TESTIMONY OF JOHN A. VERDERAME
VICE PRESIDENT OF FUELS & SYSTEMS OPTIMIZATION
DUKE ENERGY CORPORATION
ON BEHALF OF DUKE ENERGY INDIANA, LLC
CAUSE NO. 38707-FAC136 BEFORE THE
INDIANA UTILITY REGULATORY COMMISSION

I. INTRODUCTION

Q. PLEASE STATE YOUR NAME AND BUSINESS ADDRESS.

A. My name is John A. Verderame, and my business address is 525 South Tryon Street, Charlotte, North Carolina 28202.

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

A. I am employed as Vice President of Fuels & Systems Optimization, Duke Energy Corporation.

Q. PLEASE BRIEFLY DESCRIBE YOUR EDUCATIONAL BACKGROUND AND BUSINESS EXPERIENCE.

A. I received a Bachelor of Arts degree in Economics from the University of Rochester in 1983, and a Master's in Business Administration in Finance from Rutgers University in 1985. I have worked in the energy industry for 22 years. Prior to that, from 1986 to 2001, I was a Vice President in the United States (US) Government Bond Trading Groups at the Chase Manhattan Bank and Cantor Fitzgerald. My responsibilities as a US Government Securities Trader included acting as the Firm's market maker in the US Government Treasury securities. I joined Progress Energy (now known as Duke Energy Progress, LLC) in 2001 as a

Real-Time Energy Trader. My responsibilities as a Real-Time Energy Trader included managing the real-time energy position of the Progress Energy regulated utilities. In 2005, I was promoted to Manager of the Power Trading group where I was responsible for the short-term capacity and energy position of the Progress Energy regulated utilities in the Carolinas and Florida. In 2012, upon consummation of the merger between Duke Energy Corp. and Progress Energy, I was named Managing Director, Trading and Dispatch. As Managing Director, Trading and Dispatch I was responsible for power and natural gas trading and generation dispatch on behalf of Duke Energy's regulated utilities in the Carolinas, Florida, Indiana, Ohio, and Kentucky. I assumed my current position in November 2019.

Q. PLEASE BRIEFLY DESCRIBE YOUR DUTIES AND RESPONSIBILITIES AS VICE PRESIDENT OF FUELS & SYSTEMS OPTIMIZATION.

A. As Vice President of Fuels & Systems Optimization, I lead the organization responsible for the purchase and delivery of coal, natural gas, fuel oil, and reagents to Duke Energy's regulated generation fleet, including Duke Energy Indiana, LLC ("Duke Energy Indiana" or "Company").

Q. WHAT IS THE PURPOSE OF YOUR TESTIMONY?

A. I will discuss the process that Duke Energy Indiana determines its fuel procurement needs and the status of the Company's fuel procurement for coal, natural gas, and fuel oil.

II. FORECASTED FUEL NEEDS

Q. WHAT WAS DUKE ENERGY INDIANA'S FUEL BURN FOR THE FAC PERIOD?

A. Duke Energy Indiana's coal burn was 2.04 million tons, compared to a coal burn of 1.7 million tons in the prior FAC period, representing an increase of 20%. The Company's natural gas burn for the FAC period was 8,507,923 million MBtu compared to a gas burn of 6,703,344 million MBtu in the prior FAC period, representing an increase of approximately 27%. The change in coal and gas burns in the FAC period were primarily driven by the significant fluctuations in natural gas and power prices in the Midcontinent Independent System Operator ("MISO"), as well as impacts of weather driven demand, and the Company's coal price adjustment, discussed in Mr. Daniel's testimony.

III. COAL

Q. PLEASE EXPLAIN THE PROCESS THE COMPANY UNDERTAKES TO MANAGE ITS COAL NEEDS.

A. The Company utilizes a comprehensive coal procurement strategy that has proven successful over the years in limiting average annual fuel price changes while actively managing the dynamic demands of its fossil fuel generation fleet in a

reliable and cost-effective manner. Aspects of this procurement strategy include determining an appropriate amount of long-term purchases as well as any short-term purchases needed to fill any potential open position, evaluating contract expirations, and limiting exposure to market price changes, diversifying sourcing, and incorporating additional flexibility into the supply contracts. In addition, Duke Energy's Regulated Fuel Department personnel visit each of the Company's contracted producers and mining operations regularly, and any potential new producers, to gather information that assists in our analysis of coal needs. This information, coupled with constant monitoring of published pricing information (*e.g.* industry newsletters, trade publications, regulatory filings, etc.), as well as a close review of market pricing indices published by brokers and traders, provides an understanding of the various coal markets.

Q. HOW DOES THE COMPANY DETERMINE WHETHER TO PURCHASE COAL UNDER A LONG-TERM VS. A SHORT-TERM CONTRACT?

A. In order for Duke Energy to provide a reliable source of electricity, an adequate inventory must be maintained to protect against changes in coal burn volatility. The fuel procurement team continuously monitors actual and projected inventory levels, projected coal burns, the amount of coal under contract and the quality characteristics needed for a particular generating station to determine its purchasing needs and to determine appropriate level of supply, including the need to respond to immediate supply needs through short term purchases.

Q. ONCE THE COMPANY DECIDES THAT IT NEEDS TO PURCHASE COAL UNDER A LONG-TERM CONTRACT, PLEASE DESCRIBE THE PROCESS.

A. Coal supply requirements are competitively bid and proposals are secured from producers and evaluated, taking into account coal quality, quantity, volume flexibility, transportation alternatives and price, among other factors. The producer (or producers) whose coal offers the best value, particularly with regard to overall utilization costs and volume flexibility, is selected for further negotiations to produce a long-term contract or contracts. It is important to note that when negotiations allow the Company's long-term contracts contain provisions for periodic price reopener negotiations, some type of price escalations and de-escalations, or a mechanism to adjust prices based upon a published market price index. In addition, our coal transportation contracts in Indiana contain fuel price surcharge provisions that are based upon published fuel price indices.

Q. ONCE THE COMPANY DECIDES THAT IT NEEDS TO PURCHASE COAL UNDER A SHORT-TERM CONTRACT, PLEASE DESCRIBE THE PROCESS.

A. The primary difference in the process is that for spot purchases, those contracts with a duration of 12 months or less, telephone solicitations are utilized to allow for prompt execution and delivery in order to support immediate supply needs

resulting from changes in burn, inventory levels, or supply and transportation challenges.

Q. WHAT WAS THE COST OF COAL PURCHASED PURSUANT TO ALL CONTRACTS FOR THE TWELVE-MONTH PERIOD ENDING FEBRUARY 28, 2023?

A. For the twelve-month period ending February 28, 2023, the Company purchased a total of approximately 8.8 million tons of coal (pursuant to both long and short-term contract commitments) at an approximate average cost of $2.94/MMBtu or $65.84/ton.

Q. WHAT STEPS DOES DUKE ENERGY INDIANA UNDERTAKE TO ASSURE THAT IT IS PROCURING COAL AT THE LOWEST COST REASONABLY POSSIBLE?

A. The Company uses various methods and strategies to ensure reasonable costs, including the use of staggered terms on long-term contracts, maintaining a diversified mix of suppliers, and using indices, at times, in the determination of adjustment of prices. Duke Energy Indiana diversifies its sourcing of suppliers and works with suppliers to incorporate additional flexibility into the supply contracts. In addition, the fuel procurement group conducts constant monitoring of published pricing information (*e.g.* industry newsletters, trade publications, regulatory filings, etc.), and closely reviews market pricing indices published by brokers and traders.

Q. PLEASE DESCRIBE THE LATEST PRICE TRENDS IN COAL.

A. Published prices for U.S. coal markets have continued to soften since the last fuel proceeding in response to declining natural gas prices. Despite softening coal prices, the Company continues to see upward pressure on costs due to rising coal production costs and tight supplies in the spot market. The following are the market price indications for the balance of 2023 as of April 8, 2023: High-sulfur Illinois basin coal prices are in the low $80s per ton; Central Appalachia coal prices are in the mid $80s per ton; Northern Appalachia coal prices are in the mid $70s per ton; and Colorado coal prices are in the mid $70s per ton.

Q. PLEASE DESCRIBE THE LATEST COAL MARKET TRENDS.

A. Coal markets continue to experience a high degree of market volatility due to a number of factors, including: (a) the inability of coal suppliers to respond timely to changes in demand; (b) natural gas and power price volatility; (c) continued uncertainty regarding proposed and imposed U.S. Environmental Protection Agency ("EPA") regulations for power plants; (d) increased demand in global markets for both steam and metallurgical coal; (e) tightened access to investor financing; (f) continued shifts in production between thermal and metallurgical coal as producers move away from supplying declining electric generation to take advantage of industrial demand; and (g) labor and resource constraints further limiting suppliers' operational flexibility. In 2022, the coal supply chain experienced significant challenges as historically low utility stockpiles combined

with rapidly increasing demand for coal, both domestically and internationally. Producers struggled to respond to this rapid rise in demand due to capacity constraints resulting from labor and resource shortages. These factors combined to drive both domestic and export coal prices in 2022 to record levels and limited coal supply availability. Going into this FAC period, coal commodity costs remained at historically high levels but began to soften in response to rapidly declining natural gas prices and lack of winter weather demand. Despite current market conditions, coal producers are seeing the inflationary impacts of rising costs associated with mining operations including, but not limited to, labor and equipment costs putting additional pressure on their ability to respond to market demand.

Q. PLEASE DESCRIBE THE LONG-TERM COAL TRANSPORTATION TRENDS.

A. Declining demand for coal in the utility sector has also driven rail transportation providers to modify their business models to be less dependent on coal-related transportation revenues. Although rail transportation providers are required to provide rail service, the Company's rail transportation providers have limited resources to adapt to significant changes in scheduling demand resulting from the Company's burn volatility, specifically in higher than forecasted coal burn scenarios.

During the FAC period, the threat of a potential Class I rail strike was averted through legislation officially ending the labor dispute. Additionally, the Surface Transportation Board ("STB") continues to receive the submission of bi-weekly service progress reports through May 5, 2023. Per the STB's order, despite service improvements, there was continued validation from the data provided that railroad operations remain generally challenged, particularly when compared to 2019 pre-pandemic levels. Accordingly, continued monitoring is needed.[1]

Through the FAC period the Company saw continued delivery improvement by its' rail transportation service providers. The Company continues to monitor rail performance and remains in communication with the rail providers to stay ahead of future delivery constraints.

Q. HAVE ANY OF THE COMPANY'S SUPPLIERS EXPERIENCED SIGNIFICANT FINANCIAL OR OPERATIONAL CONSTRAINTS?

A. Yes, during this specific FAC period, the Company's suppliers saw significant declines in demand due to mild weather and rapidly declining natural gas prices reducing the Company's immediate need for coal deliveries. The Company remains concerned and continues to monitor the viability of future supply due to

[1] Surface Transportation Board Press Release No. 22-47, 10/28/2022, STB Extends Temporary Reporting Period for Class I Carries.

the financial and labor constraints facing its suppliers and rail transportation providers.

Q. PLEASE DESCRIBE THE COMPANY'S DELIVERED COST OF COAL DURING THE FAC PERIOD.

A. The Company's average delivered cost of coal per ton for this FAC period was $73.73 per ton, compared to $65.49 per ton in the prior FAC period, representing an increase of approximately 13%. This increase in contracted cost is primarily due to deliveries of 2023 term coal previously contracted for from RFPs in late 2021 and 2022.

Q. DID THE COMPANY ISSUE ANY REQUESTS FOR PROPOSALS FOR COAL SUPPLY DURING THIS FAC PERIOD?

A. No, the Company did not conduct a request for proposal during the FAC 136 time period.

Q. DID THE COMPANY EXECUTE ANY SUPPLY CONTRACTS DURING THIS FAC PERIOD?

A. Yes. The Company executed a new contract, along with six contract amendments during this FAC period. This includes the deferral amendment mentioned below.

Q. DID THE COMPANY EXECUTE ANY AMENDMENTS TO DEFER TONS DURING THIS FAC PERIOD?

A. Yes. The Company did execute a Deferral Amendment of tons during this FAC period.

Q. HAS DUKE ENERGY INDIANA REOPENED THE PRICE IN ANY COAL OR TRANSPORTATION CONTRACTS?

A. No. During this FAC, the Company did not reopen the price on any coal or transportation contracts.

Q. HAS THE COMPANY RENEWED OR AMENDED ANY COAL TRANSPORTATION CONTRACTS?

A. Yes, the Company has renewed or amended five railroad contracts and one trucking transportation contract during this FAC period.

Q. HAS DUKE ENERGY INDIANA RETIRED ANY COAL UNITS DURING THIS FAC PERIOD?

A. No. The Company did not retire any coal units in this FAC period.

Q. BASED UPON YOUR EXPERIENCE, DO YOU HAVE AN OPINION AS TO WHETHER THE COMPANY PURCHASED COAL AT THE LOWEST REASONABLE PRICE?

A. I do. In my opinion, the Company purchased coal at the lowest reasonable prices negotiable.

IV. COAL INVENTORY POSITION

Q. PURSUANT TO THE COMMISSION'S ORDER IN FAC 95, PLEASE EXPLAIN THE COMPANY'S COAL INVENTORY POSITION.

A. As noted in my FAC 135 testimony, filed on January 31, 2023, Duke Energy Indiana's coal inventories as of November 30, 2022, were approximately

2,169,549 tons (or 42 days of coal supply at a full load burn rate per day) across the system. As of February 28, 2023, coal inventories increased to approximately 2,627,622 tons (or 51 days of coal supply at a full load burn rate per day). The changes in inventory are primarily driven by weather driven demand, rapidly declining natural gas and power prices, along with the price adjustment discussed in Mr. Daniel's testimony throughout the FAC period. The Company is actively managing to maintain a minimum of **<BEGIN CONFIDENTIAL>** [redacted] **<END CONFIDENTIAL>** through the next FAC period.

Q. DID THE COMPANY PURSUE ADDITIONAL INVENTORY MITIGATION EFFORTS ASIDE FROM THE REFERENCED PRICE ADJUSTMENT?

A. Yes, the Company actively pursued additional inventory mitigation efforts including executing a coal supply contract amendment to allow for a surge of rail deliveries in the winter of 2022 to meet demand and build inventory. In addition, the Company continued onsite third-party train operations to alleviate railroad labor constraints, along with maintaining truck deliveries where logistically feasible and monitoring and adjusting shipping schedules to maximize efficiencies. While trucking deliveries are also constrained due to labor shortages, the Company is utilizing coal truck deliveries at Cayuga and Gibson Stations, as well as a logistically advantageous rail loop to Gibson Station in an effort to diversify its transportation logistics.

Q. DID THE COMPANY HAVE COAL STORED AT ANY INTERIM STORAGE SITES? IF SO, WHAT WAS THE AMOUNT IN STORAGE AND ARE THERE ANY PLANS TO INCREASE OR DECREASE THE AMOUNTS IN STORAGE?

A. At the end of the review period, the Company had one remaining interim storage location with a total of 71,546 tons. Duke Energy Indiana has experienced ongoing issues associated with the remaining stockpiled coal as stated in prior FAC proceedings because the coal was contaminated and did not meet contractual specifications that created operational challenges. As a result, the Company made the decision to suspend delivery of the remaining stockpile until the quality issues could be resolved. With the finalization of the bankruptcy proceeding, the Company anticipates completing deliveries from the off-site storage in 2023.

Q. WHAT STEPS IS THE COMPANY UNDERTAKING TO ACTIVELY MANAGE ITS COAL INVENTORY LEVELS?

A. The Company regularly evaluates its options in order to effectively manage inventory levels. As mentioned previously, the Company actively manages its portfolio, which includes maintaining a reasonable open position that allows the Company to be more responsive to current actual burns and projected future burns that have become more volatile. However, in cases where actual burns unexpectedly drop below projections and the Company's inventory levels are above target, as inventory levels dictate, the Company explores options to store or

defer contract coal or resell surplus coal into the market. In cases where actual burns unexpectedly increase above projections the Company accelerates purchases of supply and looks for operational efficiencies. Due to current coal market conditions, purchase opportunities are expected to continue to be difficult in the near term. The Company will continue to closely monitor its anticipated coal requirements and inventories and take every action available to effectively manage coal inventories in the least cost-impact manner for customers. Furthermore, as discussed in the direct testimony of Mr. Daniel, Duke Energy Indiana continues to include a price adjustment to its MISO offer to better manage inventory volatility.

V. MODELING UPDATE

Q, HAVE THERE BEEN ANY CHANGES TO THE COMPANY'S MODELING PROCESS RELATED TO FORECASTING FUEL COSTS?

A. Yes, starting with this FAC period the Fleet Analytics Stochastic Tool "FAST" model outputs are being used as part of forecasting the future fuel costs, as discussed in Ms. Graft's testimony. Since late 2020, the Company has used the outputs from the FAST model as the basis for its fuel procurement planning process.

Q. PLEASE PROVIDE AN OVERVIEW OF STOCASTIC MODELING CAPABILITIES.

A. The stochastic model uses historic weather information to simulate numerous scenarios of future weather and commodity prices. For each of these scenarios, system load and commodity prices (gas, coal, oil and power) are all calculated in a correlated manner using historical correlations with each other and with weather. The resulting forecasts of this stochastic model give the Company not only expected fuel burns, but also the range of fuel burns and the probability associated with each range.

VI. NATURAL GAS

Q. PLEASE DESCRIBE THE LATEST PRICE TRENDS IN NATURAL GAS .

A. Spot natural gas prices are dynamic, volatile, and can significantly change day to day based on market fundamental drivers. During December 1, 2022 through February 28, 2023, natural gas prices fluctuated significantly as the price the Company paid for delivered natural gas at its gas generating stations ranged from a high of $16.50 per MMBtu for gas delivered on December 23, 2022 to a low of $2.01 per MMBtu for gas delivered on February 22, 2023, a decrease of approximately 88% over the period. In comparison, during the previous 3-month period of September 1, 2022 to November 30, 2022, the price the Company paid for delivered natural gas at its gas burning generation stations ranged between a high of $9.32 per MMBtu for gas delivered on September 3, 2022 to a low of $3.00 per MMBtu for gas delivered on November 4, 2022.

Natural gas market prices reflect the dynamics between supply and demand factors, and in the short term, such dynamics in the FAC period are influenced primarily by increasing production, growing storage inventory balances and export demand.

In addition, there continues to be growth in the need for natural gas pipeline infrastructure to serve increased market demand. However, pipeline infrastructure permitting and regulatory process approval efforts are taking longer due to increased reviews and interventions, which can delay and change planned pipeline construction and commissioning timing. Over the longer term planning horizon, natural gas supply has the ability to respond to changing demand while the pipeline infrastructure needed to move the growing supply to meet demand related to power generation, liquefied natural gas exports, and pipeline exports to Mexico is highly uncertain.

Q. PLEASE DESCRIBE HOW THE COMPANY PURCHASES NATURAL GAS FOR ITS NATURAL GAS-FIRED GENERATING UNITS.

A. Duke Energy Indiana has contracts for the purchase of gas supply, pipeline transportation, balancing and parking of natural gas needed for its generating stations. The Company utilizes the spot market to engage gas suppliers to procure natural gas consumed at Madison Generation Station, and Tenaska Marketing Ventures for natural gas consumed at Wheatland, Cayuga CT, Noblesville, Vermillion, Henry County, and Edwardsport IGCC. A summary of the

Company's transportation agreements are as follows: (1) Panhandle Eastern Pipeline Company ("PEPL"), a firm transportation agreement, an interruptible transportation agreement, an enhanced interruptible transportation agreement, and a parking service agreement. The firm natural gas transportation agreement on PEPL has a primary receipt point at the Texas Eastern / Lebanon point with delivery path to the pipeline interconnection with the Indiana Gas Company system (part of Vectren Energy Delivery of Indiana ("Vectren") a subsidiary of CenterPoint Energy) near Montezuma, Indiana and on a firm contract to the Cayuga CT and directly off the interconnection to Noblesville Station; (2) on Texas Eastern Pipeline Co. ("TETCO"), an interruptible transportation contract, a Lebanon lateral interruptible transportation agreement and operational balancing agreement with natural gas transportation and balancing for the Madison Station; (3) on Midwestern Pipeline a firm transportation agreement, a park and loan agreement, and an operational balancing agreement for gas delivery and parking services for the Wheatland Generation Station, Vermillion Station, and Edwardsport IGCC; (4) a gas transportation service agreement with Vectren Energy Delivery of Indiana – South for Edwardsport IGCC; and (5) an interruptible transportation agreement and a pooling transportation service on ANR Pipeline Company for the Henry County Station. The Company continues to use its existing firm transportation contracts to enhance supply reliability by

reducing the risk of gas pipeline capacity curtailments during periods of tighter supply and demand conditions.

Q. HAS THE COMPANY RENEWED OR AMENDED ANY CONTRACTS FOR NATURAL GAS SUPPLY AND TRANSPORTATION CAPACITY?

A. No renewals or amendments were executed to the Company's Asset Management Agreement or to its Firm Transportation Capacity contracts during the FAC period.

Q. PLEASE DESCRIBE THE COMPANY'S DELIVERED COST OF NATURAL GAS DURING THE FAC PERIOD.

A. The Company's average price of gas purchased for the FAC period was $4.37 per MMBtu, compared to $6.35 per MMBtu in the prior FAC period, representing a decrease of approximately 45%. The average price decrease for the current period was driven by price volatility in spot natural gas prices during this FAC period.

Q. DO YOU HAVE AN OPINION AS TO WHETHER THE COMPANY PURCHASED NATURAL GAS AT THE LOWEST MARKET PRICE?

A. Yes. It is my opinion that the Company purchased natural gas at the lowest market prices available. Duke Energy Indiana's Asset Management Agreement provides multiple benefits for customers including decreased costs via monthly premiums paid to Duke Energy Indiana by the Asset Manager, optimization sharing, increased fuel reliability and security as Duke Energy Indiana leverages

the Asset Manager's assets, and access to best fuel prices via ability to engage third-party suppliers.

VII. FUEL OIL

Q. REFERRING NOW TO THE COMPANY'S PURCHASE OF OIL, WILL YOU DESCRIBE THOSE PURCHASES?

A. Oil for peaking and cycling units is purchased from primarily one supplier at the lowest delivered price available under prearranged logistics. Our primary oil requirements are for #2 ultra-low sulfur fuel oil, which varies little in delivered quality.

Q. BASED UPON YOUR EXPERIENCE, DO YOU HAVE AN OPINION AS TO WHETHER THE COMPANY PURCHASED OIL AT THE LOWEST MARKET PRICE?

A. Yes. It is my opinion that the Company purchased oil at the lowest market prices available at the time of purchase.

VIII. CONCLUSION

Q. ARE YOU AWARE OF ANY SIGNIFICANT OUT OF PERIOD ADJUSTMENTS TO FUEL INVENTORY OR FUEL EXPENSE BEING MADE IN THIS PROCEEDING?

A. No, there were not any out of period adjustments during the FAC 136 period.

Q. DOES THIS CONCLUDE YOUR PREPARED TESTIMONY?

A. Yes, it does.

VERIFICATION

I hereby verify under the penalties of perjury that the foregoing representations are true to the best of my knowledge, information, and belief.

Signed: _____ Date: April 28, 2023

John A. Verderame