ("SAC")[8]	SAC %
Coal		328	3.0%
Nuclear		1,834	16.7%
CCGT		5,200	47.3%
CT		795	7.2%
Legacy Gas-Steam		2,395	21.8%
Renewable		187	1.7%
Load Modifying Resources ("LMRs")		260	2.4%
Total		**10,999**	**100.0%**

[9] The amount of SAC MW shown in Table 1 is in accordance with MISO capacity accreditation rules reflected in the MISO *Business Practices Manual Resource Adequacy,* MISO Energy (October 1, 2023), *available at* https://www.misoenergy. *Id.* at Section 4.2.1.4. The nameplate capacity of these resources is higher than the amount shown in the table.

Figure 1 below shows ELL's energy mix in 2023 by generation type.

Figure 1



Approximately 22% of the capacity in the Company's current resource portfolio is composed of legacy generation units that have been in-service for over 49 years with the oldest being in operation for 58 years. While the Company has made and will continue to make investments to maintain these generators when economic to do so, many of these generators are expected to reach the end of their economic useful lives and become deactivated during the next eight years.[10]

Q16. HOW DO MISO RESOURCE ADEQUACY REQUIREMENTS INFLUENCE THE COMPANY'S RESOURCE NEEDS?

A. ELL's resource planning efforts are primarily focused on the planning objectives I noted above to deliver the right type and amount of generating capacity to reliably serve

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[10] For example, ELL deactivated Waterford 1 during the first quarter of 2021. See Docket No. X-35751 (March 30, 2022), In Re: Notification of Deactivation and Retirement Decisions Pursuant to Louisiana Public Service Commission's Deactivation General Order (Docket No. R-34407). See also, e.g., Docket No. I-36181 at p. 27 (May 22, 2023), Ex Parte: In Re: 2021 Integrated Resource Planning ("IRP") Process for Entergy Louisiana, LLC Pursuant to the General Order No. R-30021.

ELL's customers in Louisiana. In doing so, ELL must also account for the resource adequacy requirements set out by MISO for the prompt Planning Year to ensure that the results of ELL's planning efforts meet those requirements.

While MISO has no responsibility to build or provide capacity, it nevertheless assigns resource adequacy requirements to load-serving entities in its footprint, including ELL. Historically, MISO provided annual resource adequacy requirements; however, MISO has implemented its new Seasonal Resource Adequacy Construct beginning in the 2023-2024 planning year. For this new resource adequacy construct, MISO has conducted seasonal assessments to evaluate potential resource adequacy risks for the various seasons. These assessments evaluate seasonal loss of load risk by modeling near-term capacity subject to historic outage conditions and by modeling a wide range of potential load forecast and weather scenarios, including extreme weather scenarios. The assessments also highlight potential issues in the upcoming seasons to help system operators and stakeholders prepare for potentially strained system conditions and develop preventative actions.[11]

As part of its resource adequacy requirements, MISO determines how much capacity must be located within each Local Resource Zone ("LRZ") defined by MISO relative to how much capacity can be "imported" from other LRZs. In the event a load-serving entity's resources fall short of those seasonal requirements, either in total or in-zone, that load-serving entity is exposed to the zonal clearing price for MISO's annual capacity auction for that shortfall, which clearing price can approach and ultimately

[11] MISO Energy, *Resource Adequacy*, Midcontinent Independent System Operator, Inc., *available at* https://www.misoenergy.org/planning/resource-adequacy2/resource-adequacy.

reach the cost of new entry ("CONE") as market conditions tighten.[12] Notably, LRZs 1 through 7 cleared at or near CONE in the 2022-23 MISO Planning Resource Auction ("PRA"), or $236.66/MW-day.[13] The same 2022-23 MISO Planning Resource Auction yielded a clearing price for LRZ 9, the LRZ that ELL belongs to, of $2.88/MW-day.[14] The 2023 PRA Results for the 2023-2024 MISO Planning year represent the first time MISO has released PRA results based on its new Seasonal Accreditation Construct. While no LRZ cleared at CONE in any season, significant tightening was noted in LRZ 9 in the Fall season, which cleared at $59.21/MW-day, and in Winter, which cleared at $18.88/MW-day.[15] In fact, MISO's data show that the capacity surplus that MISO LRZ 9 previously enjoyed was reduced by nearly 40% on an annual basis from the previous year, and the surplus completely disappeared during the 2023 PRA for the Summer season, where the Zone's Planning Reserve Margin Requirement ("PRMR") was higher than the capacity included in the offers that were submitted.[16] Indeed, LRZ 9, in which Louisiana sits, is the only Zone in MISO to have experienced elevated pricing in the most recent MISO PRA, and it experienced this elevated pricing in two out of the four seasons.[17]

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[12] The "cost of new entry" represents the regional, annualized capital cost of building a new combustion turbine.

[13] MISO Energy, *2022/2023 Planning Resource Auction (PRA) Results*, Midcontinent Independent System Operator, Inc. (April 14, 2022), *available at* https://cdn.misoenergy.org/2022%20PRA%20Results624053.pdf.

[14] *Id*.

[15] MISO Energy, *Planning Resource Auction Results for Planning Year 2023-24*, Midcontinent Independent System Operator, Inc. (May 19, 2023), *available at* https://cdn.misoenergy.org/2023%20Planning%20Resource%20Auction%20(PRA)%20Results628925.pdf.

[16] *Id.*

[17] *Id*. at 4.

As I noted, ELL's planning efforts carefully consider the location of resources and the proximity of those resources to customer load and therefore are aligned with these MISO zonal requirements. This alignment serves to mitigate the level of exposure to capacity shortfalls and places an emphasis on securing adequate in-zone resources.

Q17. DOES THE COMPANY NEED ADDITIONAL LONG-TERM GENERATING CAPACITY TO SATISFY ITS PLANNING OBJECTIVES?

A. Yes. Projected load (plus a planning reserve margin) exceeds the capacity of ELL's existing and LPSC-approved resources, which indicates a need for additional long-term capacity. My exhibit, LKB-2, which contains Highly Sensitive Protected Materials ("HSPM"), reflects ELL's resources relative to forecasted load for 2024 – 2035, with the red line depicting the resource deficit from year to year. HSPM Exhibit LKB-2 was prepared using the load forecast from ELL's Business Plan 2024 ("BP24"), with consideration of current owned and contracted resources as well as those future resources that have been approved by the LPSC. In terms of resource availability, HSPM Exhibit LKB-2 reflects unit deactivation assumptions from BP24, and existing PPAs that are assumed to expire on stated expiration dates. As seen in HSPM Exhibit LKB-2, using ELL's summer seasonal accredited capacity, ELL will need approximately [redacted].

Q18. WHAT ARE ELL'S CURRENT PLANS TO MEET THE LONG-TERM CAPACITY NEEDS OF ITS CUSTOMERS?

A. As noted above, the Company has developed and continues to refine an integrated plan that considers generation and transmission and is expected to meet customer needs in the lowest-reasonable-cost manner. The Company continues to need long-term capacity over the planning horizon, and the plan is to meet ELL's needs from a diverse set of resources that will provide efficient operating flexibility to serve evolving customer demands. BPS will operate as a dispatchable generation resource, which will help maintain reliability when intermittent resources are not available. In addition, as I discuss above, this Project will directly address the needs of critical oil and gas customers at Port Fourchon, which is experiencing significant load growth and serves a critical role in the nation's oil supply through its oil service capabilities and extensive pumping infrastructure as well as the needs of customers in the fishing and tourism industries in the region.

Q19. DOES THE PROPOSED PROJECT SUPPORT ELL'S THREE KEY PLANNING OBJECTIVES FOR BUILDING A SUSTAINABLE PORTFOLIO?

A. Yes. In terms of reliability, the Project will complement other planned projects to meet the long-term capacity needs that I discussed above. In addition, the Project will address both the specific energy needs of ELL's customers in the region and support electric reliability across the state of Louisiana. As seen in HSPM Exhibit LKB-2, using ELL's existing resources and those approved at the LPSC, [redacted].

BPS will help improve this energy coverage ratio and add beneficial diversity and support in the region and to all ELL customers. Energy coverage is important as it represents the actual electricity produced to serve customers. Also, the design requirements ELL has applied to BPS will mitigate a number of risks associated with extreme weather events such as hurricanes that have affected ELL's service territory.

With respect to affordability, BPS was determined to be the lowest reasonable cost alternative to meet the unique needs of customers in this region and provides a solution to the challenging geography in this area.

As to environmental stewardship, as discussed in greater detail in the Direct Testimony of Company witness Gary Dickens, the RICE units will have hydrogen co-firing capabilities of up to 25% by volume, and as green hydrogen becomes more affordable, co-firing could decrease ELL's carbon footprint. The dual-fuel capability would also increase future reliability.

In addition, BPS will add a flexible resource that will enable the integration of intermittent renewable energy in the grid, further assisting the Company's sustainability initiative. As Mr. Datta explains, a deficiency of flexible capacity (such as that provided by the RICE units on the power barge that are part of the microgrid in the Project) may result in an increased risk of load loss during extreme net-load-ramp conditions with increased penetration of intermittent renewable resources. In extreme cases, under conditions of flexible capacity deficit, the only way to limit the net load-ramp rate might be to curtail renewable generation (assuming sufficient inflexible capacity in the system). Further, BPS is a black-start resource that will bolster the resilience of the electric system in the Fourchon – Valentine corridor and potentially shorten restoration times in this economically-significant part of the state. This quick-start and fast ramping resource could serve as a valuable asset in potential future enhancements to the MISO ancillary service market that may be necessitated by increased penetration of renewable resources. Finally, BPS will add synchronous inertia and short circuit capability to the system, both of which will be increasingly valuable ancillary services in more sustainable futures.

III. THE NEED FOR DISTRIBUTED GENERATION AND THE ADVANTAGES OF THE BAYOU POWER BARGE

Q20. YOU NOTED THAT BPS WOULD BE LOCATED NEAR PORT FOURCHON IN LEEVILLE, LOUISIANA. PLEASE SUMMARIZE ELL'S SERVICE IN THAT AREA.

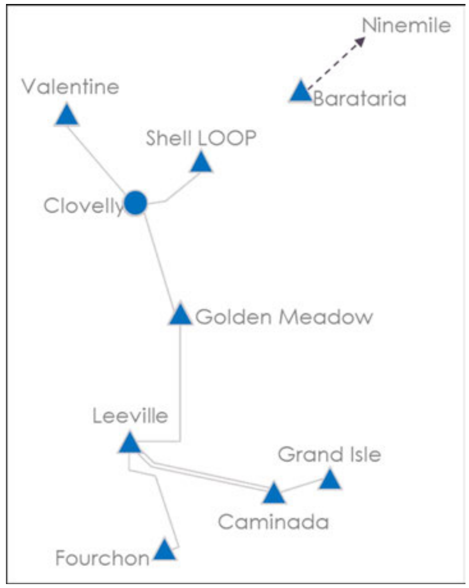
A. As I mentioned at the beginning of my Direct Testimony, and as discussed in greater detail by Mr. Datta, the geography of Louisiana can provide unique challenges in terms of electric service, and the area ELL serves in the southeastern most part of the state, where Port Fourchon and Leeville are located, is one of those challenging areas. As seen in Figure 2 below, ELL's Leeville substation is located approximately 50 miles south of New Orleans and connects ELL's transmission grid to its southern most customers in Port Fourchon and Grand Isle.

Figure 2

Q21. HOW IS SERVICE CURRENTLY PROVIDED TO THE CUSTOMERS IN THIS AREA?

A. The Leeville substation is connected to the transmission grid by a radial transmission feed out of the Golden Meadow substation located approximately 15 miles north of Leeville. The Golden Meadow substation is currently fed by one transmission line from the Clovelly substation, as seen in Figure 3 below. Previously, there was another line into Golden Meadow from the Barataria substation, but that line was heavily damaged in Hurricanes Zeta and Ida and has since been retired from service.

Figure 3



As Mr. Datta explains in greater detail in his Direct Testimony, these lines traverse marshlands and open water, which presents construction and maintenance challenges that can lead to reliability issues at times. Due to the large amount of industrial load served and the limited short-circuit current capabilities available in the area, ELL has also experienced issues with voltage support for its industrial customers.

Q22. ARE THERE LIMITS TO ELL'S SERVICE CAPABILITIES BASED ON THE CURRENT TOPOLOGY OF THE ELL SYSTEM?

A. Yes. Since the retirement of the Barataria – Golden Meadow line, the transmission system in Lafourche Parish cannot support incremental load growth without causing the transmission facilities in the area to exceed their thermal capacities. As such, if new load growth materializes, NERC reliability standards would require that ELL rebuild that line as a baseline reliability project. With an additional 10 to 15 MW of load growth, planning analysis shows that the area would exceed voltage stability thresholds. In order to address that issue, the area substations would need to be upgraded to 230 kV capability, and a new Barataria – Golden Meadow line would need to be constructed to 230 kV capability to provide two transmission sources to the Golden Meadow substation. ELL would need to perform these additional upgrades to comply with NERC reliability standards.

Q23. DOES THE COMPANY ANTICIPATE LOAD GROWTH FOR THIS AREA?

A. Yes. Areas downstream of the Golden Meadow substation, particularly at Port Fourchon, are anticipating significant load growth in the coming years as the port continues to grow. In one example, in May 2023, the port announced a Cooperative Endeavor Agreement with C-Logistics that will pave the way for the development of a comprehensive multi-purpose heavy industry facility.[18] In addition to growth of industry and new facilities at the port, as vessel operators in the Port Fourchon area look for opportunities to supply power to their vessels from the electric grid as opposed to diesel generators to improve their sustainability, ELL has seen a rapid increase in the demand for shore power. Since March 2020, customers have contracted or inquired with ELL for approximately 7 MW of shore power demand in the Port Fourchon area, and we expect this electrification pipeline to continue to grow in the coming years. Other customers in the area are also actively exploring development opportunities, with

[18] Thad Angelloz, *Fourchon Island Development Advances with Execution of Multi-Party Agreement*, Fourchon (May 11, 2023), *available at* https://portfourchon.com/fourchon-island-development-advances-with-execution-of-multi-party-agreement/.

discussions currently underway with an industrial customer for a 5 MW expansion of pumping capacity near Port Fourchon. Some of these needs will be met with sustainable resources, such as plans for an off-shore wind turbine announced in January 2024 and to be located at the Port Fourchon Coastal Wetlands Park;[19] however, these resources alone will not fully meet the needs identified for this region – for example, the reactive power needs that Mr. Datta discusses in more detail.

Q24. HOW DOES ELL DETERMINE THE LEVEL OF LOAD GROWTH TO USE IN DEVELOPING ITS LOAD FORECASTS?

A. ELL has an annual process to examine current levels and trends in electricity consumption and to update its long-term consumption forecast. Because different types of customers consume electricity in different ways, ELL's forecasts are prepared by customer type – residential, commercial/governmental, and industrial. The residential forecast is driven largely by the numbers and types (single family, multi-family, mobile homes) of households in the area that ELL serves and expectations for growth or declines in those levels. The residential forecast is also affected largely by expectations around the effects of energy efficiency as well as by the expected numbers of types of electricity end-use items, such as trends in electric heating versus gas heating. The commercial/governmental forecasts are driven largely by the population outlook in the area ELL serves and, similar to the residential forecast, by expectations around the

[19] Thad Angelloz, *Fourchon First: Lafourche Parish Port to Feature State's Inaugural Wind Turbine*, Fourchon (January 8, 2024), *available at* https://portfourchon.com/fourchon-first-lafourche-parish-port-to-feature-states-inaugural-wind-turbine/.

effects of energy efficiency as well as by the expected numbers of types of electric end-use items. Electricity consumption for both residential and commercial customers is also affected by growth in adoption of electric vehicles, which is expected to continue to increase over time.

Existing industrial customers, whose energy consumption made up over half of ELL's sales volume for 2023, are evaluated individually for larger customers or as a group for smaller customers, to assess any trends or expected changes in electricity consumption including outages or seasonal patterns.

With respect to new industrial customers or expansions for existing large industrial customers, each of these projects that is included in the forecast is based on a probability that the customer's consumption will be realized at a certain level and at a certain time. These probabilities are based on progress made toward the execution of a contract for electric service or delivery of service. For example, a "70%" probability indicates that significant investment has been made on the part of the potential customer. In addition to the information provided by the customer, the probability assessments are impacted by specific customer actions such as load studies, facilities studies, project funding decisions, public announcements, permits, incentive packages, reimbursement agreements, and executed Electric Service Agreements ("ESAs"), all of which signal certain levels of progress toward a particular industrial load materializing on the electric system. Probability assessments are based on the informed judgment of ELL's industrial customer representatives, and, like project development itself, the assessment process is dynamic.

Probability assessments are provided to and discussed with ESL's Sales and Load Forecasting Group. As a general matter (and thus subject to exceptions), a project is not included in ELL's sales forecast unless it has a probability assessment of 50% or higher, and even projects with executed ESAs are often included in the forecast at a probability-weighted amount (as opposed to the Project's full expected load or sales impact). The discussions between industrial account representatives and the Sales and Load Forecasting Group may also result in adjustments to load-factor assumptions for sales/load forecasting purposes. To give an example of this conservative approach, an 80 MW addition used in developing the forecast may correspond to a project with a 200 MW peak demand, an executed ESA, and a probability assessment of 50%. This approach is reflected in ELL's most recent BP24 forecast. Note, however, that all of these probability assessments are estimates, and the thresholds are not absolute.

ELL has over 10,000 industrial class customers; the largest fifty of those customers accounted for over 75% of the total consumption from the entire class. While many industrial customers tend to have relatively steady usage year-over-year, new, large industrial customers or large customers who have large project expansions tend to drive step-changes in growth. ELL anticipates that, through the end of this decade, the majority of the load growth discussed above is expected to come from new, large industrial customers or from large industrial expansions.

Q25. WOULD IT BE ECONOMIC FOR ELL TO ADDRESS ITS LONG-TERM CAPACITY NEED THROUGH THE PURCHASE OF CAPACITY CREDITS IN THE MISO SEASONAL PRA RATHER THAN BY BPS?

A. No. While the MISO PRA provides an avenue to correct short-term imbalances, over-reliance on the short-term market in lieu of a long-term resource planning strategy is an imprudent and risky practice – especially at a time when market conditions are tightening. The MISO PRA is a one-year-ahead mechanism that is not designed to ensure that an adequate amount of, or appropriate types of, resources will be available in the long-term. As a result, relying on the MISO PRA involves greater risk compared to a long-term resource such as BPS. Unlike a long-term resource, purchasing capacity credits in the MISO PRA does not provide any additional capacity, and provides no energy benefits or local area benefits. Rather, purchasing capacity credits satisfies only the financial requirement of the MISO PRA construct. Long-term resource planning is essential to ensure reliable electric service at the lowest reasonable costs. Physical generation, like BPS, is necessary to generate electricity that can be transported to customers for consumption. Therefore, even if ELL could be assured that sufficient capacity was available to meet ELL's current needs through the MISO PRA (which it cannot), this would still not address the local voltage issues or the anticipated load growth in the region. Consequently, reliance upon the MISO PRA to meet the needs of this coastal region would place the reliability of service to ELL's customers in this region at risk, while also exposing all ELL customers to financial risk associated with tightening conditions in the MISO PRA, particularly in LRZ 9.

Further, as discussed in greater detail above in the response to Q.16, significant tightening has been noted in LRZ 9 (in which Louisiana is located) since MISO implemented the seasonal PRA. MISO's data show that the capacity surplus that MISO LRZ 9 previously enjoyed has significantly decreased.

Finally, while the precise timing of market equilibrium is unknown, there is an expectation that market conditions in the MISO market will tighten in the coming years, which is expected to lead to higher capacity prices.[20] Moreover, unlike reliance on the capacity auction, the construction of BPS will provide customers with a highly flexible resource that produces energy revenues to offset the cost of purchasing energy in the MISO day-ahead energy market and thereby protects customers from increasing energy prices in the market. In contrast, capacity credits provide no energy revenues to offset the cost to ELL customers of purchasing energy in the MISO market.

Q26. WHAT CAPACITY BENEFITS WOULD BE RECOGNIZED AS A RESULT OF ADDING BPS?

A. Unlike a transmission-only solution, the addition of BPS provides generation capacity that supports ELL's resource planning requirement. The value of capacity is quantified in terms of an avoided CT, as discussed in greater detail in the Direct Testimony of Company witness Phong D. Nguyen. It is important to note that BPS is expected to operate in a peaking and reserve supply role based on its operating characteristics.

[20] MISO Energy, *2023 OMS-MISO Survey Results* at pp. 2, 14, and 21 (July 14, 2023), Midcontinent Independent System Operator, Inc., *available at* https://cdn.misoenergy.org/20230714%20OMS%20MISO%20Survey%20Results%20Presentation629607.pdf.

Peaking and reserve capacity is an area of specific need as ELL is currently short of peaking and reserve supply role resources and is expected to continue to be short in that supply role for the foreseeable future.

Q27. PLEASE ELABORATE ON THE COMPANY'S NEED FOR PEAKING AND RESERVE CAPACITY IN THIS REGION.

A. In conducting long-term resource planning, ELL analyzes its overall capacity needs as well as its need for capacity that serves specific supply roles, such as base load, core and seasonal load-following, and peaking and reserve. Having the right amount of capacity suitable to serve each of these supply roles enables the Company to most efficiently, cost-effectively, and reliably serve the time-varying level of customer load it experiences.

The Company defines its base load as the minimum level of load that is served 85 percent of the hours in a year. Core load-following requirements are those hours that exceed base load but are less than the load levels experienced in the highest 30 percent of hours of the year. The seasonal load following requirement is defined as the levels of load that exceed base load and core load-following but are less than load levels experienced in the highest 15 percent of the hours of the year. The Company's peaking requirement is defined as the level of load that is served in the highest 15 percent of the hours of the year.

Each supply resource has its own unique cost and performance characteristics that make it functionally and economically suited to serve certain supply roles. Base load resources typically cost more to construct per MW, but operate with relatively low variable cost, and, because the resource is expected to operate in most hours at high utilization levels, the total supply cost is relatively low on a $/MWh basis. Conversely, a peaking or reserve unit is expected to operate at low utilization levels and higher variable costs but typically has a relatively low capital cost and, therefore, is the most economical alternative when utilized in a peaking or reserve role. Load following units have moderate capital cost and variable cost.

Peaking and reserve resources can be called upon to respond to contingency situations, such as transmission line loss or generation failure in other parts of the system. When that occurs, a peaking and reserve resource is called upon to fill in for an otherwise more economic resource until that resource can be returned to service or other arrangements can be made.

Q28. ARE THERE OTHER AREAS WHERE PEAKING AND RESERVE CAPACITY WOULD SUPPORT ELL'S RESOURCE PLANNING GOALS?

A. Yes. As I mentioned above, and as explained more fully by Company witnesses Dickens and Datta, BPS will be a highly flexible resource capable of quickly providing incremental energy with the ability to cycle back down quickly. Such highly flexible resources serve an important role in supporting the integration of intermittent resources into the grid.[21] BPS, then, complements ELL's recently approved portfolio of six

[21] According to the U.S. Energy Information Administration ("EIA"), one of the main advantages of reciprocating engines is their ability to provide incremental electricity quickly, which, the EIA states "have become increasingly important in areas with high shares of renewable electric generation from wind and solar." EIS, *Natural Gas-Fired Reciprocating Engines are Being Deployed more to Balance Renewables*, U.S. Energy Information Administration (February 19, 2019), *available at* https://www.eia.gov/todayinenergy/detail.php?id=37972.

photovoltaic resources with a total nameplate capacity of 699 MW in Docket Nos. U-36190 and U-36685, and its recent application for an additional resource related to its 2023 Solar Portfolio, Docket No. U-37071.

Q29. PLEASE EXPLAIN HOW BPS IS CONSISTENT WITH, AND UNIQUELY SUITED TO MEET, THE SUPPLY ROLE NEEDS OF THIS REGION.

A. Utilizing a barge design mitigates risk for extensive damage and outages compared to transmission lines, which are more vulnerable to storm damage—both catastrophic damage from major storms like hurricanes, as well as smaller storms that routinely cause flooding in the area. In addition, choosing generation over transmission in this case increases the opportunity for operational flexibility (e.g., storm response) in the future with the potential to further enhance reliability for customers in the area and reduces costs to both ELL and its customers. Besides the addition of an efficient generating resource to the ELL fleet, BPS adds resiliency to the southeast Louisiana electric grid and enables this local power source to be used for the initiation of storm restoration plans without depending on generation sources further away.

Q30. WHAT ENERGY BENEFITS WOULD BPS PROVIDE?

A. In the MISO markets, portfolio balance means, among other things, having resources capable of supplying energy into the day-ahead and real-time markets at roughly the same volumes and same times as is expected to be purchased from those markets to serve customers. A generator in MISO, then, provides energy benefits when MISO determines that the variable cost of running the unit is lower than other available units on the system. As Mr. Datta explains in greater detail in his Direct Testimony, BPS would be a quick-start and fast ramping resource. In addition, as a flexible, modular resource, BPS would be available and quickly dispatchable by MISO in order to ensure system reliability that will be impacted by the variability in intermittent renewable resources. Therefore, BPS will provide energy benefits when it is the lowest variable cost available resource on the system. In addition, BPS will also provide energy benefits when it is in island mode, as it would be the only source of power to customers downstream of the Clovelly substation during those times.

Q31. WHAT POTENTIAL ENHANCED RELIABILITY BENEFITS WOULD BPS PROVIDE?

A. As discussed above and in the Direct Testimony of Mr. Datta, the addition of BPS would allow ELL to operate the entire area downstream of Clovelly as an "island" from the rest of the transmission grid during outages. Islanded operation of the microgrid is expected only during long-term interruptions in power supply, either due to a widespread power outage in the broader electric grid or because of localized black-out of the microgrid region caused by a trip of the Golden Meadow – Valentine transmission line. The opportunity to operate in this configuration would provide reliability benefits to all customers downstream of the Clovelly substation. Once islanded, the power barge would be able to start up and provide the necessary power to support customer needs until transmission service is restored. This configuration will provide electricity and necessary voltage support to ELL's industrial customers in the region, allowing these customers to continue operations. While the transmission-only alternative would provide a back-up source of power should there be an interruption in power supply to one line, it does not provide the same reliability benefits that BPS, a generation-based alternative, would. That is, should a severe storm significantly damage the line serving the area downstream of Clovelly or should the broader electric grid experience a widespread power outage, those customers downstream of the Clovelly substation would experience a power outage as well. Further, because of the time and work required to restore the transmission facilities after a storm event, some of which may require specialized equipment considering their remote location and challenging topography and associated access and logistical issues, the wires-only solution may still result in extended restoration times. By contrast, the microgrid option enables restoration of power after a storm to be sourced from the BPS and reduces the dependence on time-consuming repairs of transmission and distribution lines during storm restoration, thus potentially reducing the time to restore power after a storm significantly. Finally, the wires-only solution does not result in the addition of generation capacity for ELL, and, hence, does not address the significant reactive and real power needs of ELL customers, especially those in this area as advantageously as BPS does.

Q32. WHAT POTENTIAL POWER QUALITY IMPROVEMENTS WOULD BPS PROVIDE?

A. BPS adds dynamic reactive power capability to the system, in addition to real power. A lack of reactive power capability in the system can result in difficulty in regulating voltage, resulting in power quality issues, such as voltage dips and sags, that may be experienced by customers. Some voltage dips may also be caused by induction motor starts in a system that has an insufficient amount of reactive power to maintain voltage and dynamic reactive power capability to support voltage recovery. Further, as a quick-start and fast ramping resource, BPS will add synchronous inertial response and short-circuit capability to the system, both of which may be increasingly valuable ancillary service market assets as MISO sees an increased penetration of renewable resources and inverter-based resources.

Q33. PLEASE SUMMARIZE THE FACTORS THAT LED THE COMPANY TO CHOOSE BPS OVER THE TRANSMISSION ALTERNATIVE TO MEET THE NEEDS OF ELL CUSTOMERS, INCLUDING ELL CUSTOMERS IN THE BAYOU REGION.

A. As discussed in Mr. Datta's Direct Testimony, a variety of quantitative and qualitative factors were considered when evaluating the wires-only option and BPS-anchored microgrid option. Given the critical nature of the industrial load in this region and the resilience benefits that would be enabled by the microgrid, ELL concluded that BPS was the preferred alternative to meet the needs of this region. In particular, there are several categories where BPS provides benefits over a wires-only alternative, including support for renewable generation, adding a black-start resource that provides additional grid support, potentially providing ancillary services in the MISO market, and providing resiliency benefits through its microgrid functionality during outages. Finally, the construction and maintenance of the wires-only alternative would present unique challenges compared to BPS, given the terrain and location of the transmission system in the Valentine – Fourchon corridor.

IV. OVERVIEW OF APPLICATION AND INTRODUCTION OF WITNESSES

Q34. PLEASE EXPLAIN THE RELIEF SOUGHT BY THE COMPANY IN THIS PROCEEDING.

A. In compliance with the LPSC's 1983 General Order,[22] the Company is seeking LPSC approval to construct and operate BPS and a microgrid control system to serve load from the power station in the event of an outage on the existing Valentine – Clovelly 115 kV transmission line that currently serves as the only source of power to the area. The Company is seeking certification of BPS will serve the public convenience and necessity and is in the public interest.

Q35. PLEASE INTRODUCE THE OTHER WITNESSES WHOSE TESTIMONY IS BEING SUBMITTED WITH THE APPLICATION AND IDENTIFY THE SUBJECTS THAT EACH ADDRESSES.

A. In addition to my testimony, the Company's Application is supported by the testimonies of the following witnesses:

- **<u>Ryan Jones</u>** – Mr. Jones is the Manager, Regulatory Affairs for Entergy Louisiana. Mr. Jones enumerates the required regulatory approvals the Company is seeking, discusses the Company's compliance with applicable Commission

[22] ELL witness Ryan Jones discusses the requested exemption from the MBMO order.

General Orders and the exemption from the Commission's MBM Order the Company is requesting for this Project, and explains why approval of the Project is in the public interest. Mr. Jones also proposes a plan by which Commission Staff can monitor the progress of the construction. Finally, Mr. Jones provides the estimated first-year revenue requirement associated with the Project and explains the proposed rate recovery.

- **Gary Dickens** – Mr. Dickens is the Vice President, Project/Construction Management, New Generation Program Execution for ESL. He provides an overview of the Project and describes and supports the EPC contract to construct BPS, including the process used to select the EPC contractor and the management of EPC work. In addition, Mr. Dickens describes the construction schedule and management post-commissioning, explains how the cost estimates associated with the Project were developed, and provides the current total cost estimate associated with the Project. Finally, Mr. Dickens addresses the gas service and costs and discusses the estimated non-fuel O&M costs for the Project.
- **Samrat Datta** – Mr. Datta is the Director of Advanced Network Planning for the System Planning Organization at ESL. He explains the alternatives the Company considered and the reasons why ELL determined that constructing BPS is the preferred alternative. Mr. Datta also discusses the development of the cost estimate for the transmission-only alternative and the cost of transmission substation upgrades necessary for interconnection.

- **Phong D. Nguyen** – Mr. Nguyen is the Director, Advanced Economic Planning, for ESL. Mr. Nguyen describes the economic evaluation of the Project compared to potential alternatives.
- **Sean Meredith** – Mr. Meredith is the Vice President, System Resilience for ESL. He explains how the Project incorporates the Company's resilience goals.

V. CONCLUSION

Q36. PLEASE SUMMARIZE THE REASONS WHY THE PROJECT SHOULD BE ADDED TO ELL'S RESOURCE PORTFOLIO.

A. ELL has identified a need for generation in Louisiana to meet the specific needs of the southeastern most part of the state, where Port Fourchon and Leeville are located, as well as the state as a whole. For the following reasons, I believe that BPS represents the lowest reasonable cost option to address these needs. First, BPS will promote reliability in the region and in Louisiana as a whole because it (1) can operate as a dispatchable generation resource, helping maintain reliability when intermittent resources are not available; (2) will allow ELL to operate the entire area downstream of Clovelly as an "island" from the rest of the transmission grid during outage; and (3) will provide electricity and necessary voltage support to ELL's industrial and commercial customers in the region. BPS will help create a more resilient, storm-hardened infrastructure in the region and in Louisiana because it (1) will provide black-start capabilities; (2) may reduce restoration times in the region; and (3) as a quick-start and fast ramping dispatchable resource, it will be a valuable asset in future enhancements to the MISO ancillary service market that may be necessitated by increased penetration of renewable resources. Finally, BPS is well-suited to meet the unique challenges presented by the region's geography and customer needs.

Q37. DOES THIS CONCLUDE YOUR DIRECT TESTIMONY?

A. Yes, at this time.

AFFIDAVIT

STATE OF LOUISIANA

PARISH OF JEFFERSON

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

That the above and foregoing is his sworn testimony in this proceeding and that he 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, he verily believes them to be true.

____
Laura K. Beauchamp

SWORN TO AND SUBSCRIBED BEFORE ME
THIS 23 DAY OF FEBRUARY, 2024

____
NOTARY PUBLIC

My commission expires: Death

[illegible]
Notary Public
State of Louisiana
Louisiana Bar Roll # 31[illegible]
My Commission is issued for Life

Listing of Previous Testimony Filed by Laura K. Beauchamp

DATE	TYPE	SUBJECT MATTER	REGULATORY BODY	DOCKET NO.
06/03/2011	Settlement	Little Gypsy Securitization	LPSC	U-31894
07/07/2011	Direct	Carville-Calpine 2011 PPA	LPSC	U-32031
09/16/2011	Settlement	EGSL Fuel Adjustment Clause (1995-2004)	LPSC	U-27103
12/21/2011	Rebuttal	Carville-Calpine 2011 PPA	LPSC	U-32031
01/26/2012	Settlement	Retail Effects of FERC Opinion Nos. 468 and 468-A and Related Orders	LPSC	U-31099
03/02/2012	Settlement	Carville-Calpine 2011 PPA	LPSC	U-32031
02/15/2013	Direct	EGSL Base Rate Case	LPSC	U-32707
02/15/2013	Direct	ELL Base Rate Case	LPSC	U-32708
03/28/2013	Direct	ELL-Algiers 2013 Rate Case	CCNO	UD-13-01
09/27/2013	Settlement	MISO Implementation	LPSC	U-32675
02/18/2014	Rebuttal	ELL-Algiers 2013 Rate Case	CCNO	UD-13-01
03/22/2019	Adopting	ENOL 2018 Rate Case	CCNO	UD-18-07
06/06/2022	Adopting	ELL Solar Portfolio and Green Tariff	LPSC	U-36190
02/28/2023	Direct	ELL Solar CCN Application	LPSC	U-36685
03/13/2023	Direct	ELL 3,000 MW Solar Application	LPSC	U-36697
08/30/2023	Direct	ELL Regulatory Blueprint	LPSC	U-36959
12/18/2023	Direct	ELL 2023 Solar Application	LPSC	U-37071
01/31/2024	Affadivit	ELL Notice of Exemption – Audubon Substation	LPSC	S-37113

BEFORE THE

LOUISIANA PUBLIC SERVICE COMMISSION

***IN RE*: APPLICATION OF ENTERGY LOUISIANA, LLC FOR APPROVAL TO CONSTRUCT BAYOU POWER STATION, AND FOR COST RECOVERY**	**))))**	**DOCKET NO. U-_____**

EXHIBIT LKB-2

HIGHLY SENSITIVE PROTECTED MATERIAL

INTENTIONALLY OMITTED

MARCH 2024

BEFORE THE

LOUISIANA PUBLIC SERVICE COMMISSION

***IN RE*: APPLICATION OF ENTERGY LOUISIANA, LLC FOR APPROVAL TO CONSTRUCT BAYOU POWER STATION, AND FOR COST RECOVERY**	**))))**	**DOCKET NO. U-_____**

EXHIBIT LKB-3

HIGHLY SENSITIVE
PROTECTED MATERIAL

INTENTIONALLY OMITTED

MARCH 2024

Generating Assets Owned or Controlled by ELL as of February 2024

Plant	Unit	Summer Seasonal Accredited Capacity	Fuel	COD	Region
ANO	1	23	Nuclear	1974	North
ANO	2	27	Nuclear	1890	North
Acadia	2	480	Gas	2002	WOTAB
Big Cajun 2	3	111	Coal	1983	Central
Calcasieu	1	136	Gas	2000	WOTAB
Calcasieu	2	154	Gas	2001	WOTAB
Grand Gulf	1	143	Nuclear	1985	Central
Independence	1	7	Coal	1983	North
J. Wayne Leonard	1	467	Gas	2019	Amite South
J. Wayne Leonard	2	467	Gas	2019	Amite South
Lake Charles	1	804	Gas	2020	WOTAB
Little Gypsy	2	352	Gas	1966	Amite South
Little Gypsy	3	340	Gas	1969	Amite South
Ninemile Point	4	683	Gas	1971	DSG
Ninemile Point	5	705	Gas	1973	DSG
Ninemile Point	6	454	Gas	2014	DSG
Ouachita	3	248	Gas	2002	Central
Perryville	1	316	Gas	2002	Central
Perryville	2	104	Gas	2001	Central
Roy Nelson	6	186	Coal	1982	WOTAB
Riverbend	1	572	Nuclear	1986	Central
Union	3	507	Gas	2003	Central
Union	4	484	Gas	2003	Central
Washington Parish	1	186	Gas	2020	Amite South
Washington Parish	2	186	Gas	2020	Amite South
Waterford	2	315	Gas	1975	Amite South
Waterford	3	1068	Nuclear	1985	Amite South
Waterford	4	30	Oil	2009	Amite South
White Bluff	1	13	Coal	1980	North
White Bluff	2	12	Coal	1981	North

BEFORE THE

LOUISIANA PUBLIC SERVICE COMMISSION

***IN RE*: APPLICATION OF ENTERGY LOUISIANA, LLC FOR APPROVAL TO CONSTRUCT BAYOU POWER STATION, AND FOR COST RECOVERY**	**))))**	**DOCKET NO. U-_____**

DIRECT TESTIMONY

OF

RYAN DANIEL JONES

ON BEHALF OF

ENTERGY LOUISIANA, LLC

MARCH 2024

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Exhibit RDJ-1 List of Prior Testimony

Exhibit RDJ-2 Monitoring Plan

Exhibit RDJ-3 Derivation of Rate Base, Revenue Requirement, and Cost of Capital

I. INTRODUCTION AND BACKGROUND

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

A. My name is Ryan D. Jones. I am employed by Entergy Louisiana, LLC ("ELL" or the "Company") as a Manager, Regulatory Affairs. My business address is 4809 Jefferson Highway, Jefferson, Louisiana 70121.

Q2. ON WHOSE BEHALF ARE YOU TESTIFYING?

A. I am testifying before the Louisiana Public Service Commission ("LPSC" or the "Commission") on behalf of Entergy Louisiana, LLC ("ELL" or the "Company").

Q3. PLEASE DESCRIBE YOUR EDUCATIONAL BACKGROUND AND PROFESSIONAL EXPERIENCE.

A. I hold a Bachelor of Science in Management degree with a major in Finance from Tulane University in New Orleans, Louisiana. I also hold a Master of Management in Energy from Tulane University. I began working for Entergy Services, LLC ("ESL")[1] in 2015 as a Financial Analyst where I maintained the budget and components of the financial model and provided additional support for utility operations support groups within ESL. In 2018, I transferred to work for Louisiana Regulatory Affairs and have accepted roles of increasing responsibility since that time. In my current capacity as Manager, Regulatory Affairs I am responsible for providing regulatory support services

[1] ESL is an affiliate of the Entergy Operating Companies ("EOCs") and provides engineering, planning, accounting, technical, and regulatory-support services to each of the EOCs. The five EOCs are Entergy Arkansas, LLC, ELL, Entergy Mississippi, LLC, Entergy New Orleans, LLC, and Entergy Texas, Inc.

to ELL and for coordinating various dockets and filings before the Louisiana Public Service Commission. I am also responsible for providing insight and guidance to various organizations across ELL and ESL on regulatory matters and compliance with Orders of the Commission.

Q4. HAVE YOU PREVIOUSLY TESTIFIED BEFORE ANY REGULATORY BODY?

A. Yes, attached as Exhibit RDJ-1 is a list of my prior testimony.

Q5. PLEASE EXPLAIN THE RELIEF SOUGHT BY THE COMPANY IN THIS PROCEEDING.

A. In compliance with the Commission General Order dated September 20, 1983 (the "1983 General Order"),[2] ELL is seeking Commission certification that its proposed new 112 megawatt ("MW") aggregated capacity six-unit reciprocating internal combustion engine ("RICE") facility near Port Fourchon, Louisiana, known as the Bayou Power Station ("BPS" or the "Project"), serves the public convenience and necessity. The Company is also seeking an exemption from the Commission's Market-Based Mechanisms General Order (the "MBM Order")[3] because of the unique

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[2] LPSC General Order dated September 20, 1983 (*In re: In the Matter of the Expansion of Utility Power Plant; Proposed Certification of New Plant by the LPSC*), as amended by General Order (Corrected) (May 27, 2009), *In re: Possible modifications to the September 20, 1983 General Order to allow: (1) for more expeditious certifications of limited-term resource procurements; and (2) an exception for annual and seasonal liquidated damages block energy purchases, Docket No. R-30517.*

[3] General Order, Docket No. R-26172 Subdocket A, *In re: Development of Market-Based Mechanisms to Evaluate Proposals to Construct or Acquire Generating Capacity to Meeting Native Load*, Supplements the September 20, 1983 General Order, dated February 16, 2004 (as amended by General Order, Docket No. R-26172 Subdocket B, dated November 3, 2006, and further amended by the April 26, 2007 General Order, and the amendments approved by the Commission at its October 15, 2008 Business and Executive Meeting and now in General Order, Docket No. R-26172, Subdocket C dated October 29, 2008).

circumstances addressed by the Project, which indicate that a formal request for proposals ("RFP") would not be in the public interest.

Q6. WHAT IS THE PURPOSE OF YOUR DIRECT TESTIMONY?

A. My Testimony discusses the regulatory and ratemaking issues that will need to be resolved in order for the Company to initiate and successfully complete the construction of the Bayou Power Station, which is proposed to be constructed near Port Fourchon, Louisiana. Specifically, my Testimony:

1) Sets forth the regulatory approvals that are required pursuant to the applicable Commission General Orders;
2) Discusses the Company's compliance with applicable Commission General Orders and explains why approval of the Project is in the public interest, including why an exemption from the MBM Order is appropriate;
3) Proposes a plan by which the Commission Staff can monitor the progress of the construction of the BPS ("Monitoring Plan");
4) Provides ELL's estimated first-year revenue requirement associated with the Project; and
5) Discusses the importance of timely recovery with respect to the costs related to BPS and the proposed rate recovery.

Q7. WILL YOU BRIEFLY SUMMARIZE YOUR CONCLUSIONS?

A. Yes. In my opinion:

1) ELL's selection of the proposed Project and Application for approval thereof is consistent with all applicable Commission General Orders, including the requested exemption from the MBM Order, and in the public interest;
2) It is in the public interest and therefore prudent to commence construction of the Bayou Power Station; and
3) It is in the public interest and therefore prudent to approve the proposed Monitoring Plan and procedures for timely rate recovery contemporaneous with the commercial operation of the Bayou Power Station.

II. REQUESTED REGULATORY APPROVALS AND TIMING

Q8. PLEASE DISCUSS THE REGULATORY APPROVALS THAT THE COMPANY SEEKS IN CONNECTION WITH THE PROJECT.

A. Through its Application, ELL is seeking, among others, the following findings by the Commission:

1) That the construction of the Project serves the public convenience and necessity and is in the public interest and therefore prudent pursuant to the terms of the 1983 General Order of this Commission, as amended;
2) That construction of the Project warrants an exemption from the Commission's MBM Order in that the circumstances indicate that a formal RFP would not be in the public interest;
3) That the Company's proposed Monitoring Plan for the Project is in the public interest; and

4) That the proposed contemporaneous cost recovery and related procedures are in the public interest.

Q9. WHAT DOES THE COMPANY'S APPLICATION CONTEMPLATE IN TERMS OF THE REQUESTED APPROVALS?

A. Through its Application, ELL proposes a one-step process whereby the Commission would issue a decision, supported by the evidence and sound regulatory principles, that the construction of the Project is in the public interest and therefore prudent. As part of this decision, the Commission would approve the Monitoring Plan that I discuss later in my testimony and affirm that the prudently incurred costs are eligible for recovery in rates.

Q10. DOES THE COMMISSION HAVE AN ORDER ADDRESSING THE TIMING FOR DETERMINING WHETHER CONSTRUCTION OF THE BAYOU POWER STATION SERVES THE PUBLIC INTEREST?

A. Yes, the Commission's 1983 General Order, in Paragraph 5, requires that the certification of resources be determined within 120 days from the date of the filing of the utility's application.

Q11. WHY IS A TIMELY DECISION FROM THE COMMISSION IMPORTANT AND IN THE BEST INTEREST OF CUSTOMERS?

A. As I discuss later in my testimony and as discussed by other witnesses, there are financial and operational implications for ELL's customers if the Project is not constructed on the timetable proposed. As discussed in the Direct Testimony of Company witnesses Laura K. Beauchamp and Gary Dickens, development and deployment of significant generation and transmission projects is a time-consuming process that must begin several years in advance of the need-by date. The 120-day requirement in the Commission's 1983 General Order recognizes the importance of timely feedback from the Commission because if the Commission finds that a proposed resource option does not serve the public interest, the Company must then pursue other options to maintain reliable, affordable electric service. In the case of ELL's needs in the Port Fourchon area, the Company must construct either new generation in the region or rebuild a major transmission project, as discussed in the Direct Testimony of Company witness Samrat Datta. Although the Company believes the construction of the Project is clearly the preferred, more economical means to meet this need, that is ultimately a question for the Commission to decide. However, it is critical that the Commission make this decision in a timely manner to avoid exposing the Company and its customers to additional financial and reliability risk.

III. COMPLIANCE WITH COMMISSION ORDERS

Q12. PLEASE DISCUSS THE APPLICABILITY OF THE COMMISSION'S 1983 GENERAL ORDER TO THE PROJECT.

A. The 1983 General Order provides, in pertinent part, that:

> No electric public utility subject to the jurisdiction of the Commission shall commence any on site construction activity or enter into any contract for construction or conversion of electric generating facilities or contract for the purchase of capacity or electric power, other than emergency or economy power purchases, without first having applied

> to the Commission for a certification that the public convenience and necessity would be served through completion of such project or confection of such contract. Feasibility and engineering studies, site acquisition and related activities preliminary to a determination of the desirability or need for plant construction or conversion on purchase power contracts are exempted from this requirement.

The Company's Application in this proceeding meets the terms of Paragraph 1 of the 1983 General Order. The costs incurred and analyses conducted to date have related to the "[f]easibility and engineering studies ... preliminary to a determination of the desirability ... for plant construction or conversion ...." As explained by Mr. Dickens, construction activity at the Project site will not commence until ELL authorizes the contractor to do so.

The 1983 General Order also provides in paragraph 2, that:

> Applications submitted pursuant to this order shall include the specific data utilized by the utility in justification of the generation project or purchased power agreement, an itemized projection of the total costs, the scheduled completion date with appropriate time schedules for the percentage of the total project to be completed by specific target dates, and, in cases of purchased power or capacity agreements, the proposed contract in its entirety.

The Company, through the testimony and exhibits supporting the Application, meets the requirements of this paragraph.

The proposed Monitoring Plan would provide a means for meeting the requirements of Paragraph 3 to "notify the Commission immediately when it is determined that project or contract costs will exceed that stated in the application or the completion date for commercial operation is extended."

Q13. WHAT IS THE MBM ORDER?

A. On October 29, 2008, the Commission adopted the current version of the MBM Order, establishing various procedures and requirements for the market testing of any proposed capacity acquisition. The MBM Order augments the procedures of the 1983 General Order and requires a utility proposing to acquire or build new generating capacity to "employ a market-based mechanism" consisting of a "Request For Proposal ("RFP") competitive solicitation process."[4] I understand that the MBM Order recognizes the occasional need for exemptions and grants the Commission broad authority to grant exemptions and modify the requirements of the MBM process. Specifically, the MBM Order provides that the "utility may propose an alternate marked-based mechanism or procedure if it can demonstrate that circumstances indicate that a formal RFP would not be in the public interest."[5]

Q14. WHY IS THE COMPANY REQUESTING AN EXEMPTION FROM THE COMMISSION'S MBM ORDER?

A. Because BPS was not selected through an RFP process, and because an exemption is reasonable, appropriate, and in the public interest under the circumstances applicable here.

[4] MBM Order at p. 5.

[5] MBM Order at Paragraph 3.

Q15. WHY IS AN EXEMPTION APPROPRIATE?

A. As demonstrated in the Direct Testimony of the Company's witnesses in this proceeding, a formal RFP would not be in the public interest under the unique circumstances presented and addressed by the Project. As explained by Mr. Datta, there were limited options in developing a non-wires alternative to rebuilding the Golden Meadow – Barataria line, including finding a location with suitable land, gas infrastructure, and transmission interconnection. Here, ELL was able to procure land adjacent to the Leeville substation, which is also adjacent to the Tennessee and Kinetica gas pipelines. This location is also sufficient to provide a local, flexible, black-start resource to the entire region downstream of the Clovelly substation. Given the highly-specific parameters for a viable non-wires alternative, including the unique geography and lack of suitable land sites, a typical RFP process would have added little value under these circumstances in exchange for the substantial lengthening of the project timeline.

In addition, as explained by Mr. Datta, once the resource technology was selected, two RICE manufacturers were evaluated, but only Wartsila produces RICE engines greater than 10 MW, with Wartsila's 18 MW 18V50SG models (used for the Project) being the largest on the market today. As explained by Mr. Datta, 18 MW units are the ideal size to achieve the optimal 112 MW of generating capacity without overbuilding the needed capacity as would be the case with larger units or a conventional combustion turbine. Using smaller generators (less than 18 MW), on the other hand, increases the operational and maintenance requirements by increasing the number of units necessary to achieve an aggregated 112 MW of capacity.

Moreover, as further explained by Mr. Datta, a comparison of recent Wartsila power barge builds shows that the local engineering, procurement, and construction ("EPC") contractor selected for the proposed Project, Grand Isle Shipyards, LLC ("GIS"), is the lowest priced of all other recent Wartsila power barge builds (including the addition of emissions protections and transformers on the barge).

Accordingly, given the specific need, location, and type of resource that can accommodate that need and location, an RFP under the MBM Order was not necessary to identify the lowest reasonable cost alternative. What was needed was to identify qualified contract partners who could build and install the desired solution at a price competitive with other barge mounted Warstila RICE units. In this case, without compromising its requirement that the selected contractors be qualified and that their pricing be competitive, ELL was able to identify Louisiana-based contractors who will perform the bulk of the work (GIS, Bollinger, and Ampirical), which means more of the economic benefit stemming from construction costs stays in Louisiana. Accordingly, the additional cost and delay created by the RFP process for this very specific solution to a local capacity need would not be in the public interest and, as explained by Ms. Beauchamp, would place both existing load and future beneficial load growth at greater risk.

Q16. HAS THE COMMISSION PREVIOUSLY GRANTED EXEMPTIONS FROM THE FORMAL RFP PROCESS TYPICALLY REQUIRED UNDER THE MBM ORDER?

A. Yes, I am aware of several instances where the Commission has granted exemptions to the formal RFP requirements generally required under the MBM Order based on the specific or unique facts and circumstances presented in the application. Indeed, the Final Report of the Commission Staff attached as Attachment A to the current MBM Order notes that exemptions have been granted where "warranted by circumstances."[6] See, for example, Order No. S-34594 (Aug. 24, 2017) granting Southwestern Electric Power Company an exemption; Order No. U-29955-C (June 5, 2008) granting Entergy Louisiana, LLC and Entergy Gulf States, Inc. (which together are now ELL) an exemption; and Order No. U-32224 (Corrected, Dec. 7, 2012) granting Claiborne Electric Cooperative, Inc. an exemption. I am also aware of the Commission granting certification of ELL's acquisition of Union Power Blocks 3 and 4 as well as the Washington Parish Energy Center ("WPEC") without a formal RFP process due to the circumstances demonstrating that a formal RFP process would not be cost-effective or necessary.[7] In particular, WPEC was a new-build resource that was well-suited to meet ELL's future resource needs at a below-market cost. In that case, the exemption was justified on the basis that further market testing would not reveal any new information necessary for the Commission and the Company to determine that the acquisition was consistent with the Company's planning objectives and the objective of providing service at the lowest reasonable cost. This is not unlike BPS.

[6] MBM Order, Attachment A at p. A-19.

[7] *See* Order No. U-34472 (May 24, 2018), *In re: Application for Approval to Acquire Washington Parish Energy Center, and for Cost Recovery, Docket No. U-34472, See also*, Order No. U-33510 (November 5, 2015), *In re: Application of Entergy Gulf States Louisiana, L.L.C. for Approval to Purchase Power Blocks Three and Four of the Union Power Station and Request for Timely Treatment and Cost Recovery, Docket No. U-33510.*

Q17. IS THE CONSTRUCTION OF THE PROJECT CONSISTENT WITH ELL'S LATEST INTEGRATED RESOURCE PLAN?

A. Yes. It is consistent with ELL's most recent Integrated Resource Plan ("IRP"), filed by the Company on May 22, 2023 (ELL's "Final 2023 IRP") in Docket No. I-36181 pursuant to the Commission's IRP General Order. In her Direct Testimony, Ms. Beauchamp explains how BPS is consistent with the Company's Final 2023 IRP and the identified need for capacity.

IV. PUBLIC INTEREST

Q18. YOU INDICATED PREVIOUSLY THAT YOU WOULD DISCUSS WHY, IN YOUR OPINION, THE CONSTRUCTION OF THE BAYOU POWER STATION IS IN THE PUBLIC INTEREST. WHAT IS THE PUBLIC INTEREST?

A. This is not a new concept, and the public interest standard has been discussed by many witnesses in many proceedings before the Commission. Put simply, the public interest is that which is thought to best serve everyone; it is the common good. If the net effect of a decision is believed to be positive or beneficial to society as a whole, it can be said that the decision serves the "public interest."

Public utilities in general, and electric utilities in particular, affect nearly all elements of society. Public utilities have the ability to influence the cost of production of the businesses that are served by them, to affect the standard of living of their customers, to affect employment levels in the areas they serve, and to affect the interests of their investors. In sum, public utilities affect the general level of economic activity and social well-being in the state.

In determining whether a particular decision or policy is in the public interest, I am not aware of any immutable law or principle that can be applied. While the public interest is often defined in terms of "net benefits," such a test or standard merely substitutes one expression for another. The difficulty is in defining and, if possible, quantifying the "net benefits."

It is recognized that "net benefits" cannot simply be defined as lower prices. For example, if lower prices are achieved through a reduction in the reliability or quality of service, it may very well be perceived that the lower prices have not produced net benefits. Similarly, higher prices might not produce negative net benefits or detriments. For example, if an existing price is low due to a cross-subsidy, removing that subsidy would raise that price, but doing so would not necessarily be detrimental. The Louisiana Supreme Court reached just such a conclusion in *City of Plaquemine v. Louisiana Public Service Commission*, 282 So. 2d 440 (1973), when it found that:

> The entire regulatory scheme, including increases as well as decreases in rates, is indeed in the public interest, designed to assure the furnishing of adequate service to all public utility patrons at the lowest reasonable rates consistent with the interest both of the public and of the utilities.
>
> Thus, the public interest necessity in utility regulation is not offended, but rather served by reasonable and proper rate increases notwithstanding that an immediate and incidental effect of any increase is improvement in the economic condition of the regulated utility company.[8]

Objective measurement of how a decision affects the public interest is problematic at best. For the past eighty years, regulatory decision-making has been tested in the courts by a balancing-of-interests standard. In these cases, beginning with *Federal Power*

[8] 282 So. 2d 440 at 442-443.

Commission v. Hope Natural Gas Company 320 U.S. 591, 660 (1944), the courts have found that if the regulatory body's decision reflected a reasonable balancing of customer and investor interests, the decision was to be affirmed as just and reasonable.

In sum, determining whether a decision is in the "public interest" requires a balancing of the various effects of a particular course of action measured subjectively over the longer run. Whether a course of action is in the public interest will depend upon factors that are potentially quantifiable on an estimated basis, such as likely changes in costs, as well as upon other factors that are not quantifiable, such as the effect of that course of action on the robustness of a competitive market. Finally, while witnesses can provide facts and opinions that bear on this issue, the decision-maker, the Commission, in the first instance must ultimately determine whether the construction is in the public interest.

Q19. IN YOUR OPINION, IS THE CONSTRUCTION OF THE BAYOU POWER STATION IN THE PUBLIC INTEREST?

A. Yes. I base this opinion on a number of factors discussed in detail by other Company witnesses. As Ms. Beauchamp discusses in her Direct Testimony, the Project will add a flexible dispatchable generation resource that will address the growing long-term capacity needs of critical customers in the region. In addition, the resource will provide enhanced reliability benefits to the system by, among other things, supporting the integration of intermittent resources identified by ELL as an economic option to address its near-term planning needs for the system as a whole, as well as to the region specifically. BPS is a black-start resource that will bolster the resilience of the electric system in the Fourchon – Valentine corridor and potentially shorten restoration times in this economically-significant part of the state. BPS will enhance the system's overall capacity needs as well as its need for capacity that serves specific supply roles for the region. Finally, BPS will provide energy benefits and provide increased load serving capability that will support future economic development in the region.

Mr. Datta explains how the Project provides enhanced resiliency to the region due to its ability to restore power following a catastrophic weather event. Mr. Datta also discusses how BPS can participate in the wholesale energy market and provide capacity benefits to ELL's customers that a wires alternative cannot. Further, Mr. Datta explains BPS's operational flexibility that will enable it to participate in the wholesale ancillary services market and allow the ELL system to compensate for variations in power supply from intermittent renewable resources in the future. Mr. Datta also discusses the challenges with constructing and maintaining transmission assets in the region's wetlands environment. Finally, Mr. Datta describes the microgrid associated with the BPS and how it benefits customers in the region and enhances resilience.

Company witness Phong Nguyen describes the results of his economic analysis, which shows that BPS and the wires alternative are relatively equal in terms of cost. This result is likely conservative relative to the BPS – that is, it likely understates the net benefits of BPS as compared to the transmission alternative – considering the conservatively high estimate of marine insurance costs for the BPS and likely understated transmission alternative costs (discussed by Mr. Datta). Qualifying for property tax abatement, which the Company intends to pursue, also would significantly affect the economics in favor of BPS, as shown in Mr. Nguyen's sensitivity analysis.

Finally, Company witness Sean Meredith explains how the BPS and the associated microgrid provide additional resilience benefits and support the Company's overall resilience efforts.

For all these reasons, it is my opinion that BPS is in the public interest and the Commission should so find.

Q20. IS THE COMPANY SEEKING ANY SPECIFIC APPROVALS CONCERNING ITS MEASURES TO MANAGE AND MITIGATE RISKS THAT COULD ADVERSELY AFFECT THE PROJECT'S COST OR SCHEDULE?

A. No. Considering the importance of the issues, however, ELL has included with its Application complete information about its approaches to the use of contractors to construct BPS and to project risk management. As Mr. Dickens describes in detail in his testimony, the Company will be using EPC contractors to manage the Project. This testimony describes in detail the terms of the EPC contracts, the reasons why the Company has chosen to use EPC contractors, and the Company's approach to construction management, risk mitigation, and insurance. The Commission will therefore have this information as it determines the prudence of ELL's decision to commence construction under the 1983 General Order.

V. MONITORING PLAN

Q21. WOULD YOU DISCUSS THE COMPANY'S PROPOSED MONITORING PROCEDURES AND REPORTS?

A. Yes. The Company proposes a Monitoring Plan patterned after the monitoring plans approved by the Commission relating to other recent certification dockets, including Lake Charles Power Station, Docket No. U-34283. I have attached an outline of the proposed plan as Exhibit RDJ-2. The Monitoring Plan contemplates a semi-annual report providing detailed information on the status of BPS, its costs, and other activities that are critical to completing the Project in a timely manner. It is not contemplated that there would be any litigation concerning these reports, and there would be no formal discovery process. As Exhibit RDJ-2 reflects, the Monitoring Plan includes appropriate confidentiality restrictions designed to address any competitive concerns that would arise with respect to intervenors who are also participants in the power market.

Q22. WOULD THE PROPOSED MONITORING PLAN PROVIDE THE COMMISSION, ITS STAFF, AND OTHER PARTIES INFORMATION CONCERNING WHETHER THE PROJECT SHOULD BE COMPLETED?

A. Yes, it would. Once the Commission has approved construction of BPS, any issues regarding the propriety of the continuation of that construction would be a result of a subsequent change in circumstances. In my opinion, there are three primary areas in which a future change in circumstances might suggest the cancellation of the Project. These are: (1) a well-founded, systematic increase in the forecasted cost of natural gas;

(2) a change in the cost to complete or operate the Project that renders it uneconomic; or (3) a material incremental change in the cost of environmental compliance or other legislative mandates rendering the Project uneconomic. In all cases, a decision to continue or to cancel BPS would be dependent on an analysis of the incremental cost to complete and operate the Project as of that point in time versus the incremental cost of available alternatives while factoring in the qualitative attributes of the Project as compared to those alternatives.

In this context, the Monitoring Plan will serve as an “early warning system,” and the Company will include in the semi-annual monitoring reports an affirmation as to whether continuing the Project is, in its opinion, in the public interest. The Company requests that the Commission require the Staff to use its best efforts to acknowledge receipt of the report, in writing, and submit any questions regarding the report within thirty days.

In the event the Company believes it to be in the public interest to cease construction and cancel the Project, it will make a filing in this proceeding seeking Commission approval of that recommendation. In that filing, the Company would seek a decision on that matter as soon as is practical. The Company’s instant Application seeks approval of this procedure.

VI. THE PROJECT'S ESTIMATED FIRST-YEAR REVENUE REQUIREMENT

Q23. WHAT ITEMS ARE INCLUDED IN THE ESTIMATED FIRST-YEAR REVENUE REQUIREMENT FOR BPS?

A. The estimated first-year revenue requirement consists of two main components. The first component of the revenue requirement is the estimated operation and maintenance expenses for the Project during the first year of operation. The second component of the revenue requirement is the return of and on rate base, which requires an estimation of the cost of the Project to calculate the average rate base of the Project for the first year of operation taking into account depreciation. The calculation of the estimated first-year revenue requirement is detailed in Exhibit RDJ-3.

Q24. PLEASE DISCUSS IN MORE DETAIL THE FIRST COMPONENT OF THE ESTIMATED FIRST-YEAR REVENUE REQUIREMENT ASSOCIATED WITH BPS.

A. As described in the Direct Testimony of Mr. Dickens, the Company will incur operating and maintenance ("O&M") expenses during the first year of operation to ensure that BPS operates and can continue to operate safely and reliably. Generally, those costs consist of labor and labor-related costs, baseline operations and maintenance costs, as well as outage-related maintenance expenses specific to the Project. In addition, there will be other operating expenses consisting of insurance and property taxes. ELL also expects to apply for a five-year property tax abatement on the Project, and to the extent that the abatement is ultimately granted, estimated property tax reductions will be included in an update to the first-year revenue requirement, or the true-up to the actual first-year cost. Estimated property tax expense utilized in the economic evaluation model was provided by Mr. Nguyen.

Q25. ARE THERE ANY LONG-TERM SERVICE AGREEMENT COSTS INCLUDED IN THE FIRST-YEAR REVENUE REQUIREMENT?

A. No. As explained by Mr. Dickens, while ELL is exploring the possibility of executing a long-term service agreement ("LTSA") with Wartsila for BPS, no agreement has been reached at this time. Should an LTSA for BPS be executed in the future, ELL requests that, consistent with past Commission practice, the LTSA costs be recovered through the Fuel Adjustment Clause ("FAC"). Variable costs such as LTSA costs are properly recovered through the FAC, and the Commission has previously authorized FAC recovery for similar costs for ELL's Ninemile 6 combined-cycle gas turbine,[9] St. Charles Power Station,[10] and Lake Charles Power Station,[11] as well as several other

[9] *See* Order No. U-31971 (April 5, 2012), *Ex Parte: Joint Application of Entergy Louisiana, LLC for Approval to Construct Unit 6 at Ninemile Point Station and of Entergy Gulf States Louisiana, L.L.C. for Approval to Participate in a Related Contract for the Purchase of Capacity and Electric Energy, for Cost Recovery and Request for Timely Relief, Docket No. U-31971.*

[10] *See* Order No. U-33770 (December 14, 2016), *In re: Joint Application for Approval to Construct St. Charles Power Station, and for Cost Recovery, Docket No. U-33770.*

[11] *See* Order No. U-34283 (July 20, 2017), *In re: Application for Approval to Construct Lake Charles Power Station and for Cost Recovery, Docket No. U-34283.*

facilities, including Perryville, Acadia Power Block 2, Ouachita Unit 3, Calcasieu, and Union Power Blocks 3 and 4.[12]

Q26. PLEASE DISCUSS IN MORE DETAIL THE SECOND COMPONENT OF THE ESTIMATED FIRST-YEAR REVENUE REQUIREMENT ASSOCIATED WITH BPS.

A. The return of and on rate base component of the revenue requirement is calculated in two parts. The return of rate base (i.e., the depreciation expense) is calculated based on a 30-year operating life, which is consistent with the ESL's Power Generation group's assumed operating life of the only other RICE generating station on the Entergy system, NOPS. In other words, the annual depreciation expense represents the return of the Company's investment in rate base over the useful life of the asset. The return on rate base is calculated by multiplying the pre-tax rate of return by the rate base for the Project. For purposes of this calculation the pretax rate of return of 8.39% is based on the Company's capitalization ratios and cost rates of capital, which were determined

[12] *See* Order No. U-27836 (May 3, 2005), *In re: Entergy Louisiana, Inc. and Entergy Gulf States, Inc., ex parte. In re: Application of Entergy Louisiana, Inc. for Approval of the Purchase of Electric Generating Facilities and Entergy Gulf States, Inc. for Authority to Participate in Contract for the Purchase of Capacity and Electric Power, Docket No. U-27836, See also,* Order No. U-30422-A (October 13, 2009), *In re: Application of Entergy Gulf States, Inc., for Approval to Enter into Contract for the Purchase of Electric Power from Entergy Arkansas, Inc., Sourced from the Ouachita CCGT Facility and Request for Timely Treatment, Docket No. U-30422, See also,* Order No. U-31196-C (February 9, 2011), *In re: Application of Entergy Louisiana, LLC for Approval to Purchase Power Block Two of the Acadia Energy Center, and Joint Application of Entergy Louisiana, LLC and Entergy Gulf States Louisiana, L.L.C. for Approval to Participate in Certain Related Contracts for the Purchase of Capacity and Electric Power and for Cost Recovery, Docket No. U-31196, See also,* Order No. U-32759-A (November 21, 2013), *In re: Application on Behalf of Entergy Gulf State Louisiana, L.L.C. for an Accounting Order and Declaratory Relief Relating to the Commission's General Order Dated November 6, 1997 Governing the Treatment and Allocation of Fuel Costs, Docket No. U-32759, See also,* Order No. U-33510 (November 5, 2015), *In re: Application of Entergy Gulf States Louisiana, L.L.C. for Approval to Purchase Power Blocks Three and Four of the Union Power Station and Request for Timely Treatment and Cost Recovery, Docket No. U-33510*

as of December 31, 2022, and were most recently utilized in the Company's TY22 Formula Rate Plan ("FRP") Evaluation Report filing.

The starting point for calculating the return of and on rate base revenue requirement is the estimated total generation-related capital cost of $374.3 million. This amount does not include the costs of transmission interconnection to the switchyard.[13] This value constitutes the rate base at the beginning of the first year of operation. During the first year of operation, depreciation expense will be recognized in the amount of approximately $12.5 million, representing the first year of the return of the total capital investment for BPS over the proposed 30-year life. Depreciation expense also gives rise to an accumulated reserve for depreciation in that amount, which is included in rate base. The final component of rate base is accumulated deferred income taxes ("ADIT"), which represents the tax effect of the timing differences between straight-line book and accelerated tax depreciation and provides a reduction to rate base. The end result is an estimated total Project rate base of $360.4 million at the end of the first year following commercial operation. Thus, the average rate base during the first year is $367.4 million. The return on rate base is $30.8 million.

Q27. ARE THERE ANY FURTHER ADJUSTMENTS NEEDED TO CALCULATE THE TOTAL FIRST YEAR REVENUE REQUIREMENT FOR THE PROJECT?

A. Yes, there are two additional adjustments necessary to compute the retail revenue requirement. First, the retail revenue requirement is adjusted by the Revenue

[13] Mr. Dickens discusses the estimated Project cost in detail, and Mr. Datta discusses the estimated interconnection and transmission costs in his direct testimony.

Conversion Factor to reflect uncollectible revenues and local franchise taxes. Then, the total revenue requirement must be multiplied by the LPSC-Jurisdictional Retail Allocation Factor to arrive at the authorized retail revenue requirement. The Revenue Conversion Factor and the LPSC-Jurisdictional Retail Allocation Factor from ELL's Test Year 2022 FRP are used for purposes of this calculation.

Q28. WHAT IS THE ESTIMATED FIRST-YEAR REVENUE REQUIREMENT?

A. The total Commission jurisdictional first-year revenue requirement for the Bayou Power Station is estimated to be $54.1 million, as shown on Page 2 of Exhibit RDJ-3. This includes the return of and on rate base as well as O&M expenses, taxes, and insurance.

VII. IMPORTANCE OF TIMELY COST RECOVERY AND PROPOSED RATE RECOVERY

Q29. IS IT APPROPRIATE THAT ELL RECEIVE TIMELY RECOVERY OF THE COSTS ASSOCIATED WITH THE PROJECT?

A. Yes. When the Bayou Power Station begins commercial operation, ELL will have incurred a significant amount of capital costs and will begin recognizing expenses related to the operation of the Project, none of which would be reflected in its then-effective rates established through a Formula Rate Plan or otherwise. Regulatory lag on a project the size of the Project can have a significant adverse effect on a utility's ability to earn its authorized rate of return. For example, Section 3.D.4 of the current FRP, and the FRP proposed in ELL's pending rate case (Docket No. U-36959), acknowledges that the function of the FRP mechanisms such as the earnings bandwidth and sharing provisions are insufficient to account for significant increases in rate base and cost of service, like those resulting from a new generating unit being placed in service, while continuing to provide an opportunity for the Company to recover its investment and earn a reasonable return on a timely basis. The provision authorizes recovery "fully through [the] Rider FRP, outside of the FRP sharing mechanism" of the retail revenue requirement associated with the construction of a new generating facility that has an annual revenue requirement in excess of $10 million.[14] And, the Commission has previously recognized that it is appropriate to provide for contemporaneous cost recovery to avoid the effects of regulatory lag on large capital projects,[15] including self-build projects, [16] and acquisitions.[17]

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[14] ELL Formula Rate Plan Rider Schedule FRP, at Section 3.D.4 (effective November 27, 2015). Notably, Section 3 of the FRP addressing Provisions for Other Rate Changes, which includes section 3.D.4, remains largely the same as the FRP that was agreed to by all parties as part of the settlement term sheet in Commission Docket No. U-33244 (the "Business Combination").

[15] *See* Order No. U-30670 (May 5, 2010), *In re: Application of Entergy Louisiana, LLC for Authorization for Approval to Replace Waterford 3 Steam Generators, Reactor Vessel Closure Head, and Control Element Drive Mechanisms, and for Certain Cost Protection and Cost Recovery, Docket No. U-30670.*

[16] *See* Order No. U-31971 (April 5, 2012), *Ex Parte: Joint Application of Entergy Louisiana, LLC for Approval to Construct Unit 6 at Ninemile Point Station and of Entergy Gulf States Louisiana, L.L.C. for Approval to Participate in a Related Contract for the Purchase of Capacity and Electric Energy, for Cost Recovery and Request for Timely Relief, Docket No. U-31971.*

[17] *See* Order No. U-27836 (May 3, 2005), *In re: Entergy Louisiana, Inc. and Entergy Gulf States, Inc., ex parte. In re: Application of Entergy Louisiana, Inc. for Approval of the Purchase of Electric Generating Facilities and Entergy Gulf States, Inc. for Authority to Participate in Contract for the Purchase of Capacity and Electric Power, See also*, Order No. U-31196 (April 9, 2010), *In re: Application of Entergy Louisiana, LLC for Approval to Purchase Power Block Two of the Acadia Energy Center, and Joint Application of Entergy Louisiana, LLC and Entergy Gulf States Louisiana, L.L.C. for Approval to Participate in Certain Related Contracts for the Purchase of Capacity and Electric Power and for Cost Recovery.*

Q30. PLEASE OUTLINE HOW YOU PROPOSE THAT THE REVENUE REQUIREMENT OF THE PROJECT BE REFLECTED IN RATES CONTEMPORANEOUS WITH THE FACILITY'S PLACEMENT IN SERVICE.

A. In answering this question, I assume, first, that ELL will have an FRP in place,[18] which would provide ELL with a reasonable opportunity for full recovery of the costs it incurs to provide customers with the benefits of the Project. Under that assumption, I propose that ELL follow the procedures laid out below to reflect the revenue requirement for the Project in rates in the first billing cycle of the first month after BPS begins commercial operation. Consistent with prior practice, approximately twelve months prior to the expected commercial operation date, ELL will make a compliance submission in this docket providing the then-best estimate of the first-year revenue requirement of the Project and supporting data ("Revenue Requirement Submission"). The Revenue Requirement Submission would reflect the first-year revenue requirement for the Project and related costs. The Parties would have an opportunity to request information regarding the revenue requirement calculation and propose corrections. An additional update to the estimated first-year revenue requirement would be submitted in this docket 60 days prior to the expected commercial operation date ("Final Estimate Update") and, again, the Parties would have an opportunity to request information regarding the revenue requirement calculation and propose corrections. In that case, parties would provide ELL any recommended adjustments to

[18] Although the term of ELL's current FRP concludes with implementation of rates from the 2022 Evaluation Period, recognizing that the rates of all of the Commission-jurisdictional investor-owned electric utilities are currently or have historically been established through an FRP, and ELL's pending request for an FRP in LPSC Docket No. U-36959 I have assumed that an FRP would be in place when BPS is placed in service.

the Final Estimate Update within 25 days of filing to provide sufficient opportunity to review and evaluate any proposed adjustments. Absent proposed adjustments, the Final Estimate Update would serve as the basis for the amount that is included in rates the first billing cycle following the unit's placement in service.

In the event adjustments to the Final Estimate Update are proposed, any adjustments agreed upon by ELL would be reflected in the rates that are implemented with the first billing cycle following placement in service. To the extent there are unresolved issues regarding a proposed adjustment, the revenue requirement included in the Final Estimate Update would be implemented, subject to refund and resolution in the subsequent FRP in accordance with the dispute resolution process provided for therein. Any changes to the revenue requirement that result from that process would be reflected in the FRP outside of sharing, just as the revenue requirement would have been initially reflected in FRP rates.

After the first full year of operation of BPS, the Company will true up all components of the first-year retail revenue requirement to reflect the actual first-year revenue requirement. This true-up would be implemented outside the FRP sharing mechanism. Thereafter, the Evaluation Report for the applicable FRP and corresponding prospective rates will reflect the realignment of the Project-related revenue requirement and will be taken into account within the bandwidth calculation of the applicable FRP (*i.e.*, inside of sharing) through the subsequent FRP Evaluation Period with any required change in rates taking effect with the corresponding Evaluation Period rate effective date. This procedure will allow for the synchronization in rates of the costs of the Project with the normal FRP cycle, and coordinates recovery from customers of the non-fuel costs at the same time customers receive the benefits from the Project beginning commercial operation. It should be noted that this ratemaking treatment is consistent with that approved by the Commission in connection with ELL's construction of Ninemile 6, the St. Charles Power Station, the Lake Charles Power Station, and most recently the Sterlington Solar Facility. For the reasons explained earlier regarding the need for timely recovery of the Project-related revenue requirement, the Company specifically requests that the Commission approve this procedure to implement the necessary change in rates contemporaneous with the commercial operation of the Project.

Q31. YOU MENTIONED THAT YOUR RECOMMENDATION REGARDING THE RATE TREATMENT IS PREMISED UPON THE CONTINUED USE OF AN FRP FOR THE COMPANY'S RATES. WHAT IS YOUR RECOMMENDATION IN THE EVENT THAT ELL NO LONGER HAS AN FRP IN PLACE WHEN THE PLANT ENTERS COMMERCIAL OPERATION?

A. Should that circumstance occur, then my recommendation is that the Commission authorize the Company to defer all non-fuel costs, including a full return on the investment, until such time as those costs can be reflected in rates. Such a deferral would include the accrual of carrying charges at the full Commission-authorized rate of return. In that scenario, the specific terms of the future rate recovery would be the subject of a future rate proceeding such as a base rate case. This alternative recovery is generally more costly to customers due to the accumulation of carrying charges on the deferred balance.

ELL may also deem it necessary to file a general rate case prior to the anticipated commercial operation date of the Project with pro forma adjustments to the test year to reflect the estimated first-year revenue requirement of the Project if it is determined that the effect of regulatory lag associated with a project of this size is too significant for ELL not to receive timely/in-service recovery in rates.

Q32. HOW WOULD YOU PROPOSE THAT THE COST OF THE PROJECT BE ALLOCATED TO CUSTOMER CLASSES?

A. If ELL remains subject to an FRP with terms similar to the current FRP, the Project first-year revenue requirement will be recovered as a percentage of base rates from those classes of customers specified by the FRP. If ELL is no longer subject to an FRP ratemaking construct, the allocation of the Project revenue requirement would be the subject of a future rate proceeding, such as a base rate case.

Q33. COULD PROJECT COSTS INCREASE IN THE EVENT THE COMPANY'S PROPOSED TIMELINE ON CONSTRUCTION IS DELAYED?

A. Yes. Mr. Dickens describes certain cost escalations included in the GIS EPC contract that can increase depending on when "full notice to proceed" is provided to GIS. In addition, Mr. Datta explains that the current Generation Interconnection Agreement ("GIA") expires on December 1, 2028, and obtaining a new GIA, should the current GIA that has been signed for the BPS expire, could entail delays in achieving commercial operations, which could also increase project costs.

Q34. PLEASE EXPLAIN HOW CUSTOMERS WILL RECEIVE THE BENEFITS FROM THE CAPACITY AND ENERGY MARGINS ATTRIBUTABLE TO BPS.

A. The energy margins and customer load payment benefits associated with BPS will be realized by the Company through the settlement statements received from participation in the Midcontinent Independent System Operator, Inc. ("MISO") energy and operating reserve market and will, in turn, be directly passed on to customers through the ELL FAC. Accordingly, customers will begin seeing these benefits upon operation of BPS.

As for the capacity revenues arising from BPS, the Company currently participates in the MISO short-term capacity market by selling all of its capacity resources and purchasing all of its capacity needs in that market. The net revenue or cost resulting from that participation is passed on to the Company through its MISO invoices. For ratemaking purposes, these costs are reflected in the ACM of ELL's currently-effective FRP. Assuming the FRP remains in place, those costs would continue to be reflected in the ACM, pursuant to LPSC Order No. U-33391. It should be noted that these benefits are not reflected in Exhibit RDJ-3.

Q35. DOES THIS CONCLUDE YOUR DIRECT TESTIMONY AT THIS TIME?

A. Yes, it does.

AFFIDAVIT

STATE OF LOUISIANA

PARISH OF JEFFERSON

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

That the above and foregoing is his sworn testimony in this proceeding and that he 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, he verily believes them to be true.

____
Ryan D. Jones

SWORN TO AND SUBSCRIBED BEFORE ME
THIS 23rd DAY OF FEBRUARY, 2024

____
NOTARY PUBLIC

My commission expires: ________________

Skylar Rosenbloom
Notary Public
State of Louisiana
Louisiana Bar Roll # 31309
My Commission is issued for Life

Listing of Previous Testimony Filed by Ryan D. Jones

DATE	TYPE	JURISDICTION	DOCKET NO.
08/22/2019	Affidavit	LPSC	U-35370
06/17/2021	Settlement	LPSC	U-35584
12/08/2021	Direct	LPSC	U-36222
4/21/2022	Direct	LPSC	U-36338
11/14/2022	Settlement	LPSC	U-36222
11/15/2022	Rebuttal	LPSC	U-36338
12/29/2022	Settlement	LPSC	U-36338
10/31/2023	Affidavit	LPSC	U-34951, U-35205, U-35581, U-36092, U-36381
1/31/2024	Affidavit	LPSC	S-37113

Monitoring Procedures and Reports Related to the Bayou Power Station Project

1. *Monitoring Procedures and Reports*

The Company will submit semi-annual progress reports to the Staff and any intervenors within 45 days of the end of June and January each year. The contents of the report may be largely confidential, with the exception of a non-confidential summary. Any semi-annual report containing confidential or proprietary information of ELL or its vendors, consultants, or contractors may be submitted on a confidential basis to the Staff and to appropriate reviewing representatives of intervenors that have executed a confidentiality agreement in this docket, in which case a public redacted version of such report will be filed in the docket and circulated to all parties. The Staff will use its best efforts to acknowledge receipt of the report, in writing, and provide any questions regarding the report within 30 days of the submission of the semi-annual monitoring report. The Company also will provide to the Staff informal reports of any significant developments occurring between the more formal semi-annual reports. The Company will arrange for the Staff to undertake site visits once or twice per year, or as deemed necessary.

2. *Semi-Annual Report Elements*

The semi-annual progress monitoring reports will include the following information:

<u>Summary of Status of Project Schedule</u>

An overview of major items accomplished (such as construction or procurement activities):

1. Description of any changes to planned activities (or milestones) that have implications for project schedule or task sequencing;
2. Overall project schedule status; and
3. Project Gantt Chart showing major project milestones.

The information in this section will be sufficiently detailed to understand the relationship between the current schedule and the original schedule, including any changes to major project milestones.

Project Budget Status

The Grand Isle Shipyards ("GIS"), engineering, procurement, and construction ("EPC") contract is a fixed price, fixed schedule-type contract. GIS can earn an additional fee by completing the Project ahead of schedule. GIS must pay predetermined amounts if it fails to timely complete the Project or the Project does not meet performance (output and heat rate) requirements. Each report will provide a table that identifies: (a) the original cost estimate; (b) expenditures to date; (c) estimated future spending; (d) cost estimate revisions (due to change orders or other reasons); and (e) any budget variance. These data will be broken down as: (a) EPC payments; (b) Other vendors/expenses; (c) Entergy labor; (d) Indirect costs; (e) Allowance for Funds Used During Construction ("AFUDC"); (f) project contingency; (g) and transmission interconnection to switchyard.

Project Financing

This section of the report will provide a detailed monthly tracking of AFUDC costs. It will include tables with the projected AFUDC accruals over the entire construction period and cumulative totals. Any changes in the life of Project AFUDC accruals estimate (*e.g.,* due to change in project schedule or costs) will be identified. AFUDC accruals will cease when the Project enters service.

Business Issues

This section will provide for the identification of other business issues pertinent to the Bayou Power Station Project. It will include but not be limited to material business disputes with contractors, force majeure issues, labor problems or disputes, and any issues or problems associated with local government or the local community. This will also include any important amendments to the GIS EPC contract.

Transmission

This section will discuss progress and cost estimates relating to upgrades to interconnect the Project with the switchyard.

Safety

The Company will provide, in each progress report, tables reporting the recordable incident rate ("IR") and lost workday injury and illness rate ("LWDII") information for the Project or similar information relating to work-related safety statistics. This will be provided by month and cumulatively for the entire construction period for the Company, GIS and other Project contractors and subcontracts.

Environmental Compliance

The progress report will identify any environmental permitting or compliance issues that arise and that could affect the Project. Environmental issues discussed in this section will include any permit modification or new requirements. In addition, the Company will report on new environmental laws or regulations that have the potential to affect the Project.

Additional Matters

In addition to the information described above, the semi-annual report will include an Executive Summary highlighting progress on the Project, significant changes to the Project plan and other notable developments. To the extent not provided elsewhere, the Company will include the following information in its report:

(1) updates in the Company's forecasted cost of natural gas;

(2) material changes in the cost to complete the Project;

(3) material incremental changes in the cost of environmental compliance; and

(4) an affirmation as to whether continuing construction of the Project remains in the public interest.

Entergy Louisiana, LLC

BAYOU POWER STATION REVENUE REQUIREMENT

DERIVATION OF THE RATE BASE
(Dollars in Thousands)

Item	Beginning Of Year	End Of Year
Rate Base		
A. Plant In Service (1)	374,300	374,300
B. Accumulated Depreciation (1)	0	(12,477)
C. Accumulated Deferred Income Taxes (2)	0	(1,375)
D. Rate Base	374,300	360,448
E. Average Rate Base		**367,374**

Notes:
[1] Does not reflect $37 million of plant in service associated with transmission interconnection cost.
[2] The tax position of ELL, relative to the first year revenue requirement of Bayou Power Station, has not been finally determined. To the extent that ELL has Net Operating Losses for tax purposes, the amount of ADIT used to calculate the Average Rate Base is subject to change.

Entergy Louisiana, LLC

BAYOU POWER STATION REVENUE REQUIREMENT

DERIVATION OF THE REVENUE REQUIREMENT
(Dollars in Thousands)

	First Year of Operation
A. Operation and Maintenance Expense	
1. Payroll	3,013
2. O&M Outage Expense	982
3. O&M Baseline Expense	1,174
4. Total Operation and Maintenance Expense	5,169
B. Other Operating Expenses	
1. Insurance	616
2. Property Tax [1]	4,596
3. Total Other Operating Expense	5,212
C. Total Operating Expenses	**10,381**
D. Return Of and On Rate Base	
1. Pre-Tax Return [2]	30,823
2. Depreciation and Amortization Expense [2]	12,477
3. Equity AFUDC Gross Up [2]	278
4. Total Return Of and On Rate Base	43,577
E. Revenue Requirement	**53,958**
F. ELP Revenue Conversion Factor	1.01068
G. ELP LPSC Jurisidictional Retail Allocation factor	99.20%
H. ELP LPSC Jurisdictional Revenue Requirement	**54,098**

Notes:
[1] Estimated property tax expense assuming no property tax abatement is granted and subject to change.
[2] Does not reflect $37 million of plant in service associated with transmission interconnection cost.

Entergy Louisiana, LLC

BAYOU POWER STATION REVENUE REQUIREMENT

DERIVATION OF THE COST OF CAPITAL

				Weighted Cost Rate	
Item	**Amount**	**Ratio**	**Cost Rate**	**Post Tax**	**Pre Tax**
A. Long Term Debt	8,591,854,488	50.39%	3.88%	1.96%	1.96%
B. Short Term Debt	17,393,361	0.10%	0.59%	0.00%	0.00%
C. Preferred Stock	0	0.00%	0.00%	0.00%	0.00%
D. Common Equity	8,441,842,490	49.51%	9.50%	4.70%	6.43%
E. Total	**17,051,090,339**	**100.00%**		**6.66%**	**8.39%**

BEFORE THE

LOUISIANA PUBLIC SERVICE COMMISSION

***IN RE*: APPLICATION OF ENTERGY LOUISIANA, LLC FOR APPROVAL TO CONSTRUCT BAYOU POWER STATION, AND FOR COST RECOVERY**	**))))**	**DOCKET NO. U-_____**

DIRECT TESTIMONY

OF

GARY C. DICKENS

ON BEHALF OF

ENTERGY LOUISIANA, LLC

PUBLIC REDACTED VERSION

MARCH 2024

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I. INTRODUCTION AND PURPOSE

A. Qualifications

Q1. PLEASE STATE YOUR NAME AND CURRENT BUSINESS ADDRESS.

A. My name is Gary C. Dickens. My business address is 2107 Research Forest, Lake Front North, The Woodlands, Texas 77380.

Q2. ON WHOSE BEHALF ARE YOU FILING THIS DIRECT TESTIMONY?

A. I am testifying before the Louisiana Public Service Commission ("LPSC" or the "Commission") on behalf of Entergy Louisiana, LLC ("ELL" or the "Company") in support of its Application seeking approval to construct and operate the Bayou Power Station ("BPS" or the "Project"), a proposed new 112 megawatt ("MW") power barge generating station consisting of six natural-gas fired reciprocating internal combustion engines ("RICE") with black-start capability in Leeville, Louisiana and an associated microgrid that would serve downstream of the Clovelly substation, including Port Fourchon, Golden Meadow, Leeville, and Grand Isle.

Q3. BY WHOM ARE YOU EMPLOYED AND IN WHAT CAPACITY?

A. I am employed by Entergy Services, LLC ("ESL"), the service company for the Entergy Operating Companies ("EOCs"),[1] as Vice President, Capital Projects. Before taking that position in May 2021, I served as Vice President, Project/Construction Management, New Generation Program Execution.

[1] ESL is an affiliate of the EOCs and provides engineering, planning, accounting, technical, and regulatory-support services to each of the EOCs. The five EOCs are Entergy Arkansas, LLC, ELL, Entergy Mississippi, LLC, Entergy New Orleans, LLC, and Entergy Texas, Inc.

Q4. PLEASE DESCRIBE YOUR EDUCATION AND BUSINESS EXPERIENCE.

A. I have worked in the energy industry since 1991, primarily with the development, design, construction, operation, and maintenance of industrial and utility power generation facilities. My initial entry into the industry was in operations, with the position of Shift Engineer and then into a management role as Plant Operations Manager through a division of the Finnish utility, IVO Generation Services, engaged in the design, building, ownership, operation and maintenance of combined-cycle combustion turbine ("CCCT") power projects. I joined Entergy Corporation in 1998 as the Operations Manager providing operations and commissioning oversight of Entergy's Saltend 1,200 MW Combined Heat and Power project in England. I also completed the commissioning of the 800 MW Damhead Creek CCCT project in England as commissioning manager, seconded to the engineering, procurement, and construction ("EPC") contractor's team. During the transition from overseas development, I relocated to the United States for Entergy in the role of Director of Commissioning for EntergyShaw LLC, completing the following EPC projects: Crete Energy 320 MW combustion turbine ("CT"), Warren County 320 MW CT, and Harrison County 550 MW CCCT projects.

I transferred to Entergy Services, Inc. ("ESI") (now ESL) and represented fossil operations in the due diligence and acquisition team for the 830 MW CCCT Perryville plant, 480 MW CCCT Attala plant, and the 320 MW CT Calcasieu plant. In 2007, I joined an EPC Contractor as a Senior Project Manager on power proposals and contract development for the United States and Central South America regions. In 2012, I returned to ESI as Director, Capital Projects to handle the construction of Ninemile 6.

Following completion of that project, I became Vice President, Project/Construction Management, New Generation Program Execution. During my tenure in this position, in addition to MCPS, I have also overseen the construction of the J. Wayne Leonard Power Station and Lake Charles Power Station. In May 2021, I accepted my current position as Vice President, Capital Projects.

I am a graduate of the British Royal Naval School of Engineering (Mechanical). I served fifteen years in fleet engineering on conventional powered and gas turbine powered ships.

Q5. WHAT ARE YOUR RESPONSIBILITIES AS VICE PRESIDENT FOR THE CAPITAL PROJECTS ORGANIZATION?

A. I oversee the capital planning, development, and construction of new fossil generation power plants, transmission, and distribution assets. I have overall responsibility for monitoring key objectives of safety, cost, schedule, environmental, and quality. I lead a team that manages the processes concerned with construction safety, project budget, cost and schedule control, engineering design review, overall construction site control, start-up and commissioning, documentation control, and progress review.

B. Purpose of Testimony

Q6. WHAT IS THE PURPOSE OF YOUR DIRECT TESTIMONY?

A. My testimony supports the Company's Application in this proceeding. I first provide an overview of the proposed Project. I go on to present the current total cost estimate and schedule associated with the Project. I then describe the process used to select

Grand Isle Shipyards, LLC ("GIS") to provide EPC services for the generation portion of the Project and the management approach that the Company intends to employ through completion of the Project. I also discuss the risk mitigation measures put in place to control Project risk and the status of required permits and approvals. Finally, I discuss the estimated non-fuel operation and maintenance ("O&M") costs for the Project.

Q7. HAVE YOU PREVIOUSLY TESTIFIED BEFORE A REGULATORY COMMISSION?

A. Yes. Attached as Exhibit GCD-1 is a list of my prior testimony.

II. PROJECT OVERVIEW

Q8. PLEASE PROVIDE A BRIEF OVERVIEW OF THE PROJECT.

A. BPS is a new 112 MW power barge generating station consisting of six Wartsila 18V50SG engines and other balance of plant equipment located in Leeville, Louisiana adjacent to the existing Leeville substation (see Exhibit GCD-2 and Exhibit GDC-3). The Project also includes an associated microgrid that would serve the area downstream of the Clovelly substation, including Port Fourchon, Golden Meadow, Leeville, and Grand Isle, when power is not available from the transmission system.

The Project will be primarily constructed by GIS under a fixed-price,[2] fixed-schedule duration form of EPC Agreement and, including an allowance for funds used during construction ("AFUDC") and estimated transmission upgrades, will cost an estimated $411.3 million. This amount includes $374.3 million associated with the generation portion of the Project, or roughly $3,318 per kilowatt ("kW"), and $37 million for transmission costs associated with local transmission interconnection to the switchyard. If there are no unanticipated project delays due to the inability to obtain all necessary regulatory approvals, permits, materials, and equipment, BPS is expected to enter service in the second half of 2028.

Q9. PLEASE DISCUSS THE DESIGN OF THE BPS, INCLUDING ANY SAFETY FEATURES.

A. The six Wartsila 18V50SG natural gas-fired engines will be placed on the deck of a barge where the engine hall is fully enclosed and weather tight (see Exhibit GCD-4 and Exhibit GCD-5). RICE is a well-known technology used in automobiles, trucks, marine propulsion, and backup power applications. The engines use the expansion of hot gases to push a piston within a cylinder, converting the linear movement of the piston into the rotating movement of a crankshaft to generate power.

[2] Throughout my testimony, I refer to the EPC Agreement with GIS as a "fixed-price" form of EPC Agreement. It should be noted that while the EPC Agreement with GIS is a fixed-price form of Agreement, there are elements of the pricing that are not fixed, which will be discussed below in my Direct Testimony. The primary element that is not fixed is the craft labor and per diem escalation provisions in the BPS-GIS EPC Agreement designed to clearly allocate the risk of escalating labor and per diem rates in the Gulf Coast region during the period of construction, which are explained more fully later in my Direct Testimony.

The barge includes a control room, transformers, and a selective catalytic reduction system to allow the power barge to operate as a self-contained, floating power plant that can operate in-place once connected to a fuel source and transmission line. The power barge also includes a fire protection system, fire and gas detection systems, automatic fuel disconnect valves for each engine, an automated emergency shut off valve for the plant and all exhaust gases vented safely above the deck of the barge. The barge and mooring system are designed for 100-year storm events able to withstand 178 mph 3-second gust wind and a maximum design surge including tide of 18 feet.

Q10. WHAT IS THE EXPECTED OUTPUT OF THE PROJECT?

A. BPS is designed with a gross output of 112.8 MW.

Table 1: Base Proposal Predicted Unit Performance

[redacted]

	Unit Capacity (MW)	Heat Rate (Btu / kW-hr, HHV)
Maximum output	112.8	[redacted]

Q11. PLEASE DESCRIBE THE ADVANTAGES OF RICE TECHNOLOGY.

A. RICE generating units have a low levelized cost of electricity on a dollars per megawatt-hour ($/MWh) basis, as well as other benefits such as low water usage, a low emissions profile, the ability to support renewable resources, and the inclusion of black start capability. Heat rate pertains to the fuel required to generate a unit of electricity. The lower the plant's heat rate, the less fuel is required to generate each unit of electricity needed to supply customers. The lower heat rate of RICE technology compared to older, less efficient technology more positively impacts customers than a higher heat rate option. Moreover, each engine achieves the heat rate noted above at full load, which means that the beneficial heat rate is achievable at this plant at lower plant capacity factors (i.e., not all the engines are running at the same time) in contrast to larger resources like a CT that also require full load before achieving the maximum heat rate. The engines are also capable of co-firing up to 25% hydrogen gas by volume upon commercial operation, though additional infrastructure and fuel supply arrangements would be required, which are not included in Project's scope or costs.

RICE technology uses significantly less water than alternative technologies such as CTs, which use a relatively significant amount water for evaporative cooling purposes during summer months when the air intake to the CT requires cooling prior to that air being presented into the compressor section of the machine. RICE technology, on the other hand uses a closed-loop cooling system, and water requirements are more limited to cooling water makeup to the engines due to evaporation in the generation process, engine turbo-washing water for general plant washdown, and potable water for plant restrooms and faucets.

The RICE units are able to start and achieve full load in a very short period of time (about five minutes from warm engine), and they are able to start and stop multiple times in a single day. Both of these characteristics are critical to supplying generation when renewable resources are not available (e.g., on cloudy or rainy days or after sunset) as well as in a peaking or emergency situation. RICE technology also allows for partial load operation in the event there is some but not enough renewable energy available to meet grid needs.

BPS will have black-start capability, which is the ability of a plant to start up under its own power without a back feed of power from the electric grid. Typically, there is an auxiliary load supplied to the unit from the local switchyard. In the event of a complete loss of power at BPS, compressed air bottles will be used to drive the engine during start-up, and a small generator is expected to be on board the barge to help energize the electronics. The low auxiliary load requirement for RICE technology makes the ability to black-start RICE machines more attractive than other options that require a large, self-starting generator, which has a higher cost.

Q12. DO THE ENTERGY OPERATING COMPANIES HAVE ANY EXPERIENCE WITH BUILDING RICE UNITS?

A. Yes. Entergy New Orleans, LLC ("ENO") completed the construction of a brownfield RICE power plant in New Orleans in 2020. New Orleans Power Station ("NOPS") is an electric power generation plant with a nominal net output of 128 MW. The site is located in Orleans Parish on the site of the former Michoud Power Plant. This project included the installation of seven Wartsila W18V50SG RICE generators.

Q13. PLEASE PROVIDE AN OVERVIEW OF THE MICROGRID.

A. As discussed by Company witness Samrat Datta, when a transmission outage occurs, a microgrid controller (microprocessor) will automatically carry out switching actions necessary to separate the area from the rest of the transmission system and establish a microgrid island that is capable of serving the area downstream of the Clovelly substation. The primary microgrid controller will be installed at the Leeville substation along with redundant microgrid controllers, auto synchronization relays, and networking equipment at the Fourchon, Golden Meadow, Clovelly, and Valentine substations. The microgrid controller will also automatically reintegrate the "island" with the rest of the transmission system when normal transmission system conditions are restored.

Q14. PLEASE EXPLAIN THE CAPITAL PROJECTS ORGANIZATION WITH RESPECT TO BPS.

A. The Capital Projects' role with respect to BPS is to ensure key objectives of safety, cost, schedule, environmental, and quality are met on behalf of ELL. This involves leading a team that will manage the processes concerned with construction safety project budget, cost and schedule control, engineering design review, overall construction site control, start-up and commissioning, documentation control, and progress reviews.

III. SITE CONFIGURATION AND TECHNOLOGY SELECTION

Q15. WHAT IS THE CURRENT CONFIGURATION OF THE SITE ON WHICH THE PROJECT IS PROPOSED TO BE LOCATED?

A. The Project is proposed to be located on the former site of Bobby Lynn's Marina, which was directly hit in each of Hurricanes Delta, Zeta, and Ida and not rebuilt or operating when ELL purchased the site in late 2022. Figure 1 below shows the location of the site on a regional map, and Figure 2 below shows an aerial view of the site. See also Exhibit GCD-2 and Exhibit GCD-3.

Figure 1

Figure 2

Q16. PLEASE EXPLAIN WHY RICE GENERATION IS THE PREFERRED TECHNOLOGY FOR THE PROJECT.

A. As explained in more detail by Company witness Laura K. Beauchamp and Mr. Datta, RICE capacity – because of its design and performance characteristics, and in particular its quick-start capability and lack of minimum up-time – is the technology of choice for the peaking and reserve role that BPS will play. RICE units can start and reach full load within five minutes and are flexible in their dispatch, allowing BPS to produce 5 to 112 MW of power, which makes them well suited for quickly responding to the changes in weather and output from intermittent resources. Given the geography and history of hurricane impact, it is also advantageous to be able to build the plant on a floating barge.

Q17. WHAT ARE THE ADVANTAGES OF PLACING GENERATION ON A BARGE COMPARED TO A LAND-BASED GENERATING PLANT?

A. A floating power plant with RICE units on a barge is economical compared to a land-based plant in this situation. That is because the cost to elevate existing land or build the plant on a structure high enough to allow for similar surge protection is cost prohibitive. Furthermore, a floating generation facility allows the barge to be moored in place and rise and fall with the tide or storm surges. A land-based facility would be required to comply with local building codes to determine final site elevation. Unlike a floating power facility that can rise and fall, a land-based facility could be subject to storm surge inundation if the level of storm surge exceeds that of the final site elevation. Finally, because BPS is a self-contained, portable generation facility, ELL ultimately could move the resource to another location as circumstances may warrant – for example, if load requirements change or if the BPS may be deemed more economic for customers elsewhere.

IV. ESTIMATED PROJECT COST AND SCHEDULE

Q18. WHAT IS THE CURRENT ESTIMATE OF THE COSTS TO COMPLETE THE BAYOU POWER STATION?

A. As detailed in Table 2, the current estimate of the costs to complete BPS is approximately $411.3 million, inclusive of, among other things, the GIS EPC Agreement, expenses related to seeking Commission certification, costs related to transmission interconnection to the switchyard, contingency, AFUDC, and regulatory costs. This amount includes $374.3 million associated with the generation portion of the Project, or roughly $3,318 per kW.

Table 2: BPS Capital Cost Estimate (Millions)

[redacted]

GIS EPC Agreement	[redacted]
Other Vendors	[redacted]
Labor	[redacted]
Other Expenses	[redacted]
Fuel Reservation Fees	[redacted]
Other Indirect Costs	[redacted]
AFUDC	[redacted]
Project Contingency	[redacted]
Transmission Projects	$37
Total Project Cost	**$411.3**

Q19. HOW WERE THESE COST ESTIMATES PREPARED?

A. These estimates are largely derived from the largest single cost component, the EPC Agreement with GIS. The GIS EPC Agreement estimate includes a detailed scope of work describing the plant, its required functionality, and its required performance, all of which were developed by GIS based on the preliminary engineering. In addition to the GIS EPC contract, ESL will execute an EPC contract with Ampirical for the transmission interconnection portion of the Project, and the transmission interconnection costs are based on a detailed scope of work developed with the project team and supported by Company's experience with Ampirical on other transmission projects. Finally, ESL will execute an EPC contract for the microgrid, and the Project estimate is based on that initial scope.

The other costs include project management and oversight (both internal and external services), inspections and testing, environmental permitting, pursuing regulatory approvals, temporary facilities and supplies, as well as AFUDC. The estimate for these costs was developed both from internal subject matter experts and third-party providers using the actual costs of the NOPS project as a reference.

Q20. WHAT KINDS OF COSTS ARE INCLUDED IN THE GIS EPC AGREEMENT ROW IN TABLE 2 ABOVE?

A. GIS EPC Agreement costs are the expenditures that will be incurred by GIS and billed to the Company during the performance of the EPC Agreement, including the following:

1. engineered equipment, including the Wartsila engines, generators, generator step-up transformers, auxiliary transformers, and barge;
2. home office engineering and construction management services, including procurement, project controls, scheduling, and progress tracking;
3. supervisory and administrative staffs at the construction site;
4. craft laborers (such as welders, electricians, and pipefitters);
5. construction materials (copper, steel, concrete, etc.) used by both GIS and subcontractors;
6. subcontractors;
7. the indirect construction costs that support the construction project (such as scaffolding, administrative offices, or safety equipment);
8. sales taxes born by GIS on consumables; and
9. labor and materials associated with the dedicated start-up and commissioning teams, including onboarding and training costs necessary to prepare BPS Staff to operate the plant.

Q21. PLEASE DISCUSS THE OTHER COST ESTIMATES SHOWN IN TABLE 2.

A. The other cost estimates shown in Table 2 include:

- <u>Other Vendors</u>: There is a wide range of services and expenses captured in the Other Vendors category, including expense for contract personnel on the project management team, rental of temporary office trailers, construction power, environmental permitting services, the cost of permit applications, site inspections and surveys, transmission studies, gas used during commissioning, miscellaneous consumables related to safety and office supplies used during project execution, consultant fees, materials, tools and equipment (including IT hardware used during construction), and plant labeling. The estimate for this line item was informed by the actual costs incurred for the NOPS project. The remaining costs in this category cover the microgrid portion of the project, which will be constructed through a separate EPC contract. That portion of the costs is estimated to be $2.9 million, and the microgrid portion of the Project is further discussed by Mr. Datta.

- Labor: Labor costs include internal construction management, training, and expenses. Internal construction management includes personnel to manage any contracts to engineer, procure, and construct the Project. Training includes, but is not limited to, operations, maintenance, safety, environmental, and NERC training.
- Other Expenses: This category includes land acquisition costs, including purchase price and title fees, GIS escalation, and GIS Barge mooring analysis.
- Fuel Reservation Fees: This category includes an estimate of the pipeline fuel reservation charges during commissioning.
- Other Indirect costs: This category includes Capital Suspense, which distributes costs associated with administrators (*e.g.*, Financial Processes ("FP") Property Accounting), engineers, and supervisors that support various capital projects. The purpose of capital suspense allocation is to distribute these capital overhead charges to specific Capital Funding Projects and Work Orders.
- AFUDC: Allowance for Funds Used During Construction allocates the costs of funds used for a capital project (*i.e.*, debt and equity).
- Project Contingency: This is a general contingency estimate of approximately 5% of the total BPS Project cost estimate to allow for circumstances that could

affect the cost of the Project that are currently unidentified or uncertain and could include:

- the discovery of facts currently unknown to either the Company or GIS that affect the Project and that are the responsibility of the Company. Examples include the discovery of unknown underground obstructions and additional fuel supply infrastructure costs;

- circumstances beyond the control of either the Company or GIS that affect the cost of the Project, such as damages and delays from significant weather events;

- changes in laws or regulation that affect the cost of the Project; and

- delays in obtaining regulatory approval, transmission access, fuel supply, and/or permits that result in higher costs.

- Transmission Projects: The amount in this category is based upon an estimate to construct the interconnecting transmission lines between BPS and the Leeville Substation pursuant to an EPC contract with Ampirical. This estimate includes substation upgrades that will center around the connection of the generation units to the broader MISO transmission system. To interconnect the units, the Leeville substation (site of interconnection) will require additional breakers, switches, relays, and controls. The Leeville substation will need to be expanded in the surrounding property currently owned by ELL to accommodate the additional equipment.

Q22. DOES THE GENERATION PROJECT COST ESTIMATE REFLECT COST ESCALATION ADJUSTMENTS AND PROJECT CONTINGENCIES?

A. Yes. The GIS EPC Agreement includes a fixed-price and fixed schedule duration, subject to craft labor wage and per diem rates that will be updated before full notice to proceed ("FNTP") is issued. FNTP is not expected to be issued prior to receipt of acceptable approvals from the Commission, and timely approval is important due to the risk of increased costs for craft labor on the Project resulting from the anticipated labor shortage in the Gulf Coast Region due to ongoing and proposed industrial capital investments over the next decade. The EPC Agreement, which has been substantially negotiated but is not expected to be executed until the Commission certifies the Project, contains a craft labor wage and per diem true-up mechanism that will adjust the price based upon actual wage rates and per diem rates as compared to estimated escalation rates included in the EPC estimate. These provisions are discussed more fully later in my testimony.

Further, the Company included a contingency estimate that addresses the fact that construction projects of the cost magnitude and time duration of BPS have cost elements that are beyond the reasonable control of the Company and its management. Even with a fixed-price EPC Agreement and well-defined scope, experience demonstrates that unpredictable events, such as the discovery of unknown site conditions or changes in laws or regulations, can require change orders that will affect project costs. Thus, a contingency must be included in the estimate in order to provide a realistic estimate of the ultimate cost to complete the Project. The current Project estimate contains a contingency line item of approximately 5% of the total project costs, which is reasonable for a project of this nature. I describe risks to the Project and mitigation plans later in my Testimony.

Q23. DOES THE TRANSMISSION PROJECT COST ESTIMATE INCLUDE COST ESCALATION AND PROJECT CONTINGENCIES AS WELL?

A. The Company included a contingency in the total transmission project estimate for the same reasons discussed above with respect to the generation portion of the Project, but transmission EPC contracts typically do not need to include provisions for cost escalation, and none are expected here. Unlike the more complex power barge construction that requires a significant amount of major equipment and subcontracts that must be procured over a long period of time, the transmission upgrades and interconnection are conventional in scope and do not require provisions for cost escalation that could not otherwise be captured in the contingency.

Q24. DOES THE TOTAL COST ESTIMATE INCLUDE GAS PIPELINE INTERCONNECTION COSTS?

A. Yes. BPS will require connections to gas pipelines. The Project site is located adjacent to two natural gas suppliers, Tennessee Gas Pipeline and Kinetica, both of which are capable of delivering gas at pressures required by the RICE generators without improvements. ESL's System Planning and Operations ("SPO") Fuels group is in discussion with both gas pipelines to serve the Project, and both have expressed an interest and intent to support the Project and construction schedule, pending the finalization of transportation contracts.

Like the commodity costs of natural gas, the costs associated with pipeline transportation service will be recovered through the Fuel Adjustment Clause ("FAC") and, therefore, are not included in the Project cost estimate. However, an estimate of pipeline interconnection and gas delivery charges during the period of construction and commissioning has been included in the Project cost estimate because these costs are incurred prior to the in-service date of the Project and capitalized in accordance with required utility accounting, as opposed to the ongoing cost of fuel and fuel transportation that are expense items recovered through the FAC.

Q25. DO YOU BELIEVE THAT THE CURRENT PROJECT COST ESTIMATE IS A REASONABLE ESTIMATE OF THE COSTS OF BPS?

A. Yes. Based on the unique technical details of the project, pricing was established by using an "Open Book" process with GIS to ensure the competitiveness of GIS's pricing with market alternatives. Under an Open Book process, GIS provides transparency into their pricing structure based on a fixed price proposal with granular detail into cost, negotiated profit, and applicable escalation prior to FNTP. The actualized costs for material and direct and indirect labor costs are detailed by category of the Project schedule and provided in GIS's True-Up Mechanism workbook.

Pricing was also supported by market benchmarking provided by Power Advocate, which uses the Bureau of Labor Statistics Producer Price Index ("PPI") to normalize market pricing. The PPI is calculated by dividing the average weighted prices of goods and services produced in the U.S. during the current month and year by the average weighted prices of goods and services produced in the U.S. in a base month and year then multiplying the result by 100. GIS's proposal for actual and escalated pricing increase was validated using the PPI approach to normalize current market conditions based on the proposed pricing structure detailed in the proposal. The proposed pricing from GIS was rigorously reviewed by Supply Chain and the project team over the duration of the development of the Project, which included the development of the final scope of work. The final cost estimate is reasonable based on the level of detail completed through this price development exercise.

The estimated EPC costs for Ampirical are based on a detailed scope of work developed with the project team and supported by Company's experience with Ampirical on other transmission projects. The final fixed-price EPC contract will be executed using an open-book process following certification by the Commission.

Q26. IS THE PROJECT CONSTRUCTION PRICING FIXED?

A. Not entirely. As mentioned earlier, the estimated Project costs include EPC costs for GIS, Ampirical, a microgrid contractor, and other costs. Only the EPC costs are fixed. Moreover, while the GIS EPC prices are fixed assuming the defined scope of work, other factors such as changes in scope due to discovery of new facts, force majeure events, craft labor wage rate and per diem rate escalation above projections, or changes in law could affect EPC costs. Those subsequent events could result in change orders that increase or decrease EPC costs. Also, development projects spanning several years are exposed to a number of risks, both known and unknown, and despite diligent mitigation plans and efforts, scope changes may be required.

Q27. CAN YOU PROVIDE AN EXAMPLE OF A DEVELOPMENT THAT COULD REQUIRE A CHANGE IN THE SCOPE OF WORK AND CHANGE THE PROJECT'S COST ESTIMATE?

A. One example of a development that could change the Project's scope of work is a discovery event. While performing site work and associated trenching, something underground could be discovered that was not on the current site drawings, was not visible on the surface and could not be anticipated. Any work that a contractor has to perform related to that discovery would be added to the scope of the project through a change order.

Q28. WHAT ARE SOME OF THE KEY MILESTONES IN THE ESTIMATED PROJECT SCHEDULE?

A. Target Substantial Completion is expected by February 2028. GIS would receive incentives for early completion or be required to pay liquidated damages for delayed completion. Some of the key milestones in the schedule (assuming Commission certification by February 3, 2025) are:

Table 3: Key Milestones Assuming February 2025 Certification

[redacted]

Milestone	Date
LPSC Regulatory Filing	**03/2024**
Contract Execution Date (NTP)	[redacted]
LPSC Regulatory Approval	[redacted]
Begin Construction	[redacted]
Permitting Complete	[redacted]

Milestone	Date
Barge Topside Completion	[redacted]
Barge Transfer/Delivery	[redacted]
Barge First Fire	[redacted]
Operations Permits Issued	[redacted]
Target Substantial Completion	[redacted]
Commercial Operations Date	[redacted]

Q29. WHAT IS THE EXPECTED TIMING OF THE SPENDING AND FINANCIAL COMMITMENTS ASSOCIATED WITH THE PROJECT?

A. The following graph containing highly sensitive protected materials ("HSPM") depicts the Project's projected cash flow, spend commitment, and cancellation exposure:

Figure 3

[redacted]

[redacted]

Q30. WHY IS IT IMPORTANT TO OBTAIN TIMELY REGULATORY APPROVALS?

A. As described by Company witness Ryan Jones, the Company needs reasonable assurance from the Commission that construction of the BPS is in the public interest prior to spending several hundred million dollars to construct a plant needed to serve the Company's customers. Accordingly, the Company reasonably does not intend to issue FNTP under the EPC contract without certification from the Commission that undertaking BPS serves the public convenience and necessity, as required by the 1983 General Order.[3] It is critical that the Commission understand how the timing of its approvals affects BPS. The longer it takes to issue FNTP, there is higher risk that the price escalations in the GIS EPC Agreement will exceed the estimate (resulting in higher project costs) as well as result in a day-for-day delay of the in-service date.

V. PROJECT MANAGEMENT AND CONTRACTING APPROACH

Q31. HOW DOES THE COMPANY PROPOSE TO MANAGE THE PROJECT?

A. Given the magnitude of this Project and the Company's existing infrastructure for construction and project management, the Company determined that it would be appropriate to follow the same structure used for the construction of Ninemile 6, St. Charles Power Station, Lake Charles Power Station, and NOPS, using an EPC contractor in conjunction with the Company's management team.

The project management approach will follow Entergy's Project Delivery System ("PDS") Policy, Standards, and Guidelines in support of driving consistency

[3] See General Order (Corrected) (May 27, 2009), In re: Possible modifications to the September 20, 1983 General Order to allow: (1) for more expeditious certifications of limited-term resource procurements; and (2) an exception for annual and seasonal liquidated damages block energy purchases, Docket No. R-30517.

and certainty in project delivery outcomes. The PDS provides a framework to ensure the different business units consistently and effectively develop and implement capital Projects. The PDS establishes a Stage Gate Process ("SGP") approach as a single and comprehensive framework for project development, planning, and execution. The SGP provides a roadmap of key deliverables and decisions that need to be sequentially completed to promote consistent, reliable, and high-quality project outcomes. Additionally, the SGP prescribes a continuous, systematic evaluation of the project organization, scope, and maturity of project management deliverables that helps ensure projects are successfully executed. This occurs through a series of independent Gate Reviews/Assessments and Approvals.

Q32. WHY USE AN EPC CONTRACTOR IN THE FIRST INSTANCE?

A. A large construction project like BPS is a substantial undertaking, and the Company does not have the in-house capability necessary to execute the engineering, procurement, and construction for such a project. The use of an EPC contractor that can perform all of these functions under a single agreement is cost-effective and common for such projects within the power industry.

Q33. IS THERE A SINGLE COMMON FORM OF EPC AGREEMENT?

A. No. There are several types of EPC contracting approaches, and the suitability or desirability of each depends largely on the type of project. From an owner's perspective, fixed-price contracts are preferred because of the relative certainty they provide to a project's overall cost. When a project's scope is uncertain and likely to vary, however, EPC providers will either refuse to contract on a fixed-price basis or perhaps agree to do so in exchange for a significant risk premium added to the fixed-price. By contrast, when a project entails a well-defined scope of work and presents an acceptable risk of material changes in scope, EPC providers are more willing to contract on a fixed-price basis without charging a significant risk premium.

Q34. WHAT EPC CONTRACTING STRATEGY WILL BE UTILIZED?

A. As was the case with NOPS, the Company was able to substantially negotiate a fixed-price (with exceptions), fixed-schedule form of agreement with GIS that reflects a detailed scope of work. The contractor must complete construction within [redacted] of receiving FNTP or else pay daily liquidated damages as defined in the Agreement. The contractor also has the opportunity to earn incentives if the Project is completed before the required date.

Q35. WHY DID THE COMPANY ELECT TO USE A FIXED-PRICE FORM OF EPC AGREEMENT?

A. The EPC strategy used by the Company is expected to yield the lowest reasonable cost with an adequate level of risk mitigation when the project site can accommodate a standard design and there is a minimal amount of retrofit into an existing site. The Company, working with GIS, was able to develop a site plan that would accommodate a standard design and minimize the retrofit scope. BPS readily lends itself to the EPC Agreement structure selected by the parties.

Q36. HOW WAS THE BPS EPC CONTRACTOR SELECTED?

A. Grand Isle Shipyard, LLC is a Louisiana-based company that has been serving the energy, power, infrastructure, and industrial markets since 1948. GIS has transformed from a modest company in Grand Isle, Louisiana servicing the commercial fishing industry, to an industry leading global energy partner. As a member of the Edison Chouest Offshore ("ECO") family of companies, GIS has the capability to lead the performance of the scope with in-house resources, reducing ELL's overhead to manage multiple contractors. The ECO family of companies offers services ranging from engineering, procurement, fabrication, and construction through commissioning with extensive industrial, oil & gas, and marine experience with a proven delivery track record. ECO, collectively, has extensive marine experience with existing facilities and manpower, and has designed, constructed, and currently operates approximately 300 vessels worldwide, primarily in support of oil and gas operations. The ECO family of companies includes thousands of employees and over a dozen fabrication and shipyard facilities and has its global headquarters in Lafourche Parish, Louisiana.

For this project, GIS was chosen as the EPC contractor for the power barge, teaming with key partners in Wartsila for the power technology and Bollinger Shipyard, LLC (another member of ECO) for the barge design and fabrication. As EPC contractor, GIS will be responsible for engineering, procurement, and construction at their South Louisiana facilities, as well as management and oversight of subcontractors, including Wartsila and Bollinger, for all other activities through final commissioning.

Bollinger, which will design and construct the barge portion of the Project, has been serving the marine industry with new construction, repair, and maintenance services for over 75 years. Bollinger owns and manages multiple shipyards across the Gulf Coast and specializes in new construction, steel fabrication, vessel repair, and conversion of a wide variety of U.S. military and commercial vessels. In addition, Bollinger offers a full range of logistics, lifecycle support and training packages for commercial, industrial, and government customers.

The power technology will be provided by Wartsila based on ESL's and ENO's recent, positive experiences with Wartsila at the NOPS facility. As a global power technology provider serving the power plants, energy storage, and renewables integration sectors, Wartsila will be a key component to teaming with GIS and Bollinger to provide this solution for ELL.

GIS and Bollinger's proven history of performance in the marine engineering, fabrication and construction market will provide the level of expertise required to deliver a timely solution while maintaining emphasis on safety and quality. Furthermore, GIS's and Bollinger's corporate headquarters are based in lower Lafourche Parish, Louisiana, which is within 20 miles from the Project's final mooring location. This headquarters locale will allow GIS to engage with local companies that will have personnel that directly benefit from the power output objectives of this program. On a daily basis, GIS partners and works with these local vendors, subcontractors, as well as holds long standing relationships with local stakeholders, municipal and parish government, and the Greater Lafourche Port Commission (Port Fourchon), which highlights another synergy that aides in the execution of a project of this magnitude.

The power provided by this project has a direct correlation to the current and future growth demands in Port Fourchon and the surrounding area. GIS's Technical Services teams have been actively engaged, since inception, in supporting the Port with its expansion plans, infrastructure improvements and dredging needs. GIS and Bollinger, as members of the ECO family of companies, have indicated that they are confident that this positive, local influence, accompanied by their collective global experience, will ensure a successful outcome for the Project.

It should be noted that the decision to pursue negotiations with GIS was also supported by the project team's favorable assessment of GIS's financial strength, GIS's expertise in the management of maritime construction projects, and experience in the Louisiana construction market.

Q37. WHAT ACTIVITIES WILL GIS PERFORM AS EPC CONTRACTOR?

A. Under the fixed-price EPC Agreement structure, GIS will act as an independent contractor with respect to the engineering, procurement, and construction services defined in the scope of work. GIS also will procure the six Wartsila 18V50SG engines, six generators, two Generator Step Up ("GSU") transformers, supporting auxiliary equipment, and barge hull to support top side erection of the Wartsila equipment from the original equipment manufacturers ("OEMs"). Firm, fixed prices for this equipment are included in GIS's fixed price, subject to certain escalation at the rates specified in the EPC Agreement. GIS's procurement of this equipment will allow full coordination and scheduling of the OEMs in order to meet the fixed schedule provided in the Agreement. GIS will provide a "wrap" (*i.e.*, guarantee) of the commitments on schedule and performance for the entire Project, providing for risk mitigation if there are delays or performance shortfalls.

Q38. HAVE THE COMPANY AND GIS AGREED UPON THE TERMS OF AN EPC AGREEMENT?

A. The Company is in the final stages of negotiating the contract and expects the final EPC Agreement to be executed following certification of the Project. The general terms and conditions of the EPC Agreement have been agreed upon and are not expected to change. The key terms are summarized in HSPM Exhibit GCD-6.

Q39. WHY WAS AMPIRICAL SELECTED AS THE EPC CONTRACTOR FOR THE TRANSMISSION INTERCONNECTION?

A. The Project team and ESL Supply Chain reviewed current EPC partners, and Ampirical best aligns with the requirements of this Project based on the following attributes. The Project's substation brownfield attributes are well aligned with Ampirical's demonstrated strengths in executing complex greenfield and brownfield projects. Ampirical successfully completed several open-book negotiated projects in the last several years, including St. Charles Power Station transmission interconnection, NOPS transmission interconnection, and the Jefferson Parish Reliability Improvement Phase 1 Project. In addition, Ampirical has completed several other open-book and competitively-bid projects for Entergy's Transmission organization, and it is currently planning or executing several additional projects.

Q40. HAVE THE COMPANY AND AMPIRICAL AGREED UPON THE TERMS OF AN EPC AGREEMENT?

A. No, although a standard EPC contract is expected to be executed after certification, and it is expected that the terms will be similar to prior Ampirical EPC contracts.

VI. CONSTRUCTION RISK MANAGEMENT AND MITIGATION

Q41. IS IT IMPORTANT TO HAVE PLANS IN PLACE TO MANAGE AND MITIGATE THE POTENTIAL RISKS ASSOCIATED WITH THE PROJECT?

A. Yes. BPS represents a substantial capital investment, and it needs to be well-managed. Good management includes proper consideration of the risks that can be reasonably foreseen and the development of a plan to reasonably manage and mitigate those risks. Good project management should not seek to eliminate all potential risks irrespective of costs to do so but instead should reasonably manage those risks considering the probability of occurrence, potential magnitude of impact, and cost to mitigate.

Q42. HOW ARE THE RISKS AFFECTING THE PROJECT'S SCHEDULE AND PROJECTED COSTS MITIGATED?

A. The fixed-price structure and well-defined scope of the GIS EPC Agreement are the principal mitigation tools to minimize the effects risks may have on Project costs. The Company developed mitigation plans and included contingency in the Project cost estimate that is thought to be reasonably sufficient to mitigate those risks identified. Delays in receiving regulatory approvals or the required permits beyond the dates assumed in the Project schedule will increase total costs and result in a delayed in-service date. The Project schedule has been developed by optimizing the sequence of activities to produce the shortest practical schedule at the lowest reasonable cost. The schedule has a built-in contingency for critical path activities that will help mitigate short delays.

Q43. IS THE CONTINGENCY REFLECTED IN THE PROJECT COST ESTIMATE ADEQUATE TO COVER ALL POSSIBLE RISKS THAT COULD INCREASE COST?

A. No, but that is not the purpose of contingency funds in project management. Contingency is used to reasonably mitigate unplanned increases in project cost, whether caused by known risks or unforeseen risks. It recognizes that large construction projects that span several years can be adversely affected by events beyond the utility's control. ESL used a Monte Carlo simulation to determine the level of contingency that would provide a reasonable level of mitigation of known and unknown risks, but it is possible that some of these risks, if realized, could cause cost increases beyond the contingency included in the cost estimate. As was the case with Ninemile 6, St. Charles Power Station, and Lake Charles Power Station, the Company does not retain any unused project contingency.

Q44. PLEASE DISCUSS SOME OF THE KEY RISKS UNDER THE EPC AGREEMENT.

A. While the EPC Agreement with GIS is not yet executed, the agreed-upon general terms and conditions reflected in HSPM Exhibit GCD-6 provide for a fixed price and fixed schedule. Any fixed-price contract presents a risk of price increases through change orders and extra work claims. This risk has been mitigated to the extent possible by broadly defining the scope of work assigned to GIS as including everything necessary to complete the Project that meets the specification and performance requirements, except for items expressly stated in the scope document to be the Company's responsibility. The agreed-upon terms for the EPC Agreement also contain favorable change order provisions that will enable the Company to direct GIS to proceed with a change over which there is a good faith dispute between the parties, with the dispute over price impact to be resolved in arrears. This will protect the Company and its customers from the possibility that the EPC contractor would threaten to delay work until change order disputes are resolved to its satisfaction. Further, GIS must notify the Company before making any changes required by force majeure events or changes in laws, and must document such changes and the resulting impacts before being entitled to any schedule relief, increase in the fixed-price, or additional reimbursement.

Finally, wage rate escalation on craft labor and per diem is expected to be a risk as a result of the anticipated labor shortage in the Gulf Coast region due to ongoing and proposed industrial capital investments over the next decade. To address this risk, the GIS EPC Agreement contains a craft labor wage and per diem true-up mechanism that will adjust the price one time based upon actual wage rates and per diem rates.

Q45. PLEASE ELABORATE ON THE CRAFT LABOR PROVISIONS CONTAINED IN THE GIS EPC AGREEMENT.

A. Under the terms of the pending Agreement, GIS agreed to assume productivity risk associated with craft labor (*i.e.*, man-hour estimates). GIS also agreed to assume subcontractor craft labor wage escalation risk as well as engineering and project management labor. The EPC Agreement pricing will reflect an annual [redacted] escalation assumption for direct and indirect craft labor rates and an annual [redacted] escalation assumption for direct and indirect craft labor per diem as placeholders in the EPC fixed-price cost.[4] These EPC Agreement placeholders are approximately $[redacted] for craft wage rates and $[redacted] for craft per diem and are based on 2023 wage and per diem rates.

The placeholders will be allowed a one-time true-up before FNTP. For the one time true-up, the actual GIS craft wages and per diem escalation for the project period in review would be compared to the amount of wage rate and per diem escalation included in the EPC fixed price for the same period. The Company will pay the actual direct and indirect craft labor and per diem rates at FNTP once the one time true-up exercise is complete. GIS and the Company will review all wage and per diem adjustments before any final adjustments are approved.

Moreover, an additional disincentive for GIS to arbitrarily increase wages and/or per diem rates on the Project is the market forces' effect on GIS's other projects in the Gulf Coast region. In other words, should the wage and per diem rates for BPS become misaligned with the market, GIS's other projects would be negatively affected, as higher wages would attract craft labor from other GIS projects, increasing GIS's costs of doing business. Thus, GIS is incented to follow the market as opposed to setting it. In addition, under the EPC Agreement, GIS will provide wage and per diem

[4] Direct craft labor refers to craft laborers who are directly involved in the construction of the permanent plant. (*i.e.*, pipefitters, welders). On the other hand, indirect craft labor refers to craft laborers who are indirectly involved in the construction of the permanent plant. (*i.e.*, scaffolding, support personnel).

market information that it periodically obtains from area labor surveys and exit interviews to support wage and per diem adjustment justification. Details of GIS's actual wage and per diem payments for craft labor will be available for the Company to audit. Certain historical and projected data related to wage and per diem rates will be included in GIS's monthly project report.

Q46. WILL THE EPC AGREEMENT HAVE PROVISIONS THAT MITIGATE RISK RELATING TO GIS'S PERFORMANCE?

A. Yes. As I discussed earlier, the fixed-price, fixed-duration form of the contract, coupled with liquidated damages for late delivery, heat rate, and output, provide a measure of protection for customers. Additionally, the agreed-upon terms of the EPC Agreement require that GIS deliver a finished product that meets minimum requirements for performance and warranty its work for 12 months following substantial completion. GIS is also required to indemnify the owner against claims for bodily injury and third-party property damage.

The agreed-upon terms of the EPC Agreement establish a milestone payment structure whereby the contractor will only be paid for the work that has been completed, as verified by the Company. The milestone payments are subject to a cumulative cap with monthly values stated in the Agreement that protects the Company's cash flow. Additionally, payment retention is authorized for: (a) the greater of agreed upon punch list value or $[redacted] plus (b) potential performance liquidated damages that may be payable; plus (c) any schedule liquidated damages. These and other contractual protections, as well as applicable limits of liability, are included in the Summary of GIS EPC Contract Terms, attached as HSPM Exhibit GCD-6.

Q47. WHAT TYPE OF INSURANCE IS INCLUDED IN THE COMPANY'S COSTS ESTIMATE FOR THE PROJECT?

A. As with the NOPS project, the Company expects insurance coverage will include Builders All Risk ("BAR") and Delay in Startup ("DSU") policies.

Q48. WHAT DOES BAR INSURANCE COVER?

A. BAR is for the benefit of the Company, the contractor, and subcontractors of every tier. It covers property damage to the Project work from non-excluded perils while it is under construction, from the moment of inland shipment from an OEM and/or supplier until the policy lapses. The limit of liability on the BAR policy is expected to be roughly equal to the EPC Agreement value, subject to various deductibles depending on the insured peril.

Q49. WHAT DOES DSU INSURANCE COVER?

A. DSU insurance covers certain schedule-delay costs resulting from property damage to project work caused by a non-excluded peril under the BAR insurance. After the deductible period is met, DSU insurance provides coverage for certain costs until project completion is achieved, including AFUDC, owner's costs, and contractor increased site costs. The indemnities under the DSU policy are subject to a monthly maximum as well as an aggregate limit. Although DSU coverage for BPS has not yet been procured, a maximum monthly indemnity of approximately $3.3 million and an 18-month maximum indemnity of approximately $60 million is expected.

VII. REQUIRED PERMITS

Q50. PLEASE DESCRIBE THE VARIOUS REGULATORY OVERSIGHT REQUIREMENTS THAT WILL APPLY TO THE PROJECT.

A. BPS will be subject to permitting and regulatory oversight by the Commission, the Port Fourchon Parish Police Jury, the Louisiana Department of Environmental Quality ("LDEQ"), Louisiana Department of Natural Resources ("LDNR"), the United States Environmental Protection Agency ("EPA"), Office of Coastal Management ("OCP"), and the United States Army Corps of Engineers ("USACE"). The LDEQ is primarily responsible for implementing the various federal and state environmental laws applicable to the Project, such as the Clean Air Act ("CAA"), the Clean Water Act ("CWA"), the Resource Conservation and Recovery Act, and the Louisiana Environmental Quality Act. The EPA is responsible for oversight to ensure that the LDEQ properly implements federal law through federally enforceable state implementation plans, regulations, and permits. The LDNR and USACE are responsible for approving construction standards in navigable waterways relating to navigation safety, fill, dredge, and preservation of jurisdictional wetlands and issuance of the coastal use permit. All of the environmental issues associated with the construction and operation of the BPS would be subject to regulatory requirements imposed and administered by the LDEQ, EPA, USACE, and LDNR in consultation with other state and federal agencies, as required.

A. Air Quality Permits

Q51. WHAT ARE THE PERMITTING REQUIREMENTS ASSOCIATED WITH AIR EMISSIONS FROM THE PROJECT?

A. Because BPS will be a "major stationary source," as defined under the CAA, it will be subject to multiple regulations. In particular, the Project will be subject to:

- National Ambient Air Quality Standards ("NAAQS") and Title V Operating Permit ("Title V") rules;
- applicable federal New Source Performance Standards ("NSPS") associated with stationary compression ignition or reciprocating internal combustion engines;
- compliance with federal requirements associated with hazardous air pollutants; and
- other regulatory requirements associated with air emissions, including continuous monitoring, emissions market allowance obligations, and greenhouse gas emission regulations.

The Company will obtain a Title V (Part 70) New Source Review Air Operating Permit for BPS encompassing each of the requirements listed above, issued by the LDEQ.

Q52. WILL BPS BE DESIGNED TO MEET THE BEST AVAILABLE CONTROL TECHNOLOGY REQUIREMENTS?

A. Yes. BPS will employ emission reduction controls to meet Best Available Control Technology ("BACT") standards. The Project will include Selective Catalytic Reduction ("SCR") to reduce NO_x emissions and an Oxidation Catalyst for the control of carbon monoxide ("CO") emissions.

In summary, the Company has evaluated control technology performance and costs and selected a variety of controls that will meet BACT standards for all affected pollutants. The controls identified are considered BACT for engines and will be included in the Title V NSR Operating Permit application that will be submitted to the LDEQ for the BPS.

B. Water Quality

Q53. WHAT WATER QUALITY REGULATIONS WILL APPLY TO THE PROJECT?

A. Like the CAA, the LDEQ has been delegated enforcement and permitting authority under the CWA. All industrial facilities that discharge wastewater and some that discharge storm water into waters of the State of Louisiana must obtain a discharge permit under the Louisiana Pollutant Discharge Elimination System ("LPDES"). The LPDES permit is the state counterpart to the CWA's National Pollutant Discharge Elimination System ("NPDES") permit. These permits require treatment or management of wastewater and/or storm water prior to discharge to maintain designated water quality criteria. If the BPS has operational wastewaters to be discharged to surface water of the State, an LPDES permit application incorporating wastewater discharges from the BPS will be filed with LDEQ. Stormwater requirements for the BPS facility operation consist of submitting a Notice of Intent ("NOI") to the LDEQ for coverage under the Multi-Sector General Permit for Storm Water Discharges, and preparing a Storm Water Pollution Prevention Plan for the BPS.

Q54. WHAT OTHER WATER QUALITY REQUIREMENTS MAY BE APPLICABLE TO BPS?

A. A construction storm water discharge permit from the LDEQ to authorize storm water discharges from the construction area during construction of the BPS will also need to be obtained.

Q55. ARE THERE POTENTIAL ENVIRONMENTAL EFFECTS RELATED TO WATER QUALITY ASSOCIATED WITH BPS?

A. Yes. Typical water quality effects for power projects include the use of freshwater resources for process use and the discharge of treated wastewater, heated cooling water, and storm water to receiving streams.

Q56. HOW DOES THE COMPANY PROPOSE TO ADDRESS THESE POTENTIAL WATER QUALITY EFFECTS?

A. The LPDES permitting process is predicated on the requirement that discharges from a permitted facility are protective of the State's water quality standards. A LPDES permit cannot be issued if it would allow a facility to cause or contribute to violations of water quality standards. The issuance of this permit, and ELL's compliance with conditions contained therein, will minimize any water quality impacts. The BPS facility is being designed to operate in accordance with all water discharge regulatory requirements.

C. Other Issues

Q57. WHAT OTHER ENVIRONMENTAL ISSUES WITH RESPECT TO BPS HAVE BEEN ANALYZED?

A. The Company has analyzed information regarding the Project's potential effect upon archaeological and historical resources and threatened and endangered species. In addition, the unique nature of the project being located over water means the potential involvement with the United States Coast Guard, which is a less common requirement for Entergy Operating Company facilities. The requirements associated with maintaining a dock operations manual and sanitary treatment unit authorizations are included in the potential authorizations for the Project. No additional significant issues have been identified at this time. The Phase 1 Cultural Resource Survey was completed in December 2020 and concluded that no impacts to historic properties listed or eligible for listing in the NRHP were anticipated in association with the BPS.

Q58. WHAT USACE PERMITTING MAY BE APPLICABLE TO THE PROJECT?

A. The Project will impact jurisdictional wetlands and is located within the Louisiana Costal Zone. The Company has drafted the authorization request from the USACE under CWA Section 404, Section 10 of the Rivers and Harbors Act ("RHA"). Additionally, the draft application for a Coastal Use Permit ("CUP") from the LDNR Office of Coastal Management is prepared as required for activities located within the Louisiana Coastal Zone. The Company also drafted the request for a jurisdictional determination from USACE, which will identify those wetland areas and waters of the United States that the USACE will take jurisdiction over and must undergo permitting action if impacted by Project construction. The Company has identified the following permits as necessary for the construction of the proposed Project and associated elements:

- USACE Section 404 Permit
- USACE Section 10 Permit
- LDEQ Water Quality Certification ("WQC")
- Office of Coastal Management ("OCM") Coastal Use Permit

A Section 404 permit is required to place fill material into wetlands or "waters of the United States." When impacts to wetlands cannot be avoided, compensatory mitigation will be required. Mitigation is a part of the Section 404 permit process and must be purchased before the USACE issues a Section 404 permit. The purchase of mitigation credits from an approved mitigation bank is the USACE's preferred method. An allowance for this risk has been included in the Project's estimate and contingency. A WQC, or waiver or exemption of the same, is required to demonstrate that the placement of fill material and the construction and operation of the facility will not violate the water quality standards of Louisiana.

The Section 10 permit is for the dredging work affecting navigable waters of the U.S. The LDNR, USACE, and OCP have a joint permitting program where a single application is prepared for both state and federal permits. The draft Joint Permit Application ("JPA") has been prepared for the project.

Q59. WILL BPS UNREASONABLY IMPAIR VISIBILITY OR VEGETATION?

A. No. In addition to the NAAQS analysis described earlier, two other air quality modeling impact analyses are being conducted and are anticipated to show negligible impact on other air quality related values. The EPA and the LDEQ require both an Additional Impact Analysis and a Class I Area Analysis be conducted in certain circumstances.

The Additional Impact Analysis is conducted to determine the impairment to visibility and the effects on soils and vegetation. Impacts due to commercial, residential, industrial, and other growth in the vicinity of the Project also must be addressed to the extent they are a result of the proposed action. It is anticipated that the results of this analysis demonstrate that BPS will not have a negative effect on the surrounding area.

Q60. DOES THE SITING OF BPS COMPORT WITH APPLICABLE ZONING LAWS?

A. BPS is within a portion of Lafourche Parish that is zoned Industrial along with surrounding commercial and industrial land. The City of Leeville and the State of Louisiana do not have numeric noise limits, but Lafourche Parish Code of Ordinances Section 26-104 restricts maximum sound level by receiving land use category to 50 dBA for industrial, commercial, and residential.

The BPS location at the marina is surrounded by industrial barges, tugboats, a gas compressor station 800 feet northeast of the project, and Old Highway 1 to the east. Site monitoring found ambient sound levels to be frequently above the 50 dBA level. Predicted noise from the Project is expected to be above the current ordinance levels. In response, the Project sound study was provided to Lafourche Parish for review, and ELL received a letter of no concern from Lafourche Parish President regarding the noise ordinance or BPS's impact on community noise levels. The project engineer GIS is also pursuing a zoning variance for the site to facilitate the anticipated noise levels from the Project.

Q61. WHAT IS THE STATUS OF THE PERMITS FOR THE PROJECT?

A. The pre-application meeting for the air permit for the BPS was held with LDEQ in 2020. A new pre-application meeting will be held with LDEQ to refresh any requirements that may have changed since the prior meeting. As discussed above, BPS will apply for a LPDES permit, which will be submitted to the LDEQ in late 2024 or early 2025. The Company has evaluated the project area for its effect on jurisdictional wetlands and waters of the U.S. and is in the process of updating the draft Joint Permit Application to be submitted to the USACE, LDNR, and OCM with an anticipated submittal date in Summer 2024.

VIII. ESTIMATED NON-FUEL O&M COSTS

Q62. HAS THE COMPANY PREPARED AN ESTIMATE OF OPERATIONS AND MAINTENANCE COSTS THAT WILL BE INCURRED IN OPERATING THE BAYOUR POWER STATION?

A. Yes. ESL has prepared an estimate based on a number of other assumptions related to operating systems and conditions at the unit beginning in 2028. This estimate was provided to Mr. Jones for use in estimating the first-year revenue requirement associated with the BPS, based on the current best understanding of what equipment will be installed at the site. The estimate also makes assumptions on a general inflation rate, a payroll escalation rate, and a materials and supplies escalation rate across the estimate time frame for the purposes of presenting the estimate starting in 2028 dollars. In estimating the O&M expense, the average general inflation rate is assumed to be 2.5% per year, with payroll increasing by 2.5% per year. All cost estimates are based on 2024 estimates, escalated to 2028 by the appropriate escalation rate and escalated each year thereafter by the appropriate escalation rate.

Q63. HOW WAS THE ESTIMATE DEVELOPED?

A. The estimate was developed based on experience gained in the operation of the other RICE facility that has been developed by one of the Entergy Operating Companies, ENO's NOPS facility, and on information gleaned from general industry sources. This estimation process compiles O&M performance and cost into a spreadsheet model for the processes, systems, and components that will be employed within a plant, and uses that data to estimate routine annual and major periodic inspection O&M expenses.

Q64. WHAT IS THE CURRENT ESTIMATE OF O&M EXPENSES?

A. The estimated O&M expenses for BPS in its first year of operation are summarized in Table 4 below. The O&M numbers in Table 4 are for the O&M associated with BPS only, excluding any current O&M costs that are otherwise reflected in the Company's rates. My estimate reflects costs in 2028 dollars. The O&M estimate is supported by the workpapers attached as HSPM Exhibit GCD-7 and Exhibit RDJ-3 to the Direct Testimony of Mr. Jones.

Table 4: Estimated Bayou Power Station
First Year O&M Expenses (Thousands)

O&M Expenses		
Payroll		$ 3,013
Outage O&M Expense		$ 982
Baseline O&M Expense		$ 1,174
	Total O&M Expense	$ 5,169
Insurance		$ 616
TOTAL O&M		**$ 5,785**

Q65. HOW WAS THE PAYROLL COST ESTIMATE PREPARED?

A. A preliminary incremental plant staffing organizational chart was developed, based on ENO's experience with NOPS, that takes into account the expected staffing of BPS when it reaches commercial operation. That preliminary organizational chart is attached as HSPM GCD-8. Labor rates were then applied to the different job families and incremental headcount included in that organizational chart. Those costs were then totaled to arrive at the annual plant staff labor figure shown in Table 4 above.

Q66. WHAT ARE THE OUTAGE O&M EXPENSES INCLUDED IN TABLE 4?

A. The O&M outage expenses listed in Table 4 include routine annual maintenance expenses incurred as part of annual planned maintenance outages as well as periodic major maintenance on the engines and associated generators.

Q67. WHAT TYPES OF COSTS ARE INCLUDED IN O&M BASELINE EXPENSE?

A. BPS will be a set of large, complex mechanical systems that will require routine maintenance to ensure continued reliable, safe, and economic operations. This maintenance will require materials, chemicals, labor, and rental equipment, and will address the O&M costs for activities for the following equipment and systems: gas engines and generators, the plant's electrical instruments and controls, the circulating water and water production systems, environmental systems, and substation and transmission facilities. Detailed estimates of these costs, which include both fixed and variable components, are shown in the workpapers attached as HSPM Exhibit GCD-7.

Q68. HOW DOES THE COMPANY INTEND TO MANAGE LONG-TERM MAJOR MAINTENANCE ASSOCIATED WITH THE PROJECT?

A. The Company will manage major maintenance as part of the operation and maintenance program described above.

Q69. DID THE COMPANY EVALUATE A LONG-TERM SERVICE AGREEMENT FOR LONG-TERM MAJOR MAINTENANCE?

A. The other RICE plant owned and operated on behalf of an Entergy Operating Company, NOPS, is managed without a Long Term Service Agreement ("LTSA"), and that is currently the expectation for BPS. ESL, on behalf of ENO and ELL, respectively, has engaged in discussions with Wartsila around developing an LTSA, potentially for both NOPS and BPS. Should those discussions eventually result in an LTSA, Mr. Jones describes how those costs would be treated from a ratemaking perspective consistent with past LPSC practice.

Q70. DOES THIS CONCLUDE YOUR DIRECT TESTIMONY AT THIS TIME?

A. Yes.

AFFIDAVIT

STATE OF TEXAS

COUNTY OF MONTGOMERY

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

That the above and foregoing is his sworn testimony in this proceeding and that he 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, he verily believes them to be true.

Gary C. Dickens

SWORN TO AND SUBSCRIBED BEFORE ME
THIS 22nd DAY OF FEBRUARY, 2024

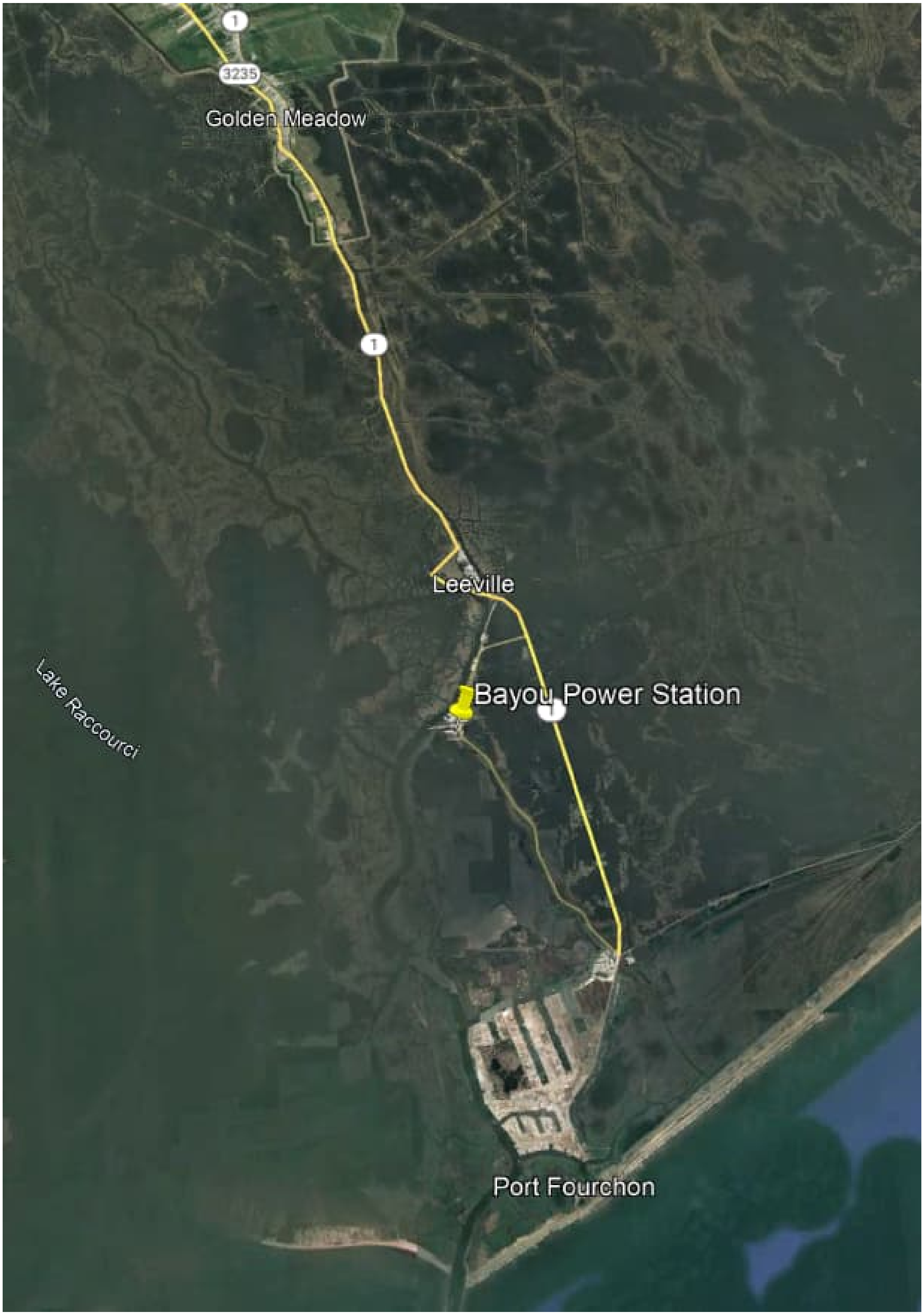
Carol Tompkins
NOTARY PUBLIC

My commission expires: February 01, 2025

CAROL TOMPKINS
My Notary ID # 130989368
Expires February 1, 2025
NOTARY PUBLIC
STATE OF TEXAS

Listing of Previous Testimony Filed by Gary C. Dickens

DATE	TYPE	JURISDICTION	DOCKET NO.
01/15/2016	Rebuttal	LPSC	U-33633
06/25/2020	Direct	LPSC	U-35584
12/08/2020	Direct	LPSC	U-36222
07/01/2022	Direct	PUCT	53719
11/16/2022	Rebuttal	PUCT	53719


1
3235
Golden Meadow
1
Leeville
Lake Raccourci
Bayou Power Station
1
Port Fourchon


GAS METERING STATION
EXISTING PIPELINE
SUBSTATION EXPANSION AREA
1.5 MMBTU/HR GAS DEWPOINT HEATER (33')
GAS YARD
SUBSTATION EXPANSION AREA
GAS REGULATING STATION
150 HP DIESEL FIRE PUMP (55')
POWER FFF INTERCONNECT 115kV LINE
EMERGENCY GENERATOR (55')
FLOATING POWER FACILITY
EXISTING PIPELINE

BEFORE THE

LOUISIANA PUBLIC SERVICE COMMISSION

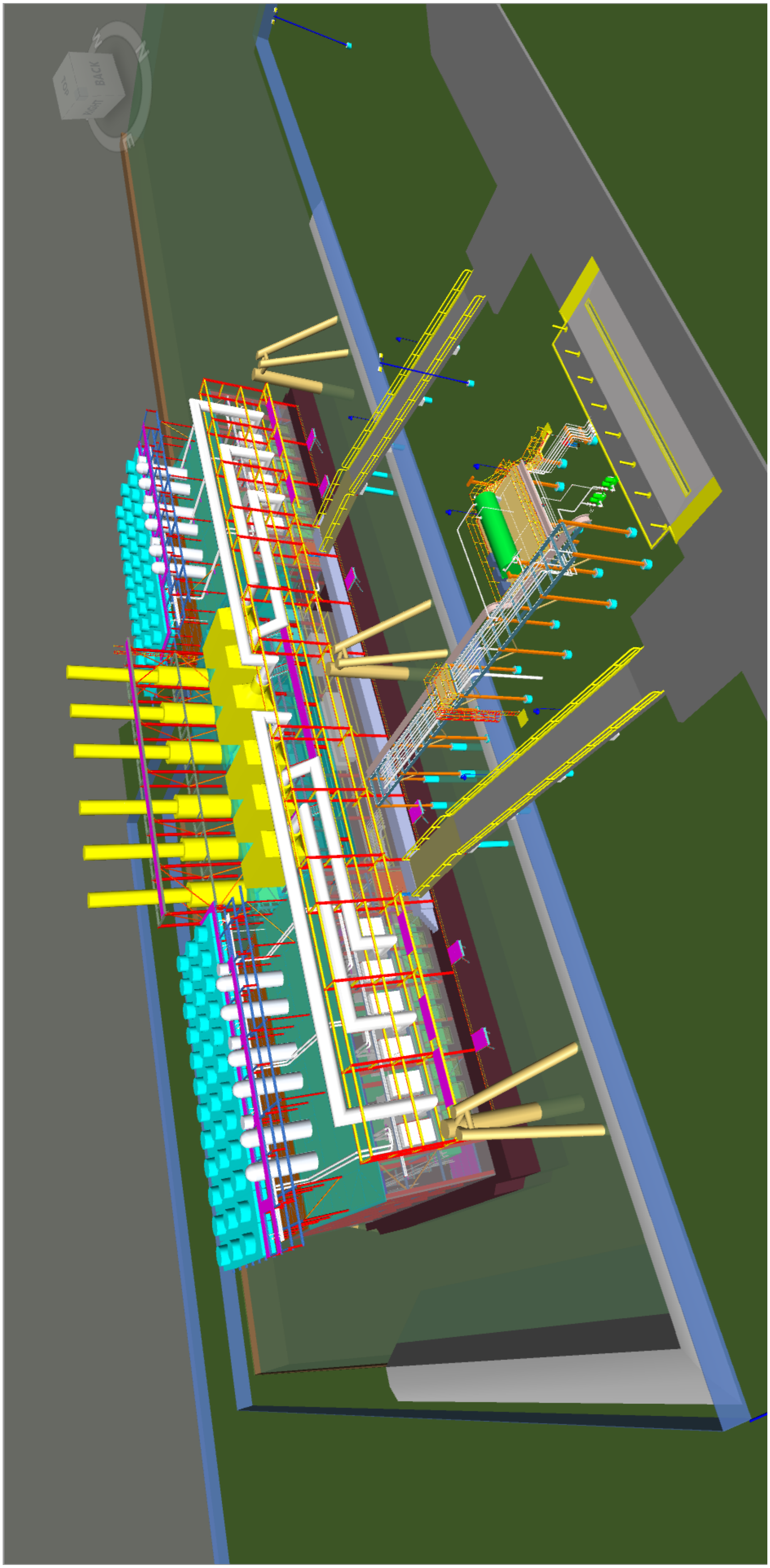
***IN RE*: APPLICATION OF ENTERGY LOUISIANA, LLC FOR APPROVAL TO CONSTRUCT BAYOU POWER STATION, AND FOR COST RECOVERY**	**))))**	**DOCKET NO. U-_____**

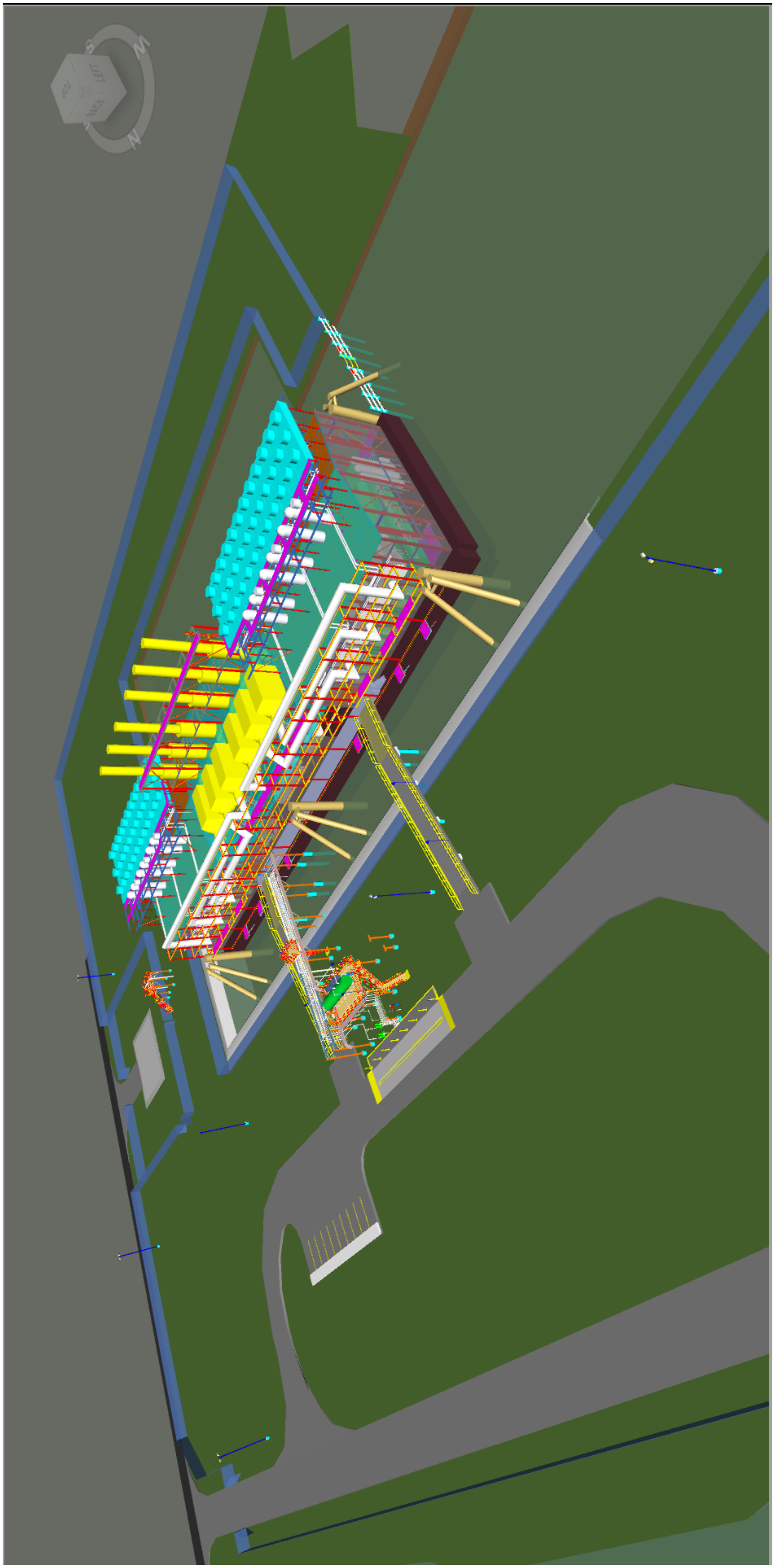
EXHIBIT GCD-4

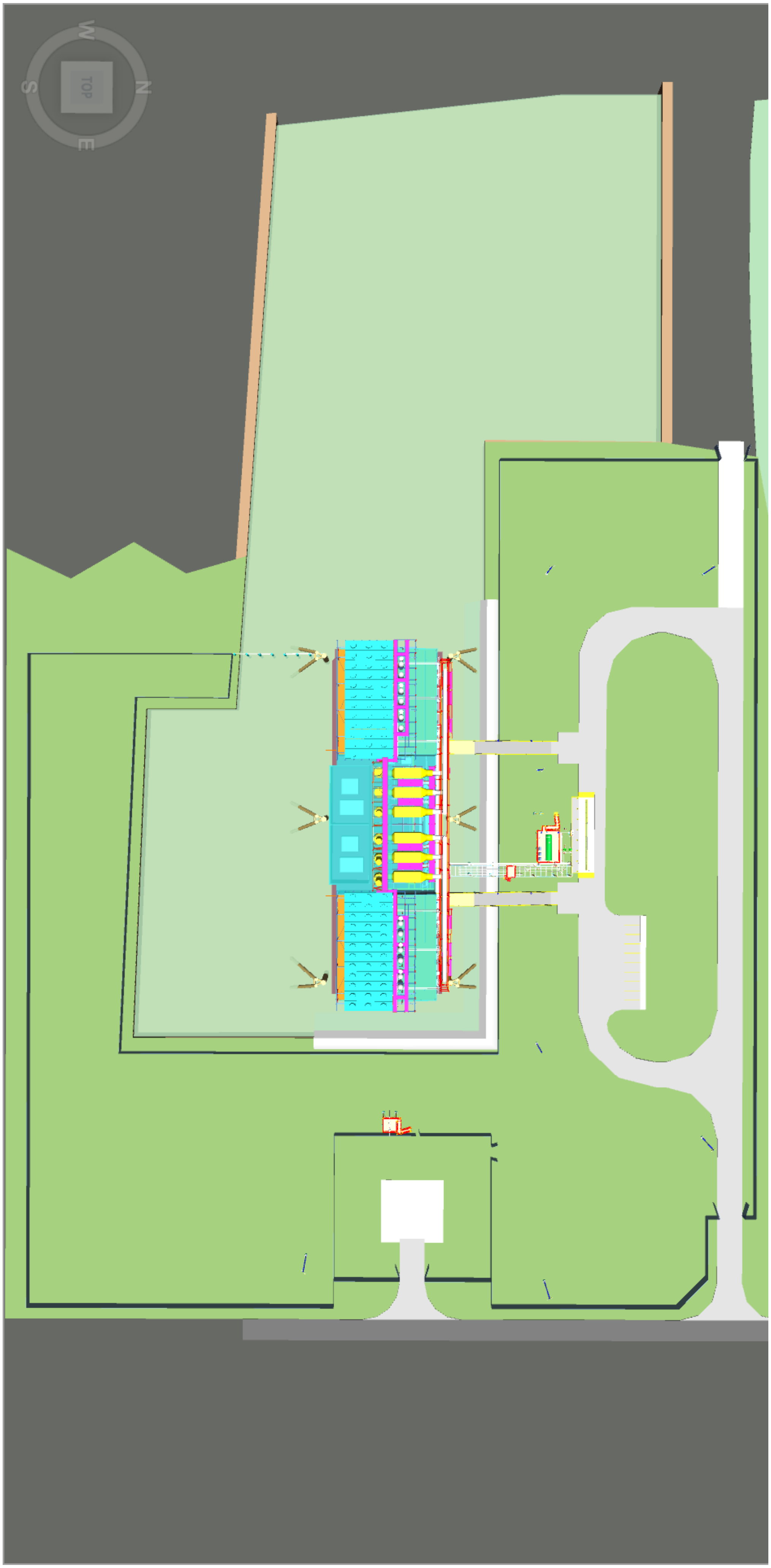
HIGHLY SENSITIVE
PROTECTED MATERIAL

INTENTIONALLY OMITTED

MARCH 2024



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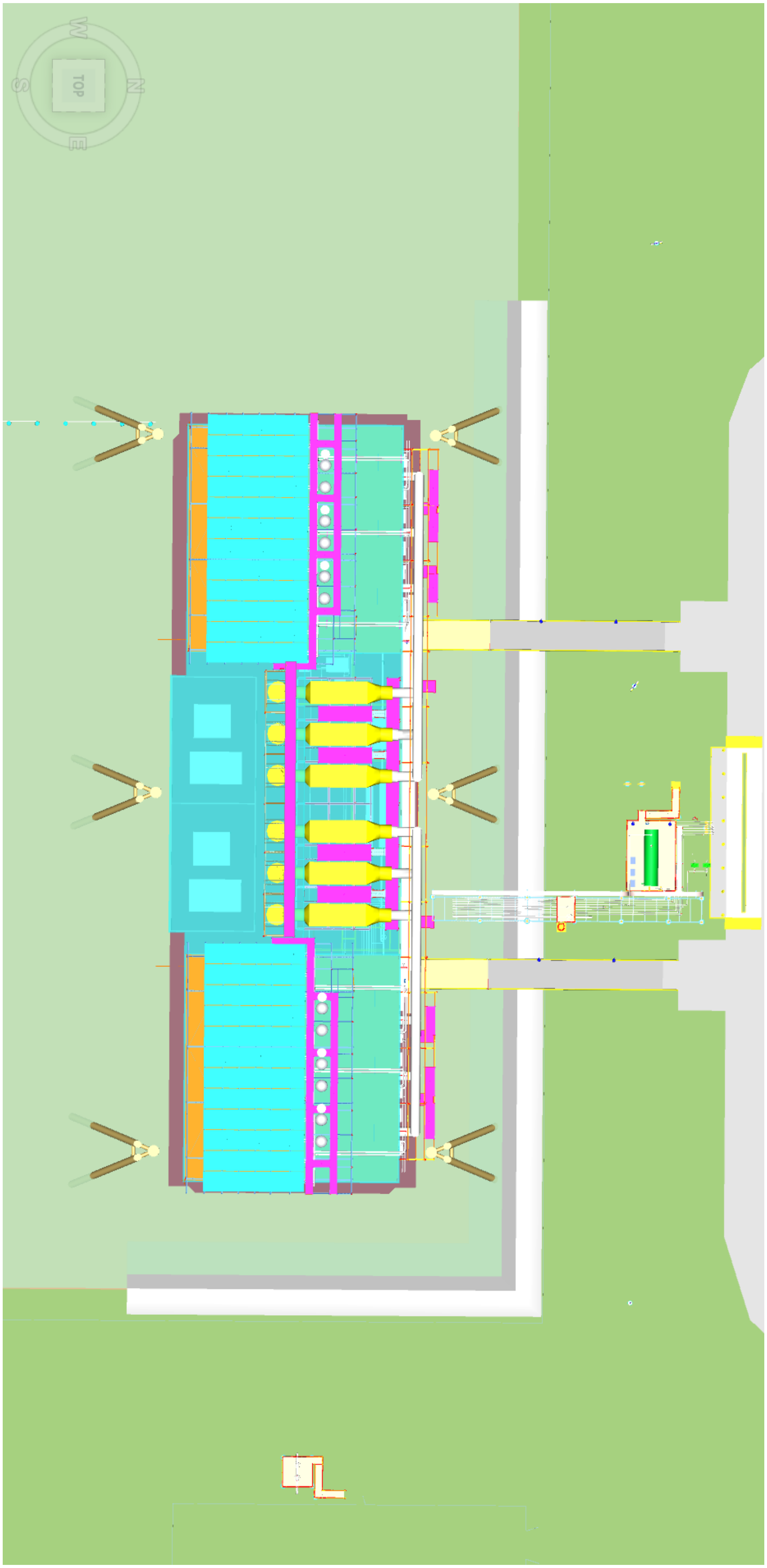
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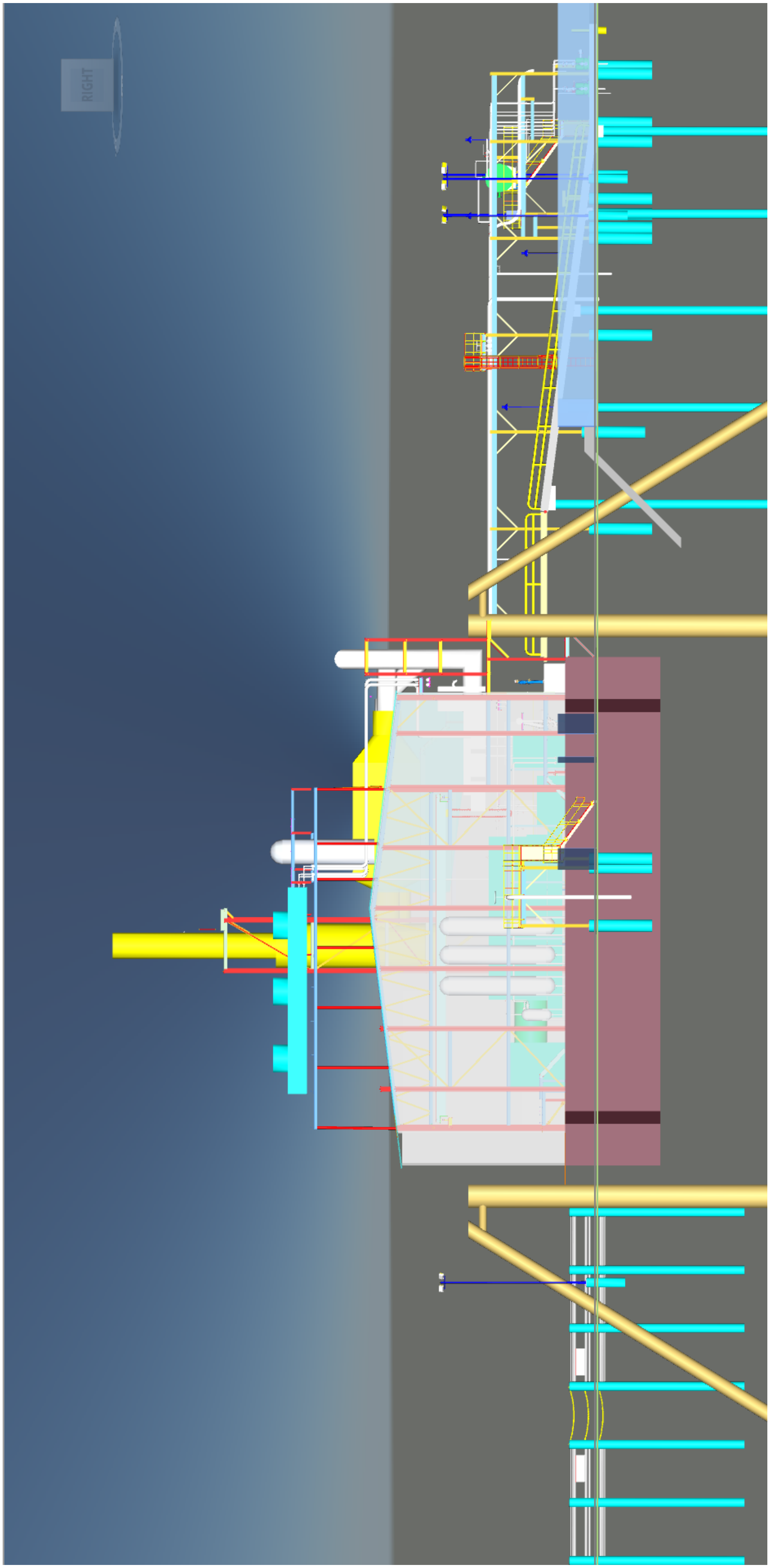
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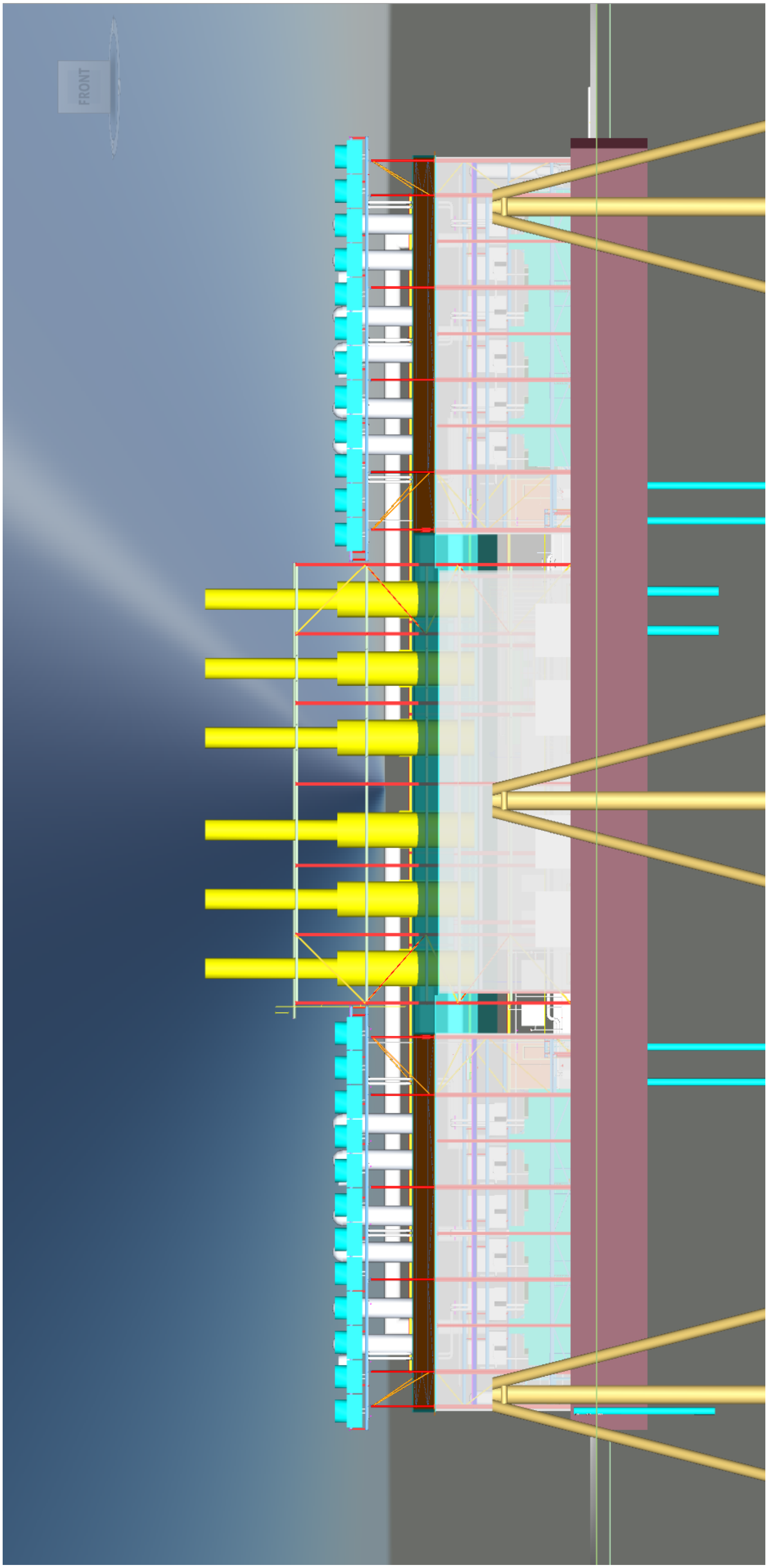
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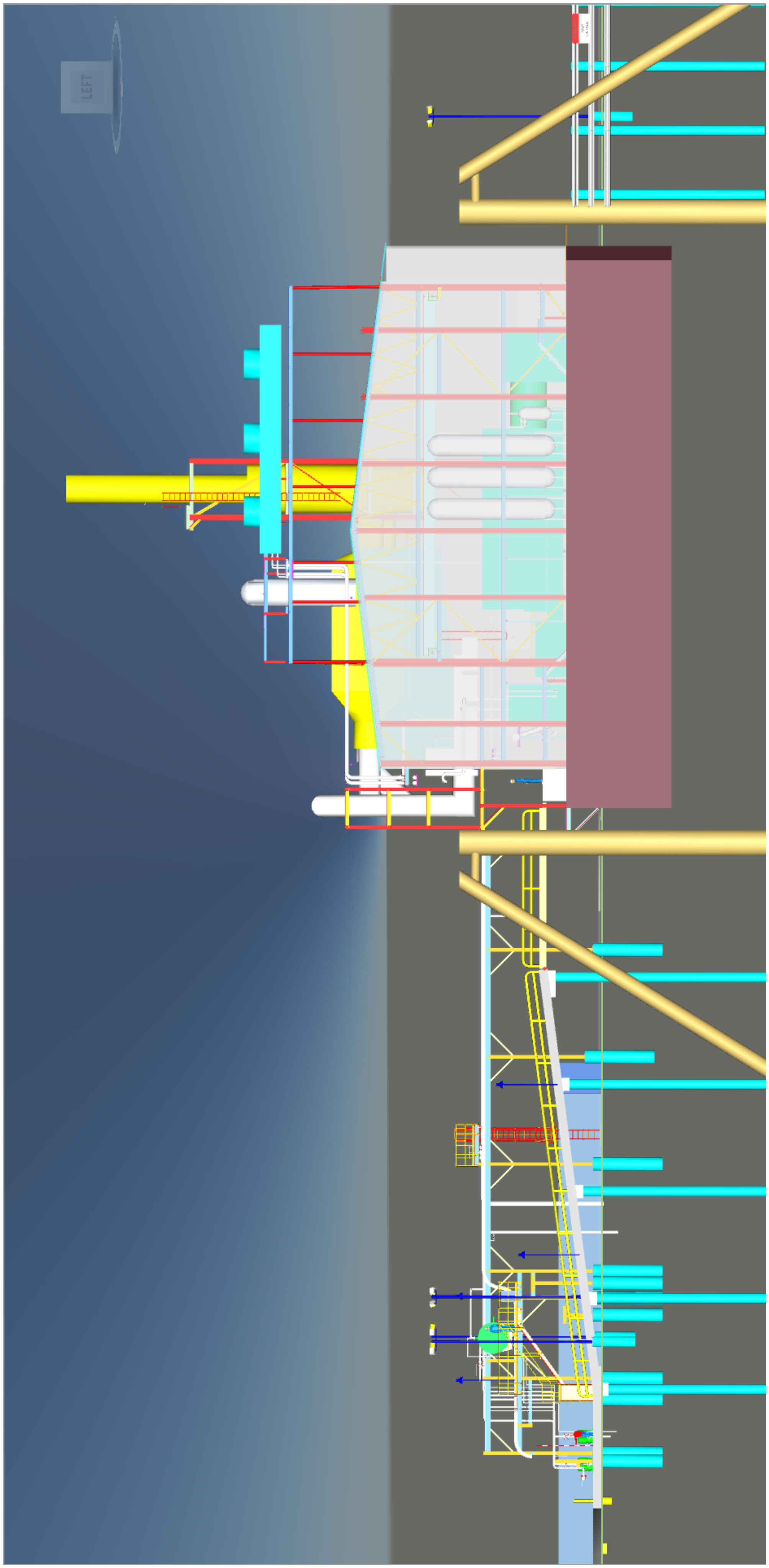

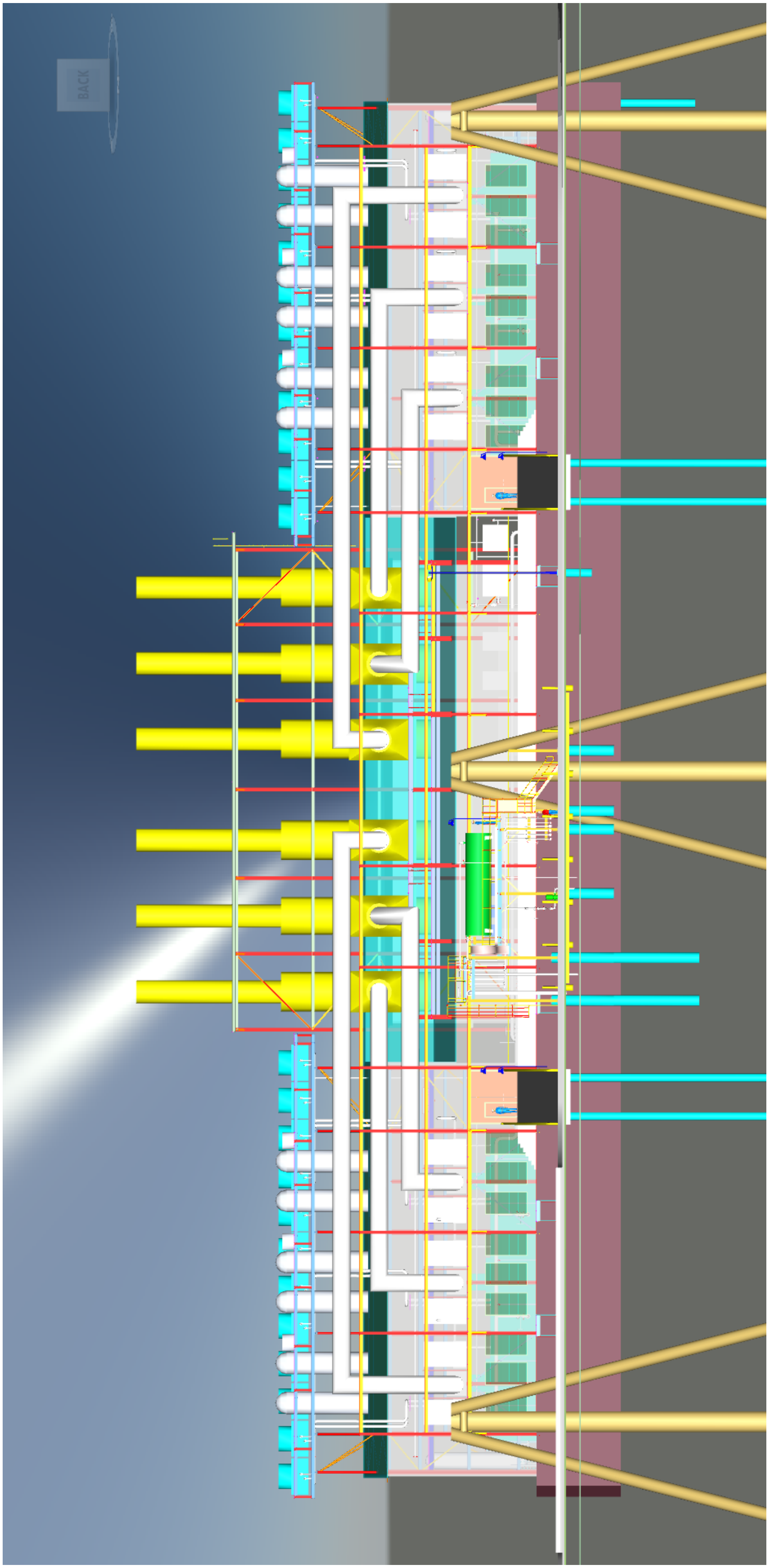

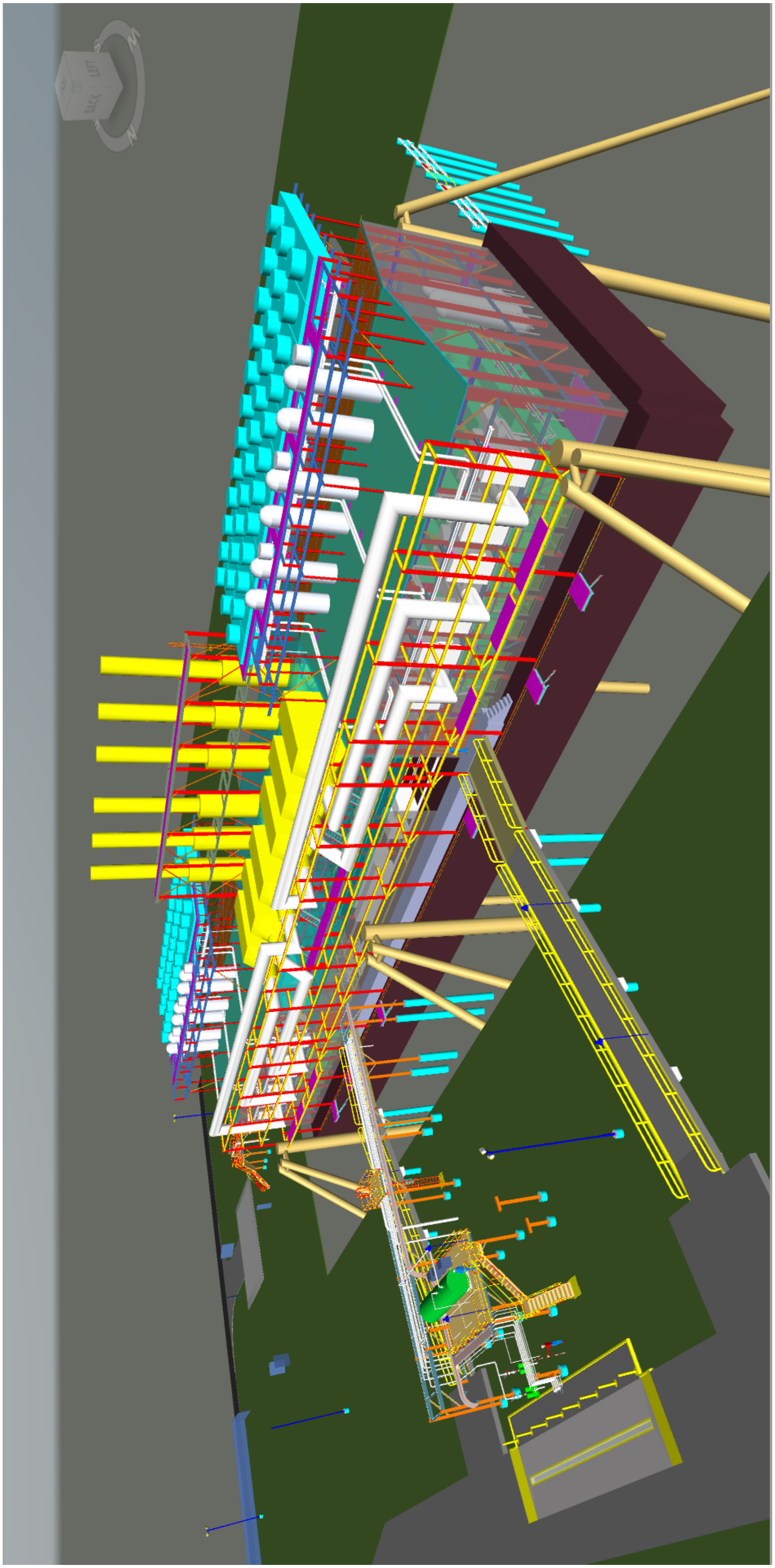

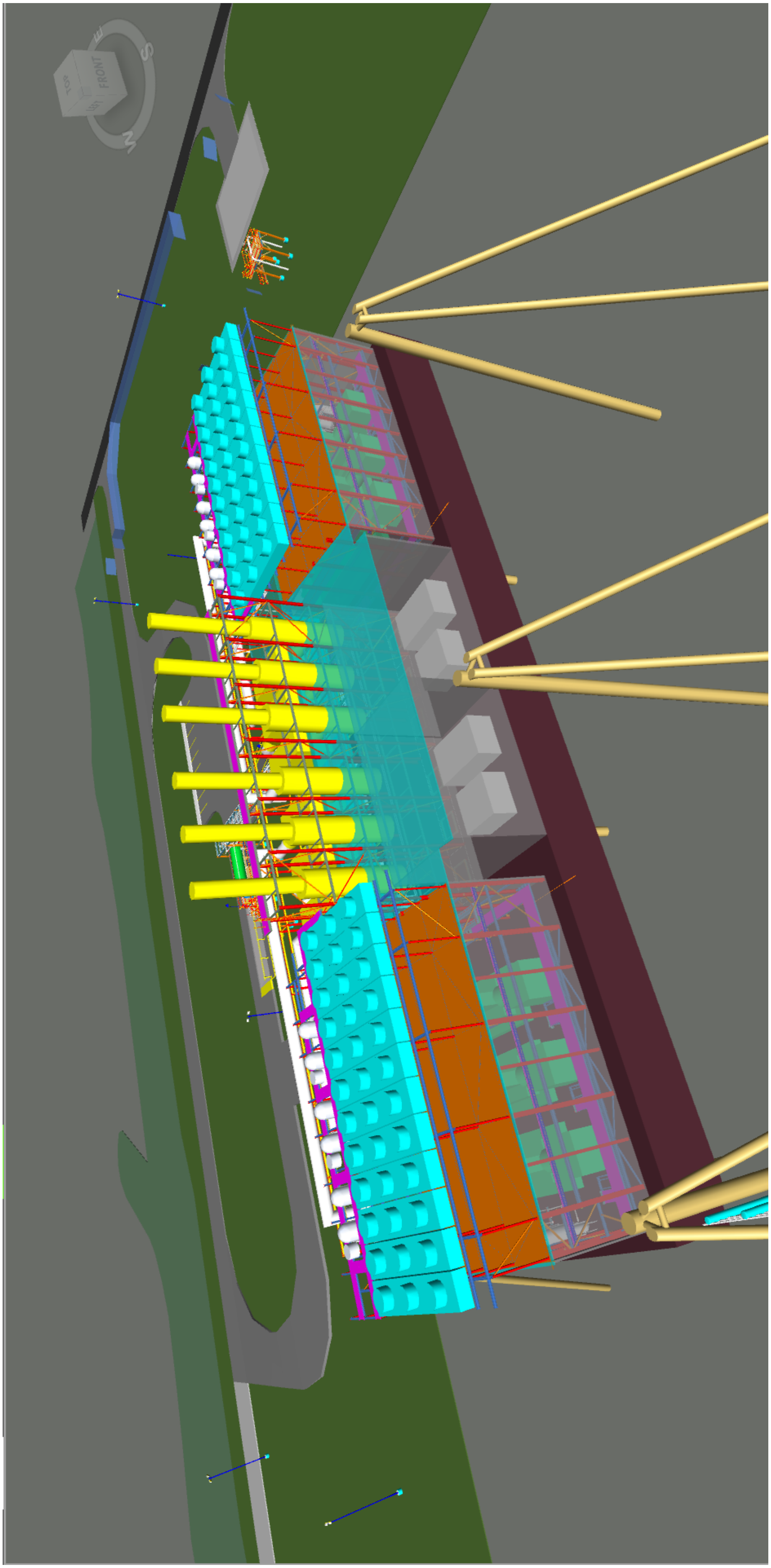
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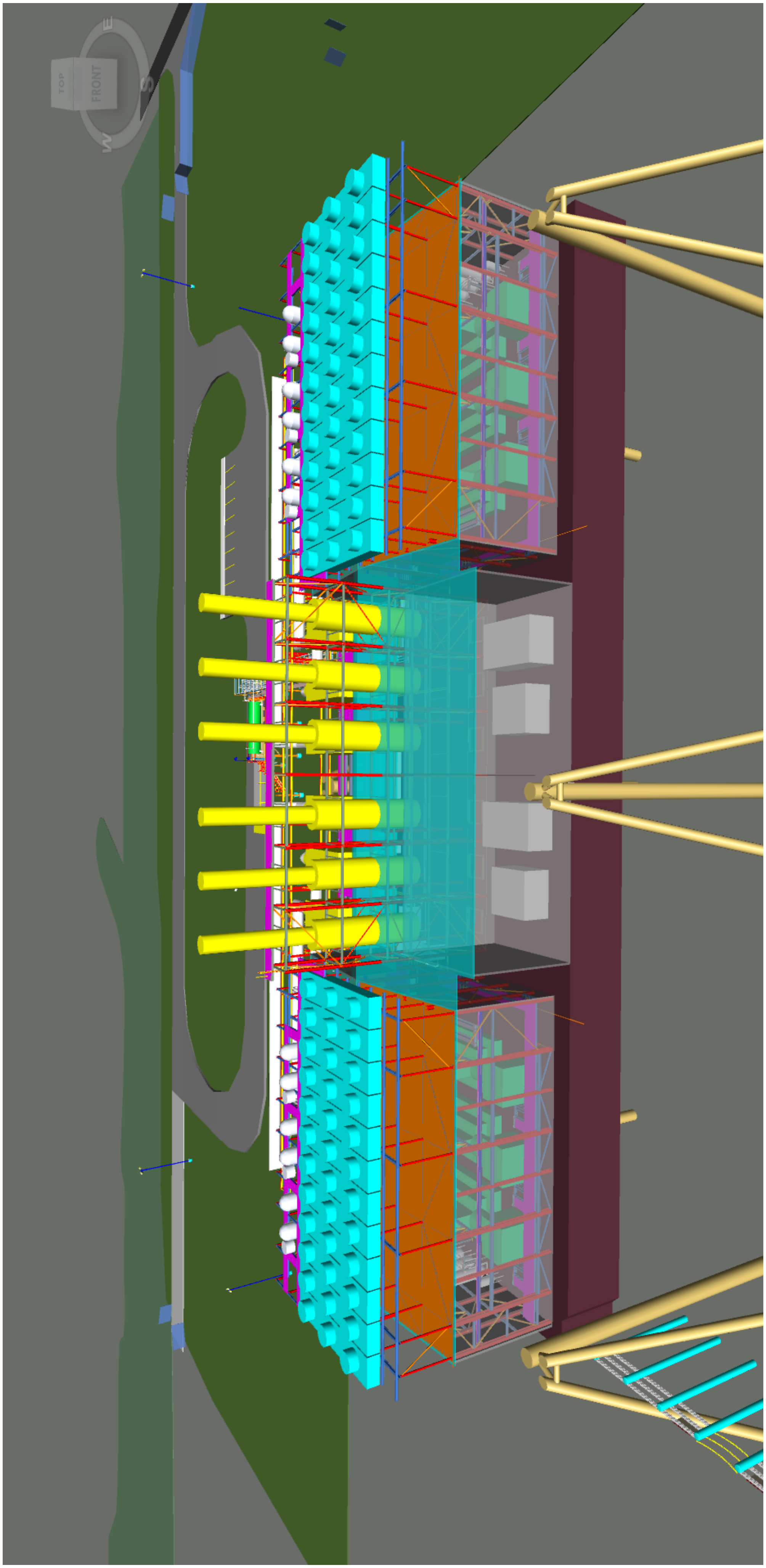

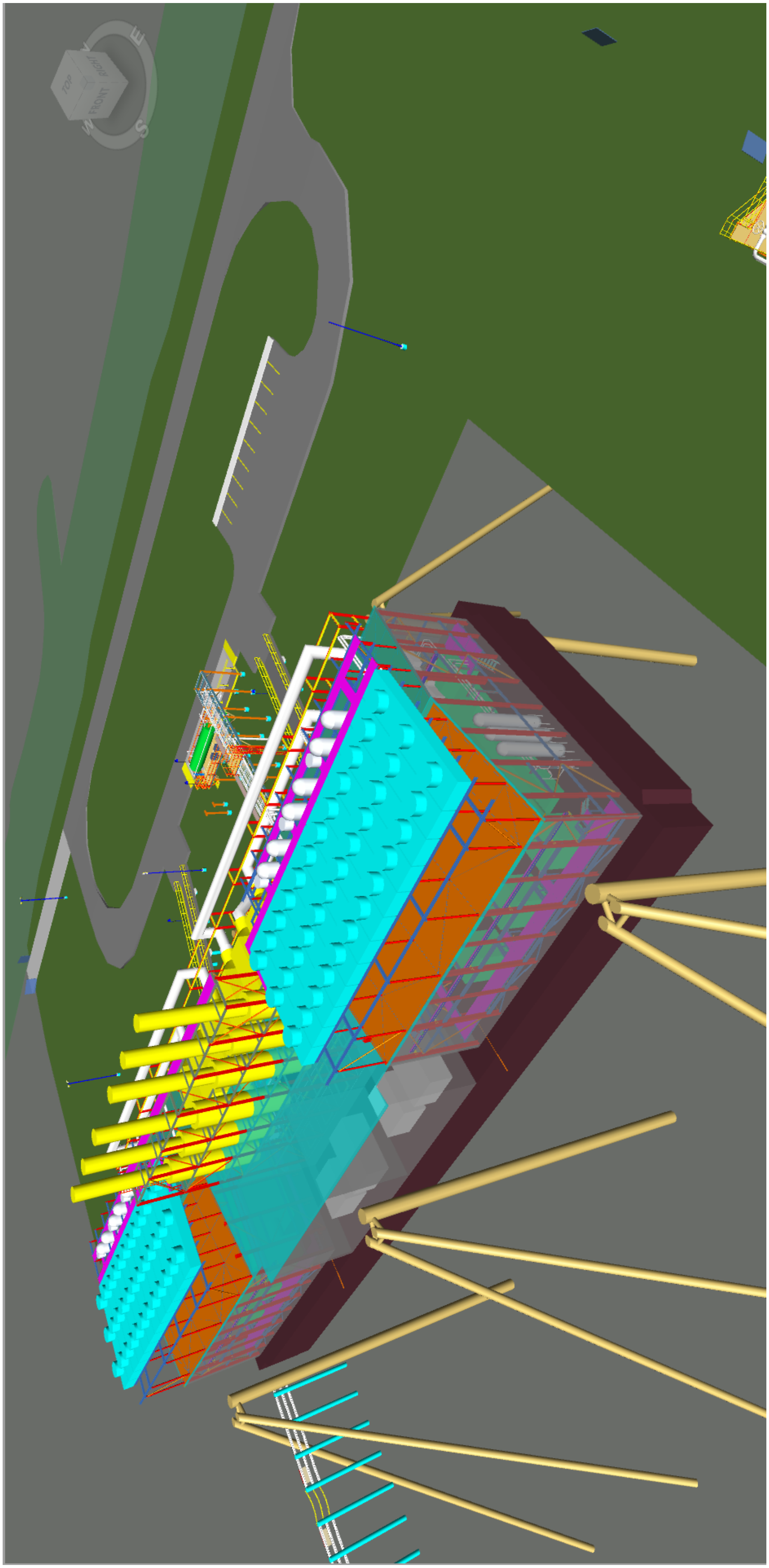
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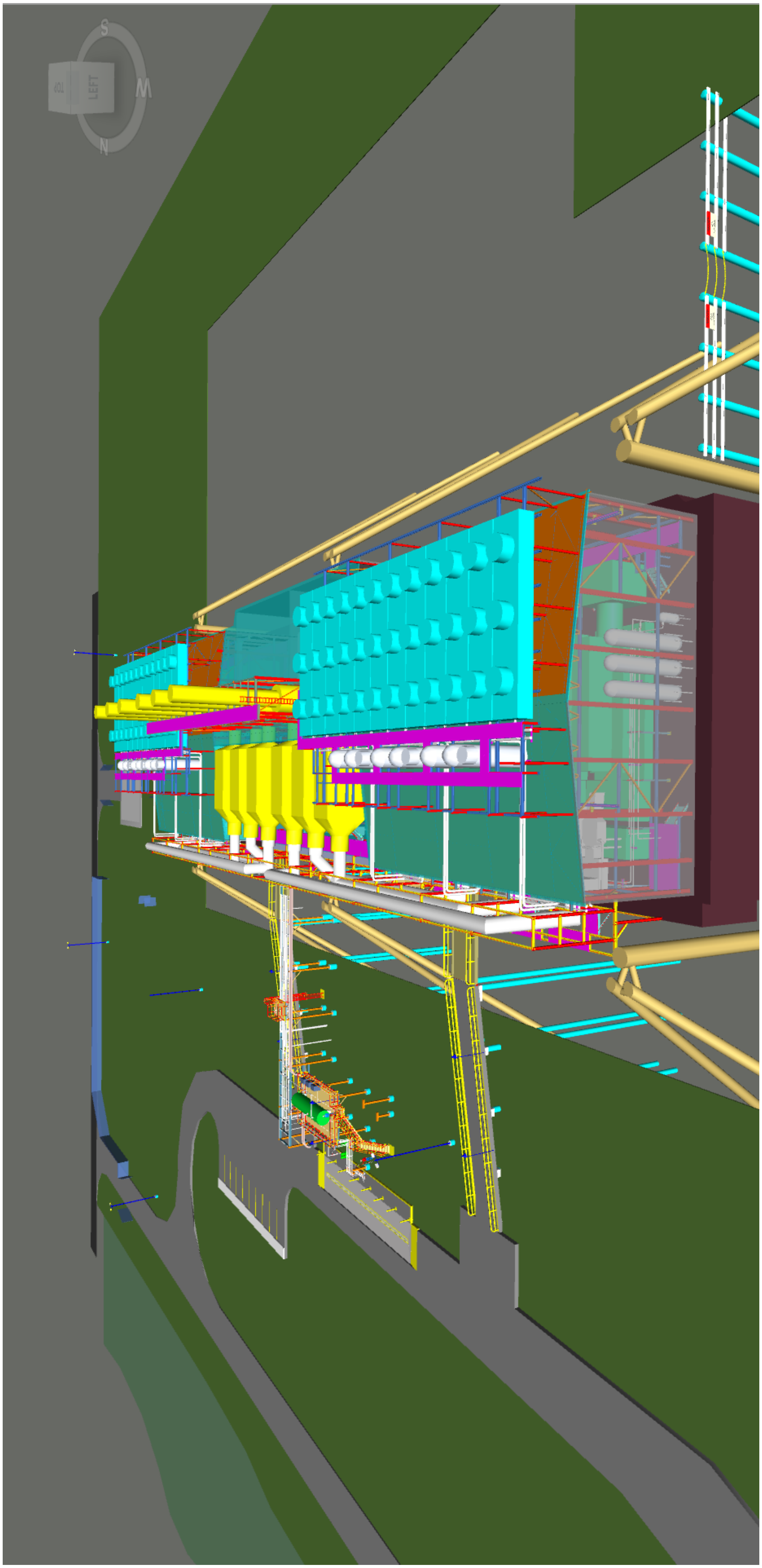

BEFORE THE

LOUISIANA PUBLIC SERVICE COMMISSION

***IN RE*: APPLICATION OF ENTERGY LOUISIANA, LLC FOR APPROVAL TO CONSTRUCT BAYOU POWER STATION, AND FOR COST RECOVERY**	**))))**	**DOCKET NO. U-_____**

EXHIBIT GCD-6

HIGHLY SENSITIVE
PROTECTED MATERIAL

INTENTIONALLY OMITTED

MARCH 2024

BEFORE THE

LOUISIANA PUBLIC SERVICE COMMISSION

***IN RE*: APPLICATION OF ENTERGY LOUISIANA, LLC FOR APPROVAL TO CONSTRUCT BAYOU POWER STATION, AND FOR COST RECOVERY**	**))))**	**DOCKET NO. U-_____**

EXHIBIT GCD-7

HIGHLY SENSITIVE PROTECTED MATERIAL

INTENTIONALLY OMITTED

MARCH 2024

BEFORE THE

LOUISIANA PUBLIC SERVICE COMMISSION

***IN RE*: APPLICATION OF ENTERGY LOUISIANA, LLC FOR APPROVAL TO CONSTRUCT BAYOU POWER STATION, AND FOR COST RECOVERY**	**))))**	**DOCKET NO. U-_____**

EXHIBIT GCD-8

HIGHLY SENSITIVE
PROTECTED MATERIAL

INTENTIONALLY OMITTED

MARCH 2024

BEFORE THE

LOUISIANA PUBLIC SERVICE COMMISSION

***IN RE*: APPLICATION OF ENTERGY LOUISIANA, LLC FOR APPROVAL TO CONSTRUCT BAYOU POWER STATION, AND FOR COST RECOVERY**	**))))**	**DOCKET NO. U-_____**

DIRECT TESTIMONY

OF

SAMRAT DATTA

ON BEHALF OF

ENTERGY LOUISIANA, LLC

MARCH 2024

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EXHIBITS

Exhibit SD-1 List of Prior Testimony
Exhibit SD-2 Transmission Maps

I. INTRODUCTION AND PURPOSE

A. Qualifications

Q1. PLEASE STATE YOUR NAME AND CURRENT BUSINESS ADDRESS.

A. My name is Samrat Datta. My business address is 639 Loyola Avenue, New Orleans, LA 70130. I am the Director of Advanced Network Planning for the System Planning Organization at Entergy Services, LLC ("ESL"),[1] an organization that provides long-term planning support for Entergy Louisiana, LLC ("ELL" or the "Company"), among other EOCs.

Q2. ON WHOSE BEHALF ARE YOU FILING THIS DIRECT TESTIMONY?

A. I am testifying before the Louisiana Public Service Commission ("LPSC" or the "Commission") on behalf of ELL in support of its application seeking approval to construct and operate the Bayou Power Station ("BPS" or the "Project"), a proposed new power barge generating station consisting of six natural-gas fired reciprocating internal combustion engines ("RICE") with black-start capability in Leeville, Louisiana and an associated microgrid that would serve downstream of the Clovelly substation, including Port Fourchon, Golden Meadow, Leeville, and Grand Isle.

[1] ESL is an affiliate of the Entergy Operating Companies ("EOCs") and provides engineering, planning, accounting, technical, and regulatory-support services to each of the EOCs. The five EOCs are Entergy Arkansas, LLC, ELL, Entergy Mississippi, LLC, Entergy New Orleans, LLC, and Entergy Texas, Inc.

Q3. PLEASE DESCRIBE YOUR EDUCATION AND BUSINESS EXPERIENCE.

A. I graduated from Nagpur University, India, in 2001 with a Bachelor of Science in Power Electronics Engineering. I received a Master of Engineering in Electrical Engineering from the University of Texas at Austin in 2002.

In 2003, I was hired by ESL to work in the Technical Studies Group in the Transmission Planning department. I was involved in performing voltage stability, transient stability, and electromagnetic transient analyses of the Entergy Transmission System. In 2010, I was appointed Supervisor of the Transmission Economic Studies group. In that role, my responsibilities included interfacing with the Independent Coordinator of Transmission, Network Service Customers, and the System Planning & Operations organization in order to perform activities required by Federal Energy Regulatory Commission ("FERC") Orders 717 and 890. In 2014, I became Manager, Commercial and Economic Planning, where I was responsible for the economic analyses and identification of economic transmission projects that benefit the EOCs' customers.

In 2019, I transitioned to a business role within ESL, focusing on innovation, and, in 2020, into the Enterprise Planning Group, and then, into my current role as Director of Advanced Network Planning for the System Planning Organization. In this role, I am responsible for the development of integrated resource plans that are designed to meet the company's planning objectives of sustainability, affordability and reliability, and to provide strategic direction and business support to the EOCs concerning the selection of supply-side resources. I am a registered Professional

Engineer in the State of Mississippi and a Senior Member of the Institute of Electrical and Electronics Engineers.

B. Purpose of Testimony

Q4. WHAT IS THE PURPOSE OF YOUR DIRECT TESTIMONY?

A. My testimony supports the Company's Application in this proceeding, which seeks, among other things, approval to construct and operate the Bayou Power Station, which is a proposed new 112 megawatt ("MW") power barge generating station consisting of six natural-gas fired RICE generators with black-start capability in Leeville, Louisiana and an associated microgrid that would serve downstream of the Clovelly substation, including Port Fourchon, Golden Meadow, Leeville, and Grand Isle. I first explain the reliability issues that are driving the need for the Project and the alternatives that were considered for addressing that need. Then I explain why the BPS is the more reasonable alternative considering all the relevant circumstances. I present the estimated transmission interconnection and substation upgrade costs necessary to interconnect the BPS to the existing transmission system and the Midcontinent Independent System Operator ("MISO"). Finally, I explain the development of the estimated costs of rebuilding the damaged Golden Meadow to Barataria 115 kilovolt ("kV") line, which was used in the economic analysis prepared by Company witness Phong Nguyen.

Q5. HAVE YOU PREVIOUSLY TESTIFIED BEFORE A REGULATORY COMMISSION?

A. Yes. Attached as Exhibit SD-1 is a list of my prior testimony.

II. RELIABILITY NEED FOR THE PROJECT

Q6. WHAT IS DRIVING THE NEED FOR THIS PROJECT?

A. The southern half of Lafourche Parish in southeast Louisiana, including the towns of Lockport, Cut Off, Galiano, Golden Meadow, and Port Fourchon, presents a unique setting from an electrical engineering and resource planning perspective. This region, abutting the Gulf of Mexico to the south, is home to pumping facilities that manage crude oil flow from the nation's only deep-water oil port, a very large storage facility with both floating roof tanks and sub-terranean storage caverns, other petrochemical and oil and gas infrastructure that plays a crucial role in the nation's oil and gas sector (supplying more than 18% of the nation's oil supply), and myriad other industrial facilities. The region's diverse customer base also includes residential customers, small businesses, and marine facilities that serve the southeast Louisiana region.

The challenging topography in the region includes wetlands and very narrow tracts of land that present considerable challenges for transmission and distribution construction. Because of its low-lying nature and proximity to the coast, the region is also exposed to risks associated with hurricanes and tropical storm events, such as Hurricanes Zeta and Ida that struck the region in recent years. Before Hurricane Zeta, the region was served by a 115 kV transmission system that included two transmission sources to the Golden Meadow substation and a single radial transmission line to the Fourchon substation (Exhibit SD-2, page 1). Hurricane Zeta caused extensive damage to the electrical infrastructure in Lafourche Parish, with nearly 60% of the transmission poles in the parish damaged from the storm. In particular, the Golden Meadow – Barataria 115 kV line sustained extensive damage with 25% of the poles destroyed and

10% of the poles damaged because of the storm. Exhibit SD-2, page 2 shows the configuration of the transmission system in the region following Hurricane Zeta. It was clear very early in the storm restoration process following Hurricane Zeta that any potential rebuilding of the Golden Meadow – Barataria line would involve a significant investment and engineering challenge.

Q7. PLEASE CONTINUE.

A. ELL was subsequently faced with a decision soon after the storm regarding the manner in which the electric system in this region should be reconstructed so that the electric system is not only more resilient in the face of storms in the future but can also meet the current and future electrical demand in this region. As mentioned above, the significant oil and gas infrastructure and other critical load in this region necessitates an electrical system that is dependable. Moreover, additional load growth is also expected in this region, particularly at Port Fourchon, associated with the offshore oil and gas industry and potential offshore wind installations. This collective electrical demand impacts this region in two ways: first, the electrical demand, and the associated planning reserve margin, will add to ELL's overall capacity need; second, any potential additional load in this region will result in the need for greater load serving capability for the electric system, which may require additional infrastructure improvements or upgrades (i.e., additional transmission lines or lines with greater capacity, and/or generators on the electric system).

Accordingly, in addition to the overall capacity need for the ELL system, which is explained by Company witness Laura Beauchamp, the critical nature of the electrical demand in this region, the need for increased resilience of the electric system (in the face of increasingly more violent and devastating hurricanes), along with the potential additional electric demand that may materialize in the future, has driven the need for additional infrastructural improvements to the electric system in this region. Various options were considered and analyzed by ESL, on behalf of ELL, taking into account the aforementioned factors, in addition to constructability and the needs of an ever-evolving and decarbonizing electric grid.

Q8. WHAT OPTIONS WERE ANALYZED AND CONSIDERED FOR ADDRESSING THE UNIQUE ELECTRICAL NEEDS IN THIS REGION?

A. As mentioned above, various factors, including the need for resilience of the electrical system, potential demand growth in the region, especially at Port Fourchon, the constructability of various infrastructure options, and the need for additional capacity for the ELL system were all taken into account in developing options for upgrading the electric system in the region. The two principal options considered were: (1) rebuilding the Golden Meadow – Barataria line that was damaged by the Hurricane Zeta and eventually upgrading the 115 kV transmission system in the region to 230 kV as additional growth in electric demand materializes; and (2) adding a local power plant in the form of a floating generator on a barge interconnected to the 115 kV transmission system in the region coupled with the development of a microgrid anchored by the local power plant. See Exhibit SD-3, page 3 for an illustration of the two options.

The first option, also referred to as the "wires option," involves the restoration of the power grid topologically back to the state it was prior to Hurricane Zeta.

However, under this option, the Golden Meadow – Barataria line would be constructed to the Company's current and updated wind loading standard (which would render the rebuilt Golden Meadow – Barataria line much more resistant to storm damage) and to 230 kV insulation (though it would be operated at 115 kV, such that it could be upgraded to 230 kV operation in the future). See Exhibit SD-3, page 3. Any additional 230 kV upgrades would have been deferred to the future when sufficient load growth is forecasted to warrant upgrades to the transmission system. Although under this option the electrical system would be more resilient than the one that was damaged by Hurricane Zeta, it would still rely upon power generated remotely to transmit to electric load in the region. I will address the challenges associated with constructing and maintaining the infrastructure necessary to execute this option in more detail later in my testimony.

The second option, also referred to as the "microgrid option" or "non-wires alternative," involves leveraging a RICE technology power plant to generate power locally within the region, when economic to do so, while also incorporating decentralized controls to assist in system restoration within a microgrid island downstream of the Clovelly substation. While this option does not restore the transmission topology back to the state it was in prior to Hurricane Zeta, a power plant interconnected locally adds a source of power to the transmission system and enables restoration of power locally in case of a wide-spread interruption in electric service following a significant event, like a hurricane. See Exhibit SD-3, page 3.

Q9. DID ELL PERFORM AN ECONOMIC EVALUATION OF THE ALTERNATIVES?

A. Yes. An economic evaluation was performed for both of the options where the present value associated with the net benefits of both options, in terms of the capital costs, the annual capacity, fixed, and variable costs and benefits to all ELL customers was calculated. Company witness Nguyen describes and sponsors the economic analysis. Additionally, given the challenging terrain in the region, the feasibility of construction of both options was also taken into account during the process to arrive at the optimal electrical solution to meet the reliability need in this region. Furthermore, the impact of the electrical system upgrades necessary to meet the reliability needs of the region on the ELL system was also evaluated holistically, taking into account the evolving needs of the electric grid of the future.

Q10. DID ELL CONSIDER ANY ALTERNATIVE GENERATION TECHNOLOGIES?

A. Yes. Several different types of generator technologies were considered for the region, with an eye toward ensuring that the generation solution was able to restore power to the critical customers in the region following an outage of the transmission source resulting from a significant weather event. The generation solution, therefore, has to be capable of restoring power to the region without any assistance from the grid by way of power for auxiliary systems of the generator that are necessary to start the generator (i.e., black-start capability), and has to be capable of sustaining the electrical load in the region without the benefit of being connected to the rest of the ELL electrical system while the line and substation repairs are being carried out (i.e., islanding capability).

ELL considered combined-cycle gas turbines ("CCGT"), solar, and simple-cycle combustion turbines ("CT") as alternatives to the selected RICE-generator technology. The CCGT technology was determined to be technically challenging. BPS was designed to be able to black-start and restore power with no support from the grid. The combustion turbine-generators that are part of CCGTs require natural gas supply at high pressure, which necessitates the addition of compressors to increase the pressure of the gas available from the gas pipeline. Black-starting a CCGT would require the ability to not only start the turbine and generator control systems without any support from the grid, but also drive the compressor to increase the pressure of the gas supply for the power plant under those challenging conditions.

Solar technology was considered but deemed to be technically unfeasible because of the lack of space in the region necessary to be able to accommodate a solar resource that can support the load in the area. The solar resource would also then have to be coupled with an energy storage device in order to "firm" the solar energy production around the clock when the region needs to operate as an electrical island following the loss of the transmission source into the region. In addition, it is very difficult to support the significant short circuit strength required for starting the induction motors that customers in this region employ using an inverter-based resource such as solar photovoltaic resources or batteries. Induction motor starts result in a large current draw and high reactive power consumption, which then has to be supported by the electric system in order for the induction motor to be able to start successfully. Synchronous generators, such as the BPS, are able to accommodate this incremental current draw and reactive power requirement needed for motor starts much better than inverter-based resources, which may require the inverter to be oversized or for the motor to be augmented at potentially significant additional cost in order for the induction motors to start successfully and avoid stalling. For these various reasons, solar technology was deemed unfeasible and ill-suited to meeting the needs of the Bayou region in which BPS would sit.

CT technology was deemed technically feasible but less preferable to RICE technology due to its higher gas pressure requirements (similar to the CCGT gas requirements), water requirements for cooling, and the physical footprint of the power plant. On the other hand, the Power Generation group is familiar with the RICE generator technology that was selected for the BPS because it is the same technology from the same manufacturer utilized in Entergy New Orleans, LLC's New Orleans Power Station ("NOPS"), which has been in service since 2020. The experience gained in the four years since the commencement of NOPS's commercial operations has given confidence in the Power Generation group's ability to operate and maintain RICE-generator technology.

In summary, a combination of factors made alternative technologies like CT and CCGT generators challenging to implement considering the specific resource needs and constraints of the region as compared to the advantages afforded by the RICE-generator technology, including familiarity with the technology, which were instrumental in the decision to utilize the RICE generator technology for BPS.

Q11. DID ELL CONSIDER ALTERNATIVE LOCATIONS FOR A GENERATING RESOURCE?

A. Yes, and the microgrid option for addressing the power needs of the region influenced that analysis. To limit interconnection costs, the team endeavored to site the generator close to the transmission lines in the region. Second, the team tried to reduce the gas pipeline interconnection costs for the generator by siting the generator close to the available gas pipelines in the area.

Without those considerations in mind, ELL considered siting a generating resource at or near ELL's Golden Meadow substation or ELL's Fourchon substation. At Golden Meadow, the substation is approximately one mile from the nearest pipeline, and the Fourchon substation is approximately three miles from the nearest pipeline. In fact, in order to provide a fuel source for a power barge from those substations, ELL would have to incur significant costs to extend gas pipelines that would cross wetlands and disrupt residential neighborhoods and/or Port Fourchon operations centers. In light of the cost considerations, environmental impact, and business/residential interruptions, ELL did not pursue siting the resource at these alternative locations. On the other hand, the BPS is expected to be moored next to the Leeville substation and, as explained in Company witness Gary Dickens's Direct Testimony, the Tennessee and Kinetica gas pipelines are adjacent to the mooring location.

Q12. WHY WAS THE POWER BARGE SELECTED AS THE BEST OPTION FOR ADDRESSING THE UNIQUE ELECTRICAL NEEDS OF THE REGION?

A. Both of the options described above in my Direct Testimony – the wires option and the microgrid option – were compared to each other on a quantitative and qualitative basis. The quantitative comparison between the two options for meeting the reliability needs of the region involved the calculation of the net benefits associated with the two options in the MISO wholesale market. The microgrid, anchored by BPS, is designed to restore power to the region after a catastrophic weather event. BPS can also participate in the wholesale energy market and provide capacity benefits to ELL's customers. The wires option, on the other hand, does not provide those sorts of economic benefits to the region or to ELL's customers.

Mr. Nguyen describes the economic analysis where the present value of the net benefits estimated for BPS was computed by netting the capacity value associated with the generator and the energy margin that is estimated to be realized by the generator in the MISO energy market from the capital and annual O&M costs of BPS and the associated microgrid and the transmission interconnection cost of BPS to the transmission system. This net benefit associated with the microgrid option was then compared to the present value of the capital cost associated with the wires option. This economic comparative analysis is quantified in Mr. Nguyen's Direct Testimony, and it shows that, on a net present basis in 2028 Dollars, the microgrid is on par with the wires-only option.

Moreover, while the results of the economic analysis show net benefits for the BPS that exceed those of the wires option by approximately $3 million, the economic analysis is likely conservative as to the BPS because the analysis includes a conservatively high estimate for marine insurance for the BPS while insurance is not available, and thus was not included, for the most of the assets included in the wires option. Moreover, as I describe later, the estimated costs for the wires alternative are likely understated.

Q13. ARE THERE ADDITIONAL QUALITATIVE BENEFITS THAT WERE CONSIDERED?

A. Yes. In addition to those quantified benefits, there are several categories of qualitative benefits that BPS provides over the wires option that were also considered by ESL for meeting and enhancing the reliability and resiliency needs of the region. First, the BPS will add a black-start resource to the ELL system. The black-start capability associated with the BPS resource also enables various options for storm restoration for customers in the region for whom restoration of power following storm damage may otherwise involve lengthy line and substation repair work as well as reliance upon power from afar to reestablish electric service in the region. For example, the damage on the Golden Meadow – Clovelly and the Golden Meadow – Leeville line sections was so extensive after Hurricane Ida that it took a month to return these two line sections to service. The microgrid will be able to improve the resilience of the electric system in the region by levering the controls and the monitoring capabilities of the microgrid controller and the black-start capability of the BPS to enable the electric system to restore electric service to customers.

The BPS, on account of being a collection of six RICE generators, will also be capable of flexible operations. That is, the BPS is designed to be able to start at very short notice and to be able to ramp up and down rapidly. Such operational flexibility will enable the BPS to participate in the wholesale ancillary services market, a benefit that was not included in Mr. Nguyen's quantitative economic analysis but that would generate revenues, which would be an additional quantitative benefit of the BPS. In addition, the operational flexibility enabled by the BPS will also allow the ELL system to compensate for variations in power supply from intermittent renewable resources in the future. This benefit will be in addition to the capacity benefit that the BPS would provide, as explained by Ms. Beauchamp and Mr. Nguyen in their Direct Testimonies, and it will enable the grid to accommodate greater amounts of intermittent renewable resources, which I address in more detail later in my Direct Testimony.

Finally, the wires-only option presents unique construction challenges given the challenging terrain of the region, including wetlands and other topographic features, that make construction and ongoing maintenance difficult. The microgrid option is able to obviate the need for this challenging line construction project, while also enabling the injection of real and reactive power locally in the proximity of the crucial industrial load in this region that requires such power, when the BPS is producing power.

All of the myriad quantitative and qualitative factors listed above were taken into account to evaluate the wires and microgrid option to meet the reliability needs of the region. Given the critical nature of the industrial load in this region and the resilience benefits that would be enabled by the microgrid, ELL concluded that these crucial benefits outweigh the wires solution and selected the BPS-anchored microgrid option as the preferred alternative to meet the reliability needs of this region. In particular, there are several categories of qualified benefits that Bayou Power Station provides over a wires-only alternative, including support for renewable generation, adding a black-start resource that provides additional grid support, potentially providing ancillary services in the MISO market, and providing resiliency benefits through its microgrid functionality during outages. Finally, the wires-only alternatives present unique challenges given the terrain and location of the industrial load in the Fourchon – Valentine corridor area, which favors the BPS.

Q14. PLEASE ELABORATE HOW THE PROJECT SUPPORTS RENEWABLE GENERATION AND THE COMPANY'S SUSTAINABILITY GOALS.

A. The design specifications of RICE generators allow the power plant to operate in a flexible manner. The BPS will be capable of very short start-up times and will be able to ramp its power output up and down rapidly, which will allow the BPS to respond to rapid changes in grid conditions. As the degree of renewable penetration in the grid (and in MISO) increases, the intermittent nature of such renewable resources will result in variable supply of power into the grid.

As the amount of such intermittent renewable resources in the grid increases, especially as the Company and other load serving entities progress towards meeting their sustainability goals and meeting customer demand for carbon-efficient electric energy, these variations in the supply of power will result in power imbalances in the commitment pool (in this case, in the MISO load balancing area) that will have to be compensated by other power sources. In order to explain this phenomenon using a simplified example, assume that for a given operating hour, the amount of load in the system does not vary at all throughout the 60 minutes of operations. Further assume that this electrical demand was met almost exactly by generation (from both renewable intermittent resources and other resources) at the beginning of the operating hour. Now assume that 10 minutes into the operating hour, the environmental conditions (either sunshine or wind velocity) are no longer sufficient to sustain the amount of renewable generation that was prevalent at the beginning of the hour and the renewable power generation reduces by 20%. This shortfall would have to be made up by other generating resources in the commitment pool in order to maintain the reliability of the grid. However, some generators (for instance, nuclear, coal and even some natural gas fired generators) are not capable of changing their power output rapidly in the face of changing grid conditions due to the physics or limitations of their respective technologies.

If this shortfall in power supply into the commitment pool (resulting from the reduction in renewable generation) is not compensated for by other generators, and if no other source of power can be found (from adjoining load balancing areas, for instance), then the grid operator would have no choice but to eventually order a curtailment of a corresponding amount of electric load in order to bring the amount of electrical load and the amount of electric supply available back into balance to prevent any compromise to the reliability of the grid.

This example scenario can be even more disadvantageous if the electric demand were not actually constant throughout the relevant operating time-period (an assumption I had made for the sake of simplifying the example), but instead were rising. This would mean that the amount of power that would be required 10 minutes into the operating hour would not just be the amount associated with the renewable energy shortfall, but also the additional amount by which the electric load has grown in those 10 minutes.

Any such compromise to the reliability of the grid (which, in an extreme case, might also result in load shed) resulting from the addition of intermittent renewable resources might naturally result in a limit to the amount of renewable resources that might be interconnected to the grid. Conversely, the presence of flexible resources, such as the BPS, that are able to vary the output of their power output quickly in response to varying grid conditions enable the integration of greater amounts of renewable resources anywhere on the grid. Thus, flexible resources, such as the BPS, will indirectly assist in the addition of renewable resources to the grid.

Q15. PLEASE ELABORATE ON THE BENEFITS OF A BLACK-START RESOURCE.

A. A black-start generating resource is capable of starting the engine that drives the alternator in a generator that generates electricity and the electronics that govern the generator, and of producing power from the generator with no assistance in the form of start-up power from the utility grid. Thus, such a power plant is deigned to self-start and reinitiate power in an electric system that was heretofore without any electricity (i.e., the electric grid was in a blackout). A black-start power plant (such as the BPS) must include some means of starting the engine or turbine that drives the alternator (in case of the BPS, compressed air bottles will be used to drive the engine during start-up) and, in some cases, a smaller generator to power the electronics of the generator during black-start conditions (in case of the BPS, a small generator is expected to be on board the barge to help energize the electronics of the BPS).

When the grid is being restored after a catastrophic event, such as a hurricane or a large thunderstorm, the storm restoration process will seek to prioritize the restoration of the infrastructure (such as distribution or/and transmission poles, wires and substation) that will enable the quickest time to reestablish electric service to a particular load from a secure source of power (such as a transmission substation that is energized or a generator). For electric loads that are at the end of long radial transmission or distribution systems (such as the load in the southeast Louisiana region at issue here), restoration will typically involve the line, pole, and conductor repairs and reconstruction and substation repairs until a path for power to flow from a secure source (like a generator or an energized substation) can be found to the customers representing the electric load. If a local source of power (such as the BPS power plant) were present, the distance from a secure source of power to the load can be greatly shortened, and the number of distribution and transmission (pole, conductor, substation, etc.) repairs that need to be completed before power can be restored to customers can be significantly reduced, thus reducing the time needed for restoration of electric service and outage time for customers in the region, including the critical customers I noted above. Accordingly, the BPS-anchored microgrid will be able to bolster the resilience of the electric system in the Fourchon – Valentine corridor and shorten restoration times in this economically-significant part of the state, providing additional societal benefits that may not be directly realized by ELL.

Q16. PLEASE EXPLAIN THE DESIGN OF THE MICROGRID AND HOW IT OPERATES TO PROVIDE ADDITIONAL RELIABILITY AND RESILIENCY BENEFITS.

A. Under normal transmission system conditions, a microgrid controller will allow the BPS to operate in the MISO energy and ancillary services markets. The BPS will also be offered into the MISO Planning Resource Auction and will support MISO resource adequacy for ELL customers. When a transmission outage occurs, the microgrid controller will automatically carry out switching actions necessary to set up a microgrid island that is capable of serving the area downstream of the Clovelly substation.

The microgrid controller is a microprocessor that is designed to mimic the actions of an operator, including the monitoring of load level in the microgrid during normal system conditions, monitoring system conditions, detecting abnormal conditions such as a transmission outage, issuing control instructions to switching devices to form an island, sending start and stop commands to the BPS when in microgrid islanded mode, detecting the return of normal conditions in the transmission system outside the microgrid, and finally enabling reintegration of the microgrid island with the rest of the ELL transmission system when normal electric service has been restored. In this manner, this microgrid controller will enable expedient recognition of an interruption of power to the region, a quick transition to the microgrid island, and rapid restoration of power inside the region, thus providing a resilient power source, as discussed by Company witness Sean Meredith.

The microgrid controller is on a closed-loop system that will be connected to the BPS and the control houses at the Leeville, Fourchon, Golden Meadow, Clovelly, and Valentine substations via the existing fiber optic communication system. The microgrid control system will be included in the same cybersecure system that protects the rest of the Company's operations technology network. The primary microgrid controller will be installed at the Leeville substation along with redundant microgrid controllers, auto synchronization relays, and networking equipment at the other substations. Finally, the microgrid controller will have operator override capability.

Q17. WHAT IS THE ESTIMATED COST OF THE MICROGRID PORTION OF THE PROJECT, AND HOW WAS THAT ESTIMATE DEVELOPED?

A. The project team determined a planning level cost estimate associated with the microgrid controller, the human-machine interface equipment, the remote input/output equipment, and the auto synchronizing relays needed for the microgrid operation. In addition, the installation, commissioning support, and training associated with the microgrid controller was also estimated. The total cost associated with the microgrid portion of the BPS project is estimated to be $2.9 million.

Q18. PLEASE EXPLAIN THE POTENTIAL MISO-RELATED BENEFITS.

A. The Project would be a quick-start and fast ramping resource that could be a valuable asset in any future enhancements to the MISO ancillary service market that may be necessitated by increased penetration of renewable resources. The resource would also add synchronous inertia and short circuit capability to the system, both of which will be increasingly valuable ancillary services in sustainable futures; this attribute could be consequential since a significant proportion of future resources are expected to be inverter-based resources.

Additionally, flexible, and modular resources, such as a power barge, will likely play an important role in Entergy resource fleets in the future and will allow the resource fleet to respond to sudden changes in demand forecast and in wholesale market capacity market accreditation and resource adequacy rules. For example, MISO's recent transition to the seasonal resource adequacy construct has added a further consideration for resource portfolios that include renewable resources. MISO has replaced its single annual resource adequacy requirement with four seasonal resource adequacy requirements, where resources have unique accreditation values for each season. MISO stated that the proposed seasonal resource adequacy construct more accurately represents resource capabilities at different times during the year, improves certainty of resource availability outside the Summer Season, provides better incentives for resources to be available when needed, establishes seasonal reserve requirements that better align with risks, and delivers additional visibility into risks throughout the Planning Year. The end result of these changes and the transition to the seasonal accredited capacity methodology is that renewable resources will be accredited with very little capacity for the Winter Season. This change in MISO's resource adequacy construct makes dispatchable, quick-start and flexible resources like BPS extremely valuable in meeting ELL's planning reserve margin requirement.

Q19. ONCE THE DETERMINATION TO USE RICE-GENERATION TECHNOLOGY WAS MADE, HOW DID ELL EVALUATE POTENTIAL MANUFACTURERS?

A. Two RICE manufactures were evaluated, but only Wartsila produces RICE units greater than 10 MW, with Wartsila's 18 MW 18V50SG models (used for the Project) being the largest on the market today. 18 MW units are the ideal size to achieve the optimal 112 MW of aggregated generating capacity. A single (or fewer number of) larger generator would reduce the amount of redundancy in the region, especially when the region must operate as a microgrid island in the event of the loss of transmission source. A very large number of smaller generators increases maintenance cost, while also limiting the step change in load that can be served when in islanded mode without impacting frequency and voltage; i.e., smaller RICE generators can correspondingly only accommodate smaller increments in load that can be served in an island without a deterioration in the frequency or voltage within the island. Furthermore, a comparison of recent Wartsila power barge builds shows that the proposed Project has the lowest price of all other recent Wartsila power barge builds (including the addition of emissions protections and transformers on the barge). The Power Generation group's history with operating RICE generators of the same technology and generator model at the New Orleans Power Station also instilled confidence in ELL's ability to operate and maintain the BPS.

Q20. WHAT ARE THE UNIQUE CHALLENGES ASSOCIATED WITH CONSTRUCTING THE WIRES-ONLY ALTERNATIVE THAT YOU MENTIONED?

A. Rebuilding the Golden Meadow – Barataria line is expected to be extremely challenging and involve complex construction work. There are multiple considerations that must be taken into account because of the challenging environment in which the rebuilt line would be situated. First, because of the difficult terrain and the presence of wetlands, helicopters will most likely have to be utilized for construction. In turn, transmission line poles and caisson structures must be designed in such a way that they can be transported and installed using helicopters. For instance, lifting vangs and pole strap attachments must be included with the poles and caissons to enable these structures to be flown safely. Similarly, the caissons must be designed to include larger reveals so that base-plated connections are maintained above normal tidal water levels and additional coatings may be required to be applied to the caisson to prevent corrosion resulting from exposure as a result of the larger reveals. Moreover, because the transmission poles and foundations must be flown by helicopter, the constraints to weight and size imposed by this requirement may result in requirements for shorter than normal span lengths along the line. These additional considerations with respect to the structures and caissons will likely add to the uncertainty in the schedule and cost of the construction work.

Second, rebuilding of the Golden Meadow – Barataria line would likely require that each potential transmission structure location be surveyed to determine whether the water depth is suitable for construction, thereby increasing the time, uncertainty, and cost associated with construction.

Third, the rebuilt line would require special consideration for animal mitigation owing to the delicate ecosystem in which it would be located. Custom solutions for bird diverter installations on all structure arms have to be designed, and these installations also must be transportable by helicopter. FAA lighting, which requires periodic maintenance, especially after storms, would be required on three structures.

Fourth, some portions of the line's right-of-way are expected to be over open water, which may result in delays in construction if windspeeds and tides cause the water to be too rough to work for construction activities. Any inadvertent impact to the wetlands may also require remediation to the marsh land, thereby adding to the cost and schedule uncertainty of the construction work. There are also multiple major waterway crossings that are located within the anticipated right-of-way, which require specialized PyraMAX towers that will require barges for transportation. The construction and installation of these towers would be challenging and likely require a combination of pontoon cranes, airboats, helicopters, and barges.

Sixth, because of the presence of saltwater in the marsh land where the construction of the line would be expected to occur, galvanized steel will likely be required for the transmission poles, with anodes installed on each structure to prevent corrosion. Even with protections, because of the corrosive environment in which the rebuilt line would be situated, the equipment may have shorter life expectancy.

Finally, access needed for the construction of the line might be through tracts owned by private landowners as well as state parks, raising the possibility of further delays and schedule complications.

Q21. ASSUMING THE TRANSMISSION LINE WERE TO BE REBUILT, ARE THERE UNIQUE CHALLENGES ASSOCIATED WITH MAINTAINING A TRANSMISSION LINE IN THAT AREA AS WELL?

A. Yes. Although the structures themselves would be hardened to withstand hurricane-force winds, wind-blown debris may contact the conductor or structures, causing damage that will have to be repaired in challenging circumstances. In addition to many of the same challenges present with constructing the line described above, there are additional challenges associated with maintaining and repairing the line, including the specialized and amphibious equipment necessary to work on the line, which significantly increases the cost of maintenance compared to traditional structure repairs that may be done with rubber tire equipment. Compared to typical overland transmission lines, a rebuilt Golden Meadow – Barataria line would require specialized spare parts and equipment necessary to work on PyraMax towers described above. Maintenance work may also result in the need for marshland remediation, thereby increasing the time needed for and the cost associated with maintenance work.

Q22. ARE THERE ANY OTHER CONSIDERATIONS YOU WOULD LIKE TO NOTE ASSOCIATED WITH THE WIRES-ONLY ALTERNATIVE?

A. Yes. Additional load growth, if it were to materialize, would require converting the transmission system in this area to 230 kV. The scheduling of outages and the construction needed to implement the conversion of the substations and the transmission system to 230 kV would be extremely challenging, as described above. Converting the portion of the electric system south of Golden Meadow would be particularly challenging given the radial nature of the transmission system and the significant induction motor customer load in that area.

III. TRANSMISSION INTERCONNECTION AND UPGRADES

A. MISO Interconnection

Q23. PLEASE DISCUSS THE MISO INTERCONNECTION REQUIREMENTS THAT ARE RELEVANT TO THE BAYOU POWER STATION PROJECT.

A. The BPS has secured Energy Resource Interconnection Service ("ERIS") in the MISO market, which gives the resource the ability to inject power to the grid. ELL has already signed a Generator Interconnection Agreement ("GIA") for the BPS with MISO. In addition, ELL also secured a 30-year Network Integration Transmission Service ("NITS") to the ELL load commencing in 2026, thereby making the BPS a network resource for ELL. I note, however, that the GIA will expire if BPS does not achieve commercial operations by December 1, 2028 unless granted a waiver by the Federal Electric Regulatory Commission, and if it expires a new interconnection request would be required to be made for the BPS in the MISO DPP process.

B. Transmission Upgrades Required for the Project

Q24. PLEASE DESCRIBE THE TRANSMISSION UPGRADES THAT WILL BE REQUIRED FOR THE PROJECT.

A. There are expected to be two transmission lines that will connect the BPS to the Leeville 115 kV substation. The Leeville substation must be expanded to include circuit breakers and additional substation bays into which the two generator tie-lines from BPS will interconnect. The total cost associated with this interconnection is expected to be $37 million.

IV. <u>TRANSMISSION ALTERNATIVE COSTS</u>

Q25. HOW WERE THE TRANSMISSION ALTERNATIVE COSTS USED IN THE ECONOMIC ANALYSIS PREPARED?

A. The cost estimate for the "wires option" was developed in several stages. First, a project to rebuild the Golden Meadow-Barataria 115kV line that was severely damaged in Hurricane Zeta was developed. Because the demolition of that 31-mile long line was recently completed, the rebuild would only involve construction of a new storm-hardened line within ELL's existing ROW. Completion of the rebuild would restore a second transmission source to the Golden Meadow Substation, and it would bring load-serving capacity back up to approximately where it was prior to the line being removed from service.

Second, a portfolio of projects was developed, which would upgrade existing facilities to provide additional load-serving capacity within lower Lafourche Parish once the golden Meadow - Barataria line rebuild has been completed. These upgrades would be performed in the following order, as needed to provide incremental load-serving capability to the area: (1) install Capacitor Bank at Clovelly 115 kV; (2) convert the Golden Meadow - Barataria line from 115 kV to 230 kV operation; (3) convert the Valentine-Clovelly-Golden Meadow Lines from 115 kV to 230 kV operation; and (4) convert the Golden Meadow-Leeville-Fourchon Lines from 115 kV to 230 kV operation.

For the Golden meadow – Barataria rebuild, the estimated costs were developed at a Class 3 level in mid-2022. The Class 3 estimate was based on completion of all preliminary engineering by internal resources, a detailed internal estimate of all material costs with input from all material vendors, and a competitive, negotiated firm fixed-price bid for a turnkey construction contract, with the construction scheduled for November 2022 through June 2024. The estimate also included an allocation of contingency funds based on a detailed quantitative risk assessment. Subsequently, the Class 3 estimate has been updated to account for material/labor cost escalations that were anticipated if the rebuild procurement/construction were to be executed at successively later dates.

For the Capacitor Bank and 230 kV Upgrades, the estimated costs were developed at a Class 4 level in mid-2021, based on preliminary scopes, utilizing internal resources and estimating tools, and cross-checked against actual costs from other completed projects where practical. The estimates for each of the four upgrades included allocation of scope/estimate uncertainty funds based on a qualitative risk assessment. Subsequently, these Class 4 estimates have been updated several times to account for anticipated material/labor costs escalations if the upgrades were to be executed at a later date.

Q26. WHAT WAS THE TOTAL ESTIMATED COST FOR THE WIRES ALTERNATIVE?

A. The costs associated with the projects comprising the wires alternative sum to the total project cost of $307 million:

- GM-Barataria Line Rebuild: $210 million
- Clovelly Capacitor Bank: $4 million
- GM-Barataria Conversion to 230 kV Operation: $54 million
- Valentine-Clovelly-GM Conversion to 230 kV Operation: $39 million

Q27. ARE THERE REASONS TO BELIEVE THE ESTIMATED WIRES ALTERNATIVE COSTS ARE LIKELY UNDERSTATED?

A. Yes. As explained above, the line rebuild portion of the estimate was initially developed at the Class 3 level in 2022 based on a construction timeline ending in June 2024. The capacitor bank and 230 kV upgrade estimates were initially developed at the Class 4 level in 2021. While those estimates have been updated several times, primarily to account for inflation, as noted above, they are still at the Class 3 and Class 4 levels, respectively, and the estimates would have to be refined with updated vendor quotes, route and site analysis, and further adjusted for inflation in materials and services at the time when, and if, the decision were ultimately made to execute the wires alternative. Given the additional passage of time and scope and cost refinement that would need to occur should the wires alternative move forward, the $307 million estimate described here is likely understated.

V. CONCLUSION

Q28. DOES THIS CONCLUDE YOUR DIRECT TESTIMONY AT THIS TIME?

A. Yes.

AFFIDAVIT

STATE OF LOUISIANA

PARISH OF ORLEANS

NOW BEFORE ME, the undersigned authority, personally came and appeared, **SAMRAT DATTA**, who after being duly sworn by me, did depose and say:

That the above and foregoing is his sworn testimony in this proceeding and that he 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, he verily believes them to be true.

Samrat Datta

Samrat Datta

SWORN TO AND SUBSCRIBED BEFORE ME
THIS 23d DAY OF FEBRUARY, 2024

Sean D Moore

NOTARY PUBLIC

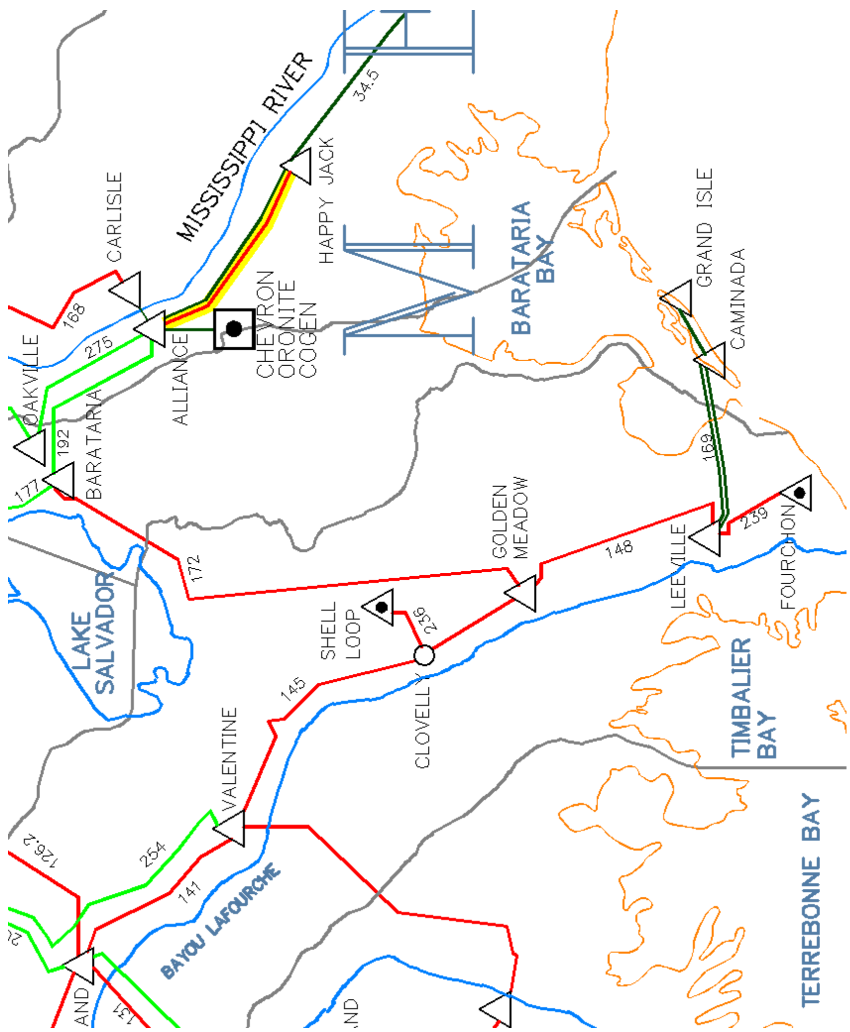
My commission expires: upon death

Sean D. Moore-La. Bar No. 20303
Notary Public for the State of Louisiana
My commission expires upon death

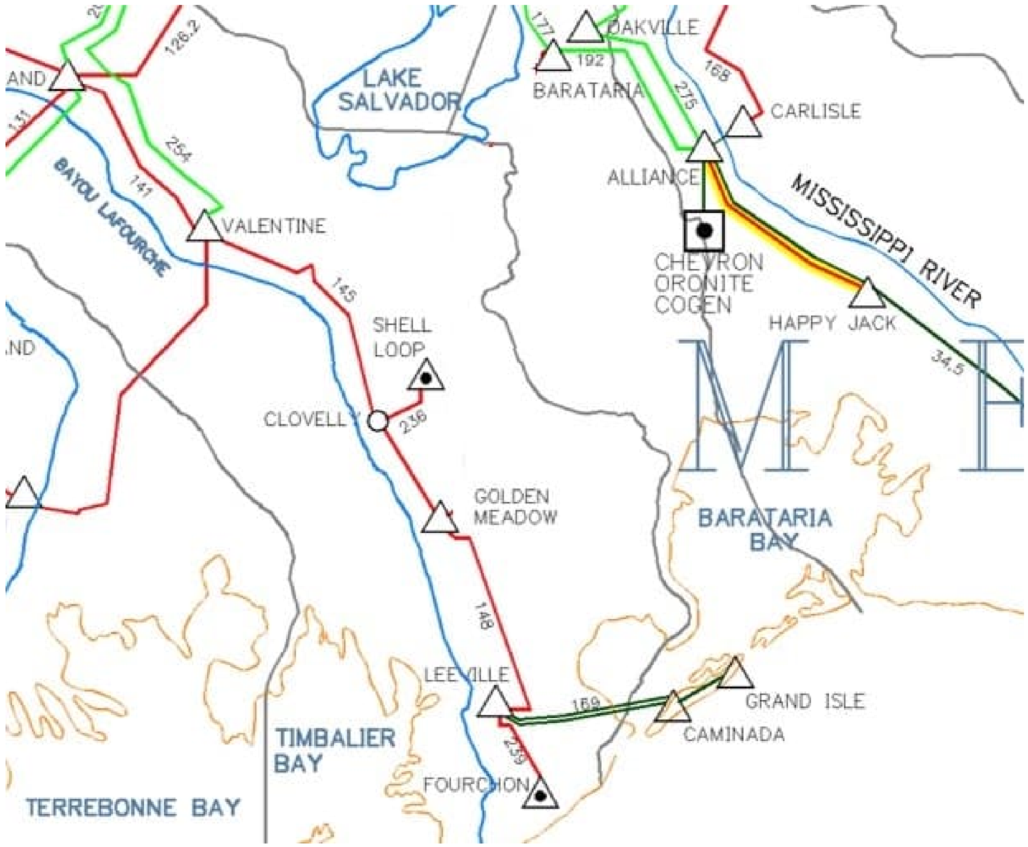
Listing of Previous Testimony Filed by Samrat Datta

DATE	TYPE	JURISDICTION	DOCKET NO.
04/21/2015	Direct	LPSC	U-33605
08/11/2017	Direct	PUCT	47462
12/11/2017	Rebuttal	LPSC	U-34447
09/08/2021	Direct	LPSC	U-35927
01/31/2022	Direct	LPSC	U-36135
02/14/2022	Direct	LPSC	U-36133
03/04/2022	Cross-Answering	LPSC	U-36135
3/18/2022	Cross-Answering	LPSC	U-36133
1/20/2023	Direct	LPSC	U-36514
01/26/2023	Direct	LPSC	U-36515

Configuration of the region prior to Hurricane Zeta

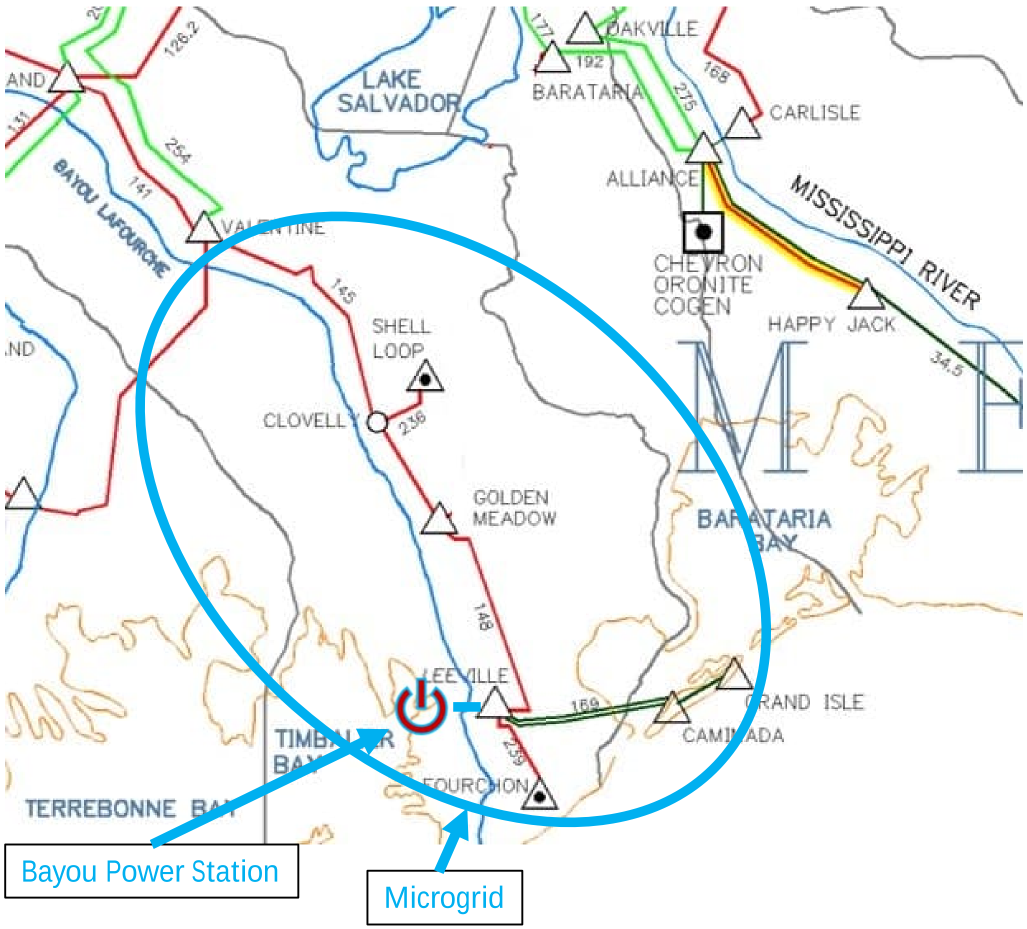


Current configuration of the region after Hurricane Zeta

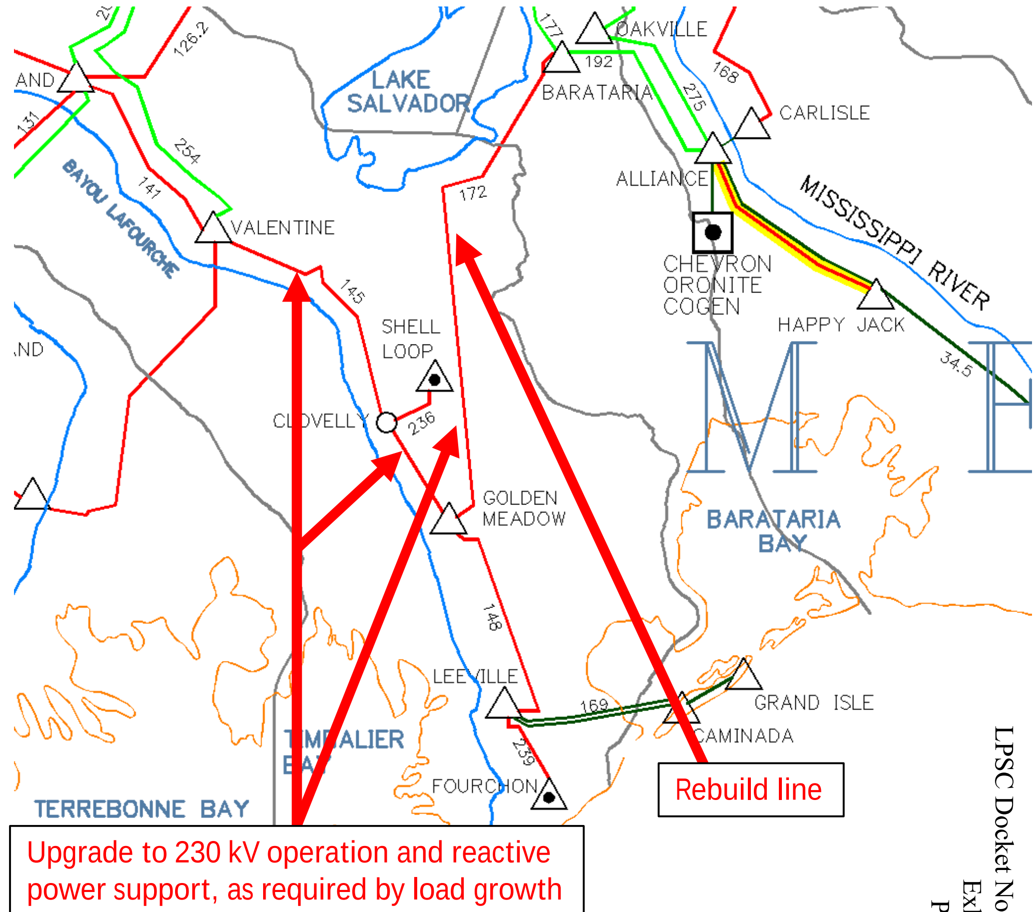


Two options for increasing load serving capability in the future

Microgrid option with Bayou Power Station



Wires option



BEFORE THE

LOUISIANA PUBLIC SERVICE COMMISSION

***IN RE*: APPLICATION OF ENTERGY LOUISIANA, LLC FOR APPROVAL TO CONSTRUCT BAYOU POWER STATION, AND FOR COST RECOVERY**	**))))**	**DOCKET NO. U-_____**

DIRECT TESTIMONY

OF

PHONG D. NGUYEN

ON BEHALF OF

ENTERGY LOUISIANA, LLC

PUBLIC REDACTED VERSION

MARCH 2024

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I. INTRODUCTION AND BACKGROUND 1

II. ECONOMIC EVALUATION 2

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Exhibit PDN-1 List of Previous Testimony

I. INTRODUCTION AND BACKGROUND

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

A. My name is Phong D. Nguyen. I am employed by Entergy Services, LLC ("ESL")[1] as Director, Advanced Economic Planning for the System Planning & Operations ("SPO") organization. My business address is 2107 Research Forest Drive, The Woodlands, Texas 77380.

Q2. ON WHOSE BEHALF ARE YOU TESTIFYING?

A. I am testifying on behalf of Entergy Louisiana, LLC ("ELL" or the "Company").

Q3. WHAT ARE YOUR RESPONSIBILITIES AS DIRECTOR, ADVANCED ECONOMIC PLANNING FOR ESL?

A. I am responsible for conducting economic and financial evaluations of generation supply resources for the EOCs, including ELL. In that function, I manage a staff that conducts decision support analyses relating to generation supply investments, including economic evaluations and analyses relating to power market conditions.

Q4. PLEASE DESCRIBE YOUR BUSINESS EXPERIENCE AND EDUCATION.

A. I earned a Bachelor of Science in Management with a concentration in Finance from Tulane University in 1998. In 2000, I earned a Master of Business Administration

[1] ESL is an affiliate of the Entergy Operating Companies ("EOCs") and provides engineering, planning, accounting, technical, and regulatory-support services to each of the EOCs. The five EOCs are Entergy Arkansas, LLC, ELL, Entergy Mississippi, LLC, Entergy New Orleans, LLC, and Entergy Texas, Inc.

("MBA") degree from the University of New Orleans, and I began my employment with what is now Entergy Services, LLC thereafter, in January 2001. Prior to obtaining my MBA, I worked as a staff consultant at an accounting and consulting firm.

Q5. HAVE YOU PREVIOUSLY TESTIFIED BEFORE A REGULATORY COMMISSION?

A. Yes. Please see Exhibit PDN-1 for a list of my prior testimony.

Q6. WHAT IS THE PURPOSE OF YOUR DIRECT TESTIMONY?

A. My testimony supports the Application requesting certification of the Bayou Power Station ("BPS" or the "Project") by describing the economic evaluation of the Project compared to a potential transmission alternative.

II. <u>ECONOMIC EVALUATION</u>

Q7. PLEASE PROVIDE AN OVERVIEW OF THE ECONOMIC ASSESSMENT PERFORMED IN RELATION TO THE PROJECT.

A. As discussed in the Direct Testimony of Company witnesses Laura K. Beauchamp and Samrat Datta, the Project increases the load-serving capability in the Port Fourchon, Louisiana area and provides operational flexibility, reliability, and resiliency benefits to customers. The economic analysis I performed measured the customer net benefit for the Project relative to a transmission alternative that would increase the load-serving capability with alternative generation capacity provided outside the region in the form of a generic new-build combustion turbine ("CT").

Q8. WHAT COSTS AND BENEFITS WERE TAKEN INTO CONSIDERATION IN THE ECONOMIC EVALUATION PROCESS?

A. For BPS, the analysis included the return of and on rate base for the project investment, including the transmission interconnection costs, plus ongoing operations and maintenance ("O&M") costs, insurance, and property tax. The analysis then captures the Project capacity value based on the avoided CT as well as the variable supply cost savings associated with owning and operating BPS as compared to the transmission alternative, which is described by Mr. Datta in his Direct Testimony.

It is also worthwhile to note that the components of the BPS cost include a conservatively higher maritime insurance cost estimate, whereas the transmission alternative includes minimal insurance cost due to the unavailability of casualty insurance for most of the transmission assets. The transmission alternative cost estimate is also likely understated, as discussed by Mr. Datta, and it also does not provide comparable reliability and resiliency benefits as BPS. Accordingly, the alternatives are not directly comparable given the different insurance risk profiles, Project cost estimation scope, and greater reliability and resiliency attributes provided by BPS. Finally, while the power barge asset associated with BPS may have a positive terminal net salvage value, the BPS net benefit calculation does not assume any terminal value for the power barge. All of these factors render the economic analysis of BPS presented here conservative; that is, the analysis likely understates the net benefits of BPS.

Q9. PLEASE DESCRIBE HOW THE VARIABLE SUPPLY COST SAVINGS WERE MEASURED.

A. The analysis used the AURORA model[2] to measure the energy margins from BPS, with the margins representing the estimate of ELL's variable supply cost savings from the Project relative to a scenario without the Project.

Q10. WHAT ARE THE NATURAL GAS ASSUMPTIONS INCLUDED IN THE VARIABLE SUPPLY COST ANALYSIS?

A. The analysis was run using the Company's Business Plan 2023 ("BP23") assumptions and included a range of assumptions regarding the future cost of natural gas and carbon dioxide ("CO_2") emissions. Given the uncertainty around the future natural gas and CO_2 price assumptions, I believe it is important to evaluate the Project across a reasonable range of natural gas and CO_2 assumptions. In addition, the levelized real gas price used in the analysis was $4.49/MMBtu (2026$, 2026-2042) under the reference scenario. Figures 1 and 2 below show the range of natural gas and CO_2 assumptions included in the variable supply cost evaluation.

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[2] Aurora is a production cost model software licensed from Energy Exemplar that is used to simulate operation of the MISO energy market to forecast wholesale power market prices. ESL has used the software for a number of years to assess the variable supply cost effects of adding a particular resource or set of resources to an EOC's portfolio.

Figure 1

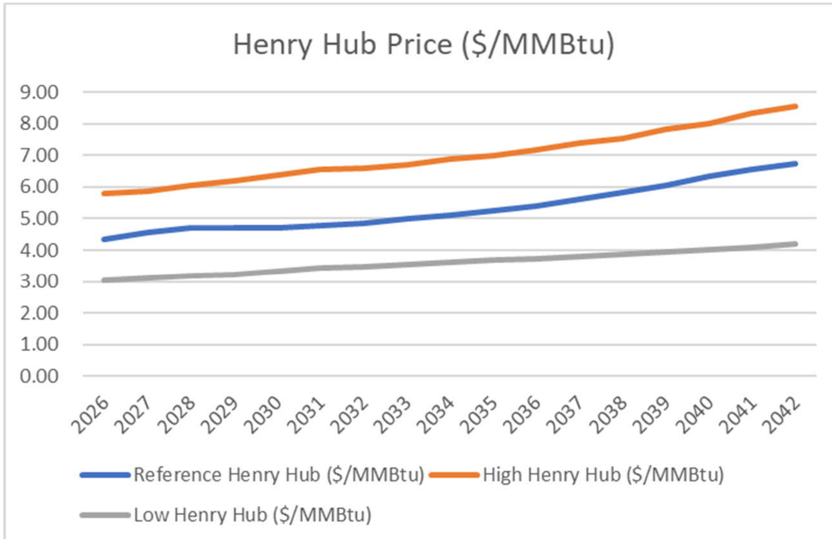
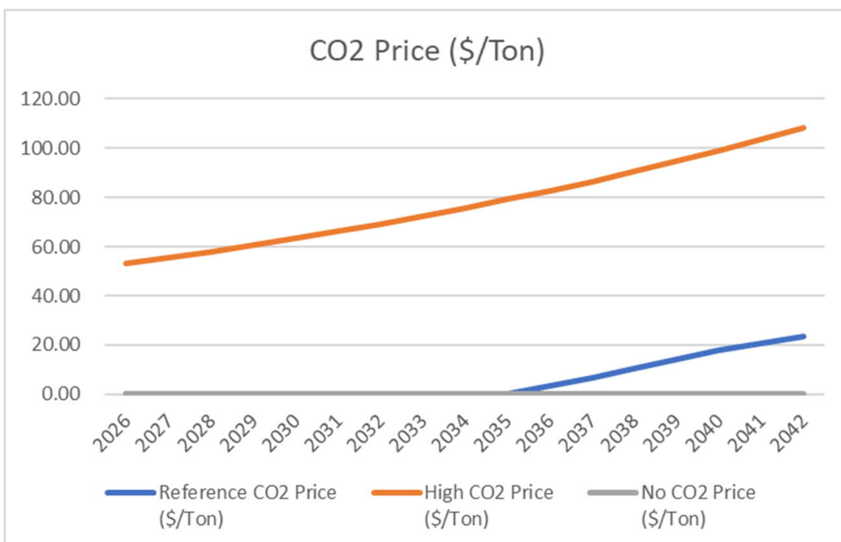


Figure 2



Q11. PLEASE SUMMARIZE THE RESULTS OF THE ECONOMIC EVALUATION.

A. Figure 3, which contains highly sensitive protected materials ("HSPM") below compares the net cost of the Power Barge relative to the economic cost of the transmission alternative.

[redacted]

Figure 3

[redacted]

The results show the net cost of BPS is approximately on par with the cost of the transmission alternative under reference assumptions. As discussed above and by Mr. Datta, these solutions are not directly comparable for the reasons previously stated as well as challenges posed by the topography of the region and thus present different risk profiles.[3] Also as noted above, the BPS net cost includes conservatively higher insurance cost and excludes any positive net terminal value associated with the barge.

Q12. WHAT SENSITIVITY ANALYSES WERE PERFORMED?

A. The Project team evaluated the effects of high and low natural gas and CO_2 assumptions on the relative economics of BPS as compared to the transmission option. The Project

[3] For the various reasons mentioned here and discussed in more detail by other Company witnesses, the transmission alternative is not directly comparable to BPS and has certain disadvantages relative to BPS in terms of maintaining grid reliability. Nonetheless, ELL compared BPS to this transmission alternative for purposes of the economic analysis because the transmission alternative was determined to be the closest approximation to BPS in terms of fulfilling this purpose. As Mr. Datta explains, if BPS is not constructed, it is likely that the transmission alternative will be required to meet applicable regulations and maintain the reliability of the grid.

team also evaluated the effect of the Project qualifying for property tax abatement under the Louisiana Industrial Tax Exemption Program ("ITEP"). Under the sensitivity cases, BPS showed a slight net cost relative to the transmission alternative under the Low Gas/No CO_2 scenario while showing a positive net benefit compared to the transmission alternative under the Reference Gas/Reference CO_2 and High Gas/High CO_2 scenarios – and under all scenarios with the property tax abatement. Table 1 (HSPM) below summarizes the results.

[redacted]

Table 1

[redacted]

Q13. PLEASE DISCUSS THE DIFFERENT FACTORS THAT DROVE THE ECONOMICS OF THE PROPOSALS.

A. They key components of the economic analysis are summarized in the graph in the response to Q11 above, and include:

- BPS cost, which includes return of and on rate base, O&M, property tax, and the conservatively high maritime insurance cost estimate;

- BPS transmission interconnection cost;
- Value of capacity, based on the levelized cost of a CT, based on the Company's latest CT estimate; and
- Levelized cost of the transmission alternative.

Should the BPS insurance costs be removed and evaluated on a similar risk perspective as the transmission alternative, and should the alternative transmission or avoided CT costs be higher than estimated, the BPS project economics would improve and result in even higher net benefits relative to the transmission alternative. Qualifying for ITEP would also result in higher net benefits relative to the transmission alternative.

Q14. DOES THIS CONCLUDE YOUR DIRECT TESTIMONY?

A. Yes, at this time.

AFFIDAVIT

STATE OF TEXAS

COUNTY OF MONTGOMERY

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

That the above and foregoing is his sworn testimony in this proceeding and that he 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, he verily believes them to be true.

Phong Nguyen

Phong D. Nguyen

SWORN TO AND SUBSCRIBED BEFORE ME
THIS 26 DAY OF FEBRUARY, 2024

NOTARY PUBLIC

My commission expires: 08/05/2027

NOTARY PUBLIC STATE OF TEXAS
BONNY DAWSON
Notary Public, State of Texas
Comm. Expires 08-05-2027
Notary ID 130321800

Listing of Previous Testimony Filed by Phong D.Nguyen

DATE	TYPE	SUBJECT MATTER	REGULATORY BODY	DOCKET NO.
10/16/2008	Direct	Little Gypsy	LPSC	U-30192 (Phase II)
03/16/2010	Direct	New Nuclear	LPSC	U-31125
07/07/2011	Direct	Carville PPA	LPSC	U-32031
07/15/2011	Direct	Acquisition of Hinds Generating Facility	MPSC	2011-UA-210
08/25/2015	Direct	St. Charles Power Station	LPSC	U-33770
09/30/2016	Direct	ELL Deactivation Report	LPSC	U-33950
10/07/2016	Direct & Rebuttal	Montgomery County Power Station	PUCT	46416
11/02/2016	Direct	Lake Charles Power Station	LPSC	U-34283
11/15/2016	Direct	Occidental Taft PPA Amendment	LPSC	U-34303
02/23/2017	Direct	Carville PPA	LPSC	U-34401
10/12/2018	Direct	Choctaw Generating Station Acquisition	MPSC	2018-UA-204
12/20/2018	Direct & Rebuttal	Sunflower Solar Facility Acquisition	MPSC	2018-UA-267
04/2020	Direct & Rebuttal	Hardin / MCPS Acquisition	PUCT	50790
08/2020	Direct & Rebuttal	Liberty County Solar CCN	PUCT	51215
09/2021	Direct & Rebuttal	Orange County Advanced Power Station CCN	PUCT	52487
12/2022	Direct	Entergy Mississippi EDGE Resource	MPSC	2022-UA-153
01/2023	Direct	ELL 2022 Solar Portfolio CCN Application	LPSC	U-36685

BEFORE THE

LOUISIANA PUBLIC SERVICE COMMISSION

***IN RE*: APPLICATION OF ENTERGY LOUISIANA, LLC FOR APPROVAL TO CONSTRUCT BAYOU POWER STATION, AND FOR COST RECOVERY**	**))))**	**DOCKET NO. U-_____**

DIRECT TESTIMONY

OF

SEAN MEREDITH

ON BEHALF OF

ENTERGY LOUISIANA, LLC

MARCH 2024

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EXHIBITS

Exhibit SM-1 List of Prior Testimony

I. INTRODUCTION AND PURPOSE

A. Qualifications

Q1. PLEASE STATE YOUR NAME AND CURRENT BUSINESS ADDRESS.

A. My name is Sean Meredith. My business address is 2107 Research Forest Dr., Suite 300, The Woodlands, Texas 77380.

Q2. ON WHOSE BEHALF ARE YOU FILING THIS DIRECT TESTIMONY?

A. I am testifying before the Louisiana Public Service Commission ("Commission") on behalf of Entergy Louisiana, LLC ("ELL" or the "Company").

Q3. BY WHOM ARE YOU EMPLOYED AND IN WHAT CAPACITY?

A. I am employed by Entergy Services, LLC ("ESL")[1] as Vice President, Project Delivery.

Q4. PLEASE DESCRIBE YOUR EDUCATION AND BUSINESS EXPERIENCE.

A. I have a Bachelor of Science degree in Systems Engineering from the United States Naval Academy, and I completed the Naval Nuclear Propulsion Program. I served in the United States Navy as a submarine officer aboard three fast attack submarines over a ten-year period. In my last assignment, aboard the USS Hartford, I served as the Engineer Officer responsible for the operation, maintenance, and repair of the nuclear

[1] ESL is an affiliate of the Entergy Operating Companies ("EOCs") and provides engineering, planning, accounting, technical, and regulatory-support services to each of the EOCs. The five EOCs are Entergy Arkansas, LLC, ELL, Entergy Mississippi, LLC, Entergy New Orleans, LLC, and Entergy Texas, Inc.

reactor plant and all support systems, as well as training and qualifying all sailors in the engineering department.

In 2014, I joined Entergy's nuclear organization as a supervisor of the Instrumentation and Controls department at the James A. FitzPatrick Nuclear Power Plant in Scriba, New York, where I was responsible for the maintenance and repair of various systems in the plant. In 2016, I joined Entergy's transmission organization as a senior program manager and became the Training Manager for transmission in the spring of 2017. In that capacity, I led a team that established and executed a Journeyman Training Program for all craft journeymen and transitioned the apprenticeship training programs to utilize a new training facility. In 2018, I became the director of operations for the Transmission Control Center North with responsibilities for the EOCs' transmission operations that included bulk power operations, generation coordination with the Midcontinent Independent System Operator, Inc. ("MISO"), and outage management. From April 2020 to October 2021, I served as Vice President, Power Plant Operations, where I was responsible for the safe, compliant, and reliable operation of the EOCs' non-nuclear generation fleet, including the strategic planning for all generation assets across the EOCs' service areas. In October 2021, I assumed the role as Vice President, System Resilience. Finally, in May 2023, this role was expanded to also include the responsibilities of the Vice President of Project Delivery.

Q5. PLEASE DESCRIBE YOUR CURRENT JOB RESPONSIBILITIES.

A. As the Vice President, Project Delivery, I am responsible for the strategic leadership and oversight of the EOCs' efforts related to resilience. I am responsible for leading the development of the Company's strategic initiatives and goals to achieve excellence in resilience project performance and drive continued project efficiency around the execution of resilience projects. As part of that effort, I help ensure that the Company's standards incorporate resilience aspects and are properly included in all new generation, transmission, and distribution projects. Moreover, I provide leadership, direction, and oversight to a geographically dispersed organization of technical professionals, field leadership, and contract personnel, ensuring that internal and external resources are available to meet the projected workload. I work collaboratively with senior leadership and key stakeholders to accomplish strategic imperatives and deliver on desired outcomes of the Company's resilience-based programs.

I also oversee all aspects of safely delivering transmission and distribution capital projects. I am responsible for implementation and monitoring of company safety measures throughout the Construction Management organization, providing a clear, consistent message to all project contract partners and ensuring that the Company's resilience initiatives are properly incorporated into the transmission and distribution capital portfolios. I also serve as the liaison with senior leadership and other key stakeholders to ensure delivery of strategic imperatives and desired outcomes for these projects.

I performed and managed work related to these various roles and functions with respect to the BPS.

B. Purpose of Testimony

Q6. WHAT IS THE PURPOSE OF YOUR DIRECT TESTIMONY?

A. My testimony supports the Company's Application in this proceeding, which seeks, among other things, approval to construct and operate the Bayou Power Station ("BPS" or the "Project"). I address the expected resiliency benefits of the proposed Project and the accompanying microgrid.

Q7. HAVE YOU PREVIOUSLY TESTIFIED BEFORE A REGULATORY COMMISSION?

A. Yes. Attached as Exhibit SM-1 is a list of my prior testimony.

II. PROJECT RESILIENCE BENEFITS

Q8. PLEASE PROVIDE A BRIEF OVERVIEW OF THE BAYOU POWER STATION PROJECT.

A. As more thoroughly detailed in the Direct Testimony of Company witness Gary Dickens, the Project is a new 112 megawatt ("MW") power barge generating station consisting of six natural gas-fired Reciprocating Internal Combustion Engines ("RICE") units with black-start capability in Leeville, Louisiana and an associated microgrid that would serve downstream of the Clovelly substation, including Port Fourchon, Golden Meadow, Leeville, and Grand Isle. The Project and the associated microgrid are expected to provide resilience benefits to ELL's electrical system in the surrounding area.

Q9. CAN YOU EXPLAIN WHAT YOU MEAN BY THE USE OF THE TERM RESILIENCE?

A. For purposes of my testimony, resilience is the ability to prepare for, adapt to, and recover from non-normal events, such as hurricanes, floods, winter storms, and other major weather disruptions. While often complementary, it is important to note that resilience is different from reliability. The reliability related solutions and benefits associated with the Project are discussed in the Direct Testimony of Company witness Samrat Datta. My testimony focuses solely on the resilience benefits offered by the Project and the associated microgrid.

Q10. PLEASE EXPLAIN WHAT A MICROGRID IS.

A. Although there are various definitions of what constitutes a "microgrid," generally speaking, a microgrid consists of localized, distribution-scale resources and/or storage integrated by a controller that can island the targeted load and continue serving customers in response to an outage event or, in certain instances, can respond to market conditions and enhance reliability during times of peak usage. In other words, microgrids are able to provide a local source of power that can swiftly restore power to a substation, to the feeders that are connected to a substation, or to certain critical loads on the Company's distribution system.

Most microgrids are associated with providing enhanced resilience to a single entity (*e.g.*, a hospital or a campus that has the capability to be islanded and stay in operation during an outage). However, there are also instances in the United States of microgrids that serve a broader area involving multiple electricity consumers. One obvious benefit to constructing a microgrid that serves a broader area (*i.e.*, an entire substation, feeder, or lateral) as opposed to a single customer, is that the wider coverage brings incremental resilience to more customers who are contributing to its costs.

As discussed by Laura K. Beauchamp and Mr. Datta, the microgrid associated with the Project is intended to encompass the area downstream of the Clovelly substation, including Port Fourchon, Golden Meadow, Leeville, and Grand Isle. The microgrid control system would serve load from the power station in the event of an outage on the existing Valentine – Clovelly 115 kV transmission line that currently serves as the only source of power to a diverse group of customers, including several industrial customers located at Port Fourchon, Louisiana.

Q11. CAN YOU PROVIDE AN OVERVIEW OF THE EXPECTED RESILIENCE BENEFITS FROM THE PROJECT?

A. It is important to note that the Project itself is expected to offer resilience benefits as it would be the only generation source in the area, thereby acting as a distributed energy resource. Beyond that, the Project has been designed with significant fundamental design aspects that are expected to provide significant resilience benefits. The major aspects of the project that are intended to provide significant resilience benefits are the Project's design as a floating power plant as well as the fast start and black-start capabilities. Finally, the associated microgrid offers further resilience benefits. The technical aspects of the Project's design are described in further detail in Mr. Dickens's Direct Testimony, while the details of the proposed microgrid are included in the Direct Testimony of Mr. Datta. In its totality, the Project and microgrid will assist the

Company's efforts to prepare for, adapt to, and recover from extreme weather events in the Leeville/Port Fourchon area and beyond.

Q12. CAN YOU EXPLAIN HOW THE PROJECT'S LOCATION OFFERS RESILIENCE BENEFITS?

A. As noted in the Direct Testimony of Ms. Beauchamp and Mr. Datta, the area in which the BPS would sit is vulnerable to storms and is served by a single transmission line with no nearby generation. This Project, if approved, would provide the area with a second source of electricity as well as local generation. This reality, combined with many of the resilient design features I discuss below, may be able to provide significant resilience benefits to local customers by acting as proactively-installed distributed generation. Proactively-installed distributed generation is generally more cost effective than post-event distributed generation – such as the temporary generators that may be brought in to serve critical loads in the aftermath of an extreme event – and is more likely to be available in the immediate aftermath of a major event or unexpected outages.

Q13. CAN YOU EXPLAIN HOW THE PROJECT'S DESIGN AS A FLOATING POWER PLANT OFFERS RESILIENCE BENEFITS?

A. As detailed by Mr. Dickens, the Project has been designed as a floating power station. The barge and mooring system are designed for 100-year storm events and are able to withstand 178 mph, 3-second gust wind and a maximum design surge including tide of 18 feet. These design features should enable the BPS to weather significant storm events while continuing to provide power through the event or to withstand the event so that it may take advantage of its fast start and black start capabilities to return to power generation as soon as is safely possible following the event. These design features also enable the BPS potentially to shorten the duration of outages and benefit customers following extreme events.

Q14. CAN YOU EXPLAIN HOW THE PROJECT'S FAST START AND BLACK-START CAPABILITIES OFFERS RESILIENCE AND OTHER BENEFITS TO A GRID WITH INCREASING NUMBERS OF INTERMITTENT GENERATION RESOURCES?

A. As explained in more detail by Messrs. Dickens and Datta, the RICE units are able to start and achieve full load in a very short period of time (about five minutes from warm engine), and they are able to start and stop multiple times in a single day. Both of these characteristics are critical to supplying generation when renewable resources are not available (e.g., on cloudy or rainy days, or after sunset). The fast start capability is a great option in a peaking or emergency situation. These engines can supply electricity on demand when renewable resources may not be available. This alternative also allows for partial load operation in the event there is not enough renewable energy available. As more and more intermittent resources are added to the grid to meet customer and utility sustainability goals and to achieve the energy savings that such resources provide, the availability of fast start resources such as BPS will become more and more important to ensure reliable service to customers. Moreover, the availability of fast start resources such as the BPS may help enable the reliable addition of more intermittent generation resources than would otherwise be possible while maintaining reliability on the grid.

Mr. Datta also explains that black-start capability is the ability of the plant to start up under its own power without a back feed of power from the electric grid. Typically, there is an auxiliary load supplied to the unit from the local switchyard. In the event of a complete loss of power, the floating power facility will have the ability to supply its own power to start-up and supply power to the grid as needed. This is a significant and much needed resilience benefit because, in the aftermath of an extreme weather event, due to damage to the grid, there may not be grid power available to start a generation resource that requires such power for startup.

Q15. CAN YOU EXPLAIN HOW THE PROPOSED MICROGRID OFFERS RESILIENCE BENEFITS?

A. As I mentioned previously, system resilience is the ability to prepare for, adapt to, and recover from non-normal events. While these solutions do not prevent damage during a weather event, microgrids and other non-wires alternatives ("NWAs") can improve resilience by helping modernize the Company's system and providing an alternative source to rapidly recover and help restore electric service when outages occur during major events. The distributed and de-centralized nature of the NWAs, especially when incorporated into the Company's larger resilience plan that helps ensure that the nearby wires infrastructure on which NWAs rely is appropriately hardened against extreme events, allows for an alternative, localized means of restoring power quickly after a disruptive event if the transmission or distribution systems in the broader region are damaged and not immediately available. In this manner, NWAs potentially shorten the duration of customer outages after extreme weather events.

However, in considering the value NWAs could bring to improving system resilience, it is important to remember that the microgrid, the communication and switching devices, and the local source of power must all be capable of surviving major storms or other disruptive events such that they are capable of operating immediately and safely after that event. Furthermore, the distribution system connecting the various parts of the microgrid together, including the local power source and the customers served by the microgrid, also must be hardened such that it is capable of surviving the disruptive weather event. Accordingly, hardening the identified distribution and transmission assets as part of the Company's larger resilience plan plays a critical role in implementing any NWAs, and, in order to take full advantage of these newer technologies, any investment in those technologies must be made hand-in-hand with an investment in hardening the Company's distribution and transmission systems. In this way, the proposed investments in hardening distribution and transmission assets further benefit ELL's customers by establishing a necessary, resilient framework and foundation for new and emerging technologies.

Q16. DOES THIS CONCLUDE YOUR DIRECT TESTIMONY AT THIS TIME?

A. Yes.

AFFIDAVIT

STATE OF TEXAS

COUNTY OF MONTGOMERY

NOW BEFORE ME, the undersigned authority, personally came and appeared, **SEAN MEREDITH**, who after being duly sworn by me, did depose and say:

That the above and foregoing is his sworn testimony in this proceeding and that he 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, he verily believes them to be true.

S Meredith
Sean Meredith

SWORN TO AND SUBSCRIBED BEFORE ME
THIS 26th DAY OF FEBRUARY, 2024

Carol Tompkins
NOTARY PUBLIC

My commission expires: February 01, 2025

NOTARY PUBLIC STATE OF TEXAS
CAROL TOMPKINS
My Notary ID # 130989368
Expires February 1, 2025

Listing of Previous Testimony Filed by Sean Meredith

DATE	TYPE	SUBJECT MATTER	REGULATORY BODY	DOCKET NO.
04/30/2021	Direct	ELL Storm Recovery Filing	LPSC	U-35991
07/23/2021	Supplemental	ELL Storm Recovery Filing	LPSC	U-35991
12/19/2022	Direct	ELL Resilience Plan Filing	LPSC	U-36625
11/13/2023	Rebuttal	ELL Resilience Plan Filing	LPSC	U-36625