REBUTTAL TESTIMONY OF WILLIAM C. LUKE
VICE PRESIDENT OF MIDWEST GENERATION
DUKE ENERGY BUSINESS SERVICES LLC
ON BEHALF OF DUKE ENERGY INDIANA, LLC
CAUSE NO. 46193
BEFORE THE INDIANA UTILITY REGULATORY COMMISSION

Q. PLEASE STATE YOUR NAME AND BUSINESS ADDRESS.

A. My name is William C. Luke, and my business address is 1000 East Main Street, Plainfield, Indiana 46168.

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

A. I am employed as the Vice President of Midwest Generation by Duke Energy Business Services LLC, a service company subsidiary of Duke Energy Corporation ("Duke Energy"), which provides services to Duke Energy and its subsidiaries, including Duke Energy Indiana, LLC ("Duke Energy Indiana" or "Company").

Q. PLEASE DESCRIBE YOUR EDUCATIONAL AND PROFESSIONAL BACKGROUND.

A. I attended New York Maritime College and graduated with a B.S. in Engineering. I hold a United States Coast Guard License and have held a New York City High Pressure Boiler Engineer License. I have over 30 years of experience in the power generation industry and have held various roles for public utilities and independent power producers, with increasing responsibilities through my career. My significant, relevant positions with Duke Energy and its predecessor companies include: the Operations Superintendent at Hines Energy Complex in Bartow, Florida; the Strategic Initiatives Manager for Progress Energy in St. Petersburg, Florida; the General

Manager of Anclote Station in Florida; the General Manager of Bartow Combined Cycle Facility and Suncoast Combustion Turbines in Florida; and General Manager of Cayuga Station in Indiana. I assumed my current position in 2022.

Q. PLEASE DESCRIBE YOUR RESPONSIBILITIES.

A. As Vice President of Midwest Generation, I am responsible for providing safe, compliant, and reliable operation of Duke Energy's Midwest generation fleet, which includes four coal, one combined cycle, one combined-heat-and-power, one hydro, six simple cycle combustion turbine, and four solar (two of which include battery storage systems) facilities, serving Indiana, Kentucky, and Ohio, which provide over 8,000 MWs of generation. My primary responsibilities include managing the fleet within design parameters and implementing work practices and procedures that ensure safe and regulatorily compliant operation and maintenance activities.

Q. WHAT IS THE PURPOSE OF YOUR REBUTTAL TESTIMONY IN THIS PROCEEDING?

A. The purpose of my testimony is to generally address the Indiana Office of Utility Consumer Counselor's ("OUCC") suggestion that Duke Energy Indiana not build the proposed Cayuga CC Project but instead maintain operations of the existing coal units, even as those units approach sixty years of operations. My role at Duke Energy is to ensure the safe and reliable operations of our generating fleet, and it is my opinion that the OUCC is taking an overly simplistic view of the difficulty of continuing to operate the coal units without significant investments in reliability and environmental compliance.

Q. PLEASE DESCRIBE THE TYPES OF INVESTMENTS YOU EXPECT DUKE ENERGY INDIANA WOULD NEED TO MAKE IN THE CAYUGA COAL UNITS TO CONTINUE OPERATIONS.

A. To safely and reliably operate the Cayuga coal units past 2030, it would be reasonable to expect increased investments in the aging units. My team has ensured reasonable and prudent investment in the boilers and turbines – however, the high energy components are nearing their end of life and showing thermal fatigue. If we were planning to operate the coal unit beyond 2030 as currently proposed, additional investment would be critical to the units' continued reliability. As just a few examples, the Low Pressure or "LP" turbine rotors on both units would need to be repaired or replaced, as would the high energy piping system. The HP/IP blades on both units would need to be inspected and repaired by the late 2020s/early 2030s, and the generators would need field rewinds in the mid-2030s. I also expect that a reinvestment in civil engineering would be required to continue operations, such as in structural steel, underground piping (42-72 inch piping in several systems), coal handling, fire protection systems, internal electrical grid and controls, as well as other systems that have been in place since the coal units were placed in-service (1970 and 1972, respectively). In addition, the environmental compliance equipment installed in the early 2000s (such as the scrubbers) are also aging and may need structural investment and repairs to maintain compliant operations.

Q. HAVE YOU ESTIMATED THE COSTS OF THESE POTENTIAL MAINTENANCE CAPITAL AND ENVIRONMENTAL COMPLIANCE EXPENDITURES TO KEEP THE COAL PLANTS OPERATING PAST 2030?

A. In support for the 2024 IRP, the Company estimated **<BEGIN CONFIDENTIAL>** [redacted] **<END CONFIDENTIAL>** in ongoing maintenance needed to continue to operate the units until the mid-2030s timeframe. This included infrastructure projects such as non-routine steam turbine/generator projects, water piping and header projects, feedwater header replacements, spare transformers, and structural support work. Notably, this did not contemplate operating the coal units until the 2040s or later, as proposed by the OUCC. There is a different level of investment needed when contemplating long-term operation of a unit versus preparing to retire a unit in the near term. We strive to manage the cost to customers by not investing heavily in units slated for near-term retirement. However, if our plan today was to operate the units until 2040 or longer, we would need an updated engineering study to determine the capital investment needed to maintain reliability of the units for that extended timeframe. While we have not performed such an analysis, just the items I listed in the response above, plus the other expected maintenance capital required for units of this age would amount to approximately **<BEGIN CONFIDENTIAL>** [redacted] **<END CONFIDENTIAL>** additional dollars beyond the **<BEGIN CONFIDENTIAL>** [redacted] **<END CONFIDENTIAL>** already identified. I also reasonably expect to need to increase ongoing outage O&M to maintain safe and reliable operations past 2030.

Company witness Karn addresses the environmental compliance required to continue operating the Cayuga units on coal until the mid-2030s, including the work for the cooling towers. Those are estimated at **<BEGIN CONFIDENTIAL>** [redacted] **<END CONFIDENTIAL>**. However, as I noted above, the existing environmental compliance equipment, such as the scrubbers, may also need structural investment and repairs to maintain compliant operations if we were to assume coal operations into the 2040 timeframe, as proposed by the OUCC.

Q. OTHER DUKE ENERGY INDIANA WITNESSES DISCUSSED THE THERMAL LIMITATIONS ON THE CAYUGA COAL UNITS' COOLING WATER DISCHARGE. CAN YOU ALSO PLEASE ADDRESS THIS?

A. Yes, I can. The Cayuga coal units do not operate with a "closed loop" system for cooling – the station has a "once through" system, meaning that water is withdrawn from the Wabash River, used by the plant for cooling, and then discharged back into the Wabash River. However, to avoid adverse impacts to the aquatic creatures living in the river, the station has certain limits to control the thermal impacts to the river. These limits can be the toughest for the station to meet in hot, dry summer months when the river's flow is reduced due to lack of rain and the river's temperature is already hot. Under the 316(b) rule, which as of the date of this rebuttal is not being reconsidered by the Trump Administration, Cayuga will be required to implement a closed cycle cooling tower to continue operations past 2030.

Q. DO YOU HAVE ANY ADDITIONAL COMMENTS ON THE RISK INHERENT IN OPERATING AGING UNITS, SUCH AS THOSE AT CAYUGA?

A. Yes. In my professional experience, I have overseen the operations of aging coal and gas units – and while it is certainly feasible, it comes with reliability risks. Aging infrastructure tends to require additional capital investment and more frequent maintenance outages. Those more frequent maintenance outages can also impact the capacity credit awarded the units by MISO, as explained by Ms. Karn. In sum, my team will safely and reliably operate Duke Energy Indiana's fleet – whether that includes the Cayuga CC Project or the existing coal units. I expect added cost and outage time for the existing coal units when compared to the expected performance of the Cayuga CC Project.

Q. MR. LUKE, DOES THIS COMPLETE YOUR REBUTTAL 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: _____ Dated: 5-29-25

William C. Luke