

BEFORE THE  
LOUISIANA PUBLIC SERVICE COMMISSION

JEFFERSON DAVIS ELECTRIC COOPERATIVE, INC., ) DOCKET NO. U-\_\_\_\_\_  
EX PARTE )

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*In re: Application for Transmission Determination, Approval to Transfer Functional Control to MISO, and Expedited Consideration.*

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JEFFERSON DAVIS ELECTRIC COOPERATIVE, INC.'S APPLICATION  
FOR TRANSMISSION DETERMINATION, APPROVAL TO TRANSFER  
FUNCTIONAL CONTROL TO MISO, AND EXPEDITED CONSIDERATION

**EXHIBIT “D”**  
**Pre-filed Direct Testimony of**  
**Mr. Martin Lodyga**  
**(Rule 12.1 Confidential/HSPM Version Removed**  
**From Public Version)**

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**PRE-FILED DIRECT TESTIMONY OF  
MARTIN LODYGA  
ON BEHALF OF  
JEFFERSON DAVIS ELECTRIC COOPERATIVE, INC.**

**October 2025**

**PUBLIC VERSION**

**BEFORE THE  
LOUISIANA PUBLIC SERVICE COMMISSION**

**JEFFERSON DAVIS ELECTRIC COOPERATIVE, INC., ) DOCKET NO. U-\_\_\_\_\_**  
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**SUMMARY OF PREPARED PRE-FILED DIRECT TESTIMONY OF  
MARTIN LODYGA  
ON BEHALF OF  
JEFFERSON DAVIS ELECTRIC COOPERATIVE, INC.**

The prepared direct testimony of Mr. Martin Lodyga supports Jefferson Davis Electric Cooperative, Inc. (“JDEC”) filing to request for a Transmission Determination for the certain transmission assets (referred “JDEC Facilities”) and to transfer the control function of the requested JDEC Facilities to the Midwest Independent Transmission System Operator, Inc. (MISO), Regional Transmission Organization.

- I. INTRODUCTION AND QUALIFICATIONS
- II. JDEC SYSTEM BACKGROUND
- III. SCOPE OF TESTIMONY
- IV. JDEC FACILITIES
- V. LONG RANGE TRANSMISSION PLANNING PROCESS
- VI. ECONOMIC BENEFIT: LOAD COST SAVINGS
- VII. ECONOMIC BENEFIT: RESILIENCY BENEFITS
- VIII. CONCLUSION

Mr. Lodyga sponsors the following exhibits:

<b>Exhibit No.</b>	<b>Description</b>
JDEC-00101	Direct Testimony of Martin Lodyga
JDEC-00102	List of JDEC Facilities
JDEC-00103	JDEC One-Line Diagram
JDEC-00104	Average LMP Reduction – Load Cost Savings Analysis
JDEC-00105	Load Cost Savings by Utility – Load Cost Savings Analysis
JDEC-00106	Louisiana Annual Load Cost Savings (Nominal) – Load Cost Savings Analysis
JDEC-00107	Louisiana Annual Load Cost Savings (Present) – Load Cost Savings Analysis
JDEC-00108	Total VOLL of Unserved Energy due to Hurricane Events – Resiliency Benefits Analysis
JDEC-00109	Martin Lodyga Senior Manager of Energy Market Analysis Curriculum Vitae

1 **I. INTRODUCTION AND QUALIFICATIONS**

2 **Q. PLEASE STATE YOUR FULL NAME, POSITION AND BUSINESS ADDRESS.**

3 **A.** My name is Martin Lodyga. I am a Senior Manager with Electric Power Engineers, LLC  
4 (“EPE”), an engineering consulting firm. My business address is 5301 Southwest  
5 Parkway, Suite 150, Austin, TX-78735.  
6

7 **Q. ON WHOSE BEHALF ARE YOU TESTIFYING?**

8 **A.** I am testifying on behalf of Jefferson Davis Electric Cooperative, Inc. (“JDEC”). JDEC is  
9 a Louisiana nonprofit cooperative corporation organized and existing under the laws of  
10 the State of Louisiana and domiciled in Jefferson Davis Parish, Louisiana. JDEC was  
11 incorporated on September 17, 1941, and provides electricity to approximately 9,690  
12 active meters (residential, commercial, and industrial) in the rural areas of five parish  
13 areas, namely, Allen, Calcasieu, Cameron, Jefferson Davis, and Vermilion Parishes.  
14 JDEC’s members are both its owners and its customers. JDEC is a state regulated utility,  
15 it is not currently a member of MISO, and currently does not own any transmission  
16 facilities in MISO.  
17

18 **Q. PLEASE SUMMARIZE YOUR EDUCATIONAL AND PROFESSIONAL**  
19 **BACKGROUND.**

20 **A.** I earned a Bachelor of Applied Science in Electrical Engineering from the University of  
21 Toronto. I worked for sixteen years at the Independent Electricity System Operator  
22 (“IESO”), the independent market and system operator in the province of Ontario,  
23 Canada. I was employed at the IESO in various roles related to market analysis, market

1 operation and market design, rising to the role of Supervisor. My responsibilities were to  
2 act as a technical subject matter expert on topics including market operation and design,  
3 economic analysis, commitment and scheduling optimization, price formation,  
4 interjurisdictional coordination, market procedures and rules related to both control room  
5 operation and market participation. Since joining EPE in 2023, I have performed a  
6 variety of functions, including conducting technical-economic analysis forecasting  
7 market pricing, scheduling and measuring derived benefits resulting from proposed  
8 generation and transmission expansion projects. In my current role, I provide oversight to  
9 EPE's Energy Market Analysis team and act as an internal and external subject matter  
10 expert regarding market modeling, operation and design. My resumé is attached as  
11 Exhibit No. JDEC-109.

12  
13 **Q. HAVE YOU TESTIFIED BEFORE THE FEDERAL ENERGY REGULATORY**  
14 **COMMISSION (“COMMISSION” OR “FERC”) OR ANY OTHER**  
15 **REGULATORY AUTHORITIES?**

16 **A.** No, I have not previously testified before FERC or any state commission authority.  
17 However, throughout my career, I have been closely involved in regulatory processes and  
18 proceedings. At the Independent Electricity System Operator (IESO), I contributed to the  
19 development of market rules, market design, compliance audits, and stakeholder  
20 consultations that directly informed regulatory filings and decisions. I have led cross-  
21 functional implementation efforts for large-scale market design changes and collaborated  
22 with legal and policy teams to ensure alignment with regulatory obligations. My

1 experience has prepared me to provide credible and well-supported testimony in this  
2 forum.

## 4 II. JDEC SYSTEM BACKGROUND

5 Prior to August 27, 2020, the date of landfall of Hurricane Laura in JDEC's service territory,  
6 JDEC served its members through 105 miles of transmission network and facilities. JDEC's  
7 entire distribution system was decimated by Hurricane Laura. No section of JDEC's  
8 distribution system was left unscathed, and all 105 miles of its transmission network was  
9 destroyed, including its transmission facilities, which included 138 kV transmission towers  
10 and the 69 kV transmission towers that crossed the Intracoastal Waterway.

11  
12 Immediately following Hurricane Laura, JDEC started the process of rebuilding the 69 kV  
13 lines and evaluating the 138 kV line that traverses through the marsh across Cameron Parish.  
14 Approximately one month later, on October 4, 2020, Hurricane Delta made landfall in  
15 JDEC's service territory and devastated the same area that was impacted by Hurricane Laura.

16  
17 Following Hurricane Delta, JDEC continued to repair its distribution system, but  
18 concurrently began discussions with the Federal Emergency Management Agency ("FEMA")  
19 and the Governor's Office of Homeland Security & Emergency Preparedness ("GOHSEP")  
20 to explore the use of Public Assistance Alternative Procedures ("PAAP") for the replacement  
21 and hardening of JDEC's old 69 kV loop and the 138 kV line. Specifically, JDEC seeks to  
22 replace the transmission system that was severely damaged by the 2020 hurricane season  
23 with a new 230 kV loop (the "New Transmission Loop"). This New Transmission Loop will

1 largely track the path of JDEC’s previous transmission system but will be built in accordance  
2 with new codes and standards, which include the use of steel poles, elevated substations, and  
3 other improvements that will harden JDEC’s transmission infrastructure and provide for a  
4 more resilient electric system for the State of Louisiana.

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**III. SCOPE OF TESTIMONY**

**Q. WHAT IS THE PURPOSE OF YOUR PREPARED DIRECT TESTIMONY?**

**A.** The purpose of my testimony is to support JDEC’s application by demonstrating that the New Transmission Loop provides substantial economic and reliability benefits that justify its classification as transmission and transfer of functional control to Midwest Independent Transmission System Operator, Inc. (“MISO”), a Regional Transmission Organization. This project is not merely a replacement of storm-damaged infrastructure, it is a strategic investment that strengthens Louisiana’s electric grid, improves hurricane resilience, reduces wholesale energy costs statewide, and supports economic development in a region critical to the state’s LNG export and industrial base. By using MISO’s Long Range Transmission Planning (LRTP) methodology, this analysis ensures that the quantified benefits meet the rigorous standards used to approve multi-billion-dollar transmission portfolios across the MISO footprint

1 **Q. WHAT EXHIBITS ARE YOU SPONSORING IN CONNECTION WITH YOUR**  
2 **TESTIMONY?**

3 **A.** I am sponsoring Exhibit Nos. JDEC-00101 through JDEC-00109, which consist of  
4 documents that were prepared by me or under my direct supervision, are publicly  
5 available, or produced by JDEC in the ordinary course of business.

6

7

#### **IV. JDEC FACILITIES**

8 **Q. PLEASE DESCRIBE THE JDEC FACILITIES.**

9 **A.** The JDEC Facilities are the facilities identified in Exhibit No. JDEC-00102. I have  
10 included a simplified list of the JDEC Facilities in Table 1, including their respective  
11 voltage, status, and mileage, where applicable. A one-line diagram of the JDEC Facilities  
12 follows the simplified list in Figure 1A.

13

14 **Table 1: JDEC Facilities<sup>1</sup>**

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<sup>1</sup> See Exhibit No. JDEC-00102.

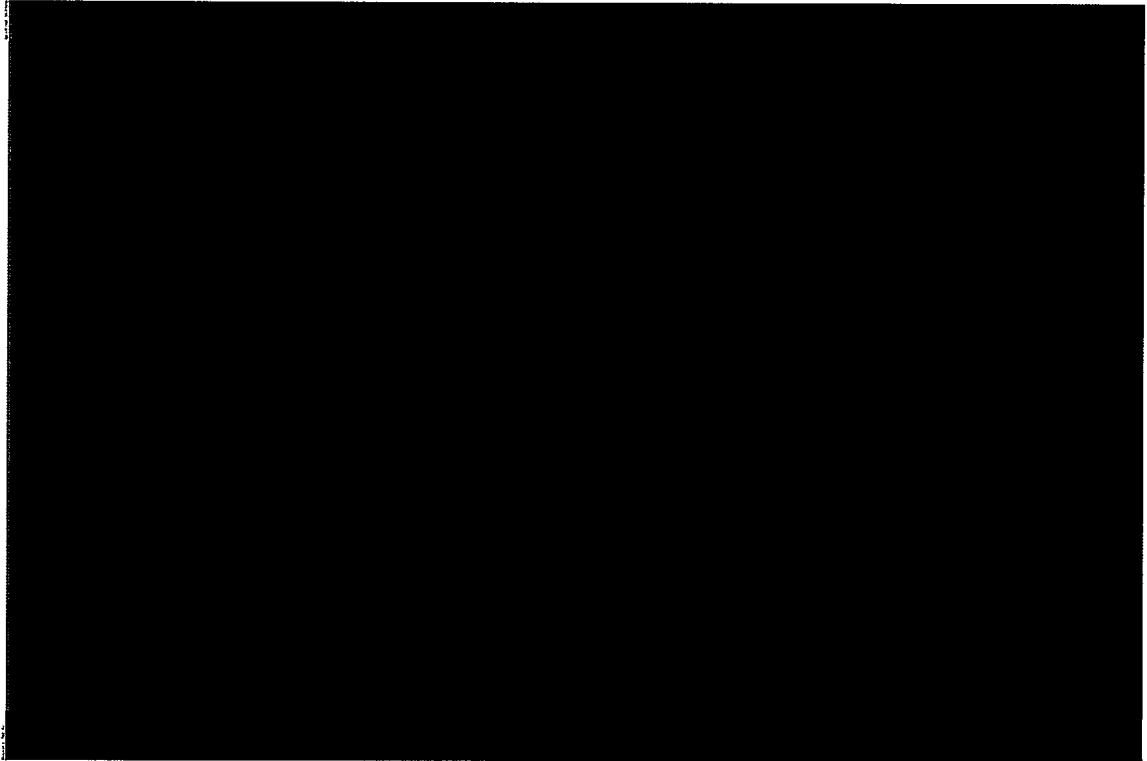
**Jefferson Davis Electric Cooperative, Inc. Facilities**

<u>Substations</u>	<u>Voltage</u>	<u>Status</u>	<u>Miles</u>
Fulton Substation	230/13.2 kV	Under Construction	N/A
Holly Beach Switching Station	230 kV	Under Construction	N/A
Crown Substation	230 kV	Under Construction	N/A
Sturlese Substation	230/13.2 kV	Under Construction	N/A
Hackett Substation	230/24.9/13.2 kV	Under Construction	N/A
Manchester Substation	230/13.2 kV	Under Construction	N/A
Chalkley Substation	230 kV	Existing	N/A
Johnson Bayou	230/13.2 kV	Under Construction	N/A
Knight Substation	230/13.2 kV	Under Construction	N/A
Michigan-Wisconsin Substation	230/13.2 kV	Under Construction	N/A
Grand Chenier Substation	230 /13.2 kV	Under Construction	N/A

<u>Transmission Lines</u>	<u>Voltage</u>	<u>Status</u>	<u>Miles</u>
Holly Beach Switching Station to Fulton	230 kV	Under Construction	13.15
Holly Beach Switching Station to Crown	230 kV	Under Construction	24.00
Fulton to Sturlese	230 kV	Under Construction	12.30
Sturlese to Hackett	230 kV	Under Construction	14.50
Hackett to Manchester	230 kV	Under Construction	10.70
Manchester to Chalkley	230 kV	Under Construction	2.50
Johnson Bayou to Holly Beach	230 kV	Under Construction	10.00
Knight to Chalkley	230 kV	Under Construction	0.08
Sturlese to Michigan-Wisconsin Tap	230 kV	Under Construction	7.90
Michigan-Wisconsin Tap to Grand Chenier	230 kV	Under Construction	4.20
Michigan-Wisconsin Tap to Michigan-Wisconsin	230 kV	Under Construction	1.50

1 **BEGIN CUI//CEII//PRIV**

2 *Figure 1A: One-Line Diagram of JDEC Facilities (Page 1)*<sup>23</sup>



3  
4 **END CUI//CEII//PRIV**

6 **V. LONG RANGE TRANSMISSION PLANNING PROCESS**

7 **Q. WHAT IS THE LRPT PROCESS**

8 **A.** MISO's LRTP process is used to evaluate potential future transmission needs within the  
9 MISO footprint. The LRTP is an extension of the MISO Transmission Expansion  
10 Planning ("MTEP") process that is performed on an annual basis to identify and approve  
11 transmission projects that meet transmission needs associated with reliability or economic

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<sup>2</sup> See Exhibit No. JDEC-00103.

<sup>3</sup> The color green has been designated to represent facilities identified as transmission, while the color yellow signifies facilities categorized as distribution.

1 market efficiency. While the annual MTEP process addresses more immediate  
2 transmission needs, the LRTP process takes a longer-term view, evaluating transmission  
3 projects that support system resilience and flexibility in the face of future uncertainties.  
4 LRTP is scenario-based assessment designed to plan transmission infrastructure up to 20  
5 years into the future. It evaluates transmission solutions across various scenarios,  
6 commonly referred to as “futures”, that vary the demand growth for electricity and  
7 expected generation facilities required to meet adequacy needs based on a variety of  
8 policy, and technology adoption alternatives.

9  
10 LRTP transmission projects are evaluated to establish whether they meet the criteria to be  
11 considered a multi-value project (“MVP”) and are approved as part of a portfolio of  
12 future projects. In order to qualify as an MVP project, projects need to meet at least one  
13 of the key criteria related to providing economic benefits, enhancing grid reliability and  
14 supporting policy goals.

15  
16 This testimony focuses on demonstrating the economic benefits of JDEC’s proposed New  
17 Transmission Loop. The analysis applies the economic-benefits methodology from  
18 MISO’s LRTP process, a framework widely accepted by MISO and its stakeholders to  
19 substantiate and secure approval for new transmission expansion projects within the  
20 MISO footprint.

21  
22 **Q. PLEASE DESCRIBE THE ECONOMIC BENEFIT MEASURES UTILIZED BY**  
23 **THE LRTP PROCESS?**

1 To assess the value of transmission projects, the LRTP process employs a set of economic  
2 benefit measures designed to capture the monetary value-based benefits needed to justify  
3 the necessary investment to develop and operate the project. These measures are used to  
4 quantify project benefits across a range of dimensions, with the sum of these measures  
5 forming the basis for determining whether a proposed project achieves a benefit-to-cost  
6 ratio that meets or exceeds the threshold required for regional cost allocation under  
7 MISO's planning framework.

8  
9 The benefit metrics utilized in the LRTP process include the following:

- 10 1.) Adjusted Production Cost (APC) Savings: This benefit metric captures the reduction  
11 in utility-side costs in serving load through a more efficient scheduling of supply side  
12 resources that is enabled by enhanced transmission capability, it includes savings  
13 from reduced fuel consumption, lower variable operations and maintenance (O&M)  
14 expenses, and changes in import/export sales.
- 15 2.) Load Cost Savings: This benefit metric captures the reduction in load-side costs in  
16 serving load, primarily driven by the lowering of the Locational Marginal Price  
17 (LMPs), the price paid by consumers to consume electricity at a given location. By  
18 reducing the market clearing costs that can be exacerbated by transmission congestion  
19 and losses, transmission projects can help lower energy costs for consumers.
- 20 3.) Transmission Investment Deferral: This benefit metric reflects the savings achieved  
21 through avoided or deferred capital expenditures on smaller or localized upgrades that  
22 would otherwise be necessary in the absence of the proposed transmission projects.

1 4.) Resource Adequacy Benefits: This benefit metric reflects the savings as a result of  
2 increased connectivity in the transmission system which improves access to existing  
3 supply resources, thereby reducing the need for new generation to meet future supply  
4 adequacy needs.

5 5.) Resilience Benefits: This benefit metric reflects the savings to which transmission  
6 projects improve the system's ability to withstand and recover from extreme weather  
7 events and other high-impact, low-probability occurrences.

8 6.) Policy Enablement: This benefit metric reflects the role of transmission projects in  
9 facilitating policy goals including state and federal energy mandates related to targets  
10 associated with renewable portfolio standards and decarbonization targets.

11 7.) CO<sub>2</sub> Emissions Reduction: This benefit metric reflects the environmental and societal  
12 value of avoided emissions. Transmission projects that enable increased production  
13 from renewable and low-emission resources, displace fossil generation and thereby  
14 reduce carbon dioxide emissions.

15 8.) Curtailment Reduction: This benefit metric reflects savings achieved by the  
16 improvement in renewable resource deliverability due to increased transmission  
17 capacity. By relieving constraints that curtail the output of wind and solar generation,  
18 transmission projects can enable savings through the use of more economic  
19 generation.

20  
21 These benefit metrics are evaluated individually, and collectively establish an overall  
22 economic benefit for each transmission project under consideration by the LRTP  
23 economic assessment framework. The sum of economic benefits is compared against the

1 estimated costs to calculate a benefit-to-cost ratio. Projects that meet or exceed the  
2 established B/C threshold, most recent LRTP process (Tranche 2.1) used a B/C threshold  
3 of 1.9, are considered candidates for approval and regional cost allocation.

4  
5 **Q. WHAT ECONOMIC BENEFIT MEASURES FROM THE LRTP PROCESS**  
6 **WERE USED TO EVALUATE THE BENEFITS OF THE NEW TRANSMISSION**  
7 **LOOP.**

8 **A.** While the economic benefit measures employed by MISO in the LRTP process are valid  
9 and widely accepted to justify regional transmission investments, they are not all well  
10 aligned with the purpose of the New Transmission Loop. The New Transmission Loop  
11 was not designed to enable specific policy goals such as those considered under LRTP,  
12 nor is it directly intended to facilitate renewable integration, reduce carbon emissions,  
13 avoid investment in deferred transmission projects, or displace the need for future  
14 generation resources to meet capacity adequacy.

15  
16 While it is possible that further economic benefits could be quantified under those  
17 broader set of economic benefit metrics, these benefits were not the focus of the analysis  
18 and were intentionally not pursued in the assessment.

19  
20 Instead, the primary economic metric evaluated in EPE's assessment was load cost  
21 savings, which reflects the potential reduction in the cost of serving electric load resulting  
22 from the construction of the transmission project. This measure is consistently applicable  
23 across transmission projects and should be a key indicator of direct benefits to end-use

1 consumers. In this case, load cost savings were calculated based on the impact of the  
2 New Transmission Loop on LMPs across the state of Louisiana to ensure that, regardless  
3 of the specific purpose of the project, the beneficiaries which in this instance, are  
4 Louisiana ratepayers, continue to receive a measurable economic advantage.

5  
6 The secondary economic measure evaluated was resiliency benefit. The New  
7 Transmission Loop is being proposed as a targeted investment to harden the regional  
8 transmission system in response to extreme weather events that have historically caused  
9 widespread electrical service disruptions. The infrastructure of the New Transmission  
10 Loop will be designed and constructed to withstand higher wind speeds than the existing  
11 system, thereby improving reliability and reducing vulnerability to storm-related damage.  
12 This results in a measurable economic benefit in the form of avoided costs, also referred  
13 to as the value of lost load incurred for each Megawatt-hour (MWh) of avoided unserved  
14 load, which captures the significant societal and economic costs incurred when electric  
15 service is interrupted during extreme conditions.

## 16 17 **VI. ECONOMIC BENEFIT: LOAD COST SAVINGS**

18 **Q. PLEASE DESCRIBE WHAT THE LOAD COST SAVINGS METRIC MEASURES**

19 **A.** The Load Cost Savings metric measures the reduction in the cost of purchasing electricity  
20 by consumers, that is the result of lower energy prices in the wholesale electricity market.  
21 Specifically, for loads in the state of Louisiana which participate in the MISO-  
22 administered market, this metric reflects changes in the Locational Marginal Price (LMP)  
23 at load-serving locations.

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The LMP represents the market-clearing price of electricity at a specific node or location and includes three components: the cost of energy, the cost of congestion, and the cost of losses. Because consumers in MISO are settled based on LMP at their respective delivery points, any reduction in LMP directly translates into lower costs for energy consumption.

Transmission projects can lower LMPs by improving deliverability across the grid, enabling the dispatch of lower-cost generation and ultimately reducing overall energy costs. This enhanced throughput in the transmission system also alleviates congestion and reduces the congestion component of LMP. Finally, increased transmission capacity can lead to more parallel flows of electricity, reducing the loading on individual transmission lines. Because the rate of losses increases with the power being transferred on a line, spreading power flows across more paths decreases the flows and thereby the total losses in the system, thus lowering the loss component of LMP as well.

In summary, the Load Cost Savings metric measures the economic benefit to load consumers by capturing reductions in Locational Marginal Prices (LMPs) that result from improved bulk system performance enabled by new transmission projects. These improvements include reduced costs components associated with marginal energy congestion and losses which all lead to lower LMPs at load-serving locations. By multiplying these LMP reductions by the corresponding load consumption, the metric reflects the overall decrease in costs to serve load, representing the total load cost savings.

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**Q. PLEASE DESCRIBE THE METHODOLOGY FOR MEASURING LOAD COST SAVINGS**

**A.** The Load Cost Savings metric, as applied in the Long Range Transmission Planning (LRTP) process, is measured through a very detailed and comprehensive approach that involves market-based modeling, simulation of future market results (inclusive of LMPs) and counter-factual analysis. As part of LRTP, MISO undertakes modeling efforts to simulate future market conditions, leveraging PROMOD software. PROMOD is an industry-standard production cost model that mimics the market clearing process used by independent system operators such as MISO, PJM, and SPP.

To enable a forecast of future market conditions, MISO models three representative years (2032, 2037, and 2042) across the outlook period of LRTP's 20-year planning horizon.

The models include detailed representations of generators, their operating costs, characteristics, and limitations, as well as a full representation of the transmission network, accounting for topology and line ratings. PROMOD is well-suited for simulating future market operations, as it optimizes market-based unit commitment and dispatch, models power flows across the transmission network, and calculates resulting congestion and losses. This enables the production of market outcomes, including Locational Marginal Prices (LMPs) at load locations, which are used to quantify load cost savings.

1 Using this approach MISO performs a counterfactual analysis to estimate the value of  
2 proposed transmission projects. This involves running two PROMOD simulations: one  
3 representing a base case without the new transmission investment, and another  
4 representing a change case where the transmission projects are included. By comparing  
5 the resulting LMPs at load locations in both scenarios, while holding the volume of load  
6 consumption constant, the LRTP process can quantify the reduction in load payments  
7 attributable to lower LMPs.

8  
9 The difference in total cost to serve load between the two scenarios, which is the product  
10 of the reduction of LMPs and the volume of load consumption, represents the Load Cost  
11 Savings for each of the modeled years. These savings are then extrapolated across the full  
12 20-year LRTP outlook and discounted to a net present value (NPV). The resulting benefit  
13 figure provides a quantifiable economic benefit measure that can be compared directly to  
14 project costs as part of the overall benefit-to-cost assessment for LRTP transmission  
15 investments.

16  
17 **Q. HOW WAS EPE'S ASSESSMENT STRUCTURED FOR THE LOAD COST**  
18 **SAVINGS MEASURE OF JDEC'S NEW TRANSMISSION LOOP**

19 **A.** EPE's assessment of the Load Cost Savings measure for JDEC's New Transmission Loop  
20 was performed to align with the methodology used by MISO in its Long Range  
21 Transmission Planning (LRTP) process. This alignment ensures consistency with an  
22 approach that is not only widely accepted by MISO and its stakeholders, but also recently

1           relied upon to justify over \$21.8 billion in transmission investments across the MISO  
2           footprint.

3  
4           To mirror the LRTP process, EPE utilized the same PROMOD-based LRTP market  
5           models developed by MISO for its most recent tranche of LRTP evaluations. These  
6           models represent a forward-looking simulation of market conditions and were previously  
7           used to evaluate and support the approval of major transmission portfolios. By applying  
8           the same modeling tools and assumptions, EPE ensured that the economic benefits being  
9           quantified for JDEC's project were grounded in a credible and widely endorsed  
10          framework.

11  
12          EPE conducted a counterfactual assessment by simulating the three LRTP study years  
13          (2032, 2037, and 2042) first without JDEC's New Transmission Loop and then again  
14          with the transmission upgrade included. This side-by-side comparison allowed EPE to  
15          observe changes in Locational Marginal Prices (LMPs) at load locations across the state  
16          of Louisiana.

17  
18          On an hourly granularity using the difference in LMPs between the two scenarios, and  
19          applying those differences to the same volume of load consumption, EPE calculated the  
20          reduction in total energy costs to consumers. These annual savings were then linearly  
21          extrapolated and discounted to a net present value to establish the total economic benefit  
22          attributed to Load Cost Savings across a 20-year service period.

23

1 By structuring the assessment in this manner, EPE ensured that the economic justification  
2 for the JDEC transmission investment was based on sound modeling practices and  
3 consistent with the precedent set by MISO's LRTP framework.  
4

5 **Q. WHAT WERE THE RESULTS OF EPE'S ASSESSMENT FOR THE LOAD COST**  
6 **SAVINGS MEASURE OF JDECs NEW TRANSMISSION LOOP**

7 A. Transmission projects have the potential to deliver economic benefits both locally and  
8 across the broader regional network by altering the pattern of power flows, reducing  
9 congestion and losses, thereby lowering the cost of delivering electricity to consumers. In  
10 its evaluation of the JDEC New Transmission Loop, EPE assessed these impacts by  
11 focusing on the resulting changes in Locational Marginal Prices (LMPs) at load-serving  
12 locations throughout the state of Louisiana.  
13

14 As part of the assessment, EPE evaluated LMPs across the major load-serving utilities in  
15 Louisiana, including:

- 16 ▪ Cleco Power LLC (CLEC)
- 17 ▪ Entergy Electric System – Louisiana Jurisdiction (EES-LA)
- 18 ▪ Entergy Electric System – New Orleans (EES-NO)
- 19 ▪ City of Lafayette Utilities System (LUS) (LAFA)
- 20 ▪ Louisiana Generating LLC (LAGN)
- 21 ▪ Louisiana Energy and Power Authority (LEPA)

22

1 Table 2 presents the average LMPs reduction for each of these utilities across the three  
2 LRTP study years: 2032, 2037, and 2042. To ensure accuracy and fair representation,  
3 LMPs were calculated using a load-weighted average for each utility, accounting for the  
4 volume of electricity consumption within each service area. This method ensures that  
5 pricing changes in higher-load areas carry proportional influence on the results.

6  
7 **Table 2: Average LMP Reduction<sup>4</sup>**

	<b>CLEC</b>	<b>EES-LA</b>	<b>EES-NO</b>	<b>Lafa</b>	<b>LAGN</b>	<b>LEPA</b>
<b>2032</b>	\$0.05	\$0.07	\$0.08	\$0.04	\$0.05	\$0.06
<b>2037</b>	\$0.06	\$0.08	\$0.04	\$0.08	\$0.06	\$0.05
<b>2042</b>	\$0.06	\$0.10	\$0.04	\$0.10	\$0.06	\$0.07

8  
9 Across the six major utilities, the implementation of the JDEC New Transmission Loop  
10 resulted in LMP reductions ranging from \$0.04/MWh to \$0.10/MWh. While the per-  
11 megawatt-hour price decrease may appear modest, the scale of electricity consumption  
12 across Louisiana accumulates the savings to meaningful levels. These changes represent a  
13 reduction in the wholesale energy cost that consumers pay and serve as a direct economic  
14 benefit resulting from the transmission investment.

15  
16 To quantify the total impact on consumers, EPE conducted a calculation of total load cost  
17 savings by multiplying the hourly changes in LMP by the corresponding hourly load  
18 consumption across each utility and summing it across the study year. The results are  
19 shown in Table 3, which demonstrates the annual load cost savings.

20  

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<sup>4</sup> See Exhibit No. JDEC-00104.

1           **Table 3: Load Cost Savings by Utility<sup>5</sup>**

	CLEC	EES-LA	EES-NO	Lafa	Lagn	LEPA
2032	\$1,090,763	\$6,935,459	\$842,710	\$117,994	\$716,275	\$89,482
2037	\$907,203	\$5,840,184	\$247,033	\$191,514	\$523,326	\$60,101
2042	\$1,023,116	\$8,266,902	\$333,640	\$291,039	\$669,121	\$94,950

2

3

Consumers serviced by Louisiana load-serving entities collectively experienced

4

significant savings in all three study years:

5

- \$9.8 million in 2032

6

- \$7.8 million in 2037

7

- \$10.7 million in 2042

8

Importantly, these benefits are not limited to JDEC members. The analysis shows

9

meaningful LMP reductions across Cleco, Entergy Louisiana, Entergy New Orleans,

10

Lafayette Utilities System, and other Louisiana utilities. This means that ratepayers

11

throughout the state experience lower energy costs, making this a regional reliability and

12

economic benefit project, not merely a local rebuild.

13

To assess the long-term benefit, EPE extrapolated these annual savings across a 20-year

14

planning horizon following the methodology used by MISO in the LRTP process. This

15

included linearly extrapolating between study years the annual savings in nominal dollar

16

and subsequently discounting them using a 7.1% discount rate to calculate the Net

17

Present Value (NPV) of benefits. These results are illustrated in Figure 2, which presents

18

nominal annual savings, and Figure 3, which shows the corresponding net present value

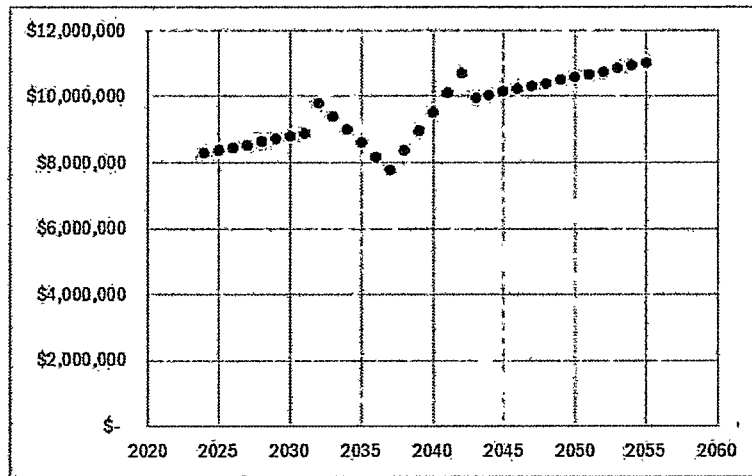
19

adjusted values.

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<sup>5</sup> See Exhibit No. JDEC-00105.

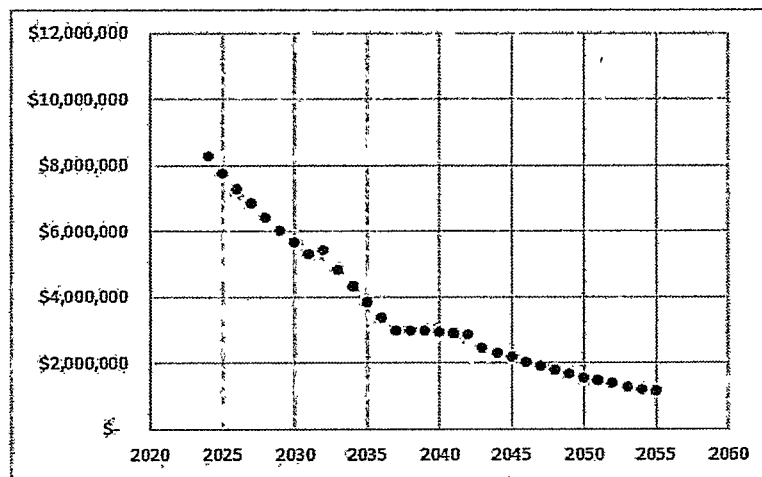
1 *Figure 2: Louisiana Annual Load Cost Savings (Nominal)*<sup>6</sup>



2

3

4 *Figure 3: Louisiana Annual Load Cost Savings (Present)*<sup>7</sup>



5

6 Across a 20-year in-service period of the project, the total Load Cost Savings attributable  
7 to the JDEC New Transmission Loop amount to **\$64.5 million** in present value terms.

8 This confirms that the New Transmission Loop yields measurable economic benefits to  
9 electricity consumers in Louisiana through reduced energy costs.

<sup>6</sup> See Exhibit No. JDEC-00106.

<sup>7</sup> See Exhibit No. JDEC-00107.

1

2 **VII. ECONOMIC BENEFIT: RESILIENCY BENEFITS**

3

4 **Q. PLEASE DESCRIBE WHAT THE RESILIENCY BENEFITS METRIC**  
5 **MEASURES**

6 The resiliency benefits metric as part of the LRTP process measures the economic benefit  
7 associated with the reduced risk of unserved energy during extreme weather events. This  
8 benefit is realized through the addition or reinforcement of transmission infrastructure.  
9 This benefit reflects the system's improved ability to mitigate service interruptions and  
10 maintain reliable service under severe conditions, where the failure to deliver electricity  
11 could otherwise result in high-impact and highly-valued interruptions to consumers.

12  
13 The addition of transmission capacity increases an area's access to external supply by  
14 expanding transfer capability, enhancing the ability to serve load during stressed system  
15 conditions. This greater access to supply decreases the likelihood and magnitude (in both  
16 time and volume) of loss-of-load events during extreme weather scenarios.

17  
18 In some cases, such as JDEC's New Transmission Loop, resiliency is further supported  
19 by the hardening of transmission infrastructure. Building more resilient transmission  
20 reduces the risk of damage or failure during storms or high-impact events. Hardened lines  
21 and looped topologies help maintain system connectivity when portions of the grid are  
22 compromised, thereby increasing the probability that load can continue to be served.

23

1 In the MISO LRTP process, the resiliency benefit is quantified through counterfactual  
2 analysis simulating the amount of unserved energy during extreme event scenarios, based  
3 on scenarios with and without the proposed transmission upgrades. The difference in  
4 unserved energy is then monetized by multiplying the total MWh of avoided unserved  
5 energy by the Value of Lost Load (VOLL).

6  
7 VOLL is a proxy representing the price customers would be willing to pay to avoid an  
8 interruption in service. The VOLL is a critical input to this analysis, reflecting the  
9 economic impact of outages on consumers. In the most recent LRTP analysis, MISO  
10 applied two values for VOLL, \$3,500/MWh and \$10,000/MWh, to reflect different  
11 customer classes and their value of reliability. These high values for VOLL underscore  
12 the high economic value placed on avoiding service interruptions and the substantial  
13 benefit that resilient transmission can provide in mitigating these risks.

14  
15 **Q. PLEASE DESCRIBE THE METHODOLOGY FOR MEASURING RESILIENCY**  
16 **BENEFITS**

17 For the purposes of LRTP, resiliency benefits are measured using Loss of Load  
18 Expectation (LOLE) modeling. This modeling approach relies on probabilistic  
19 simulations to estimate frequency and magnitude of reliability shortfalls during extreme  
20 system conditions. LRTP uses this modeling framework to assess the impacts of proposed  
21 transmission project by quantifying how they affect the probability and magnitude of load  
22 shedding events.

23

1 LOLE modeling simulates a large number of possible operational outcomes by varying  
2 key parameters across many iterations. These parameters include transmission outages,  
3 generation outages, extreme temperature and weather patterns, variability in renewable  
4 output, and other operational uncertainties that affect system resource adequacy.

5  
6 The objective of LOLE modeling is to establish a statistical understanding of the  
7 frequency and magnitude of load-shedding events. As part of the LRTP evaluation, MISO  
8 applies this methodology in a counterfactual analysis, where two separate simulations are  
9 developed. A base case which reflects the system without the proposed transmission  
10 upgrades and a change case which incorporates the transmission projects under  
11 evaluation.

12  
13 Both cases are subjected to the same probabilistic LOLE modeling, so that any observed  
14 reduction in the magnitude of load shedding between the two cases can be attributed to  
15 the impact of the transmission project.

16  
17 To translate this reliability improvement into an economic value, MISO multiplies the  
18 avoided load interruption by the applicable VOLL. This quantified economic benefit is  
19 reported as the Resiliency Benefit value that is then added to the overall set of benefits  
20 used in LRTP to justify and approve a transmission project relative to its costs.

21  
22 **Q. HOW WAS EPE'S ASSESSMENT STRUCTURED FOR THE RESILIENCY**  
23 **BENEFITS MEASURE OF JDEC'S NEW TRANSMISSION LOOP**

1 MISO typically measures Resiliency Benefits using Loss of Load Expectation (LOLE)  
2 modeling, supported by its internal reliability models and a proprietary set of  
3 assumptions. This modeling approach involves complex probabilistic simulations to  
4 estimate potential load-shedding events under a wide range of uncertain conditions,  
5 including extreme weather. While effective, this process is developed and maintained  
6 internally by MISO and is not publicly available or easily replicable by external parties.

7  
8 For the purposes of assessing the Resiliency Benefits of JDEC's New Transmission Loop,  
9 duplicating MISO's full LOLE modeling process was not necessary. The proposed  
10 transmission project was initiated as the result of real-world service interruptions caused  
11 by Hurricanes Laura and Delta in 2020. These events provide a concrete and historically  
12 grounded reference point to evaluate the resiliency impact of the project.

13  
14 Rather than modeling a hypothetical or probabilistic scenario, EPE's assessment relied on  
15 the estimated impact of outage conditions experienced during those hurricanes. The  
16 analysis focused on the magnitude of load interruption that occurred across the JDEC  
17 service territory because of the extreme storms.

18  
19 To quantify the potential resiliency benefit of the proposed 230 kV transmission project,  
20 EPE considered the expected performance improvement associated with new, hardened  
21 infrastructure. The project includes modernized transmission components, such as steel  
22 structures and elevated substation designs, which are more resistant to storm-related

1 damage. These enhancements are expected to reduce the extent of service interruptions in  
2 future extreme weather events.

3  
4 Based on this, EPE assumed a modest 10% reduction in load interruption relative to the  
5 historical outage volumes observed in 2020. This reduced volume of unserved energy  
6 was then multiplied by the Value of Lost Load (VOLL) to estimate the economic benefit.  
7 The resulting figure represents the hypothetical Resiliency Benefit attributed to the  
8 improved reliability of the proposed transmission system.

9  
10 **Q. WHAT WERE THE RESULTS OF EPE’S ASSESSMENT FOR THE RESILIENCY**  
11 **BENEFITS OF JDECs NEW TRANSMISSION LOOP**

12 EPE’s assessment of Resiliency Benefits, conducted with the assistance of JDEC, focused  
13 on estimating the service disruption experienced at key substations within the JDEC  
14 system during the hurricane events of 2020. The substations considered in the analysis  
15 included Hackett, Manchester, Johnson Bayou, Fulton, Grand Chenier, and Michigan-  
16 Wisconsin. These locations were significantly affected by the outages caused by  
17 Hurricanes Laura and Delta, which led to widespread service interruptions across the  
18 region.

19  
20 To estimate the Unserved Energy associated with these events, EPE estimated the  
21 duration of service interruptions reported publicly for each substation and multiplied  
22 those durations by the average hourly load consumption derived from PROMOD market

1 simulations. This method provided an approximate measure of the potential volume of  
2 load that was not served during the storm-related outages.

3  
4 With this baseline established, EPE applied a conservative assumption that at least 10%  
5 of the total load interruption could have been mitigated if the JDEC system had already  
6 included the proposed New Transmission Loop. This transmission project includes  
7 infrastructure hardening that is expected to improve system performance under extreme  
8 weather conditions. The 10% figure is a deliberately conservative and illustrative  
9 estimate of the resiliency benefits that a stronger transmission network could provide. In  
10 practice, these benefits could be significantly greater and may accrue repeatedly in the  
11 event of multiple extreme-weather events.

12  
13 To monetize this avoided load interruption, EPE applied two Values of Lost Load  
14 (VOLL) estimates, mimicking the MISO LRPT process:

- 15       ▪ a lower bound of \$3,500/MWh, and
- 16       ▪ an upper bound of \$10,000/MWh.

17  
18 These values are consistent with those used in MISO's LRTP process and reflect the  
19 economic cost of service interruptions to end-use customers.

20  
21 Table 4 presents the data and assumptions used to calculate the total value of lost load  
22 during the 2020 hurricane events. After applying the 10% improvement assumption on  
23 these figures, , which reflects a reduction in service interruptions or lost load during

1 extreme weather events, the estimated Resiliency Benefits of the New Transmission Loop  
 2 would amount to between \$5.4 million and \$15.4 million.

3  
 4 **Table 4: Total VOLL of Unserved Energy due to Hurricane Events<sup>8</sup>**

Substation	Average Flow (MWh)	Duration (Hours)	Estimated Unserved Energy (MWh)	Total Value of Lost Load	
				VOLL \$3,500	VOLL \$10,000
Hackett	11.1	432	4799.5	\$16,798,320	\$47,995,200
Manchester	8.4	432	3614.1	\$12,649,385	\$36,141,100
Johnson Bayou	7.2	432	3097.4	\$10,841,040	\$30,974,400
Grand Chenier	2.3	192	438.1	\$1,533,490	\$4,381,400
Michigan-Wisconsin	3.5	192	667.6	\$2,336,530	\$6,675,800
Fulton	5.5	504	2784.6	\$9,746,100	\$27,846,000
			<b>Total:</b>	<b>\$53,904,865</b>	<b>\$154,013,900</b>

5  
 6 These results confirm that even a conservative 10% improvement in system performance,  
 7 achievable through the hardened 230 kV Loop, produces between \$5.4 and \$15.4 million  
 8 in avoided outage costs for a single hurricane event. Because these events recur regularly  
 9 in Southwest Louisiana, the long-term benefit is likely substantially higher.

10 Beyond the dollars, these avoided outages mean that hospitals, water systems, first  
 11 responders, and major industrial facilities are more likely to remain energized during  
 12 extreme weather, reducing economic losses and safeguarding public health and safety.

13 This resiliency outcome directly advances the Commission’s policy goal of hardening  
 14 Louisiana’s grid and limiting the impact of hurricanes on ratepayers statewide

15  
<sup>8</sup> See Exhibit No. JDEC-00108.

1 **Q. HOW DOES YOUR ANALYSIS SUPPORT THE COMMISSION'S 18-FACTOR**  
2 **REVIEW UNDER THE 1994 GENERAL ORDER?**

3 **A.** The transfer of the new transmission line is in the public interest. My analysis provides  
4 quantitative evidence directly relevant to the Commission's 18 factors. For example, my  
5 analysis highlights the below factors:

6  
7 Factor 1: Public Interest: The \$64.5 million net present value of load-cost savings and  
8 \$5.4–\$15.4 million in avoided outage costs demonstrate that the New Transmission Loop  
9 materially benefits Louisiana ratepayers statewide.

10  
11 Factor 2: Ability to Provide Safe, Reliable, Adequate Service: The hardened 230 kV Loop  
12 replaces a hurricane-vulnerable system with steel structures, elevated substations, and  
13 looped topology, all of which improve JDEC's ability to maintain continuous service.

14  
15 Factor 3: Financial Condition: The project is funded over 90% by FEMA, reducing  
16 JDEC's capital burden and improving its financial condition relative to a standalone  
17 rebuild.

18  
19 Factor 4: Service Quality: The new loop design mitigates single points of failure and  
20 reduces restoration times, providing a measurable improvement in service quality.

21  
22 Factor 5: Net Benefits and Ratemaking: Modeled LMP reductions confirm sustained  
23 energy cost savings beginning in 2026, and benefits that persist over a 20-year horizon.

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17

Factor 6: Competition: By reducing congestion and losses, LMPs across Louisiana, the project promotes fairer market outcomes and allows least-cost generation to be dispatched.

Factor 10: Economic Impact: Lower energy costs and improved resiliency protect Southwest Louisiana’s LNG and petrochemical corridor, supporting jobs and local tax revenues.

Factor 11: Commission Jurisdiction: Inclusion in MISO ensures robust regulatory oversight of transmission rates through FERC-approved tariffs and allows the LPSC to continue auditing retail impacts.

Factor 14 & 15: Physical Condition and Repairs: The New Transmission Loop is built to modern standards, eliminating deferred maintenance issues and providing a hardened backbone that reduces future emergency repair costs.

1 **VIII. CONCLUSION**

2 **Q. HOW DOES THE PROJECT ADVANCE THE PUBLIC INTEREST FOR**  
3 **LOUISIANA AS A WHOLE?**

4 **A.** The JDEC New Transmission Loop is a regional reliability asset that delivers statewide  
5 benefits. By reducing congestion, losses, and improving transfer capability, it enhances  
6 power flows across the Entergy Louisiana zone, supporting lower energy prices and more  
7 efficient dispatch. Its hardened design ensures faster recovery after major storms,  
8 protecting critical industries and reducing economic losses from outages. The project also  
9 positions Louisiana to accommodate future load growth in the LNG and petrochemical  
10 sectors, supporting job creation and tax revenues. Taken together, these benefits make the  
11 project a prudent and necessary investment for Louisiana’s energy future.

12  
13 **Q. WHAT IS THE CONCLUSION OF THE EPEs ANALYSIS OF ECONOMIC**  
14 **BENEFITS OF THE JDEC FACILITIES?**

15 **A.** EPE’s analysis of the economic benefits associated with JDEC’s New Transmission Loop  
16 was intentionally carried out using the same methodology adopted by MISO in its Long  
17 Range Transmission Planning (LRTP) process. This framework has been widely accepted  
18 by MISO and its stakeholders as a reliable and transparent means of demonstrating the  
19 economic value of transmission infrastructure.

20  
21 In structuring the assessment, EPE focused on the two most applicable LRTP economic  
22 benefit metrics, those being Load Cost Savings, and Resiliency Benefits.

1 The primary metric evaluated was Load Cost Savings. EPE applied production cost  
2 modeling and a counterfactual analysis to estimate the reduction in Locational Marginal  
3 Prices (LMPs) that would result from the addition of the New Transmission Loop. This  
4 reduction in energy prices, when applied to load volumes across Louisiana, resulted in an  
5 estimated \$64.5 million in present value savings over a 20-year planning horizon. This  
6 confirms that the project delivers measurable and material cost reductions to electricity  
7 consumers in the region.

8  
9 The secondary benefit examined was Resiliency. Rather than replicating MISO's  
10 proprietary LOLE modeling process, EPE based its analysis on actual service disruptions  
11 experienced during Hurricanes Laura and Delta in 2020. By applying a conservative  
12 assumption that the New Transmission Loop could reduce future outage impacts by just  
13 10% in a single extreme weather event, and monetizing this improvement using  
14 established Value of Lost Load (VOLL) figures, the estimated Resiliency Benefit lower  
15 bound ranges from \$5.4 million to \$15.4 million.

16  
17 In conclusion, EPE finds that JDEC's New Transmission Loop is a cost-effective,  
18 forward-looking investment that delivers measurable, long-lasting benefits. Over a 20-  
19 year planning horizon, the project reduces wholesale energy costs by \$64.5 million  
20 (NPV) and materially improves resilience against hurricane-related outages, benefits that  
21 will accrue to ratepayers across Louisiana, not just JDEC members. These findings  
22 confirm that the project is consistent with sound transmission planning principles, aligns  
23 with MISO's criteria for multi-value projects, and clearly serves the public interest

1

2 **Q. DOES THIS CONCLUDE YOUR TESTIMONY?**

3 **A. Yes.**

## VERIFICATION

Pursuant to 28 U.S.C § 1746 (2012), I state under penalty of perjury that the foregoing testimony is true and correct to the best of my information, knowledge, and belief.

Executed this 2nd day of October 2025.

/s/ Martin Lodyga

Martin Lodyga  
Senior Manager  
Electric Power Engineers, LLC

BEFORE THE  
LOUISIANA PUBLIC SERVICE COMMISSION

JEFFERSON DAVIS ELECTRIC COOPERATIVE, INC., ) DOCKET NO. U-\_\_\_\_\_  
EX PARTE )

*In re: Application for Transmission Determination, Approval to Transfer Functional Control to MISO, and Expedited Consideration.*

AFFIDAVIT OF WITNESS

PROVINCE OF Ontario, Canada

MUNICIPALITY OF Halton

I, Martin Lodyga, being duly sworn, depose that the Direct Testimony attached hereto in the matter identified therein, on behalf of Jefferson Davis Electric Cooperative, Inc., is true and correct to the best of my knowledge, information, and belief.

Martin Lodyga  
2nd

SWORN TO AND SUBSCRIBED before me this 1st day of October, 2025.



A. Anand  
04/21/2025  
NOTARY PUBLIC

Printed Notary Name: ANKIT ANAND  
Licensed Paralegal & Notary Public  
in and for the Province of Ontario.  
My commission is of unlimited duration.  
No legal advice given. LSO #P20516

Notary/Bar Roll No.: \_\_\_\_\_

My commission expires X

