BEFORE THE

LOUISIANA PUBLIC SERVICE COMMISSION

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

DIRECT TESTIMONY

OF

PHONG D. NGUYEN

ON BEHALF OF

ENTERGY LOUISIANA, LLC

PUBLIC REDACTED VERSION

MARCH 2024

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EXHIBITS

I. INTRODUCTION AND BACKGROUND

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

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

Q2. ON WHOSE BEHALF ARE YOU TESTIFYING?

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

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

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

Q4. PLEASE DESCRIBE YOUR BUSINESS EXPERIENCE AND EDUCATION.

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

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

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

Q5. HAVE YOU PREVIOUSLY TESTIFIED BEFORE A REGULATORY COMMISSION?

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

Q6. WHAT IS THE PURPOSE OF YOUR DIRECT TESTIMONY?

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

II. ECONOMIC EVALUATION

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

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

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

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

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

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

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

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

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

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

Figure 1

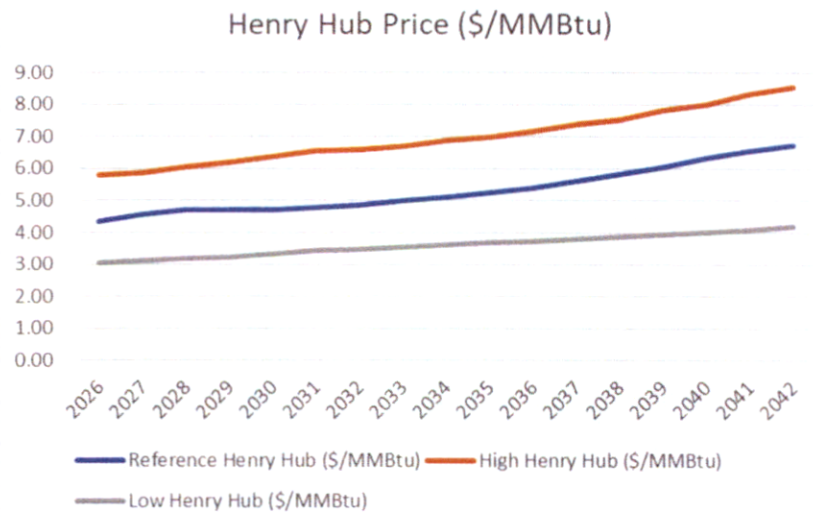
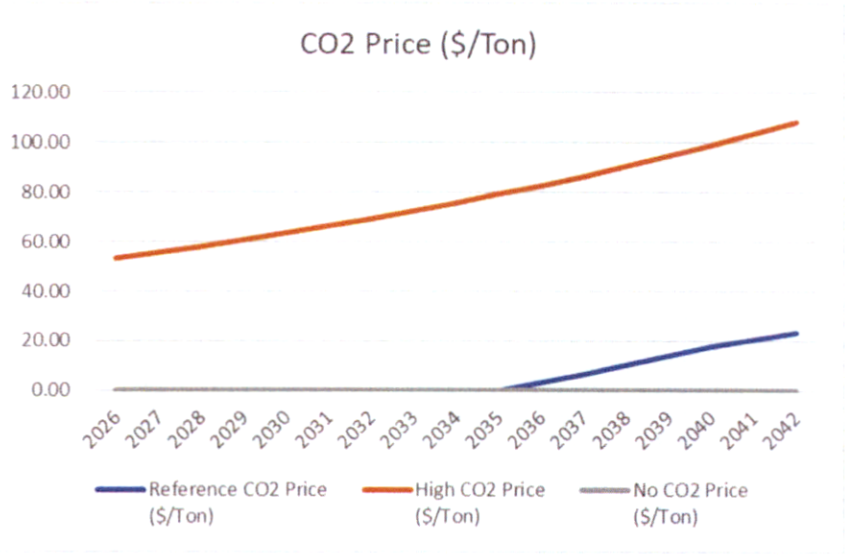


Figure 2

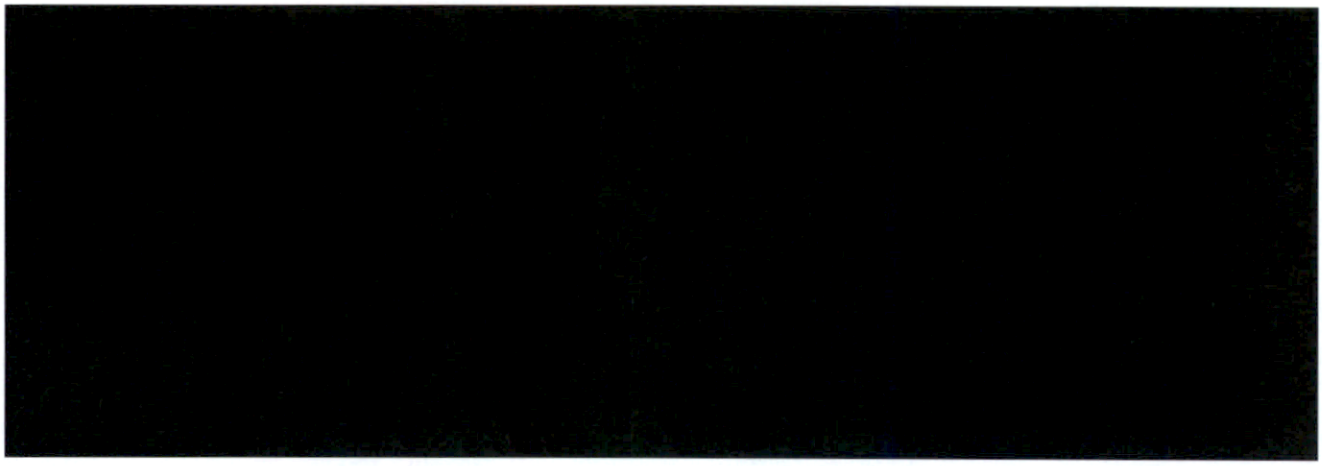


Q11. PLEASE SUMMARIZE THE RESULTS OF THE ECONOMIC EVALUATION.

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

[redacted]

Figure 3



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

Q12. WHAT SENSITIVITY ANALYSES WERE PERFORMED?

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

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

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

[redacted]

Table 1

[redacted]

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

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

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

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

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

Q14. DOES THIS CONCLUDE YOUR DIRECT TESTIMONY?

A. Yes, at this time.

AFFIDAVIT

STATE OF TEXAS

COUNTY OF MONTGOMERY

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

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

Phong D. Nguyen

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

NOTARY PUBLIC

My commission expires: 08/05/2027

BONNY DAWSON
Notary Public, State of Texas
Comm. Expires 08-05-2027
Notary ID 130321800

Listing of Previous Testimony Filed by Phong D.Nguyen

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