BEFORE THE

LOUISIANA PUBLIC SERVICE COMMISSION

APPLICATION OF ENTERGY LOUISIANA, LLC FOR APPROVAL OF GENERATION AND TRANSMISSION RESOURCES PROPOSED IN CONNECTION WITH SERVICE TO A SIGNIFICANT CUSTOMER PROJECT IN NORTH LOUISIANA, INCLUDING PROPOSED RIDER, AND REQUEST FOR TIMELY TREATMENT	)	**DOCKET NO. U-_____**

DIRECT TESTIMONY

OF

MATTHEW BULPITT

ON BEHALF OF

ENTERGY LOUISIANA, LLC

PUBLIC REDACTED VERSION

OCTOBER 2024

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EXHIBIT LIST

I. INTRODUCTION AND BACKGROUND

Q1. PLEASE STATE YOUR NAME AND CURRENT BUSINESS ADDRESS AND OCCUPATION.

A. My name is Matthew Bulpitt. My business address is 2107 Research Forest Drive, Suite 300, The Woodlands, Texas 77380. I am the Vice President of Power Development for Entergy Services, LLC ("ESL"), the service company affiliate of Entergy Louisiana, LLC (ELL or the "Company").[1]

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

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

Q3. WHAT IS YOUR EDUCATIONAL BACKGROUND?

A. I graduated from LeTourneau University in May 2003 with a B.S. in Electrical Engineering and obtained a post-graduate certification in nuclear engineering with a focus on nuclear reactor design, construction, and operations from the US Navy's Bettis Reactor Engineering School in February 2005. Following my graduation from Bettis, I obtained a master's degree in Engineering Management from Old Dominion University.

[1] ESL (formerly, Entergy Services, Inc.) is an affiliated service company that provides engineering, planning, accounting, legal, technical, regulatory, and other administrative support services to each of the Entergy Operating Companies ("EOCs"). The EOCs are Entergy Arkansas, LLC, Entergy Louisiana, LLC, Entergy Mississippi, LLC, Entergy New Orleans, LLC, and Entergy Texas, Inc.

Q4. PLEASE TELL THE COMMISSION ABOUT YOUR PROFESSIONAL EXPERIENCE.

A. I served on active duty in the US Navy's Naval Nuclear Propulsion Program from November 2002 to June 2008 and worked as a government civil servant in the US Navy's Naval Nuclear Propulsion Program from June 2008 to August 2015. During my years of active duty and civil service, I held several engineering project management positions for the design and construction of nuclear instrumentation and control systems, propulsion plant instrumentation and control systems, and electric plant power generation and distribution systems for nuclear powered submarines and aircraft carriers. In 2015, I left the Navy to join ESL as a Manager, Capital Projects Transmission Group. In that role, I led the development of transmission capital investment projects in Texas. I then assumed the role of Senior Manager, Project Management in the Capital Projects Transmission Group, where I led a team of project managers responsible for the development of new transmission capital investment projects in Texas and Louisiana. In 2019, I became Director, Commercial Operations in Systems Planning & Operations ("SPO") where I managed procurement of long-term generation resources (one year or longer), including power plant acquisitions, renewable resource acquisitions, and power purchase agreements on behalf of the EOCs. In March 2021, I became the Director of Power Development, and I was promoted to my current position in May 2022.

Q5. DO YOU HOLD ANY PROFESSIONAL LICENSES?

A. Yes. I have been a licensed professional engineer in Texas since November 2015.

Q6. PLEASE DESCRIBE YOUR CURRENT JOB DUTIES.

A. In my role as Vice President, Power Development, I am responsible for managing a project development team focused on delivering competitive power generation and storage projects. I have worked on growing a solar project pipeline to over 3.8 GW for the EOCs and am currently significantly expanding the EOCs' gas turbine plant development portfolio. Additionally, I lead efforts to develop carbon capture installations, evaluate hydrogen and new nuclear projects, and manage partnerships with contractors and major equipment providers for successful project execution. I also provide expert testimony in support of proceedings to secure regulatory approvals.

Q7. HAVE YOU PREVIOUSLY TESTIFIED BEFORE THE COMMISSION?

A. I have not previously testified before the LPSC, but I have testified before a number of other state commissions. A list of my prior testimony is attached as Exhibit MB-1.

Q8. WHAT IS THE PURPOSE OF YOUR DIRECT TESTIMONY?

A. My testimony is submitted in support of the Application. In my testimony, I discuss: (1) the Combined Cycle Combustion Turbine ("CCCT") generator technology required to serve a new [redacted] which [redacted] (the "Customer") plans to build in Richland Parish (the "Project") taking into consideration system reliability, resiliency, sustainability, cost-competitiveness, and the timeline requirements of the Customer; (2) the estimated cost, construction process and schedule to construct two CCCT units that will be located next to the Customer Project site in Richland Parish ("Units 1-2"); (3) the process through which ELL plans to contract for the construction of a third CCCT Unit which will be sited at another as yet to be determined location within ELL's Southeast Louisiana Planning Region ("SELPA") ("Unit 3"); (4) the engineering, procurement, and construction ("EPC") contractor project management risk mitigation plan implemented for the Customer Project; and (5) how the CCCT Units will be configured to enable carbon capture and storage ("CCS") technology to meet future federal emission standards.

Q9. HAVE YOU OFFERED ANY EXHIBITS WITH YOUR TESTIMONY?

A. Yes. I have offered the exhibits listed in the Table of Contents. These exhibits were prepared under my supervision and are sequentially numbered with the prefix "MB."

II. CCCT TECHNOLOGY

Q10. PLEASE DESCRIBE THE GENERATORS PROPOSED BY ELL IN ITS APPLICATION.

A. The Customer Project requires the construction of three 1x1 combined cycle combustion turbine ("CCCT") generators to meet the combined load requirements of the Customer and ELL's existing customers. To meet bulk electric system ("BES") compliance and operational reliability and flexibility requirements, two of the generators will be located next to the Customer Project site in Richland Parish. The site for the third generator is still under study but will be located in SELPA. Each CCCT unit is expected to provide approximately 754 MW (nominal) of CCCT generating capacity and consist of one Mitsubishi Power Americas ("MPA") 501 JAC CT, one Nooter Eriksen HRSG with duct firing and SCR, and one MPA ("STG") in a 1x1 combined-cycle configuration, together with other balance of plant equipment, including the use of an air-cooled condenser for closed-cycle cooling operations. By design, the MPA 501 JAC CT is capable of approximately 30% hydrogen co-firing, with the capability of supporting 100% hydrogen firing in the future with upgrades. In addition, the layout of the generation site can accommodate CCS infrastructure and operations in proximity to the site. These two design capabilities provide important optionality and help ensure that the CCCT units will be able to provide sustained value for ELL customers for decades to come.

Q11. DOES ELL HAVE EXPERIENCE CONSTRUCTING CCCTS?

A. Yes, ELL has extensive experience with CCCTs and benefits also from the additional substantial experience of the other EOCs. For example, Entergy Texas completed construction of the Montgomery County Power Station ("MCPS") in late 2020, and, after testing, placed that facility in service on January 1, 2021, approximately six months ahead of schedule and below budget. Before MCPS, ELL constructed and placed in service the J. Wayne Leonard Power Station (formerly the St. Charles Power Station) ("JWLPS") in 2019 and the Lake Charles Power Station ("LCPS") in 2020. These two generation facilities are materially identical sister units to MCPS. In addition, ELL completed Nine Mile 6, another self-build combined-cycle facility, in 2015, roughly 10% under budget and months ahead of its projected in-service date. Each of these facilities support reliability and produce cost savings for ELL customers. Lastly, Entergy Texas, Inc, ("ETI") currently is constructing the Orange County

Advanced Power Station ("OCAPS") CCCT in Bridge City, Texas, which has a target commercial operation date of May 2026.

Q12. WHY DID ELL SELECT CCCT TECHNOLOGY FOR THE CUSTOMER PROJECT?

A. CCCT technology provides efficient, around the clock, reliable generating capability and is considered throughout the industry to be the best available technology for limiting greenhouse gas emissions when combusting fossil fuels for electrical generation. Additionally, as further discussed below, the high load factor load and accelerated timeline demanded by the Customer made CCCT technology the only viable generation solution.

Q13. WHAT ARE THE MAJOR COMPONENTS OF A CCCT GENERATOR?

A. A combined cycle combustion turbine generator plant consists of several major components:

Combustion Turbine: This is the primary component that burns fuel to generate hot gases. It consists of a compressor, combustion chamber, and turbine. The compressor draws in air, compresses it, and then sends it to the combustion chamber where fuel is added and ignited. The resulting high-temperature gases expand through the turbine, generating mechanical power. This mechanical power is sent to an electrical generator, as discussed further below.

Heat Recovery Steam Generator (HRSG): After passing through the gas turbine, the exhaust gases are directed to the HRSG. This component captures waste heat from the exhaust to produce steam.

Steam Turbine: The steam produced by the HRSG is used to drive a steam turbine. As the steam expands through the turbine, it generates additional electricity, enhancing the overall efficiency of the system.

Generator: Both the gas and steam turbines are connected to generators. The mechanical energy from the gas and steam turbines is converted into electrical energy in these generators. There is one generator for the gas turbine, and one for the steam turbine. Each generator has an electrical connection to the transmission grid.

Air Cooled Condenser (ACC): This component condenses the steam back into water after it has passed through the steam turbine to do work to make electricity. ACCs use ambient air to cool and condense the steam.

Auxiliary Systems: These include fuel supply systems, water treatment systems for steam generation, and emissions control systems to meet environmental regulations.

Q14. PLEASE EXPLAIN HOW A CCCT GENERATOR OPERATES.

A. Generally, CCCT generators use exhaust heat and steam generated by gas turbines to power a generator that, in turn, produces electricity. CCCTs are highly efficient sources of power generation in part because they include use of a heat recovery steam generator ("HRSG") system which captures the exhaust heat from the gas turbine and uses it to produce steam, which generates additional electricity. Operating Combustion Turbine Generators ("CTGs") in a combined-cycle configuration for power generation is a proven process that offers high efficiency in converting fuel to electrical power, provides flexible load-following automatic generation control capability, and has the capability to cycle off-line and provide relatively short restart optionality.

Q15. HOW DOES CCCT TECHNOLOGY DIFFER FROM OTHER GAS FUELED GENERATORS?

A. The CCCT can achieve full power operation within a few hours of starting, thus providing flexibility for dispatching purposes. Also, because CCCT technology uses natural gas, which has a *de minimis* sulfur content, it does not produce significant sulfur dioxide emissions. CCCT technology is considered throughout the industry as the best available technology for limiting greenhouse gas emissions when combusting fossil fuels for electrical generation. Additionally, the Company has evaluated control technology performance and costs and selected a variety of controls that will meet standards for all affected pollutants (including greenhouse gas). The future ability to co-fire hydrogen, which emits no CO_2, will further improve the emissions profile of the units.

Q16. EXPLAIN HOW THE ENVIRONMENT AND OTHER CONDITIONS AFFECT THE CAPACITY OF A CCCT.

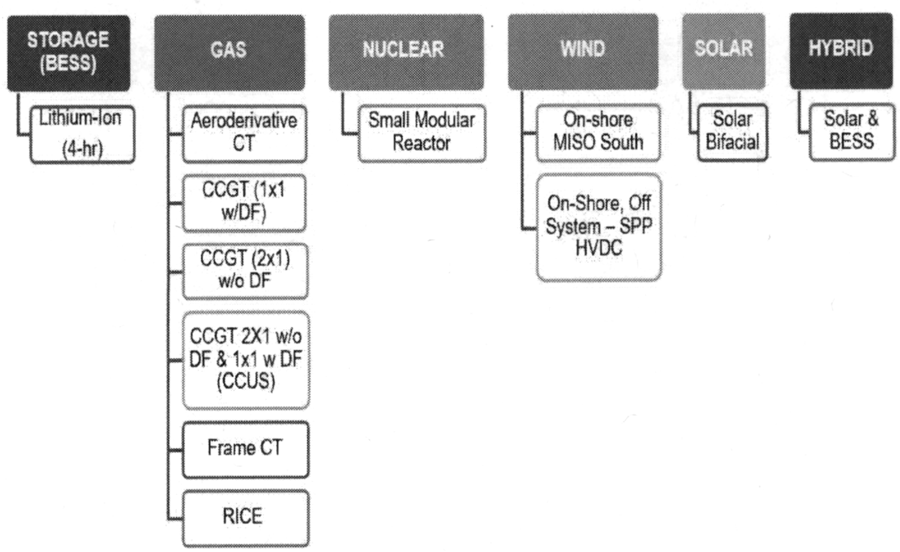
A. The actual maximum output of the units will vary depending on several factors, including: ambient temperature, relative humidity, Btu content of fuel delivered at the unit, and number of operating hours since the last maintenance interval. By way of illustration, in a new and clean condition, the CCCTs would be expected to generate approximately 754 MW, based on iso ambient conditions of 59 degrees Fahrenheit and 60% relative humidity. Under summer conditions of 97 degrees Fahrenheit and 56% relative humidity, the CCCTs would be expected to generate approximately 723 MW. Their nominal heat rate is [redacted].

Q17. WHAT OTHER GENERATION OPTIONS DID ELL CONSIDER?

A. As part of its long-standing environmental stewardship and as the operator of one of the cleanest generation fleets in the nation, Entergy Corporation's commitment to reduce utility emissions by 50% below 2000 levels and achieve net-zero greenhouse gas ("GHG") emissions by 2050 requires a continued transformation of its generation portfolio. The Integrated Resource Plan ("IRP") process evaluates available generation alternatives to meet customer energy needs in accordance with planning objectives. As part of this process, the Company assesses available generation and storage technology to identify a range of potential supply-side resource alternatives that merit more detailed analysis due to their potential to meet ELL's planning objectives of balancing affordability, reliability, and sustainability.

Each EOC, with technical support from my group and others, conducts an evaluation of the cost-effectiveness and feasibility of deployment for many potential supply-side resources. The three-phased (*i.e.*, Technical, Economic, Technology Selection) process to select generation alternatives considers qualitative and quantitative criteria and results in a final selection of supply-side resources that are best positioned to meet customer energy needs in accordance with each EOC's planning objectives.

In the technical evaluation, potential supply-side resources are evaluated relative to technology maturity, environmental impact, operational characteristics, fuel availability, and feasibility of deployment to serve the particular areas served by a given EOC. In the economic evaluation, the EOC develops and compares technology alternatives relative to capital and O&M cost estimates, including renewables, energy storage, and conventional generation with carbon capture and hydrogen co-firing pathways. Following the economic screening, the supply-side resources selected for inclusion in the capacity expansion models are those deemed to be the most feasible to serve the EOC's generation needs based on comparative cost and performance parameters, deployment risks (cost/schedule certainty), and emerging commercial, technical, and policy trends. Each EOC continually evaluates existing, new, and emerging technologies to inform deployment decisions and build a balanced generation portfolio that optimizes its planning objectives. For this Customer, the following technologies were considered to one degree or another:



However, as I explain further below, early in this process, certain of these technologies were determined not to be viable options to serve the Customer's Project due to technology lead-times that did not align with the required timeline for the Customer Project or due to fundamental differences between the capabilities and limitations of a particular technology, on the one hand, and the fundamental needs and circumstances of the Customer's Project, on the other. For that reason, it was neither reasonable nor necessary to proceed through the three steps I describe above for all of the above shown technologies. Company witness Laura Beauchamp in her Direct Testimony discusses how ELL's resource planning team used and applied the technical information supplied by my team in evaluating combinations of specific resources and resource locations to serve the Customer's Project.

Q18. WHY WERE OTHER OPTIONS FOR TECHNOLOGY TO SERVE THIS CUSTOMER PROJECT ULTIMATELY REJECTED?

A. This Customer represents a very large load addition compared to ELL's existing load and compared to any past customer load addition. Also, this Customer is requesting service on a highly accelerated timeline. Next, this load has a very high load factor, which requires generation with a very high-capacity factor to serve it reliably and cost effectively. ELL's planning model has been and will continue to be based on balancing affordability, reliability, and sustainability. CCCT technology is the only solution that balances all three legs of our planning objectives, while adding generation capacity at the pace this Customer demands. Traditional renewables serve an important role in the planning of ELL's future generation needs. However, even when paired with available battery technology, solar and wind do not provide the capacity and energy required to serve this Customer's load. While nuclear solutions could provide the required capacity and energy, they are not viable due to development timelines and cost.

Q19. WHAT ARE THE LIMITATIONS OF CCCT TECHNOLOGY?

A. CCCTs offer several advantages over other generation technology. As I mentioned earlier, CCCT generators are highly efficient and considered to be the best available technology for limiting greenhouse gas emissions when combusting fossil fuels for electrical generation. Like all available technology, CCCTs also have certain limitations. Here are some of the limitations to CCCT technology:

Dependence on Natural Gas: CCCTs rely heavily on natural gas, making them vulnerable to price volatility and supply constraints. In her Direct Testimony, Company witness Laura Beauchamp addresses ELL's plan for delivery of gas to the CCCTs as well ELL's plan to recover costs for the gas.

Greenhouse Gas Emissions: While CCCTs produce substantially lower emissions than coal-fired plants, they still emit significant amounts of CO_2 and other pollutants. As discussed further below, each CCCT will be CCS-enabled such that installation of necessary duct work to convey exhaust gases from the CCCT to a CCS facility could be installed with little to no obstruction. The application of CCS to the CCCTs will comply with the EPA's new source performance standard ("NSPS") that imposes a Phase 2 CO_2 emission standard for new baseload CCCTs beginning on January 1, 2032. Additionally, as Company Witness Jeremy Halland explains in his Direct Testimony, implementing CCS capabilities would reduce the CO_2 emissions by approximately 95%.

Water Usage: CCCTs require water for cooling and steam generation. This has largely been mitigated for these units because we are using ACCs, as noted above.

Capital Costs: Although lower than nuclear plants, the initial capital investment for CCCTs can still be substantial compared to other generation technologies.

Operational Flexibility: While CCCTs are more flexible than coal and nuclear plants, they have limitations on rapid cycling and load fluctuations.

Site Constraints: The optimal location for CCCT plants often requires proximity to gas supply and suitable water, which may limit site options.

Maintenance and Reliability: While generally very reliable, gas turbines require regular maintenance, which requires careful scheduling for planned maintenance outages.

Importantly, CCCTs are only one part of ELL's broader energy strategy that includes a diverse mix of generation technologies. However, as I mentioned before, CCCT technology is the only viable generation to address the high load factor load of the Project while balancing reliability, affordability, sustainability, and the Customer timeline.

Q20. HOW DO YOU EFFECTIVELY SCOPE AND BUDGET FOR A CCCT BUILD?

A. Our process includes the following:

1. Project Definition

Capacity Requirements: The EOC pursuing the CCCT project and our resource planning organization determine the desired output capacity additions and generation technology based on demand forecasts.

Location Assessment: Evaluate potential sites for accessibility to fuel supply, water sources, and grid connectivity.

2. Scope Development

Design: ESL has a standard design for its 1x1 CCCTs, which reduces risk and improves development timelines. This standard design and the associated specifications and standards that ESL has developed, while mostly applicable to all locations, have some requirements that entail detailed engineering to ensure they are properly applied to account for site specific constraints, such as proximity to access roads, foundation design differences due to different soil conditions, location/proximity to gas supply, and transmission interconnection location.

Regulatory Compliance: Identify local, state, and federal regulations, including environmental assessments.

Project Phases: The project team will break down the project into phases (design, construction, commissioning, operation) based on the specific project and customer needs.

3. Cost Estimation

Capital Expenditure (CAPEX): Estimate costs for equipment, construction, site preparation, and commissioning. This includes:

Gas turbines and HRSG

Steam turbine and generator

Balance of plant (electrical systems, cooling, etc.)

Infrastructure (roads, buildings)

Operational Expenditure (OPEX): Estimate ongoing costs such as fuel, maintenance, labor, and utilities.

Contingency Planning: Develop a risk register and estimated contingency for project unknowns. The contingency estimate is included in the overall project estimate.

4. Project Timeline

Schedule Development: Create a detailed timeline for each project phase, including design, procurement, construction, and commissioning.

Milestones: Identify key milestones for tracking progress and ensuring timely delivery

5. Risk Management

Risk Assessment: Identify potential risks (technical, financial, regulatory) and develop mitigation strategies. These risks are also used in the estimate development, as noted above.

Monitoring Plans: Establish processes for ongoing monitoring and adjustment as the project progresses.

6. Stakeholder Engagement

Communication: Develop a plan for communicating with stakeholders, including local communities, regulators, and investors.

ELL's project management approach will follow Entergy's Project Delivery System ("PDS") Policy, Standards and Guidelines in support of driving consistency and certainty in project delivery outcomes. The PDS provides a framework to ensure

Entergy's 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 also 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/Assessment and Approvals.

Q21. WHAT IS THE TYPICAL TIMELINE TO DEVELOP AND BUILD A CCCT?

A. Our experience as a Company with previous CCCT projects has been that the lead time, from conception through approval and construction, for adding a new CCCT unit was approximately 5 years. Table 1 below provides the timelines for the construction of our most recent new CCCT resources, all of which correlate with the 5-year timeframe historically.

Table 1

	RFP Notice Issued	Regulatory Filing	Regulatory Approval	COD
Nine Mile 6	3/31/09	6/21/11	4/05/12	12/24/14
JWLPS	6/02/14	8/25/15	12/14/16	5/23/19
MCPS	N/A	10/07/16	7/28/17	1/01/21
LCPS	6/27/15	11/02/16	7/20/17	3/28/20
OCAPS	N/A	9/16/21	11/15/22	5/2026

That said, the market is evolving, and the current timeline to construct a CCCT is increasing due to a more constrained supply chain and significant increases in lead times for critical components. As of now, factoring in the requirements placed on ELL by the Commission's Market Based Mechanisms Order and the 1983 General Order, it is unlikely that a new CCCT generation facility could be conceived, designed, market tested, approved, and constructed in less than 6 years.

III. UNITS 1-2 TIMELINE AND COST

A. Schedule and Project Management

Q22. YOU HAVE TESTIFIED THAT ELL PROPOSES TO BUILD TWO CCCT GENERATORS FOR THE PROJECT THAT WILL BE LOCATED NEXT TO THE CUSTOMER FACILITY. HOW DID THE CUSTOMER'S PROJECT TIMELINE

AND LOAD IMPACT ELL'S SELECTION OF THIS PARTICULAR GENERATOR TECHNOLOGY FOR UNITS 1-2?

A. As noted above, the high load factor load and accelerated timeline demanded by the Customer made CCCT technology the only viable generation solution. ELL also chose a standardized 1x1 CCCT power plant design with which it has significant experience.

Q23. WHAT IS THE ESTIMATED TIMELINE TO CONSTRUCT UNITS 1-2?

A. Substantial Completion by the EPC Consortium (i.e., the group of companies that will be engaged to provide engineering, procurement, and construction services to build Units 1-2) is expected in November 2028, with commercial operation expected by the end of December 2028, [redacted] after Limited Notice to Proceed (LNTP). The EPC Consortium will receive financial incentives for early completion and required to pay liquidated damages for delayed completion.

Q24. WHAT ARE THE KEY MILESTONES IN THE PROJECT SCHEDULE?

A. Table 2 identifies the key milestones in the schedule:

Table 2 (Contains HSPM)

Key Project Milestones (Units 1-2)

Milestone	Date
LNTP	[redacted]
Expected Receipt of Air Permit	
FNTP	
Delivery of HRSG	
Delivery of Combustion Turbines	
Delivery of Steam Turbine	
Substantial Completion	
Commercial Operation	December 2028

Q25. HOW DID ELL SELECT A VENDOR FOR THE MAJOR COMPONENTS (*E.G.*, THE TURBINES) OF UNITS 1-2?

A. To meet the 2028 in-service deadlines and the customer load ramp schedule, ELL leveraged ETI's competitive solicitation for Power Island Equipment ("PIE") for a CCCT that was performed in 2023. The solicitation for the PIE constituted the major components (*i.e.,* the CTs, HRSG, and STG) comprising a significant portion of the cost of the CCCTs. [redacted] Sargent & Lundy ("S&L") provided a thorough and detailed description of the proposals received [redacted] its analysis and evaluation of those bids, and an ultimate recommendation regarding which bid to accept in a Letter of Recommendation ("LOR") to ESL in November 2023. That LOR recommended ESL, on behalf of ETI, award the supply of the PIE to Mitsubishi Power.

Q26. HOW DOES ELL PROPOSE TO MANAGE CONSTRUCTION OF UNITS 1-2?

A Given the magnitude of the project and the Company's existing infrastructure for construction and project management, ELL determined that it would be appropriate to use an EPC contractor in conjunction with the Company's management team.

Q27. WHAT WILL BE THE PROJECT MANAGEMENT APPROACH TO UNITS 1-2?

A. The project management approach will follow Entergy's PDS Policy, which I explained above. This process has been consistently used in the successful construction of new CCCT power plants such as MCPS, LCPS, JWLPS, and NM6, all of which came in early and under budget, and it is currently being implemented for OCAPS.

Q28. PLEASE DESCRIBE HOW ELL'S PROJECT MANAGEMENT APPROACH TO CONSTRUCT UNITS 1-2 DIFFERS, IF AT ALL, FROM OTHER CCCT PROJECTS THE COMPANY HAS UNDERTAKEN.

A. There are no differences of significance, other than ELL will encounter greater risk because of the accelerated pace of the Project. Key areas where additional information is still being collected are the site-specific geotechnical information, transmission deliverability scope/costs, and gas supply details. ELL has included an appropriate level of contingency in its estimates to account for these variables. Company Witness Dan Kline's Direct Testimony addresses transmission deliverability risks.

Q29. WHY DOES ELL PROPOSE TO USE AN EPC CONTRACTOR IN THE FIRST INSTANCE?

A. Large construction projects such as these CCCTs are substantial undertakings, and the Company does not have the in-house capability necessary to execute the EPC for such a project. Engaging an EPC contractor that performs these functions under a single contract is cost-effective and common within the power generation industry for such projects.

Q30. IS THERE A SINGLE COMMON FORM OF EPC CONTRACT?

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 certainty they provide regarding a project's overall cost. When a project's scope of work 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. In 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.

Q31. WHAT EPC CONTRACTING STRATEGY WILL BE USED FOR THE NEW CCCTS?

A. ELL intends to negotiate a fixed-price (with certain exceptions), fixed-schedule form of EPC contract that reflects a detailed scope of work. ELL chose this approach because it provides predictability, reduced financial risk, and cost and schedule transparency. If Limited Notice to Proceed ("LNTP") is issued after the executed contract date, any escalation will be determined pursuant to well-defined terms in the EPC agreement, which I discuss later in my testimony. The contractor must complete construction within [redacted] (aligned with the planned in-service date) of receiving LNTP 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 as defined in the agreement.

Q32. WHY DID ELL ELECT TO USE THIS FORM OF EPC CONTRACT?

A. This EPC strategy is expected to yield the lowest reasonable cost with an adequate level of risk mitigation when the project site can accommodate a standard combined-cycle or simple-cycle design and minimal retrofit into an existing site is needed. ELL, working with the EPC Consortium, was able to develop site plans that would accommodate a standard combined-cycle and simple-cycle design and minimize the retrofit scope. This project readily lends itself to the EPC agreement structure selected by the parties.

Q33. IS THE EPC CONTRACTOR BEING SELECTED THROUGH THE SAME PROCESS FOR ALL THREE CCCTS?

A. No. As previously mentioned, and as discussed in more detail by Ms. Laura Beauchamp, the Customer's urgent need for capacity and energy by [redacted] precluded the Company from conducting a Request for Proposals for two of the three required CCCT units; however, the third unit is targeted for a 2029 in-service date. That additional time will permit ESL to conduct a competitive procurement event to select the EPC partner for the third CCCT. The details as to location, estimated project costs, and schedule for the third CCCT unit will be finalized within the first two quarters of 2025. My testimony below explains the Company's process for selecting the EPC Contractor for the two CCCTs that will be located next to the Customer's site.

The fixed-price EPC market has changed from the time of MCPS's EPC contract execution to today, as some major contractors no longer build power plants or support fixed-price execution strategies. A consortium was selected as the EPC contractor for the development of two CCCTs to give ELL the opportunity to reduce project risks and improve power plant efficiency. The EPC Consortium is the same one selected to develop and is now executing the OCAPS project. The benefits of selecting the same EPC Consortium for two CCCTs include lower risk of counter-party default (joint and several three way), engineering design experience, and stronger constructability capabilities. Project organization was based on the strengths of each partner, creating a stronger EPC execution team capitalizing on mutually established partnering rules and longstanding trust combined with the financial stability, strengths, experience, and relationships of each organization. Those strengths include the following:

- S&L (engineering/procurement)
  - Extensive history with Entergy as Owner's Engineer.
  - Industry-leading experience in combined-cycle engineering.
  - Strong history of successful EPC joint venture projects with Kiewit/TIC.
- TIC – The Industrial Company (procurement/construction)
  - Ranked #4 in 2023 by Engineering News Record in Top 400 Contractors.
  - Industry-leading safety record.
  - Strong history of successful EPC joint venture projects with S&L.
  - Culture of eliminating change orders in the beginning with the end in mind.
- MPA (OEM of major equipment)
  - Winning bidder from the PIE RFP, as discussed above.
  - Highest output combined with the lowest heat rate in the market today.
  - Proven operation and reliability.
  - Number one market share in advanced class turbine market.

The decision to pursue negotiations with the EPC Consortium was also supported by ELL management's favorable assessment of the EPC Consortium companies' expertise in the management of similar-type construction project, and experience in the regional construction market. This experience with the selected EPC Consortium also provides a critical benefit in terms of being able to bring the two CCCTs into service within the time frame required to reliably serve the Customer.

Q34. WHAT ACTIVITIES WILL THE SELECTED EPC CONTRACTORS PERFORM?

A. Under the EPC contract structure, the EPC Consortium will act as an independent contractor with respect to the EPC services defined in the scope of work. As previously mentioned, MPA's participation as a member of the EPC Consortium will allow for full coordination and scheduling for delivery of the PIE to meet the fixed schedule provided in the agreement. The EPC Consortium will also provide a "wrap" (*i.e.*, guarantee) of the commitments on schedule and performance for the entirety of each project, providing for risk mitigation if there are delays or performance shortfalls.

Q35. FOR ANY OF THE GENERATORS, HAVE ELL AND THE EPC CONTRACTORS AGREED ON THE TERMS OF THE EPC AGREEMENT?

A. The Company is negotiating the contract and expects that a definitive EPC agreement will be executed in the near term. However, the general terms and conditions of the EPC contract have been agreed upon and are summarized in Exhibit MB-2 (HSPM). Again, selection of the same EPC Consortium used for prior projects has benefited ELL in terms of reduced transaction costs, including reducing the commercial negotiation time, which facilitated deployment of these critical resources within the time frame required.

Q36. FROM A PROJECT MANAGEMENT PERSPECTIVE, HOW IS ELL MANAGING SITE CONDITIONS FOR UNITS 1-2?

A. We based the current design and estimate on available soil borings for the area and included some contingency for reasonably expected differences in final site conditions. ELL has obtained site access and is in the process of obtaining site specific soil borings.

Q37. DO YOU ANTICIPATE ANY SITE CONDITION ISSUES FOR UNITS 1-2 THAT MAY CAUSE DELAYS SIMILAR TO AN ENTERGY PROJECT IN TEXAS?

A. ETI recently extended the procedural schedule in its proceeding at the Public Utility Commission of Texas for the Legend CCCT resource. ETI is currently working to address certain scope and cost developments related to the Legend project that is the subject of ETI's application in that docket, which are primarily site-specific and site-driven, and include mitigation of subsurface soil conditions. We do not, at this time, anticipate similar issues for Units 1-2, and the imminent site-specific soil borings I mentioned above will allow us to resolve any remaining risk in this regard.

B. Units 1-2 Capital Costs

Q38. WHAT IS THE EXPECTED COST TO BUILD UNITS 1-2?

A. The current capital cost estimate for two CCCTs is approximately $1.193 billion per unit. As set forth in the Table 3 below, this amount is included in the estimated $2.381.9 billion associated with the generation portion of the project, or roughly $1,631 per kW. There will also be costs for required transmission system upgrades that are more fully addressed in the Direct Testimony of Company Witness Laura Beauchamp. A summary of the components of the current cost estimate is shown below in Table 3:

Table 3 (Contains HSPM)

Capital Cost Estimate (Millions) for Units 1-2

	Total	
EPC Contract	[redacted]	
Other Vendors		
Entergy Labor		
Other Expenses		
Total Direct Cost		
AFUDC		
Other Indirect Costs		
Total Indirect Cost		
Contingency		
Generation Project Cost	$	**2,381.9**
Transmission Interconnection Project Cost	$	**4.7**
Transmission Upgrades Project Cost	$	**0.0**
Total Project Cost	**$**	**2,386.6**

Q39. HOW WAS THE COST ESTIMATE DEVELOPED?

A. The following resources were used to develop the two major cost components for this project:

1. **EPC agreement costs ("EPC Costs")**: The EPC Consortium, at the request of ESL, provided a cost estimate based on preliminary engineering developed with the site-specific information gathered by the project team. OCAPS best practices were applied to the design basis. The EPC Consortium's EPC estimate formed the basis of the EPC Costs contained in the proposal approved by ELL management.

2. **Costs outside of the EPC agreement ("Non-EPC Costs"):** The project team developed these costs using internal subject matter experts. I will expand upon the components of the Non-EPC Costs later in this testimony.

Q40. DID ELL HAVE SUFFICIENT DESIGN INFORMATION TO REACH A REASONABLE COST ESTIMATE?

A. The project team, working with the EPC Consortium, developed a site-specific preliminary design and cost estimate. As stated, the largest single component of the total project cost estimate is the EPC Costs. The EPC Consortium developed preliminary engineering using site-specific detail for the design basis, incorporating the MPA 501 JAC-series CT. The EPC Consortium utilized job-specific general arrangement drawings, piping and instrument diagrams, computer models, arrangements sketches, and electrical one-line diagrams. The design approach is based on a set of technical specifications that has been developed through the course of executing the previous three Mitsubishi-based combined-cycle facilities (MCPS, LCPS and JWLPS) and carries forward lessons learned from those projects, as well as lessons learned to date in the engineering execution of OCAPS. Quantities were developed to reflect the Project site and process conditions utilizing input from the EPC Consortium's current in-house estimates for similar CCCT projects updated to reflect specific layouts, processes, and design definition for the site. Piping quantities were based on the development of a 3D plant model. The design was reviewed by the project team and was found to be reasonable.

Q41. IS THE CONSTRUCTION PRICING FOR THE TWO NEW CCCTS FIXED?

A. Mostly, but not completely. The Non-EPC Costs are not fixed. Moreover, while the EPC contract price is fixed assuming the defined scope of work and a timely LNTP, other factors such as changes in scope, *force majeure* events, market escalation, delay in notice to proceed, craft labor attraction needs, or changes in law could affect EPC Costs.

Q42. WHAT KINDS OF COSTS ARE INCLUDED IN THE EPC COST ESTIMATE?

A. EPC Costs are expected to include the following:

1. Engineered equipment, including the CTGs, STG, HRSG, GSUs, boiler feed pumps, and auxiliary transformers.
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 the EPC 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 on consumables.
9. Labor and materials associated with the dedicated start-up and commissioning teams.

Q43. WHAT COSTS ARE INCLUDED IN THE NON-EPC COST ESTIMATE?

A. Costs included in the Non-EPC Cost estimate will be incurred by the Company directly and include:

1. Other Vendors and Expenses: There is a wide range of services captured in the Other Vendors and Expenses category, including contract personnel on the project management team, the rental of temporary office trailers, construction power, environmental permitting services, the cost of permit applications, site inspections and surveys, transmission studies, gas pipeline charges during the construction period, gas used during commissioning, miscellaneous consumables related to safety and office supplies used during project execution, consultant fees, and non-EPC costs. The estimate for this line item was informed by the actual costs of MCPS, as well as those for LCPS and JWLPS.
2. Entergy Project and Construction Management: Project management costs include internal labor and third-party costs for activities such as project oversight and environmental permitting. Construction management includes internal and third-party personnel to manage any agreements to engineer, procure, and construct the project.
3. Indirect Loaders: This category includes capital suspense estimated at approximately 1% of all capital costs and a variable benefits loader. All other payroll loaders are included in the direct costs of the other categories.
4. Regulatory: This category includes an estimate of the internal and external costs associated with obtaining Commission certification.

5. Transmission Interconnection: Company witness Daniel Kline addresses transmission interconnection in his Direct Testimony.
6. Transmission System Upgrades: Company witness Daniel Kline addresses transmission system upgrades in his Direct Testimony.
7. Project Contingency: This is a general contingency that addresses the fact that construction projects of the cost, magnitude, and time duration of this project have cost elements that are subject to some level of uncertainty and beyond the reasonable control of the Company and its management. Even with a fixed-price EPC agreement and a well-defined scope of work, experience demonstrates that unpredictable events such as discovery of unknown site conditions or changes in laws or regulations can require change orders that affect project costs. Thus, a contingency must be included in order to provide a reasonable estimate of the ultimate cost to complete the project. The current project cost estimate contains a contingency line item of approximately 7% of the total project costs, which is reasonable for a project of this nature.
8. AFUDC: This represents the Company's financing costs for development and construction of the project. [redacted]

Q44. DOES THE COST ESTIMATE REFLECT COST ESCALATION ADJUSTMENTS AND CONTINGENCIES?

A. The cost estimate component for Project 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 on each project, but it is possible that some of these risks, if realized, could cause cost increases beyond the contingencies included in the cost estimates. The Company does not seek to recover any unused project contingency. To avoid paying a substantial premium, the EPC contract will include a true-up mechanism for specific categories of costs related to transportation and engineered equipment. This mechanism will allow a true-up (in the aggregate) of the actual escalation cost of the engineered equipment with a capped amount. As for the transportation cost of the major equipment, it will be trued up at actual cost with no markup. Additionally, potential wage rate escalation on craft labor and per diem could pose a risk as a result of the potential labor shortage in the Gulf Coast region due to ongoing and proposed industrial capital investment. To mitigate this risk, the agreed-upon EPC terms and conditions include a true-up mechanism, similar to that for equipment, that would allow the EPC Consortium to request up to an agreed-upon dollar amount during the course of the agreement based upon increases in actual costs for direct craft labor if necessary to address demonstrated cost escalation. An estimate for the potential increase in these escalation factors has been included in the contingency estimate for Units 1-2.

Q45. SHOULD THE COMMISSION BE AWARE OF ANY PARTICULAR COSTS NOT INCLUDED IN THE TOTAL COST ESTIMATE?

A. As further discussed in the Direct Testimony of Company Witness Daniel Kline, the transmission delivery costs are not included.

Q46. DO YOU BELIEVE THE COST ESTIMATE FOR THE TWO NEW CCCTS IS REASONABLE?

A. Yes. The structure of the EPC agreement will provide a reasonable level of certainty in the cost estimate for the generation portion of the project. Additionally, the project team and the EPC Consortium spent considerable time and resources developing a detailed scope of work in an effort to reduce the likelihood of change orders that may result in material cost increases. Moreover, the Company leveraged benchmarking data from a third-party independent consultant (Power Advocate) and an additional market check by comparing the EPC estimate to an independent EPC estimate by Black & Veatch—a well-qualified EPC firm with recent construction experience with CCCT units using the same MPA 501 JAC CT. All of these efforts give the Company confidence in the EPC Costs included in the overall cost estimate for the generation portion of this project.[2]

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[2] As more fully discussed in the Direct Testimony of Company witness Daniel Kline, certain transmission cost estimates included in the overall project cost estimate are subject to the final results of the MISO Generator Interconnection Process. The cost estimates for the potential transmission upgrades discussed by Mr. Kline provide insight into the expected transmission costs associated with this Project.

Q47. ARE YOU CONFIDENT THAT THE COST ESTIMATE FOR UNITS 1 AND 2 IS COMPETITIVE WITH THE MARKET FOR SIMILAR PROJECTS?

A. Yes. Based on the process for developing the cost estimate, including the Power Advocate benchmarking data that I previously mentioned, the construction cost estimate for this project is consistent with current market pricing for similar projects and is competitive with other pricing. Two primary benchmarks were evaluated with Power Advocate: (1) Contractors G&A and Fee and (2) EPC contingency. The Contractors G&A and Fee was found to be within the benchmarking range at [redacted] while the EPC contingency was found to be [redacted] Also, the PIE RFP, designed and implemented by S&L on ELL's behalf, ensured that the main equipment necessary for construction was procured at a competitive price. In addition, the check estimate obtained from Black & Veatch for a comparable project was used to compare quantities, rates, labor hours, equipment cost and total costs. This comparison, with adjustments made for comparability, indicates that the EPC Consortium's estimate is indeed competitive. Finally, the open book process allowed the project team full access to the EPC estimate and justifications, allowing for full comprehension of how the costs were determined.

C. Units 1-2 Operations & Maintenance Expenses

Q48. HAVE ESTIMATES OF O&M COSTS THAT WILL BE INCURRED IN OPERATING THE NEW CCCTS BEEN PREPARED?

A. Yes. The project team has prepared O&M cost estimates and provided them to Company witness Ryan Jones for use in estimating the first-year revenue requirement associated with the CCCTs. The estimates are based on the current best understanding of what equipment will be installed at each project site and on several other assumptions related to operating systems and conditions for the respective units beginning in 2028. The estimates also include assumptions regarding a general inflation rate, a payroll escalation rate, and a material and supplies escalation rate across the estimate timeframe for the purposes of presenting the estimate in 2028 dollars. In estimating the O&M expenses, the average general inflation rate is assumed to be 2.0% per year, with payroll increasing by 2.5% per year. All cost estimates are based on 2023 dollars, escalated to 2028 and each year thereafter by the appropriate escalation rate.

Q49. HOW WERE THE ESTIMATES OF O & M COSTS DEVELOPED?

A. The estimates were developed using a process that was created based on experience gained in the operation of other EOC-operated combined-cycle facilities and 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.

Q50. WHAT ARE THE CURRENT ESTIMATES OF O&M EXPENSES FOR THE NEW CCCTS?

A. The estimated O&M expenses for this project 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 the 2 CCCTs located next to the customer's site only, although the O&M costs for Unit 3 are expected to be similar as I note below. The costs in Table 4 are incremental expenses associated with CCCT Units 1 and 2. The O&M figures exclude major maintenance costs expected to be incurred under the Long-Term Service Agreement ("LTSA") that I discuss later in my testimony. The O&M estimates reflect costs in 2028 dollars and are supported by the workpapers that support the estimates reflected in the attached MB-3 (HSPM).

Table 4

Estimated Units 1-2 First-Year O&M Expenses (thousands)

Expenditure Type	First Year Amount
Wages/Salaries + Benefits	$ 4,155,957.00
Utilities	$ 816,000.00
Fixed O&M Expenditures	$ 3,382,349.00
Variable O&M Expenditures	$ 3,895,911.00
LTSA Variable Expense (recovered through fuels)	$ 4,303,935.00
Total Expenditures	$ 16,554,152.00

Q51. HOW WERE PAYROLL COST ESTIMATES PREPARED?

A. A preliminary incremental plant staffing organizational chart was developed for each project, based on experience with combined-cycle plant operations in general (including experience with MCPS), that takes into account the expected staffing at the time each project reaches commercial operation. Those preliminary organizational charts are attached as Exhibit MB-4. Labor rates were then applied to the different job families and incremental headcount included in the organizational charts. Those costs were then totaled to arrive at the annual plant staff labor figures shown in the tables above. This reflects the payrolls associated with incremental headcounts required to operate the Project.

Q52. WHAT O & M OUTAGE EXPENSES WERE INCLUDED?

A. The O&M outage expenses include routine annual maintenance expenses incurred as part of annual planned maintenance outages. These costs do not include periodic major maintenance on the combustion turbines and associated generators, which will be covered under the LTSA.

Q53. WHAT TYPES OF COSTS ARE INCLUDED IN THE O&M BASELINE EXPENSE?

A. The CCCTs will be comprised of large, complex mechanical systems that will require annual 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 not covered by the LTSA for the following equipment and systems: combustion turbines and generators, steam turbine and generator, the HRSG, electrical instruments and controls, cooling 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 supporting Exhibit MB-3 (HSPM).

Q54. HOW DOES ELL INTEND TO MANAGE LONG-TERM MAJOR MAINTENANCE ASSOCIATED WITH THE NEW CCCTS?

A. Consistent with its practice for its other generators, ESL plans to enter into an LTSA on behalf of ELL for maintenance of the CCCTs with MPA, the OEM. The LTSA is expected to have a structure and scope similar to other LTSAs recently entered into by ELL and its affiliated EOCs, providing for a defined scope of major maintenance activities and a variable fee mechanism based on the number of starts and accumulated operational hours. Outside of the LTSA, the Company will manage major maintenance of the HRSG and other balance of plant items as part of the O&M program described above.

Q55. WHAT IS THE ESTIMATED COST OF THE LTSA?

A. As indicated, the LTSA and the pricing terms are not fully known. However, for planning purposes only, ESL estimates that LTSA costs for major maintenance work scope will average $16.4 million per year with escalation and $10.6 million per year without escalation. These costs are based largely upon ESL's experience in developing the LTSA for OCAPS. If the LTSA were to remain in effect for the full contract term, the expected term cost (in nominal dollars) for this Project would be approximately $491.4 million with escalation and approximately $316.4 million without escalation.

Q56. ARE THE ESTIMATED VARIABLE LTSA COSTS INCLUDED IN THE O&M COST ESTIMATE?

A. No. The expected costs for major maintenance under the LTSA (*i.e.*, fees that will vary depending on production from the unit) are not included in the fixed O&M cost estimate. But it is possible the executed LTSA could have a small fixed-cost component for the major maintenance work scope.

IV. UNIT 3 TIMELINE AND COST

Q57. HOW DOES THE TECHNOLOGY FOR UNIT 3 COMPARE TO THE TECHNOLOGY FOR UNITS 1-2?

A. Unit 3 will be the same plant design as Units 1-2. Once a site is selected, we will account for differences in the soil conditions (and therefore foundation design), transmission interconnection and deliverability, and gas supply consistent with the processes I describe above.

Q58. WHY WILL UNIT 3 BE CONSTRUCTED AT A LATER TIME?

A. Unit 3 is targeted for a 2029 ISD, and, because there is additional time, ESL on behalf of ELL will conduct a new RFP to select the EPC partner.

Q59. PLEASE DESCRIBE THE TIMELINE AND SCHEDULE FOR UNIT 3.

A. As I note elsewhere in my testimony, Unit 3 is going through an EPC RFP to select the EPC partner. This RFP was issued in August 2024, with bids expected in December 2024. Substantial Completion by the EPC is targeted for [redacted] with commercial operation expected by the end of December 2029. The exact schedule timeline will not be known until the ongoing EPC RFP is completed and the EPC contractor is selected, which is expected in the first quarter of 2025.

Q60. WHAT ARE THE KEY MILESTONES FOR UNIT 3?

A. Table 5 below includes the key milestones for Unit 3:

Table 5 (Contains HSPM)

Unit 3 - Key Project Milestones

Milestone	**Date**
EPC RFP Issued	[redacted]
EPC RFP Bids Due	
EPC Partner Selected	
Expected LNTP	
Expected FNTP	
Expected Start of Major Equipment Delivery	
Expected Substantial Completion	
Expected Commercial Operation	December 2029

Q61. HOW WILL ELL MANAGE CONSTRUCTION OF UNIT 3?

A. ELL will manage construction of Unit 3 with the same process as previously discussed for Units 1-2. There may be minor differences based on the final details of the contract and selected EPC contractor to construct Unit 3.

Q62. WILL ELL'S CONSTRUCTION MANAGEMENT OF UNIT 3 BE DIFFERENT THAN UNITS 1-2?

A. No, ELL's construction management will not be different for Unit 3.

Q63. HOW AND WHEN WILL THE COMPETITIVE PROCUREMENT BE CONDUCTED FOR THE EPC CONTRACTOR FOR THE THIRD GENERATOR?

A. As noted elsewhere in my testimony, ESL, on behalf of ELL, issued a Request for Proposal for the EPC portion of scope in August 2024. This RFP was issued to four of the prime EPC contractors in the combined cycle construction market. The RFP is being managed by ESL's Supply Chain organization via Power Advocate, and with the support of a contracted Owner's Engineer to aid in technical evaluation. Bids are expected in December 2024, which will go through a pre-developed evaluation process. ESL, on behalf of ELL, anticipates selecting the EPC partner for Unit 3 at completion of that evaluation process in February 2025.

Q64. ARE THERE ANY SIMILARITIES IN THE DESIGN AND/OR CONSTRUCTION OF UNITS 1-2 THAT CAN BE USED FOR UNIT 3?

A. The design of Unit 3 will be substantially the same as the design of Units 1-2, with differences mainly to account for different soil conditions, gas supply, and transmission interconnection based on the selected location.

Q65. WHAT IS THE EXPECTED CAPITAL COST TO BUILD UNIT 3?

A. Unit 3 is expected to have similar costs to Units 1 and 2, but the expected costs will depend on the site specifics of the selected site.

Q66. DO YOU BELIEVE THE CAPITAL COST ESTIMATE FOR CCCT UNIT 3 IS REASONABLE?

A. Unit 3 is expected to have similar to costs to Units 1 and 2 because the design is the same; however, the costs will ultimately depend on the site.

Q67. WILL THE O&M EXPENSES FOR UNIT 3 BE SIMILAR TO UNITS 1-2?

A. Unit 3 is expected to have similar O&M expenses to Units 1 and 2, on a per unit basis.

Q68. WHAT EXPERIENCE, IF ANY, CAN ELL LEVERAGE BASED ON THE CONSTRUCTION OF SIMILAR UNITS IN SELPA?

A. Generators are currently under construction in SELPA, and other units have been constructed in that region in recent years. This Project is not an unusual undertaking as ELL should be able to identify a site that results in reasonable projects costs and a reasonable risk profile.

V. CONSTRUCTION RISK MANAGEMENT

Q69. YOU DISCUSSED RISK MITIGATION EARLIER. WHY IS IT IMPORTANT TO HAVE PLANS IN PLACE TO MANAGE AND MITIGATE THE POTENTIAL RISKS ASSOCIATED WITH DEVELOPING THE NEW CCCTS?

A. This project represents a substantial capital investment and must be well managed. Good management includes proper consideration of the risks that reasonably can be foreseen and the development of a plan to manage and mitigate those risks. Good project management does not seek to eliminate all potential risks irrespective of costs to do so. Instead, good project management should reasonably manage those risks considering the probability of occurrence, potential magnitude of impact, and cost to mitigate.

Q70. HOW HAS ELL MITIGATED THE RISKS AFFECTING THE NEW PROJECT SCHEDULES AND PROJECTED COSTS?

A. The fixed-price structure and well-defined scope of work that will be part of the EPC contract are the principal mitigation tools to minimize the effect that risks may have on project costs. The Company developed mitigation plans and included contingencies in the project cost estimates that are sufficient to reasonably mitigate those risks identified. Delays in receiving regulatory approvals or the required permits beyond the dates assumed in the project schedules will increase total costs and result in delayed in-service dates. The project schedules have been developed by optimizing the sequence of activities to produce the shortest practical schedules at the lowest reasonable cost. The schedules have built-in contingencies for critical path activities that will help mitigate short delays.

Q71. HOW HAS ELL MITIGATED THE RISKS TO ALL ITS CUSTOMERS WITH RESPECT TO LONG LEAD-TIME ITEMS?

A. As discussed in detail by Ms. Beauchamp, the Customer has already paid approximately [redacted] to reserve long-lead time items, like the requisite turbines. In addition, the Agreement for Contribution in Aid of Construction and Capital Costs ("CIAC Agreement") with the Customer provides that, in the event the project does not move forward, the Customer is responsible for all costs (unless a suitable replacement project can be identified that needs the equipment). ELL has applied these funds to Reservation Agreements with Mitsubishi Power, which secures Power Island Equipment delivery, and with Siemens Energy for long lead high voltage equipment such as Transformers and Breakers. These reservation agreements mitigate the long lead major equipment that drive critical path of the project. In addition, ensuring that the EPC contract is issued on schedule mitigates the remaining long lead equipment timelines.

Q72. PLEASE DISCUSS SOME OF THE POTENTIAL RISK MITIGATIONS EXPECTED TO BE CONTAINED IN THE EPC CONTRACT.

A. While the EPC contract with the EPC Consortium is not yet executed, the agreed-upon general terms and conditions reflected in Exhibit MB-2 (HSPM) provide for a fixed price and a 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 the EPC Consortium as including everything necessary to complete the two CCCTs that meets the specification and performance requirements, except for items expressly stated in the scope document to be ELL's responsibility. The agreed-upon EPC contract terms also contain favorable change order provisions that will enable the Company to direct the EPC Consortium to proceed with a change order over which there is a good faith dispute between the parties, with the dispute over the price impact to be resolved in arrears. This will protect ELL 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, the EPC Consortium must notify ELL 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.

Q73. HOW COULD MARKET ESCALATION AFFECT THE NET BENEFITS THE NEW CCCTS ARE EXPECTED TO PROVIDE TO ELL CUSTOMERS?

A. As explained in detail by Company witness Laura Beauchamp, the Company entered into a suite of agreements, including an Electric Service Agreement ("ESA"), with the Customer to move forward with this Project. The terms of the ESA include significant financial contributions from the Customer towards construction of the CCCTs, subject to true up provisions based on the actual costs of the CCCTs.

Q74. WILL THE EPC AGREEMENT HAVE PROVISIONS THAT MITIGATE RISK RELATING TO THE EPC CONSORTIUM'S PERFORMANCE?

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

The agreed-upon EPC terms also establish a milestone payment structure whereby the contractor will only be paid for the work that has been completed, as verified by ELL. The milestone payments are subject to a cumulative cap with monthly values stated in the contract that protects the Company's cash flow. Additionally, [redacted]

[redacted] These and other contractual protections, as well as applicable limits of liability, are explained in the EPC agreement term summary attached as Exhibit MB-2 (HSPM).

Q75. IS ELL OBTAINING PROTECTIONS AND INDEMNITIES FROM THE EPC CONTRACTOR THROUGH THE USE OF INSURANCE?

A. Yes.

Q76. WHAT TYPES OF INSURANCE ARE INCLUDED IN THE COST ESTIMATES FOR THE THREE NEW CCCTS AND WHAT DO THEY COVER?

A. The Company intends to procure insurance prior to the issuance of LNTP. The expected coverage will include BAR and DSU.

BAR insurance is for the benefit of the Company, the contractors, and subcontractors of every tier, and covers property damage to 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 under the

BAR policy is expected to be roughly equal to the EPC contract value, subject to various deductibles depending on the insured peril.

The DSU policy covers certain schedule-delay costs resulting from property damage to project work caused by a non-excluded peril under the BAR policy. After the deductible period is met, DSU insurance provides coverage for certain costs until project completion is achieved, including AFUDC, owner's costs, and the contractors' increased site costs. The indemnities under the DSU policy are subject to a monthly maximum as well as an aggregate limit. Although the Company has not yet placed DSU coverage for the CCCTs, it expects to obtain a maximum monthly indemnity of approximately [redacted] and an 18-month maximum indemnity of approximately [redacted]

VI. CCS

Q77. YOU PREVIOUSLY MENTIONED THAT THE CCCTS WILL BE CONSTRUCTED TO ACCOMMODATE CCS IN THE FUTURE. CAN YOU PROVIDE MORE DETAIL AS TO HOW CCS WILL BE ACCOMMODATED?

A. As an initial matter, the site of the generators includes enough acreage to accommodate a CCS facility. In addition, we have oriented the CCCTs on the property such that installation of necessary duct work to convey exhaust gases from the CCCT to a CCS facility could be installed with little to no obstruction. The orientation of a CCS facility relative to the CCCT can be seen on my Exhibit MB-5. Any CCS facility installed at the generation site is also expected to require additional utilities such as natural gas and electricity, as well as the ability to transport captured CO_2 off-property, and corridors have been accounted for to ensure these needs can be met.

Q78. WILL CCS BE NECESSARY FOR THE CCCTS TO OPERATE AT FULL CAPACITY?

A. As of this time, the CCCTs will not be required to utilize CCS technology in order to operate at full capacity and generate electricity at the maximum output I mentioned earlier. However, pursuant to Section 111 of the federal Clean Air Act, the EPA published a new source performance standard ("NSPS") under 40 CFR Part 60 Subpart TTTTa that applies to fossil fuel-fired electric generating units, including CCCTs. This EPA rule imposes a Phase 2 CO_2 emission standard based on the application of CCS for new baseload CCCTs beginning on January 1, 2032. The EPA rule is subject to a pending legal challenge, but if and when this Phase 2 CO_2 emission standard becomes effective, the ability of the CCCTs for this project to generate electricity at full capacity will be limited to a significant degree if CCS technology has not been integrated into the units' operation. Company witness Jeremy Halland discusses these regulations in more detail in his direct testimony.

Q79. HOW WOULD THE USE OF CCS TECHNOLOGY AS YOU HAVE DESCRIBED ADDRESS THE SITUATION THAT WILL ARISE IF AND WHEN EPA'S PHASE 2 CO_2 EMISSION STANDARD GOES INTO EFFECT ON JANUARY 1, 2032?

A. As Company witness Jeremy Halland explains, implementing CCS capabilities would reduce the CO_2 emissions from the CCCTs' operation by approximately 95%. With these emission reductions, the CCCTs would be able to operate at full capacity and generate at maximum output and still comply with EPA's Phase 2 CO_2 Emission Standard.

Q80. WHAT EXPERIENCE DOES THE COMPANY HAVE WITH RESPECT TO CCS TECHNOLOGY?

A. As also discussed in the Direct Testimony of Company witness Nick Owens, the Company is presently working on development activities as a step toward a planned CCS project at the Company's Lake Charles Power Station CCCT. My group is responsible for leading these activities. The activities, some of which have been completed, include an engineering feasibility study, the development of a commercial structure in collaboration with suppliers of a comprehensive CCS Wrap Services Agreement for LCPS, a request for information and RFP process to identify qualified suppliers for LCPS, the negotiation and execution of a letter of intent including potential pricing parameters for CCS at LCPS, and an ongoing Front End Engineering and Design ("FEED") study for LCPS, which is now underway.[3] These efforts are still in a relatively early stage. But the Company is committed to fully evaluating options and pricing for the development of CCS at LCPS. It is my understanding that, if these developmental activities lead the Company to conclude that pursuing a CCS project at LCPS is in the public interest, the Company would file an application with the

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[3] In addition to the FEED study for CCS applied to LCPS that is being conducted by the CCS wrap counterparty, an additional FEED study for CCS applied to LCPS is underway with funding support from the U.S. Department of Energy. https://www.energy.gov/oced/carbon-capture-demonstration-projects-program-front-end-engineering-design-feed-studies.

Commission presenting the proposed details of the project for consideration and seeking Commission approval.

VII. CONCLUSION

Q81. PLEASE SUMMARIZE YOUR TESTIMONY.

A. The key points addressed in my direct testimony are:

- CCCTs are efficient, around the clock, reliable generators and are considered to be the best available technology for limiting greenhouse gas emissions when combusting fossil fuels for electrical generation.
- The high load factor load and accelerated timeline demanded by the Customer made CCCT technology the only viable generation solution for this Project.
- ELL has extensive experience with CCCTs, and ELL is leveraging its own project management experience as well that of other EOCs to provide reasonable estimated costs and schedules for Units 1, 2, and 3 for this Project.
- The CCCTs for this Project will be configured to enable CCS to comply with future CO_2 emission standards and provide sustained value for ELL customers for decades to come.

Q82. DOES THIS CONCLUDE YOUR TESTIMONY?

A. Yes, at this time.

AFFIDAVIT

STATE OF TEXAS

COUNTY OF MONTGOMERY

NOW BEFORE ME, the undersigned authority, personally came and appeared, **Matthew Bulpitt**, 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.

____
Matthew Bulpitt

SWORN TO AND SUBSCRIBED BEFORE ME
THIS 14th **DAY OF** October **2024**

____
NOTARY PUBLIC

My commission expires: February 5, 2025

NOTARY PUBLIC STATE OF TEXAS
AMBER DENISE ABSHIRE
Notary ID #12189259
My Commission Expires
February 5, 2025

Listing of Previous Testimony Filed by Matthew Bulpitt

DATE	TYPE	JURISDICTION	DOCKET NO.
May 9, 2017	Direct Testimony	PUCT	46248
January 26, 2018	Direct Testimony	PUCT	47003
August 31, 2018	Direct Testimony	PUCT	47462
October 12, 2018	Direct Testimony	MSPSC	2018-UA-204
April 7, 2021	Direct Testimony	PUCT	50790
October 19, 2021	Direct Testimony	PUCT	51215
August 25, 2022	Direct Testimony	PUCT	52354
July 26, 2024	Direct Testimony	PUCT	56865

BEFORE THE

LOUISIANA PUBLIC SERVICE COMMISSION

APPLICATION OF ENTERGY LOUISIANA, LLC FOR APPROVAL OF GENERATION AND TRANSMISSION RESOURCES PROPOSED IN CONNECTION WITH SERVICE TO A SIGNIFICANT CUSTOMER PROJECT IN NORTH LOUISIANA, INCLUDING PROPOSED RIDER, AND REQUEST FOR TIMELY TREATMENT	)))))))))	**DOCKET NO. U-_____**

EXHIBIT MB-2

HIGHLY SENSITIVE PROTECTED MATERIAL

INTENTIONALLY OMITTED

OCTOBER 2024

BEFORE THE

LOUISIANA PUBLIC SERVICE COMMISSION

APPLICATION OF ENTERGY LOUISIANA, LLC FOR APPROVAL OF GENERATION AND TRANSMISSION RESOURCES PROPOSED IN CONNECTION WITH SERVICE TO A SIGNIFICANT CUSTOMER PROJECT IN NORTH LOUISIANA, INCLUDING PROPOSED RIDER, AND REQUEST FOR TIMELY TREATMENT	)	DOCKET NO. U-_____

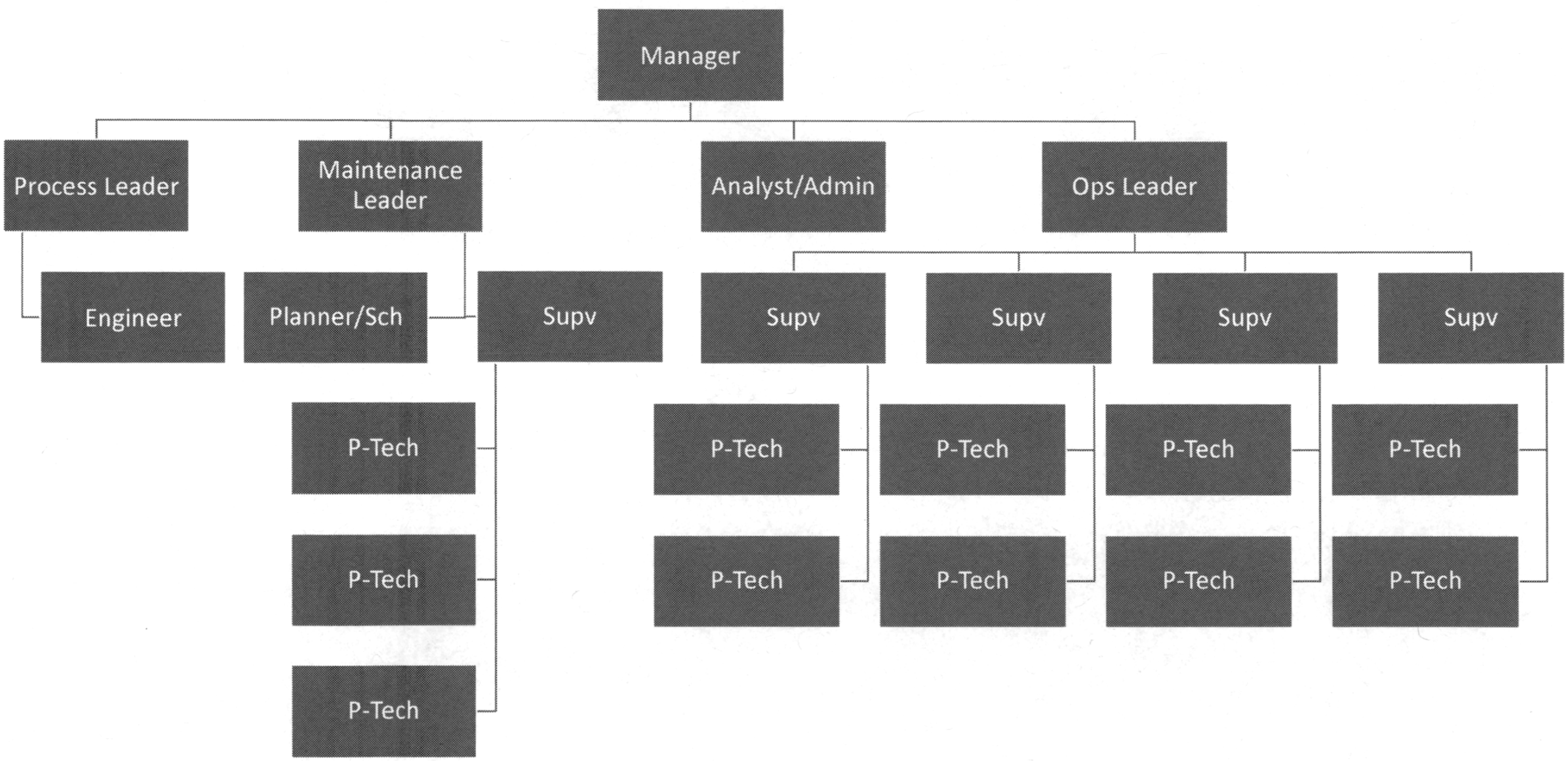
EXHIBIT MB-3

HIGHLY SENSITIVE
PROTECTED MATERIAL

INTENTIONALLY OMITTED

OCTOBER 2024

ELL New Build - Operations Staff for Richland Parish Location
(2) 1x1 CCGT (23) – Phase 1 – COD: December '28



COMBINE CYCLE LEGEND					
01	COMBUSTION TURBINE	21	HYDROGEN/NITROGEN STORAGE	42	F.G. METING YARD (BY GAS SUPPLIER 2)
02	HRSG	22	STORM WATER POND	43	OIL STORAGE CONTAINER
03	HRSG EXHAUST STACK	23	DIESEL GENERATOR	44	DEAD END STRUCTURE
04	CEMS	24	MAIN ELECTRICAL BUILDING	45	HV BREAKER
05	GENERATOR CIRCUIT BREAKER	25	F.G. METERING YARD (BY GAS SUPPLIER 1)		
06	EXC AND SFC PAKCAGE	26	FUEL GAS CONDITIONING YARD		
07	UNIT AUXILIARY TRANSFORMER	27	FUEL GAS COMPRESSORS (OPTION)		
08	GENERATOR STEP-UP TRANSFORMER	28	F.G. COMPRESSOR COOLERS (OPTION)		
09	CT CONTROL PACKAGE	29	ADMIN/CONTROL/WAREHOUSE		
10	FEEDWATER PUMPS	30	DEMIN TRAILERS		
11	HRSG PDC	31	WATER TREATMENT BUILDING		
12	STEAM TURBINE	32	DEMIN TANK		
13	STEAM TURBINE LUBE OIL UNIT	33	FIRE PROTECTION/SERVICE WATER TANK		
14	ACC	34	FIRE PROTECTION PUMPS		
15	ACC ELECTRICAL PDC	35	AMMONIA STORAGE		
16	VACUUM PUMPS	36	NOT USED		
17	CONDENSATE PUMPS	37	ST CT LUBE OIL SKID		
18	STG EXCITATION PACKAGE	38	NOT USED		
19	CO2 FIRE PROTECTION TANK	39	WASTE WATER SUMP		
20	AUX COOLING FIN FAN COOLER	40	OWS		
		41	CO2 SYSTEM		

PLANT NORTH

MONROE,LA 1972-2023 ANNUAL
JANUARY 1
DECEMBER 31
MIDNIGHT – 11PM

160' 0 160' 320' 480'
GRAPHIC SCALE
DRAWING SCALE
1"=160'

HOLD INFORMATION

NO.	DESCRIPTION

CONTRACTOR/INSTALLER SHALL TAKE ALL APPROPRIATE PRECAUTIONS TO ENSURE THE SAFETY OF ALL PEOPLE LOCATED ON THE WORK SITE, INCLUDING CONTRACTOR'S/INSTALLER'S PERSONNEL (OR THAT OF ITS SUB-CONTRACTOR(S)) PERFORMING THE WORK.

RELEASE INFORMATION

REV.	DATE	DESCRIPTION
A	09/24/2024	FOR USE
B	10/16/2024	FOR USE

ISSUE PURPOSE: FOR USE
SPECIFICATION: -
PROJECT NO.: -

I HEREBY CERTIFY THAT THIS ENGINEERING DOCUMENT WAS PREPARED BY ME OR UNDER MY DIRECT PERSONAL SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF ENTER NAME.

ENTER NAME
ENTER DATE

MY LICENSE RENEWAL DATE IS: ENTER DATE
PAGES OR SHEETS COVERED BY THIS SEAL:
THIS DOCUMENT ONLY.

CAD FILE NAME: TTM-MSK-GA-001.dgn
PREPARED BY: RAM
REVIEWED BY:
APPROVED BY:

ANY MODIFICATION OR ADDITION TO THIS DRAWING BY AN ORGANIZATION OTHER THAN SARGENT & LUNDY IS NOT THE RESPONSIBILITY OF SARGENT & LUNDY.

Sargent & Lundy
SARGENT & LUNDY
55 EAST MONROE STREET
CHICAGO, ILLINOIS 60603-5780

PROJECT
RICHLAND
PARISH CCCT

DRAWING TITLE
SITE GENERAL ARRANGEMENT
(2) 1X1X1 COMBINED CYCLE W/ CCUS

DRAWING NUMBER: TTM-MSK-GA-001C
REVISION: B
SHEET 1 OF 1