

**BEFORE THE
LOUISIANA PUBLIC SERVICE COMMISSION**

***IN RE: APPLICATION OF ENTERGY)
LOUISIANA, LLC FOR CERTIFICATION)
OF GENERATION AND TRANSMISSION)
RESOURCES AND FOR OTHER RELIEF)
PURSUANT TO THE COMMISSION'S)
LIGHTNING INITIATIVE)***

DOCKET NO. U-_____

DIRECT TESTIMONY

OF

NORMAN GRUNDEN

ON BEHALF OF

ENTERGY LOUISIANA, LLC

PUBLIC REDACTED VERSION

MARCH 2026

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1 **I. INTRODUCTION AND BACKGROUND**

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

4 A. My name is Norman Grunden. My business address is 2107 Research Forest Drive,
5 Suite 400, The Woodlands, Texas 77380. I am a Director of Power Development for
6 Entergy Services, LLC (“ESL”), the service company affiliate of Entergy Louisiana,
7 LLC (“ELL” or the “Company”).¹

8
9 Q2. ON WHOSE BEHALF ARE YOU FILING THIS DIRECT TESTIMONY?

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

12
13 Q3. WHAT IS YOUR EDUCATIONAL BACKGROUND?

14 A. I graduated with a Bachelors of Science in Chemical Engineering in 1996, a Masters
15 of Engineering in Mechanical Engineering in 1998, and a Masters in Business
16 Administration in 2003, all from Texas A&M University.

17

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, ELL, Entergy Mississippi, LLC, Entergy New Orleans, LLC, and Entergy Texas, Inc. In my testimony, I may ascribe certain activities or process to ELL which are, in actuality, performed by ESL on ELL’s behalf.

1 Q4. PLEASE TELL THE COMMISSION ABOUT YOUR PROFESSIONAL
2 EXPERIENCE.

3 A. I have over twenty years of experience with the development, design, and construction
4 of traditional and renewable generation projects. Prior to my joining the Power
5 Development group, I managed the development and construction of new, non-nuclear
6 power generation assets for Entergy's regulated utility business as part of the Capital
7 Projects Group. I supported the development of the Ninemile Point Station ("Ninemile
8 6") self-build proposal as a project analyst, and as a project manager developed two
9 combined cycle self-build proposals that were submitted into resource Requests for
10 Proposals ("RFPs") in Texas in 2009 and 2011, the St. Charles Power Station, the
11 Montgomery County Power Station, and multiple solar facilities across Entergy's
12 service territory. I was the construction project manager for the construction of the
13 Montgomery County Power Station in Willis, TX.

14

15 Q5. PLEASE DESCRIBE YOUR CURRENT JOB DUTIES.

16 A. In my role as Director, Power Development, I am responsible for directing a project
17 management team within ESL's Power Development organization that develops new
18 gas-fired combined cycle generation resources for Entergy's regulated utility business.
19 As part of the Power Development group, I also have directed the development of
20 renewable and non-traditional generation and storage options such as solar, biomass,
21 geothermal, and energy storage. I manage partnerships with contractors and major
22 equipment providers for successful project execution.

23

1 Q6. HAVE YOU PREVIOUSLY TESTIFIED BEFORE THE COMMISSION?

2 A. I have not previously testified before the LPSC.

3

4 Q7. WHAT IS THE PURPOSE OF YOUR DIRECT TESTIMONY?

5 A. My testimony is submitted in support of the Application. In my testimony, I discuss:

6 (1) the seven combined cycle combustion turbine (“CCCT”) generators (the “Proposed

7 Generators”) required to serve a new [REDACTED] data center which Evest LLC (the

8 “Customer”) plans to build in Richland Parish (the “Project” or “Project Evest”), taking

9 into consideration system reliability, resiliency, sustainability, and the timeline

10 requirements of the Customer; (2) ELL’s selection of an engineering, procurement, and

11 construction (“EPC”) contractor consortium to construct the Proposed Generators; (3)

12 the reasonableness of the schedule to construct the Proposed Generators and the

13 reasonableness of the estimated cost of those units; and (4) the project management

14 risk mitigation plan implemented for constructing the Proposed Generators.

15

16 Q8. HAVE YOU OFFERED ANY EXHIBITS WITH YOUR TESTIMONY?

17 A. Yes. I have offered the exhibits listed in the Table of Contents. These exhibits were

18 prepared under my supervision and are sequentially numbered with the prefix “NG.”

19

1 **II. CCCT TECHNOLOGY**

2 Q9. PLEASE DESCRIBE THE PROPOSED GENERATORS AT ISSUE IN ELL'S
3 APPLICATION.

4 A. The Customer Project requires the construction of seven 1x1 CCCT generators to meet
5 the Customer's demand as well as to account for transmission line losses and the
6 Planning Reserve Margin Requirement established by the Midcontinent Independent
7 System Operator, Inc. ("MISO") and support the needs of ELL's existing customers.
8 To meet bulk electric system ("BES") compliance and operational reliability and
9 flexibility requirements, four of the generators will be located near the Project site in
10 Richland Parish. Three additional generators will be located in Pointe Coupee Parish,
11 near the existing Big Cajun site. Each CCCT unit is expected to provide approximately
12 754 MW (nominal) of CCCT generating capacity and consist of one Mitsubishi Power
13 Americas ("MPA") 501 JAC CT, one Nooter Eriksen HRSG with duct firing and SCR,
14 and one MPA ("STG") in a 1x1 combined-cycle configuration, together with other
15 balance of plant equipment, including the use of an air-cooled condenser for closed-
16 cycle cooling operations. By design, the MPA 501 JAC CT is capable of approximately
17 30% hydrogen co-firing, with the capability of supporting 100% hydrogen firing in the
18 future with upgrades.² In addition, the layout of the generation site can accommodate
19 carbon capture and storage infrastructure and operations adjacent to the proposed
20 generation facilities. These two design capabilities provide important future

² Although the CT is capable of hydrogen co-firing, to my knowledge ELL has not developed supply plans at this time for hydrogen co-firing. The MPA 501 JAC CT's co-firing capabilities is a standard feature and available at no additional cost.

1 optionality and help ensure that the CCCT units will be able to provide sustained value
2 for ELL customers for decades to come.

3

4 Q10. DOES ELL HAVE EXPERIENCE CONSTRUCTING CCCTS?

5 A. Yes, ELL has extensive experience with CCCTs. For example, ELL constructed and
6 placed in service, ahead of schedule and below budget, both the J. Wayne Leonard
7 Power Station (formerly the St. Charles Power Station) (“JWLPS”) in 2019 and the
8 Lake Charles Power Station (“LCPS”) in 2020. In addition, ELL completed
9 Ninemile 6, another self-build combined-cycle facility, in 2015, roughly 10% under
10 budget and months ahead of its projected in-service date. Each of these facilities
11 continues to support reliability and produce cost savings for customers.

12 ELL also benefits from the additional substantial experience of the other EOCs.
13 Notably, Entergy Texas, Inc, (“ETI”) completed construction of the Montgomery
14 County Power Station (“MCPS”) in late 2020, also ahead of schedule and below
15 budget. And ETI currently is in final construction stages for the Orange County
16 Advanced Power Station (“OCAPS”) CCCT in Bridge City, Texas, which has a target
17 commercial operation date of May 2026. Between the other EOCs, there will be six
18 CCCT units in construction in the coming years, all utilizing the same reference plant
19 design that is proposed to be used for the Proposed Generators.

20

1 Q11. WHY DID ELL SELECT CCCT TECHNOLOGY FOR THE PROPOSED
2 GENERATORS?

3 A. CCCT technology provides efficient, around the clock, reliable generating capability
4 and is considered throughout the industry to be the best available technology for
5 limiting greenhouse gas emissions when combusting fossil fuels for electrical
6 generation.

7

8 Q12. WHAT ARE THE MAJOR COMPONENTS OF A CCCT GENERATOR?

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

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

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

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

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

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

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

10

11 Q13. PLEASE EXPLAIN HOW A CCCT GENERATOR OPERATES.

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

21

1 Q14. HOW DOES CCCT TECHNOLOGY DIFFER FROM OTHER GAS FUELED
2 GENERATORS?

3 A. A CCCT can achieve full power operation within a few hours of starting, thus providing
4 flexibility for dispatching purposes. Also, because CCCT technology uses natural gas,
5 which has a *de minimis* sulfur content, it does not produce significant sulfur dioxide
6 emissions. CCCT technology is considered throughout the industry as the best
7 available technology for limiting greenhouse gas emissions when combusting fossil
8 fuels for electrical generation. The future ability to co-fire hydrogen, which emits no
9 CO₂, in the future will further improve the emissions profile of the units.
10

11 Q15. EXPLAIN HOW THE ENVIRONMENT AND OTHER CONDITIONS AFFECT
12 THE CAPACITY OF A CCCT.

13 A. The actual maximum output of the units will vary depending on several factors,
14 including: ambient temperature, relative humidity, Btu content of fuel delivered at the
15 unit, and number of operating hours since the last maintenance interval. By way of
16 illustration, in a new and clean condition, the CCCTs would be expected to generate
17 approximately 754 MW, based on ambient conditions of 59 degrees Fahrenheit and
18 60% relative humidity. Under summer conditions of 97 degrees Fahrenheit and 56%
19 relative humidity, the CCCTs would be expected to generate approximately 723 MW.
20 Their nominal heat rate is [REDACTED].
21

1 Q16. WHAT ARE THE LIMITATIONS OF CCCT TECHNOLOGY?

2 A. Like all available technology, CCCTs also have certain limitations. Here are some of
3 the limitations of CCCT technology:

4 **Dependence on Natural Gas:** CCCTs rely heavily on natural gas, making them subject
5 to price volatility and supply constraints. In his Direct Testimony, Company witness
6 Michael Goin addresses ELL's plan for delivery of gas to the CCCTs.

7 **Greenhouse Gas Emissions:** While CCCTs produce substantially lower emissions
8 than coal-fired plants, they still emit CO₂ and other pollutants. As discussed further
9 below, each CCCT will be carbon capture enabled such that installation of necessary
10 duct work to convey exhaust gases from the CCCT to a carbon capture facility could
11 be installed with little to no obstruction.

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

14 **Capital Costs:** Although the initial total capital investment for CCCTs can be
15 substantial, due to their size, CCCTs are among the most economical generation
16 options on a \$/kW basis.

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

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

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

1 Importantly, CCCTs are only one part of ELL's broader energy strategy that
2 includes a diverse mix of generation technologies. However, as explained by Company
3 witnesses Laura K. Beauchamp, Daniel Kline, and Nicholas W. Owens, it was
4 determined that CCCT technology is the available option that addresses the high load
5 factor load of the Project while balancing reliability, affordability, sustainability, and
6 the Customer timeline.

7

8 Q17. HOW DO YOU EFFECTIVELY SCOPE AND BUDGET FOR A CCCT BUILD?

9 A. Our process includes the following:

10 **1. Project Definition**

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

14 **Location Assessment:** Evaluate potential sites for construction suitability as well as
15 accessibility to fuel supply, water sources, and grid connectivity.

16 **2. Scope Development**

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

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

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

6 **3. Cost Estimation**

7 **Capital Expenditure (“CAPEX”):** Estimate costs for equipment, construction, site
8 preparation, and commissioning. This includes:

- 9 o Gas turbines and HRSG
- 10 o Steam turbine and generator
- 11 o Balance of plant (electrical systems, cooling, etc.)
- 12 o Infrastructure (roads, buildings)

13 **Operational Expenditure (“OPEX”):** Estimate ongoing costs such as fuel,
14 maintenance, labor, and utilities.

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

17 **4. Project Timeline**

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

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

21

1 **5. Risk Management**

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

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

7 **6. Stakeholder Engagement**

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

10 ELL's project management approach will follow Entergy's Project Delivery
11 System ("PDS") Policy, Standards and Guidelines in support of driving consistency
12 and certainty in project delivery outcomes. The PDS provides a framework to ensure
13 Entergy's business units consistently and effectively develop and implement capital
14 projects. The PDS establishes a Stage Gate Process ("SGP") approach as a single and
15 comprehensive framework for project development, planning, and execution. The SGP
16 provides a roadmap of key deliverables and decisions that need to be sequentially
17 completed to promote consistent, reliable, and high-quality project
18 outcomes. Additionally, the SGP also prescribes a continuous systematic evaluation
19 of the project organization, scope, and maturity of project management deliverables
20 that helps ensure projects are successfully executed. This occurs through a series of
21 independent Gate Reviews/Assessment and Approvals.

1 Q18. WHAT IS THE TYPICAL TIMELINE TO DEVELOP AND BUILD A CCCT?

2 A. ELL's experience, as informed by the experiences of the other EOCs, has been that the
3 typical timeline for CCCTs from conception to approval and construction was
4 approximately five (5) years. That said, the market is evolving, and the timeline to
5 construct a CCCT has and continues to extend due to an unprecedented increase in the
6 demand for gas-fired generation projects, resulting in a constrained supply chain and
7 significant increases in lead times for critical components. As explained later in my
8 testimony, ELL has adopted an EPC contracting approach that will help to mitigate
9 against delay and allow for the Proposed Generators to reach operational status in
10 timely manner.

11
12 **III. EPC CONSORTIUM**

13 Q19. HOW DOES ELL PROPOSE TO MANAGE CONSTRUCTION OF THE
14 PROPOSED GENERATORS?

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

18
19 Q20. WHY DOES ELL PROPOSE TO USE AN EPC CONTRACTOR RATHER THAN
20 SELF EXECUTING THESE ACTIVITIES?

21 A. Large construction projects such as these CCCTs are substantial undertakings, and ELL
22 does not have the in-house capability necessary to execute the EPC for such a project.

1 Engaging an EPC contractor that performs these functions under a single contract is
2 cost-effective and common within the power generation industry for such projects.
3

4 Q21. IS THERE A SINGLE COMMON FORM OF EPC CONTRACT?

5 A. No. There are several types of EPC contracting approaches, and the suitability or
6 desirability of each depends largely on the type of project. From an owner's
7 perspective, fixed price contracts are preferred because of the certainty they provide
8 regarding a project's overall cost. When a project's scope of work is uncertain and
9 likely to vary, however, EPC providers will either refuse to contract on a fixed price
10 basis or perhaps agree to do so in exchange for a significant risk premium added to the
11 fixed price. In contrast, when a project entails a well-defined scope of work and
12 presents an acceptable risk of material changes in scope, EPC providers are more
13 willing to contract on a fixed price basis without charging a significant risk premium.
14

15 Q22. WHAT EPC CONTRACTING STRATEGY WILL BE USED FOR THE NEW
16 CCCTS? WHY?

17 A. ELL intends to negotiate a fixed price (with certain exceptions), fixed-schedule form
18 of EPC contract that reflects a detailed scope of work. This approach is aligned with
19 the needs of the Proposed Generators, which involve project sites that can
20 accommodate a standard combined-cycle or simple-cycle design and where minimal
21 retrofit into an existing site is needed. ELL chose this approach because it provides
22 predictability, reduced financial risk, and cost and schedule transparency, and is
23 expected to yield the lowest reasonable cost with an adequate level of risk mitigation.

1 If Limited Notice to Proceed (“LNTP”) is issued after the executed contract
2 date, any escalation will be determined pursuant to well-defined terms in the EPC
3 agreement, which I discuss later in my testimony. The EPC contractor must complete
4 construction within [REDACTED] (aligned with the planned in-service date) of receiving
5 LNTP or else pay daily liquidated damages as defined in the agreement. The contractor
6 also has the opportunity to earn incentives if the project is completed before the
7 required date as defined in the agreement.

8

9 Q23. IS ELL USING THE SAME EPC CONTRACTOR FOR ALL SEVEN CCCTS?

10 A. ELL is working with the EPC Consortium consisting of three companies that were
11 selected to perform as the collective EPC Contractors: (1) Sargent & Lundy, L.L.C.
12 (“S&L”); (2) The Industrial Company (“TIC”), a wholly owned subsidiary of Kiewit
13 Corporation; and (3) MPA, the original equipment manufacturer (“OEM”) (collectively
14 the “EPC Consortium”). This EPC Consortium, which is the same one selected to
15 develop and is now executing the OCAPS project and the Laidley project at issue in
16 LPSC Docket No. U-37425, was selected as the EPC contractor for the development
17 of all seven of the Proposed Generators.

18 This EPC Consortium was selected based on the strengths of each partner,
19 creating a stronger EPC execution team capitalizing on mutually established partnering
20 rules and longstanding trust combined with the financial stability, strengths,
21 experience, and relationships of each organization. Those strengths include the
22 following:

- 1 • S&L (engineering/procurement)
 - 2 o Ranked #3 in 2024 by Engineering News Record in Top 500 Contractors for
 - 3 power engineering.
 - 4 o Extensive history with Entergy as Owner's Engineer.
 - 5 o Industry-leading experience in combined-cycle engineering.
 - 6 o Strong history of successful EPC joint venture projects with Kiewit/TIC.
- 7 • TIC – The Industrial Company (procurement/construction)
 - 8 o Ranked #3 in 2024 by Engineering News Record in Top 400 Contractors.
 - 9 o Industry-leading safety record.
 - 10 o Strong history of successful EPC joint venture projects with S&L.
 - 11 o Culture of eliminating change orders in the beginning with the end in mind.
- 12 • MPA (OEM of major equipment)
 - 13 o Winning bidder from the PIE RFP, as discussed below.
 - 14 o Highest output combined with the lowest heat rate in the market today.
 - 15 o Proven operation and reliability.
 - 16 o Number one market share in advanced class turbine market, worldwide.

17 This approach provides ELL the opportunity to reduce project risks and
18 improve efficiency through, among other things, a lower risk of counter-party default
19 and by capturing engineering design experience and constructability capabilities. The
20 decision to pursue this approach with the EPC Consortium was also supported by ELL
21 management's favorable assessment of the EPC Consortium companies' expertise in
22 the management of similar-type construction projects and experience in the regional
23 construction market.

1 I believe that securing the services of the EPC Consortium will provide
2 significant advantages over the term during which the Proposed Generators are being
3 built. In my view, a strong working relationship between ELL, the EPC Consortium,
4 and the Customer, built on dealing with the same counterparties, under the same
5 contractual terms governing risk mitigation, costs and fees, all while working on
6 substantially similar projects, will result in a more productive and effective overall
7 project team.

8

9 Q24. WHAT ACTIVITIES WILL THE SELECTED EPC CONTRACTORS PERFORM?

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

17

18 Q25. FOR ANY OF THE PROPOSED GENERATORS, HAVE ELL AND THE EPC
19 CONTRACTORS AGREED ON THE TERMS OF THE EPC AGREEMENT?

20 A. ELL has negotiated portfolio-wide terms and conditions for the Proposed Generators.
21 Individual project EPC contracts utilizing this guiding contractual framework will be
22 executed on a timeline that supports the individual unit in-service date targets.
23 Execution of all required EPC contracts required for the portfolio are targeted to be

1 completed in the fall of 2026. The general terms and conditions of these EPC contracts
2 are summarized in Exhibit NG-1 (HSPM). Again, selection of the same EPC
3 Consortium used for prior projects has benefited ELL in terms of reduced transaction
4 costs, including reducing the commercial negotiation time, which facilitated
5 deployment of these critical resources within the time frame required.

6

7

IV. TIMELINE AND COSTS

8 Q26. IS IT YOUR OPINION THAT THE ESTIMATED CAPITAL COSTS,
9 OPERATIONS AND MAINTENANCE EXPENSES, AND PROJECTED
10 TIMELINES FOR THE PROPOSED GENERATORS ARE REASONABLE?

11 A. Yes. These estimates and projections were developed by ELL subject matter experts
12 who routinely engage with market participants through both informal channels and
13 formal procurement processes to assess prevailing conditions for CCCT technology
14 and related services. The reasonableness of the capital cost estimates for the CCCT is
15 supported by a competitive solicitation process that attracted bids from all major
16 turbine manufacturers and leading EPC contractors, and the resulting selections reflect
17 favorable pricing and terms in a highly competitive and increasingly supply-
18 constrained market. This conclusion is validated by the results of a recent ELL RFP
19 for a comparable 1x1 CCCT (the Waterford 6 and Westlake projects, discussed below)
20 and otherwise confirmed by market data which bolsters the reasonableness of these
21 estimates. The reasonableness and achievability of the proposed schedule, a schedule
22 developed in tandem with the EPC Consortium, is supported by the EOCs' proven track
23 record of successfully bringing CCCT projects online ahead of schedule and under

1 budget. Finally, Operations & Maintenance (“O&M”) cost estimates were developed
2 using standardized methodologies informed by years of experience with a proven track
3 record of providing a reliable basis for long-term O&M cost projections.

4

5 **A. Capital Costs**

6 Q27. WHAT ARE THE EXPECTED COSTS TO BUILD THE CCCTS?

7 A. The current capital cost estimate for each of the Proposed Generators is approximately
8 \$1.844 billion per unit. As set forth in Table 1 below, this amount is included in the
9 estimated \$12.911 billion associated with the generation portion of the estimated costs
10 for the Proposed Generators, or roughly \$2,446 per kW. There will also be costs for
11 required transmission system upgrades that are more fully addressed in the Direct
12 Testimony of Company witness Daniel Kline. A summary of the components of the
13 current cost estimate is shown below in Table 1:

1

Table 1 (Contains HSPM and AEO)

Capital Cost Estimate (Millions)

Category	Richland Parish		Pointe Coupee
	Units 1-2 (Class 3 estimate)	Units 3-4 (Class 4 estimate)	Units 5-7 (Class 4 estimate)
EPC Contract			
Other Vendors			
Entergy Labor			
Other Expenses			
Total Direct Cost			
AFUDC ³			
Other Indirect Costs			
Total Indirect Cost			
Contingency			
Generation Project Cost	\$3,443	\$3,580	\$5,466
Transmission Interconnection Project Cost	\$44	\$42	\$81
Transmission Upgrades Project Cost	\$0	\$0	\$255
Total Project Cost	\$3,487	\$3,622	\$5,802

2 Q28. HOW WAS THE COST ESTIMATE DEVELOPED?

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

5 **1. EPC agreement costs (“EPC Costs”):** For Richland Parish Units 1&2, the
6 EPC Consortium, at the request of ESL, provided a cost estimate based on preliminary
7 engineering developed with the site-specific information gathered by the project team.
8 For Richland Parish Units 3&4 and Pointe Coupee Units 5-7, ESL estimated the EPC

³ “AFUDC” stands for Allowance for Funds Used During Construction.

1 costs for these plants using the cost estimates received for Richland Parish Units 1&2.
2 Best practices of previous similar projects were applied to the design basis. The EPC
3 Consortium's EPC estimate formed the basis of the EPC Costs contained in the
4 proposal approved by ELL management.

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

8

9 Q29. DID ELL HAVE SUFFICIENT DESIGN INFORMATION TO REACH A
10 REASONABLE COST ESTIMATE?

11 A. Yes. The project team, working with the EPC Consortium, developed a site-specific
12 preliminary design and cost estimate for each of the Proposed Generators. As stated,
13 the largest single component of the total project cost estimate is the EPC Costs. The
14 EPC Consortium developed preliminary engineering using site-specific detail for the
15 design basis, incorporating the MPA 501 JAC-series CT. The EPC Consortium utilized
16 job-specific general arrangement drawings, piping and instrument diagrams, computer
17 models, arrangements sketches, and electrical one-line diagrams. The design approach
18 is based on a set of generic technical specifications that has been developed through
19 the course of executing the previous three Mitsubishi-based combined-cycle facilities
20 (MCPS, LCPS, and JWLPS) and carries forward lessons learned from those projects
21 as well as lessons learned to date in the execution of OCAPS; these generic technical
22 specifications have been conformed to develop the reference plant design specifications
23 that will be utilized for all seven of the Proposed Generators. Quantities were

1 developed to reflect the Proposed Generators' sites and process conditions utilizing
2 input from the EPC Consortium's current in-house estimates for similar CCCT projects
3 updated to reflect specific layouts, processes, and design definition for the site. Piping
4 quantities were based on the development of a 3D plant model. The design was
5 reviewed by the project team and was found to be reasonable.

6

7 Q30. IS THE CONSTRUCTION PRICING FOR THE CCCTS FIXED?

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

13

14 Q31. WHAT KINDS OF COSTS ARE INCLUDED IN THE EPC COST ESTIMATE?

15 A. EPC Costs are expected to include the following:

- 16 1. Engineered equipment, including the CTs, STs, HRSGs, generator step-up
17 transformers ("GSUs"), boiler feed pumps, and auxiliary transformers.
- 18 2. Home office engineering and construction management services, including
19 procurement, project controls, scheduling, and progress tracking.
- 20 3. Supervisory and administrative staff at the construction site.
- 21 4. Craft laborers (such as welders, electricians, and pipefitters).
- 22 5. Construction materials (copper, steel, concrete, etc.) used by both the EPC and
23 subcontractors.

1 6. Subcontractors.

2 7. The indirect construction costs that support the construction project (such as
3 scaffolding, administrative offices, or safety equipment).

4 8. Sales taxes on consumables.

5 9. Labor and materials associated with the dedicated start-up and commissioning
6 teams.

7

8 Q32. WHAT COSTS ARE INCLUDED IN THE NON-EPC COST ESTIMATE?

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

11 1. Other Vendors and Expenses: There is a wide range of services captured in the
12 Other Vendors and Expenses category, including contract personnel on the project
13 management team, the rental of temporary office trailers, construction power,
14 extension of local infrastructure to site where needed, environmental permitting
15 services, the cost of permit applications, known or anticipated environmental
16 permitting compliance, site inspections and surveys, transmission studies, gas pipeline
17 charges during the construction period, gas used during commissioning, miscellaneous
18 consumables related to safety and office supplies used during project execution,
19 consultant fees, and non-EPC costs.

20 2. Entergy Project and Construction Management: Project management costs
21 include internal labor and third-party costs for activities such as project oversight and
22 environmental permitting. Construction management includes internal and third-party
23 personnel to manage any agreements to engineer, procure, and construct the project.

1 3. Indirect Loaders: This category includes capital suspense estimated at
2 approximately 1.2-1.4% of all capital costs (depending on which CCCTs are at issue)
3 and a variable benefits loader. All other payroll loaders are included in the direct costs
4 of the other categories.

5 4. Regulatory: This category includes an estimate of the internal and external
6 costs associated with obtaining Commission certification.

7 5. Transmission Interconnection: Mr. Kline addresses transmission
8 interconnection in his Direct Testimony.

9 6. Transmission System Upgrades: Mr. Kline addresses transmission system
10 upgrades in his Direct Testimony. [REDACTED]

11 [REDACTED]
12 [REDACTED].

13 7. Project Contingency: This is a general contingency that addresses the fact that
14 construction projects of the cost, magnitude, and time duration of this project have cost
15 elements that are subject to some level of uncertainty and beyond the reasonable control
16 of ELL and its management. Even with a fixed price EPC agreement and a well-defined
17 scope of work, experience demonstrates that unpredictable events such as discovery of
18 unknown site conditions or changes in laws or regulations can require change orders
19 that affect project costs. Thus, a contingency must be included in order to provide a
20 reasonable estimate of the ultimate cost to complete the project. The current project
21 cost estimate contains a contingency line item of approximately 5% of the total project
22 costs, which is reasonable for a project of this nature.

1 8. AFUDC: This represents ELL's financing costs for development and
2 construction of the project. [REDACTED]

3 [REDACTED]

4

5 Q33. DOES THE COST ESTIMATE REFLECT COST ESCALATION ADJUSTMENTS
6 AND CONTINGENCIES?

7 A. The cost estimate component for Project Contingency is used to reasonably mitigate
8 unplanned increases in project cost, whether caused by known risks or unforeseen
9 risks. It recognizes that large construction projects that span several years can be
10 adversely affected by events beyond the utility's control. ELL used a Monte Carlo
11 simulation to determine the level of contingency that would provide a reasonable level
12 of mitigation of known and unknown risks on each project, but it is possible that some
13 of these risks, if realized, could cause cost increases beyond the contingencies included
14 in the cost estimates. ELL does not seek to recover any unused project contingency.

15 To avoid paying a substantial premium, the EPC contract will include a true-up
16 mechanism for specific categories of costs related to transportation and engineered
17 equipment. This mechanism will allow a true-up (in the aggregate) of the actual
18 escalation cost of the engineered equipment with a capped amount. As for the
19 transportation cost of the major equipment, it will be trued up at actual cost with no
20 markup.

21 Additionally, potential wage rate escalation on craft labor and per diem could
22 pose a risk as a result of the potential labor shortage in the Gulf Coast region due to
23 ongoing and proposed industrial capital investment. To mitigate this risk, the agreed-

1 upon EPC terms and conditions include a true-up mechanism, similar to that for
2 equipment, that would allow the EPC Consortium to request up to an agreed-upon
3 dollar amount during the course of the agreement based upon increases in actual costs
4 for direct craft labor if necessary to address demonstrated cost escalation. An estimate
5 for the potential increase in these escalation factors has been included in the
6 contingency estimate for the Proposed Generators.

7

8 Q34. SHOULD THE COMMISSION BE AWARE OF ANY PARTICULAR COSTS NOT
9 INCLUDED IN THE TOTAL COST ESTIMATE?

10 A. As further discussed in the Direct Testimony of Mr. Kline, final transmission delivery
11 costs are not included.

12

13 Q35. HOW DID ELL SELECT A VENDOR FOR THE MAJOR COMPONENTS (*E.G.*,
14 THE TURBINES) OF THE CCCTS?

15 A. To meet the in-service deadlines and the customer load ramp schedule, ELL leveraged
16 ETI's competitive solicitation for Power Island Equipment ("PIE") for a CCCT that
17 was performed in 2023. The solicitation for the PIE constituted the major components
18 (*i.e.*, the CTs, HRSG, and STG) comprising a significant portion of the cost of the
19 CCCTs. There were three bids received by the September 2023 deadline, one from
20 each of the major turbine manufacturers: one from General Electric ("GE"), one from
21 Mitsubishi Power, and one from Siemens Energy. Each of the three bids included
22 proposals to provide the base PIE items that were requested in the RFP. S&L provided
23 a thorough and detailed description of the proposals received from GE, Mitsubishi

1 Power, and Siemens Energy, its analysis and evaluation of those bids, and an ultimate
2 recommendation regarding which bid to accept in a Letter of Recommendation
3 (“LOR”) to ESL in November 2023. That LOR recommended ESL, on behalf of ETI,
4 award the supply of the PIE to Mitsubishi Power.

5 Based on the results of the PIE RFP, ESL executed an agreement with MPA in
6 2024 that reserved a certain number of slots for PIE (*i.e.*, CT, HRSG and ST) to be used
7 by the EOCs. ELL has made use of seven of these slots for purposes of securing the
8 equipment needed for the Proposed Generators. Without this agreement, and without
9 having secured the serviced of the EPC Consortium, ELL would very likely not be able
10 to meet the in-service deadline for the CCCTs in the current supply constrained market,
11 let alone on terms as favorable as those presented here.

12

13 Q36. ARE YOU CONFIDENT THAT THE COST ESTIMATE FOR THE CCCTS IS
14 REASONABLE?

15 A. Yes. Based on the process for developing the cost estimate, the construction cost
16 estimate for this project is consistent with current market pricing for similar projects
17 and is reasonable. This is the same process that was followed in connection with the
18 Laidley project, which generated cost estimates that were consistent with the results of
19 a competitive RFP process conducted at around that same time.⁴ And, the costs of the
20 Proposed Generators are consistent with the projected costs of the Waterford 6 Power

⁴ See ELL’s Rebuttal Testimony of Matthew Bulpitt (May 30, 2025), *In re: 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 Relief*, Docket No. U-37425, at pp. 3-4.

1 Station and Westlake Power Station projects, two 754 megawatt 1x1 CCCTs that were
2 selected from a 2024 RFP.⁵

3 Moreover, the costs of these specific units are reasonable when taking into
4 account prevailing market conditions for CCCTs. As discussed in a paper issued by
5 GridLAB, *et al.*, there has been “a significant and persistent increase in the capital costs
6 of new gas combustion turbine and combined cycle gas turbine power plants in the
7 United States.”⁶ This recent trend has proven strong enough to create a “divergence
8 between historical and projected figures and current market costs” and a “disconnect
9 between conventional cost assumptions and today’s market realities.”⁷ My own
10 experience is consistent with these views. That paper also provides that for 1x1 CCCTs
11 with in-service dates of 2029 or later, project costs exceeded \$2,100/kW in all cases.⁸

12

⁵ See Application of Entergy Louisiana, LLC, *In re: Application of Entergy Louisiana, LLC for Approval to Construct Waterford 6 Power Station and Westlake Power Station* (Feb. 11, 2026), Docket No. U-37853 (application for approval of the Waterford 6 CCCT, with an estimated project cost of \$2.027 billion, and the Westlake CCCT, with an estimated project cost of \$2.091 billion).

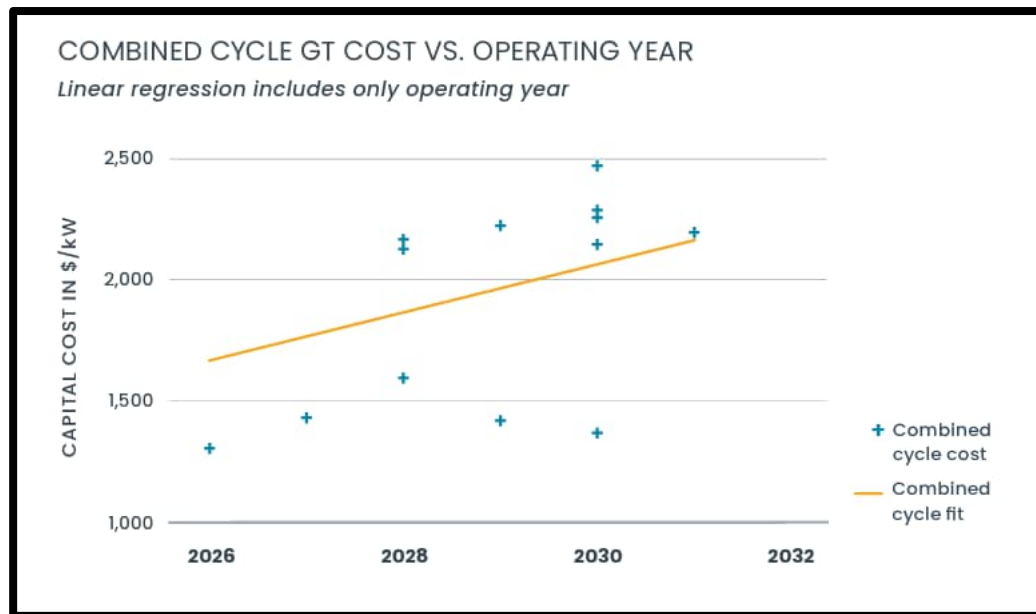
⁶ GridLAB, *The New Reality of Power Generation: An Analysis of Increasing Gas Turbine Costs in the U.S.*, at 4 (Sept. 2025), <https://gridlab.org/portfolio-item/gas-turbine-cost-report/>.

⁷ *Id.* at 5.

⁸ *Id.* at 6.

1

Figure 1



2

3 Importantly, especially in light of the rapid and ongoing increase in prices for CCCTs,
4 each of these projects were announced in late 2024 or early 2025.⁹ What the
5 GridLAB's analysis shows is that the capital costs of the Proposed Generators are
6 reasonable and consistent with market trends concerning the costs of developing
7 CCCTs.

8

9 **B. Schedule and Project Management**

10 Q37. WHAT IS THE ESTIMATED TIMELINE TO CONSTRUCT THE CCCTS?

11 A. Units 1-2, Units 3-4, Units 5-6, and Unit 7 are each on distinct timelines. Substantial
12 Completion by the EPC Consortium for Units 1-2 is expected in [REDACTED], with
13 commercial operation expected by the end of March 2030, [REDACTED] after Limited

⁹ *Id.* at 9-10.

1 Notice to Proceed (“LNTP”). Substantial Completion by the EPC Consortium for Units
2 3-4 is expected in [REDACTED], with commercial operation expected by the end of
3 October 2030. Substantial Completion by the EPC Consortium for Units 5-6 is
4 expected [REDACTED], with commercial operations
5 expected by the end of December 2030. Substantial Completion by the EPC
6 Consortium for Unit 7 is projected to be [REDACTED]. In each case, the
7 EPC Consortium will receive financial incentives for early completion and is required
8 to pay liquidated damages for delayed completion.

9

10 Q38. WHAT ARE THE KEY MILESTONES IN THE PROJECT SCHEDULE?

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

12 **Table 2 (Contains HSPM)**

Key Project Milestones¹⁰

Milestone	Richland Parish		Pointe Coupee Parish	
	Units 1-2	Units 3-4	Units 5-6	Unit 7
LNTP	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]
Rec. of Air Permit	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]
FNTP	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]
Delivery of HRSG	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]
Delivery of CTs	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]
Delivery of STs	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]
Subst. Completion	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]
Comm. Operation	Mar 2030	Oct 2030	Dec 2030	Jun 2031

¹⁰ Dates provided herein are provisional and subject to change as final execution plans with the EPC Consortium are developed as part of contract negotiations.

1

2 Q39. WHAT WILL BE THE PROJECT MANAGEMENT APPROACH TO THE CCCTS?

3 A. The project management approach will follow Entergy's PDS Policy, which I
4 explained above. This process has been consistently used in the successful construction
5 of new CCCT power plants such as LCPS, JWLPS, and MCPS, and Ninemile 6, all of
6 which came in early and under budget, and it is currently being implemented for
7 OCAPS and the other gas generation units under construction.

8

9 **C. Operations & Maintenance Expenses**

10 Q40. HAVE ESTIMATES OF O&M COSTS THAT WILL BE INCURRED IN
11 OPERATING THE NEW CCCTS BEEN PREPARED?

12 A. Yes. The project team has prepared O&M cost estimates and provided them to
13 Company witness Ryan Jones for use in estimating the first-year revenue requirement
14 associated with the Proposed Generators. The estimates are based on the current best
15 understanding of what equipment will be installed at each project site and on several
16 other assumptions related to operating systems and conditions for the respective units
17 beginning in 2030. The estimates also include assumptions regarding a general
18 inflation rate, a payroll escalation rate, and a material and supplies escalation rate across
19 the estimate time frame for the purposes of presenting the estimate in 2030 dollars. In
20 estimating the O&M expenses, the average general inflation rate is assumed to be
21 2.35% per year, with payroll increasing by 2.5% per year. All cost estimates are based
22 on 2025 dollars, escalated through the planned Commercial Operations Date for each
23 project and each year thereafter by the appropriate escalation rate.

1

2 Q41. ARE THE O&M COST ESTIMATES REASONABLE?

3 A. Yes. The estimates were developed using a process that was created based on
4 experience gained in the operation of other EOC-operated combined-cycle facilities
5 and information gleaned from general industry sources. This estimation process
6 compiles O&M performance and cost into a spreadsheet model for the processes,
7 systems, and components that will be employed within a plant, and uses that data to
8 estimate routine annual and major periodic inspection O&M expenses.

9

10 Q42. WHAT ARE THE CURRENT ESTIMATES OF O&M EXPENSES FOR THE
11 PROPOSED GENERATORS?

12 A. Representative estimated O&M expenses for this portfolio on a per unit basis in the
13 first full year of operation are summarized in Table 3 below. The O&M figures exclude
14 major maintenance costs expected to be incurred under the Long-Term Service
15 Agreement (“LTSA”). The O&M estimates reflect costs in 2030 dollars and are
16 supported by the workpapers that support the estimates reflected in the attached NG-2
17 (HSPM). Escalation impacts on the estimated O&M expenses below due to range of
18 individual unit in-service dates are not estimated to be material.

19

1

Table 3

Estimated Per Unit First-Year O&M Expenses (millions)

Expenditure Type	Estimated Per Unit Cost
Wages, Salaries, and Benefits	\$2.43
Utilities	\$1.4
Fixed O&M Expenditures	\$2.4
Variable O&M Expenditures	\$1.4
LTSA Variable Expense (recovered through fuels)	\$8.7
Total Expenditures	\$16.33

2 Q43. HOW WERE PAYROLL COST ESTIMATES PREPARED?

3 A. A preliminary incremental plant staffing organizational chart was developed for each
4 unit, based on experience with combined-cycle plant operations in general, that takes
5 into account the expected staffing at the time each unit reaches commercial operation.
6 Those preliminary organizational charts are attached as Exhibit NG-3. Labor rates
7 were then applied to the different job families and incremental headcount included in
8 the organizational charts. Those costs were then totaled to arrive at the annual plant
9 staff labor figures shown in the tables above. This reflects the payrolls associated with
10 incremental headcounts required to operate the Proposed Generators.

11

12 Q44. WHAT O&M OUTAGE EXPENSES WERE INCLUDED?

13 A. The O&M outage expenses include routine annual maintenance expenses incurred as
14 part of annual planned maintenance outages. These costs do not include periodic major

1 maintenance on the combustion turbines and associated generators, which will be
2 covered under the LTSA.

3

4 Q45. WHAT TYPES OF COSTS ARE INCLUDED IN THE O&M BASELINE EXPENSE?

5 A. Primarily these are costs associated with the regular maintenance of the Proposed
6 Generators. Performing this maintenance will require materials, chemicals, labor, and
7 rental equipment, and will address the O&M costs for activities not covered by the
8 LTSA for the following equipment and systems: combustion turbines and generators,
9 steam turbine and generator, the HRSG, electrical instruments and controls, cooling
10 water and water production systems, environmental systems, and substation and
11 transmission facilities. Detailed estimates of these costs, which include both fixed and
12 variable components, are shown in the workpapers supporting Exhibit NG-2 (HSPM).

13

14 Q46. HOW FREQUENTLY IS MAINTENANCE REQUIRED ON THE PROPOSED
15 GENERATORS?

16 A. Although the MPA 501 JAC CTs that have been selected for the Proposed Generators
17 are highly reliable units, they are comprised of large, complex mechanical systems, and
18 will require regular maintenance. CCCTs providing baseload generation support
19 require inspection and maintenance on a prescribed frequency that is determined by
20 unit operating hours. Outages for inspection of the gas turbine combustion equipment
21 are conducted every 15,000 hours of operation. Outages for inspection of the gas
22 turbine hot gas path and associated generator components exposed to high temperatures
23 are as well as steam turbine, steam turbine valves and steam turbine generator are

1 conducted every 30,000 hours of operation. Major inspections and replacements of
2 worn and/or damaged equipment for the overall PIE are conducted every 60,000
3 operating hours.

4 Performing this maintenance will require that the unit undergoing service be
5 taken offline in a planned outage. Although this downtime will necessarily require that
6 the energy required to serve the Project load be obtained from elsewhere in ELL's
7 system, performing such maintenance is required to ensure continued reliable, safe, and
8 economic operations. Indeed, the failure to perform regular maintenance of this sort is
9 inconsistent with Good Utility Practice and may result in NERC, OSHA and Title V
10 emissions violations and, over time, would almost certainly result in unplanned,
11 uncontrolled forced derates and/or outages and their attendant downtime and expense.

12
13 Q47. HOW DOES ELL INTEND TO MANAGE LONG-TERM MAJOR MAINTENANCE
14 ASSOCIATED WITH THE NEW CCCTS?

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

1 Q48. WHAT IS THE ESTIMATED COST OF THE LTSA?

2 A. As indicated, the LTSA and the pricing terms are not fully known. However, for
3 planning purposes only, ESL estimates that LTSA costs for major maintenance work
4 scope will average \$10.3 million per year per unit with escalation and \$7.3 million per
5 year without escalation. These costs are based largely upon ESL's experience in
6 developing the LTSA for OCAPS. If the LTSA were to remain in effect for the full
7 contract term through the second major inspection event, the expected term cost (in
8 nominal dollars) for each of the Proposed Generators would be approximately
9 \$175 million with escalation and approximately \$121 million without escalation.

10

11 Q49. ARE THE ESTIMATED VARIABLE LTSA COSTS INCLUDED IN THE O&M
12 COST ESTIMATE?

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

17

18 Q50. ARE THERE ANY ADDITIONAL SPECIFIC EVENTS OR CIRCUMSTANCES
19 THAT MAY IMPACT THE CAPITAL COSTS THAT YOU WISH TO NOTE AND
20 ELABORATE UPON?

21 A. Yes. [REDACTED]

22 [REDACTED]

23 [REDACTED]

1 [REDACTED]
2 [REDACTED]
3 [REDACTED]
4 [REDACTED]
5 [REDACTED]
6 [REDACTED]
7 [REDACTED].

8 Interconnection and upgrade costs are more thoroughly explained in the testimony of
9 Mr. Kline.

10

11 **V. CONSTRUCTION RISK MANAGEMENT**

12 Q51. YOU DISCUSSED RISK MITIGATION EARLIER. WHY IS IT IMPORTANT TO
13 HAVE PLANS IN PLACE TO MANAGE AND MITIGATE THE POTENTIAL
14 RISKS ASSOCIATED WITH DEVELOPING THE PROPOSED GENERATORS?

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

22

1 Q52. HOW HAS ELL MITIGATED THE RISKS AFFECTING THE NEW PROJECT
2 SCHEDULES AND PROJECTED COSTS?

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

13
14 Q53. HOW HAS ELL MITIGATED THE RISKS TO ALL ITS CUSTOMERS WITH
15 RESPECT TO LONG LEAD TIME ITEMS?

16 A. As discussed in detail by Ms. Beauchamp, the Customer has already paid
17 approximately [REDACTED] to reserve generation-related long lead time items, like the
18 requisite turbines. In addition, the Agreement for Contribution in Aid of Construction
19 and Capital Costs ("CIAC Agreement") with the Customer provides that, in the event
20 the Project does not move forward, the Customer is responsible for all costs (unless a
21 suitable replacement project can be identified that needs the equipment). ELL has
22 applied these funds to Reservation Agreements with Mitsubishi Power, which secures
23 PIE delivery, and with Siemens Energy for long lead high voltage equipment such as

1 Transformers and Breakers. These reservation agreements mitigate the long lead major
2 equipment that drive critical path of the project. In addition, ensuring that the EPC
3 contract is issued on schedule mitigates the remaining long lead equipment timelines.
4

5 Q54. PLEASE DISCUSS SOME OF THE POTENTIAL RISK MITIGATIONS
6 EXPECTED TO BE CONTAINED IN THE EPC CONTRACT.

7 A. While the EPC contract with the EPC Consortium is not yet executed, the agreed-upon
8 general terms and conditions reflected in Exhibit NG-1 (HSPM) provide for a fixed
9 price and a fixed schedule. Any fixed price contract presents a risk of price increases
10 through change orders and extra work claims. This risk has been mitigated to the extent
11 possible by broadly defining the scope of work assigned to the EPC Consortium as
12 including everything necessary to complete the Proposed Generators that meets the
13 specification and performance requirements, except for items expressly stated in the
14 scope document to be ELL's responsibility. The agreed-upon EPC contract terms also
15 contain favorable change order provisions that will enable ELL to direct the EPC
16 Consortium to proceed with a change order over which there is a good faith dispute
17 between the parties, with the dispute over the price impact to be resolved in arrears.
18 This will protect ELL and its customers from the possibility that the EPC contractor
19 would threaten to delay work until change order disputes are resolved to its satisfaction.
20 Further, the EPC Consortium must notify ELL before making any changes required by
21 *force majeure* events or changes in laws and must document such changes and the
22 resulting impacts before being entitled to any schedule relief, increase in the fixed price,
23 or additional reimbursement.

1

2 Q55. WILL THE EPC AGREEMENT HAVE PROVISIONS THAT MITIGATE RISK
3 RELATING TO THE EPC CONSORTIUM'S PERFORMANCE?

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

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

15 [REDACTED]

16 [REDACTED]

17 [REDACTED]

18 [REDACTED]

19 [REDACTED]

20 [REDACTED]

21 [REDACTED]

22 [REDACTED]

23 [REDACTED]

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

4

5 Q56. IS ELL OBTAINING PROTECTIONS AND INDEMNITIES FROM THE EPC
6 CONTRACTOR THROUGH THE USE OF INSURANCE?

7 A. Yes.

8

9 Q57. WHAT TYPES OF INSURANCE ARE INCLUDED IN THE COST ESTIMATES
10 FOR THE THREE NEW CCCTS AND WHAT DO THEY COVER?

11 A. ELL intends to procure insurance prior to the issuance of LNTP. The expected
12 coverage will include BAR and DSU. BAR insurance is for the benefit of ELL, the
13 contractors, and subcontractors of every tier, and covers property damage to project
14 work from non-excluded perils while it is under construction, from the moment of
15 inland shipment from an OEM and/or supplier until the policy lapses. The limit of
16 liability under the BAR policy is expected to be roughly equal to the EPC contract
17 value, subject to various deductibles depending on the insured peril.

18 The DSU policy covers certain schedule-delay costs resulting from property
19 damage to project work caused by a non-excluded peril under the BAR policy. After
20 the deductible period is met, DSU insurance provides coverage for certain costs until
21 project completion is achieved, including AFUDC, owner's costs, and the contractors'
22 increased site costs. The indemnities under the DSU policy are subject to a monthly
23 maximum as well as an aggregate limit. Although ELL has not yet placed DSU

1 coverage for the CCCTs, it expects to obtain a maximum monthly indemnity of
2 approximately [REDACTED] and an 18-month maximum indemnity of approximately
3 [REDACTED].
4

5 **VI. CONCLUSION**

6 Q58. PLEASE SUMMARIZE YOUR TESTIMONY.

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

8 o CCCTs are efficient, around the clock, reliable generators and are considered
9 to be the best available technology for limiting greenhouse gas emissions when
10 combusting fossil fuels for electrical generation.

11 o ELL has negotiated portfolio-wide terms and conditions for the EPC contracts
12 that will help mitigate cost risk and will facilitate the timely construction of the
13 generation required by the Project.

14 o The costs of the CCCTs and the related O&M expenses are reasonable,
15 especially when considered in the context of significant market pressures for CCCTs
16 and related services.

17 o ELL has extensive experience with CCCTs, and ELL is leveraging its own
18 project management experience as well as that of other EOCs to provide reasonable
19 estimates of costs and schedules for the Project.
20

21 Q59. DOES THIS CONCLUDE YOUR TESTIMONY?

22 A. Yes, at this time.

AFFIDAVIT

STATE OF TEXAS

COUNTY OF MONTGOMERY

NOW BEFORE ME, the undersigned authority, personally came and appeared,
NORMAN S. GRUNDEN, 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.



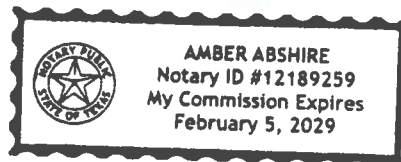
Norman S. Grunden

SWORN TO AND SUBSCRIBED BEFORE ME
THIS 17 DAY OF MARCH, 2026



NOTARY PUBLIC

My commission expires: February 5, 2029



BEFORE THE
LOUISIANA PUBLIC SERVICE COMMISSION

IN RE: APPLICATION OF ENTERGY)
LOUISIANA, LLC FOR CERTIFICATION)
OF GENERATION AND TRANSMISSION)
RESOURCES AND FOR OTHER RELIEF)
PURSUANT TO THE COMMISSION’S)
LIGHTNING INITIATIVE)

DOCKET NO. U-_____

EXHIBIT NG-1

HIGHLY SENSITIVE PROTECTED MATERIALS
FILED UNDER SEAL

INTENTIONALLY OMITTED

MARCH 2026

BEFORE THE
LOUISIANA PUBLIC SERVICE COMMISSION

IN RE: APPLICATION OF ENTERGY)
LOUISIANA, LLC FOR CERTIFICATION)
OF GENERATION AND TRANSMISSION)
RESOURCES AND FOR OTHER RELIEF)
PURSUANT TO THE COMMISSION’S)
LIGHTNING INITIATIVE)

DOCKET NO. U-_____

EXHIBIT NG-2

HIGHLY SENSITIVE PROTECTED MATERIALS
FILED UNDER SEAL

INTENTIONALLY OMITTED

MARCH 2026

ELL New Builds – Operations Staffing for Omega Units (per facility)

