STATE OF INDIANA

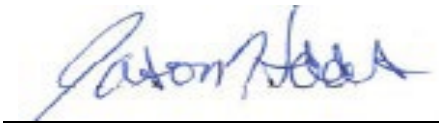
INDIANA UTILITY REGULATORY COMMISSION

VERIFIED PETITION OF DUKE ENERGY INDIANA, LLC ("DUKE ENERGY INDIANA") PURSUANT TO IND. CODE CHS. 8-1-8.5, 8-1-8.8, AND IND. CODE §§ 8-1-2-0.6 AND 8-1-2-23 FOR (1) ISSUANCE OF A CERTIFICATE OF PUBLIC CONVENIENCE AND NECESSITY ("CPCN") PURSUANT TO IND. CODE CH. 8-1-8.5 TO CONSTRUCT TWO COMBINED CYCLE ("CC") NATURAL GAS UNITS, AT APPROXIMATELY 738 MEGAWATTS (WINTER RATING) EACH, AT THE EXISTING CAYUGA GENERATING STATION ("CAYUGA CC PROJECT"); (2) APPROVAL OF THE CAYUGA CC PROJECT AS A CLEAN ENERGY PROJECT AND AUTHORIZATION FOR FINANCIAL INCENTIVES INCLUDING TIMELY COST RECOVERY THROUGH CONSTRUCTION WORK IN PROGRESS ("CWIP") RATEMAKING THROUGH A GENERATION COST ADJUSTMENT ("GCA") TRACKER MECHANISM UNDER IND. CODE CH. 8-1-8.8; (3) AUTHORITY TO RECOVER COSTS INCURRED IN CONNECTION WITH THE CAYUGA CC PROJECT; (4) APPROVAL OF THE BEST ESTIMATE OF COSTS OF CONSTRUCTION ASSOCIATED WITH THE CAYUGA CC PROJECT; (5) APPROVAL OF CHANGES TO DUKE ENERGY INDIANA'S ELECTRIC SERVICE TARIFF RELATING TO THE PROPOSED GCA TRACKER MECHANISM; (6) APPROVAL OF SPECIFIC RATEMAKING AND ACCOUNTING TREATMENT; AND (7) ONGOING REVIEW OF THE CAYUGA CC PROJECT	)	**CAUSE NO. 46193**

INDIANA OFFICE OF UTILITY CONSUMER COUNSELOR
PUBLIC'S EXHIBIT NO. 2
REDACTED TESTIMONY OF OUCC WITNESS
CYNTHIA M. ARMSTRONG

Respectfully submitted,

INDIANA OFFICE OF UTILITY CONSUMER COUNSELOR



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CERTIFICATE OF SERVICE

This is to certify that a copy of the ***Indiana Office of Utility Consumer Counselor Public's Exhibit No. 2 Redacted Testimony of OUCC Witness Cynthia M. Armstrong*** has been served upon the following in the above-captioned proceeding by electronic service on May 8, 2025.

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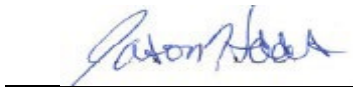

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REDACTED TESTIMONY OF OUCC WITNESS
CYNTHIA M. ARMSTRONG
CAUSE NO. 46193
DUKE ENERGY INDIANA, LLC

I. INTRODUCTION

Q: Please state your name and business address.

A: My name is Cynthia M. Armstrong, and my business address is 115 West Washington Street, Suite 1500 South, Indianapolis, Indiana 46204.

Q: By whom are you employed and in what capacity?

A: I am employed as an Assistant Director in the Electric Division of the Indiana Office of Utility Consumer Counselor ("OUCC"). A summary of my qualifications is provided in Appendix A.

Q: Have you previously provided testimony to the Indiana Utility Regulatory Commission ("Commission")?

A: Yes. I have testified in more than 100 docketed cases before the Commission. These include rate cases, Certificate of Public Convenience and Necessity ("CPCN") requests, environmental cost trackers, green power trackers, and alternative regulatory plans.

Q: What is the purpose of your testimony in this proceeding?

A: I support the OUCC's overall policy position urging the Commission: 1) to deny Duke Energy Indiana, LLC's ("Duke," "Petitioner," or "the Company") request, as proposed, for a CPCN to construct two new Combined Cycle ("CC") Natural Gas Turbines of approximately 738 MW (winter rating) in size each, or 1,476 MW in total, at Duke's existing Cayuga Generating Station site (the "Cayuga CC Project"); 2) to pause Petitioner's planned retirement of the Cayuga coal units as proposed;

and 3) to extend the operation of the Cayuga Units (whether on coal or natural gas) beyond Petitioner's proposed retirement dates. I also address whether the existing Cayuga Units 1 and 2 have reached the tipping point where the current equipment needs to be replaced to support continued environmental compliance. Additionally, I evaluate the prospective future compliance costs for Cayuga Units 1 and 2, noting that many of the environmental rules that were driving higher compliance costs for Cayuga Units 1 and 2 are likely to be rescinded.

Q: What did you do to prepare your testimony?

A: I reviewed the verified petition, direct testimony, exhibits, and confidential documents Duke prefiled in this Cause. I also drafted data requests and reviewed relevant data responses Duke submitted to the OUCC and other parties, as well as Duke's 2024 Integrated Resource Plan ("IRP"). Additionally, I attended a tour of the Cayuga Generating Station on April 23, 2025.

Q: To the extent you do not address a specific item or issue, does this mean you agree with those portions of Duke's proposals?

A: No. Excluding any specific item or issue Duke proposes does not indicate my approval of these proposals or Duke's position. Rather, the scope of my testimony is limited to the specific items I address.

II. CAYUGA CC PROJECT OVERVIEW

Q: Please summarize Duke's request in this Cause.

A: Pursuant to Ind. Code chs. 8-1-8.5 and 8-1-8.8, Duke seeks approval for a CPCN to construct the Cayuga CC Project. These units are intended to replace the 1,005 MW of coal-fired generation when Cayuga Units 1 and 2 retire, as well as provide approximately 471 MW of additional capacity for Duke's system. Duke's best

estimate for the Cayuga CC Project is $2.97 Billion, excluding Allowance for Funds Used During Construction ("AFUDC"), property taxes, and certain project reserves. If estimated AFUDC and other excluded costs are considered, Duke estimates the total cost of the Cayuga CC Project to be $3.3 Billion.

Duke also seeks approval of the Cayuga CC Project as a clean energy project and authorization for financial incentives, including ongoing review of the Cayuga CC Project and timely cost recovery through construction work in progress ("CWIP") ratemaking through a Generation Cost Adjustment ("GCA") tracker mechanism under Ind. Code ch. 8-1-8.8.

Q: Why is Duke retiring the existing Cayuga coal-fired units?

A: Duke's assertion is that Cayuga Units 1 and 2 have reached the tipping point where the current equipment needs to be replaced to support continued environmental compliance and reliability.[1] The Greenhouse Gas New Source Performance Standards ("the 111 Rule" or "the Clean Power Plan 2.0") drive the retirement dates Duke assumed for the portfolios, or generation strategies, the Company evaluated in its IRP.[2] Even if the 111 Rule is not implemented, Duke estimates that to continue operating Cayuga on coal will require $430 million of additional environmental and maintenance expenditures in the near term.[3] Duke maintains the age of these units, combined with maintenance and compliance costs, make retirement and replacement of the existing Cayuga coal units in September 2029

[1] Petitioner's Exhibit No. 2, Verified Direct Testimony of Kelley A. Karn, page 6, lines 12-13.
[2] Petitioner's Exhibit 6, Direct Testimony of Nathan Gagnon, Attachment 6-A, Duke Energy Indiana, 2024 IRP, Vol. 1, pages 52-53.
[3] Karn Direct, page 6, lines 15-17.

and May 2030 with new CC units the reasonable and prudent course of action for the Company and its customers.[4]

Q: Do OUCC witnesses support approval of Duke's request?

A: No. As OUCC witnesses John Hanks, Roopali Sanka, Patrick Kelley, and I explain, Duke's analysis supporting the retirement of the existing Cayuga coal units and replacing them with the Cayuga CC Project is flawed. Duke's analysis favors constructing new resources over the more affordable option of extending the useful lives of its existing resources and other resource alternatives for securing thermal generation. Furthermore, multiple events have occurred since Duke filed its 2024 IRP that impact and may invalidate the Company's assumptions and cost inputs, particularly for environmental regulatory costs. Their impact should be considered, not ignored.

Q: What events, more specifically, have occurred since Duke filed its 2024 IRP?

A: A major shift in policy has occurred at the federal level with President Trump taking office. The Trump Administration has manifested a clear intent to reduce regulatory requirements on the energy industry and has shown a particular interest in promoting the coal industry and coal-fired generation.[5] As part of carrying out its objective to restore the coal industry, it is likely the environmental rules driving increases in the continued operation of the existing Cayuga steam units will be rescinded, repealed, or replaced with less stringent regulations.

[4] *Id*, page 6, lines 17-22.

[5] *See, e.g.*: Presidential Executive Orders: Executive Order 14261, "Reinvigorating America's Beautiful Clean Coal Industry and Amending Executive Order 14241" (Signed April 8, 2025) and Executive Order 14154, "Unleashing American Energy" (Signed January 20, 2025).

Additionally, on April 10, 2025, Governor Braun issued Executive Order 25-50, "Ensuring Economic Opportunity and Indiana's Energy Future by Supporting Life Extensions for Coal Energy Generation and Assessing Natural Gas Supplies." This Executive Order directs the Indiana Secretary of Energy and Natural Resources to work with the Commission and the Indiana Office of Energy Development to re-evaluate each remaining Indiana coal-based electric generating unit to consider extending its life.[6]

Q: Does Duke's IRP analysis fairly evaluate the option to extend the operation of Cayuga Units 1 and 2 on coal?

A: No. Although it is understandable that Duke cannot know whether the 111 Rule will survive legal challenges or leadership changes at the federal level, Petitioner created a "No 111" Portfolio, where Duke assumed the 111 Rule will not be implemented. However, even in the No 111 Portfolio, Duke still determined Cayuga Units 1 and 2 will retire by 2032. Duke indicated the No 111 Portfolio is a fully reoptimized portfolio in which the 111 Rule is rolled back, but all other Reference Scenario assumptions hold.[7] However, this optimized portfolio is based on cost assumptions that favor construction of new gas CC units over the continued operation of the Cayuga coal units. As OUCC witness Hanks notes in his testimony, the costs of a CC included in the base scenario are significantly lower than Duke's proposed costs for the Cayuga CC Project, which would make the retirement of the

[6] Indiana Executive Order 25-50. "Ensuring Economic Opportunity and Indiana's Energy Future by Supporting Life Extensions for Coal Energy Generation and Assessing Natural Gas Supplies." (Signed April 10, 2025). Accessible at: https://www.in.gov/gov/newsroom/executive-orders/.
[7] Duke Energy 2024 IRP, Vol. 1, Appendix C, page 255.

Cayuga coal units look more attractive.[8] Additionally, this re-optimization assumes the other environmental regulations the EPA has announced it is reconsidering (which I discuss in more detail later in my testimony) are still implemented. A re-optimized portfolio based on changes to these assumptions could result in a portfolio where Cayuga Units 1 and 2 and Duke's other coal units are selected for retirement later in the IRP study period. With the federal and state policy changes that have occurred over the last four months, it would be worthwhile—indeed, it is imperative, for Duke to model another No 111 "business as usual" portfolio where no coal units retire until the 2038-2040 timeframe.

The closest Duke came to modeling such a portfolio was a variation of the Blend 2 portfolio where the Cayuga steam units would be modified to burn a blend of natural gas and coal at the beginning of 2030,[9] but this analysis was not part of the 2024 IRP. Duke witness Gagnon states this portfolio increases the total Present Value Revenue Requirement ("PVRR") relative to the Preferred Portfolio[10] by more than $500 Million.[11] However, the assumptions in this portfolio are problematic in three ways. First, this variation of the Blend 2 portfolio includes both the cost of converting the coal units to burn coal and gas and all maintenance and compliance costs for continuing to operate the existing coal units.[12] Duke did

[8] Public's Exhibit No. 3, Direct Testimony of OUCC witness John Hanks, pages 16-17.
[9] Gagnon Direct, page 16, lines 2-11.
[10] The Preferred Portfolio is Duke's selected portfolio of supply-side and demand-side resources for meeting its customers' energy and capacity needs over the next 20 years.
[11] Gagnon Direct, page 17, lines 1-4.
[12] *Id*., page 17, lines 4-6.

not perform an analysis to isolate the costs of continuing to operate these units solely on coal.

Second, while the 111 Rule has not yet been rescinded, this variation of the Blend 2 portfolio assumes the units will have to retire by 2038. If the other necessary environmental compliance and maintenance upgrades are made to these units, it would be appropriate to determine if the units could operate longer than 2038.

Finally, the CCs assumed to replace the Cayuga coal-fired units and other retiring units will have carbon capture and sequestration ("CCS") installed.[13] However, the Preferred Portfolio assumes the Cayuga CC Project will operate at a 40% or lower annual capacity factor to comply with the 111 Rule. Even with the assumed benefits of CCS tax credits, the co-fire variation saddles replacement generation with additional compliance costs greater than the costs associated with the Cayuga CC Project evaluated in the Preferred Portfolio. Unless replacement CC generation in the Co-fire Cayuga variation is evaluated on an even playing field by assuming this generation also operates at 40% annual capacity factors, it is unreasonable to draw the conclusion that the Preferred Portfolio has a lower PVRR than continuing to operate the steam units on coal.

Q: Did OUCC witnesses conduct their own financial analysis comparing the options to continue operating Cayuga Units 1 and 2 to retiring Cayuga Units 1 and 2 and constructing the Cayuga CC Project?

A: Yes. OUCC witness Brittany Baker has estimated the residential rate impact of the Cayuga CC Project and Duke's estimated $430 Million of investments necessary

[13] *Id*., page 17, lines 11-16.

to continue operating the Cayuga steam units for another 10 years. As Ms. Baker's Attachment BLB-12 shows, the estimated five-year average monthly residential bill impact of the Cayuga CC Project, as now proposed, represents an increase of $19.37 per month (at 1,000 kWh). The estimated five-year average monthly residential bill impact of the additional costs to continue operating the Cayuga coal units shows an increase of $3.81 per month (at 1,000 kWh).[14]

Although these calculations do not consider O&M or other costs that would be captured if these options were fairly evaluated in Duke's IRP model, this demonstrates that extending the life of the Cayuga steam units could be significantly less costly for ratepayers in the short term, and address affordability, than constructing the Cayuga CC Project.

Q: What do you recommend regarding Duke's request for a CPCN to construct the Cayuga CC Project?

A: I recommend the Commission deny the CPCN as requested. I also recommend Duke reexamine the retirement schedule and related activities associated with the existing Cayuga units and take appropriate measures to extend the lives of the existing units consistent with this reevaluation. This re-examination will allow time to confirm how the U.S. Environmental Protection Agency ("EPA") acts on the environmental regulations it is reconsidering and allow Duke to respond accordingly to the EPA's actions. It will also allow time for new lower-emitting technologies, such as small modular nuclear reactors, to emerge, or existing technologies, such as battery storage and hydrogen generation, to improve

[14] Public's Exhibit No. 7, Direct Testimony of OUCC witness Brittany Baker, Attachment BLB-13.

efficiency and cost. If Duke invests in the Cayuga CC Project now, it limits the opportunity to invest in potentially more robust generation technologies that can withstand future environmental regulations.

I further recommend Duke evaluate the cost of extending the operation of the Cayuga coal units for at least another 10 years. As part of this evaluation, it should be assumed these units can operate beyond 2032 without the constraints of the 111 Rule. Additionally, Duke should account for reduced compliance costs for other rules the EPA recently announced it will be reconsidering.[15]

III. IMPACT OF THE 111 RULE

Q: Please describe the 111 Rule.

A: The 111 Rule, published on May 9, 2024 finalized multiple EPA actions addressing greenhouse gas emissions under Section 111 of the Clean Air Act ("CAA").[16] First, it repealed the Affordable Clean Energy Rule.[17] Second, it finalized emission guidelines for greenhouse gas ("GHG") emissions from existing coal-fired and oil/gas-fired steam electric generating units ("EGUs") pursuant to CAA Section

[15] EPA Press Office (March 12, 2025), *EPA Launches Biggest Deregulatory Action in U.S. History*, found at: https://www.epa.gov/newsreleases/epa-launches-biggest-deregulatory-action-us-history.
See also, EPA Press Office. (March 12, 2025). Trump EPA Announces Reconsideration of Biden-Harris Rule, "Clean Power Plan 2.0", That Prioritized Shutting Down Power Plants While Raising Costs on American Families. https://www.epa.gov/newsreleases/trump-epa-announces-reconsideration-biden-harris-rule-clean-power-plan-20-prioritized.
See also, EPA Press Office. (March 12, 2025). Trump EPA to Reconsider Biden-Harris MATS Regulation That Targeted Coal-Fired Power Plants to be Shut Down. https://www.epa.gov/newsreleases/trump-epa-reconsider-biden-harris-mats-regulation-targeted-coal-fired-power-plants-be.
See also, EPA Press Office. (March 12, 2025). EPA Announces It Will Reconsider 2024 Water Pollution Limits for Coal Power Plants to Help Unleash American Energy (ELG: Steam Electric). https://www.epa.gov/newsreleases/epa-announces-it-will-reconsider-2024-water-pollution-limits-coal-power-plants-help.
[16] 89 Federal Register 39798 – 40064.
[17] 89 FR 39836-39840.

111(d).[18] Third, it finalized revisions to New Source Performance Standards ("NSPS") for GHG emissions from new and reconstructed combustion turbines ("CTs").[19] Finally, it revised NSPS for GHG emissions from fossil-fuel-fired steam EGUs that undertake a large modification.[20] However, the EPA did not finalize the standards for existing CTs it had proposed a year earlier, but the agency opened a non-regulatory docket to seek public input on how the EPA should regulate this source category.

The emission guidelines for existing coal-fired EGUs and NSPS revisions for new combustion turbines are the most relevant in discussing Duke's future resource plans.

Q: What standards does the 111 Rule set for existing coal-fired EGUs?

A: Under CAA Section 111(d), the EPA must set numeric emission standards based on the Best System of Emission Reduction ("BSER").[21] For existing coal-fired EGUs, the 111 Rule establishes BSER for three different sub-categories determined by when the EGU plans to cease operation.[22] These sub-categories are:

- Existing coal-fired EGUs committing to permanently cease operation by January 1, 2032: EGUs under this sub-category have no additional emission reduction obligations.[23]
- Units committing to cease operation by January 1, 2039 ("medium-term" units): the BSER for medium-term units is co-firing with natural gas. Medium-term

[18] 89 FR 39840-39902.
[19] 89 FR 39902-39952.
[20] 89 FR 39953-39955.
[21] 42 U.S.C. § 7411(d).
[22] 89 FR 39841.
[23] 89 FR 39842-39843.

units must meet numeric emission limits that equate to 40% natural gas co-firing beginning on January 1, 2030.[24]

- Units intending to operate on or after January 1, 2039 ("long-term" units): the BSER for long-term units is CCS. Long-term units must meet emission limits equating to CCS with 90% capture beginning January 1, 2032.[25]

Q: What standards does the 111 Rule set for new gas-fired CTs?

A: The 111 Rule establishes three sub-categories for new CTs based on their operation intensity: low load, intermediate load, and base load.[26]

- Low load CTs: Low load CTs are defined as units with an annual capacity factor less than 20%. Low load CTs are subject to emission standards based on low-emitting fuel.[27]
- Intermediate load CTs: Intermediate load CTs are defined as units with an annual capacity factor of 20% - 40%. Intermediate load CTs are subject to limits based on the efficient design and operation of simple-cycle turbines.[28]
- Base load CTs: Base load CTs are defined as units with an annual capacity factor greater than 40%. Base load CTs are subject to two phases of standards. The initial phase standard, applicable when the CT begins operation, is based on efficient design and operation of CCs. The Phase Two standard is based on CCS with 90% capture by January 1, 2032.[29]

Q: How does Duke plan to comply with the 111 Rule?

[24] 89 FR 39841.
[25] *Id*.
[26] 89 FR 39908.
[27] 89 FR 39912-39913, 39917.
[28] 89 FR 39913, 39918-39922.
[29] 89 FR 39913, 39922-39923.

A: Petitioner's Preferred Portfolio in its 2024 IRP shows Duke retiring the following coal units: Gibson Unit 5 and Cayuga Unit 1 by January 1, 2030, Cayuga Unit 2 by January 1, 2031, and Gibson Units 3 and 4 by January 1, 2032.[30] The Preferred Portfolio also converts the Edwardsport Integrated Gasification Combined Cyle ("IGCC") plant to natural gas and Gibson Units 1 and 2 to co-fire with natural gas by January 1, 2030. The Preferred Portfolio adds two 1x1 CCs coinciding with the retirement of Cayuga Units 1 and 2 and a 2x1 CC coinciding with the retirement of Gibson Units 3 and 4.

Q: How would the Cayuga CC Project comply with the 111 Rule?

A: Duke intends to limit the Cayuga CC Project's annual operations to a 40% capacity factor beginning in 2032,[31] which will allow Duke to avoid the CCS requirements for base load units. Thus, Duke is requesting approval to construct the Cayuga CC Project at a projected cost of over $3.3 Billion when it plans to operate it at less than half of its total capacity to comply with the 111 Rule.

Q: Are there other factors that could affect the 111 Rule's implementation?

A: Yes. First, 27 entities comprising states, including Indiana, and industry groups have sued the EPA over the legality of the 111 Rule and whether CCS meets the CAA's definition of an "adequately demonstrated" technology.[32] The D.C. Court of Appeals has heard oral arguments. However, in February 2025, EPA Administrator Lee Zeldin requested litigation be held in abeyance for 60 days to

[30] Gagnon Direct, Attachment 6-A, Duke's 2024 IRP, Volume 1, pages 121-122.
[31] Karn Direct, page 9, lines 11-14.
[32] Mindock, C. (May 9, 2024). Reuters. ***U.S. Republican attorneys general sue to stop EPA's carbon rule.*** https://www.reuters.com/sustainability/climate-energy/25-us-states-challenge-epa-power-plant-emissions-rule-court-2024-05-09/.
See also *West Virginia v. EPA (*2024), U.S. Court of Appeals Case No. 24-1120.

allow the EPA to reconsider the 111 Rule, and the Court granted a stay on February 19, 2025.[33] On April 21, 2025, the EPA again requested the case be held in abeyance while the EPA conducts a rulemaking to reassess the 111 Rule, with status reports due every 90 days. In its motion, the EPA affirmed its intention to issue a proposed reconsideration rule in Spring 2025 and a final rule by December 2025.[34] The Court granted this request on April 25, 2025.[35]

Second, the Trump Administration has made clear it intends to rescind the 111 Rule. In response to various Presidential Executive Orders targeted at reducing coal and energy industry regulations, Administrator Zeldin issued press releases indicating the EPA will be reconsidering both the 111 Rule, as mentioned above, and the GHG Endangerment Finding, which is the basic finding the EPA must make before it can regulate specific pollutants under the CAA.[36]

Based on these events, it seems unlikely the 111 Rule will be implemented or that the EPA will replace the rule with similar stringent standards in the near term.

Q: Even if the 111 Rule is not implemented, is it a reasonable assumption that retiring the Cayuga steam units and constructing the Cayuga CC Project insulates ratepayers from the risk of future carbon regulations?

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[33] *West Virginia v. EPA*, Docket No. 24-1120, (D.C. Cir. filed May 9, 2024) (order granting 60 day abeyance).
[34] *West Virginia v. EPA*, Docket No. 24-1120, (D.C. Cir. filed May 9, 2024) (respondents' motion).
[35] *West Virginia v. EPA*, Docket No. 24-1120, (D.C. Cir. filed May 9, 2024) (order granting continued abeyance).
[36] EPA Press Office, Trump EPA Announces Reconsideration of Biden-Harris Rule, "Clean Power Plan 2.0", That Prioritized Shutting Down Power Plants While Raising Costs on American Families.
See also, EPA Press Office, Trump EPA Kicks Off Formal Reconsideration of Endangerment Finding with Agency Partners. https://www.epa.gov/newsreleases/trump-epa-kicks-formal-reconsideration-endangerment-finding-agency-partners.

A: No. Even though natural gas generation emits about half the amount of CO_2 when compared to similarly sized coal generating units, natural gas generation still emits carbon and is, therefore, vulnerable to any future carbon regulations. When comparing the Cayuga CC Project to the option of extending the operation of the existing coal units, the Cayuga CC Project may be more vulnerable to such future regulations, as Duke anticipates the Project will operate for 35 years. I do not expect any extension of the steam units past 2030 to last beyond 10-15 years.[37]

While it is fair to note that the relaxation or recission of any environmental regulations on coal-fired EGUs may be short-lived as the next federal administration could impose new regulations, natural gas-fired EGUs carry similar risks regarding regulations targeting CO_2 emissions. The current 111 Rule requires new natural gas units operating at an annual capacity factor greater than 40% to install CCS. Future CO_2 regulations could require all natural gas units to install CCS, even existing units. In addition, any regulations targeting methane leaks or emissions from gas pipelines could increase natural gas costs.

Upgrading the Cayuga CC Project to meet such standards (i.e. all natural gas units must install CCS, no matter the operational intensity) could render its future operation uneconomical. If the Cayuga CC Project becomes uneconomical to continue operation, the 35-year life Duke assumes for the project becomes questionable. The associated ratepayer consequence of the $3.3 Billion Cayuga CC Project becoming a stranded asset over a 35-year period is much greater than the

[37] OUCC Highly Confidential Attachment CMA-1-HC, Response to OUCC Data Request 11.01.

associated ratepayer consequence of investing $430 Million to extend the lives of Cayuga Units 1 and 2 for 10 years.

Q: Is it reasonable to assume future regulations on natural gas EGUs will be more stringent?

A: Each time a new federal administration has issued regulations after a previous administration relaxed or repealed regulations on fossil-fuel-fired EGUs, the new regulations have tended to be more stringent. The Clean Air Act requires the EPA to rely on available technologies to develop emission standards.[38] As time progresses, new control technologies develop, or existing experimental technologies improve. When the EPA evaluates available technologies in the future, the emission standards will be based on the improved technologies, which usually leads to more stringent emission standards.

Q: If the 111 Rule is repealed and not replaced, what is the earliest you expect more stringent carbon regulations could be implemented?

A: While it is unknown when a new carbon regulation will be implemented or what it will specifically require, based on previous regulatory timelines, I anticipate the earliest date any new carbon regulation could be implemented will be 8 to 10 years after 2029, which is also the first year a new federal administration could take office.

First, a new administration would need to evaluate options and technologies and draft a rule. This has typically taken previous administrations approximately three years. The proposed rulemaking would need to be issued, and time allowed for the public to comment on the proposed rule, with the final rule taking into

[38] 42 U.S.C. § 7411. The EPA may also consider design, equipment, work practices, or operational standards in developing NSPS.

consideration the public comments. It has typically taken previous administrations a year to issue such a final rule. States will then be afforded time to develop and submit State Implementation Plans ("SIP") on how the appropriate state agencies will implement the requirements of any final rule. The timeframe for SIP submittals is usually two years, but the EPA has extended this timeline in previous rulemakings. The EPA usually takes a year to review a SIP and determine whether it complies with the new rule's requirements. If the EPA determines the SIP does not meet the requirements, the EPA can impose a Federal Implementation Plan for the state to comply with the rules. Finally, sources must be given time to take measures to comply with the rule. This process typically takes at least five years after a final rule is issued, but previous carbon rules have allowed more time for implementation.

This timeline could be extended if the current administration is successful in revoking the Endangerment finding. The Endangerment finding is the bedrock for the EPA regulating CO_2 and other GHG pollutants. Under the CAA, the EPA is required to regulate any pollutant it finds endangers public health and welfare. Without this finding, the EPA does not have a basis for regulating CO_2. If a future administration must re-instate the Endangerment finding, this will likely add at least two years to the timeline for issuing a new regulation.

While unlikely in the near term, Congress could pass climate change legislation regulating CO_2 emissions. However, such legislation would also afford the EPA time for legislative review, rulemaking to incorporate the legislation's directives,

public comment, issuance of a final rule, and states and affected sources implementing any such rule.

IV. OTHER ENVIRONMENTAL COMPLIANCE AND MAINTENANCE COSTS

Q: What other environmental costs does Duke identify as driving the retirement of the Cayuga coal units?

A: Duke identifies costs associated with the ELGs, the Mercury and Air Toxics Standards ("MATS"), and National Pollutant Discharge Elimination System ("NPDES") permitting limits associated with Clean Water Act Sections 316 (a) and 316 (b) ("316 (a) and (b) requirements").[39] In particular, Duke witness Karn notes compliance with the 316 (a) and (b) requirements and compliance with the ELGs complicates operating the existing Cayuga units into the 2030s.[40]

Q: What is Duke's estimate of the costs to comply with the 316(a) and (b) requirements?

A: Duke assumes Cayuga Units 1 and 2 will be required to install new closed-cycle cooling water towers to meet the 316(a) and (b) requirements at a cost of **<CONFIDENTIAL>** [redacted] **<CONFIDENTIAL>**.[41] The Cayuga CC Project will also be required to install cooling towers at an estimated cost of **<CONFIDENTIAL>** [redacted] **<CONFIDENTIAL>**, which is included in the overall estimate for the Cayuga CC Project.[42]

Q: Is Duke correct in its assessment that the closed-cycle cooling towers are necessary for the existing Cayuga steam units to comply with 316(a) and (b) requirements?

[39] Karn Direct, page 4, lines. 5-14.
[40] *Id.*, page 6, lines. 4-7.
[41] OUCC Attachment CMA-1-HC, Duke's Responses to OUCC Data Requests 2.10, 6.04, and 11.01.
[42] *Id*.

A: It is unclear whether the cooling towers are necessary for Cayuga's future compliance with 316(a) and (b). The Indiana Department of Environmental Management ("IDEM") issued a draft NPDES renewal for the Cayuga Generating Plant on March 28, 2025.[43] As with Cayuga's previous NPDES permits, the draft permit contains thermal variances pursuant to CWA Section 316(a) for the Cayuga steam units that allow the units to control thermal discharges through decreasing unit operations and operating the existing auxiliary cooling tower.[44] Based upon prior permits being granted, it is likely Duke will be able to request and receive approval for similar alternate thermal limitations in future NPDES renewals.

However, regarding the 316(b) requirements for cooling water intake structures, the draft permit indicates the existing cooling water intake structure does not currently meet the best technology available ("BTA") for impingement or entrainment.[45] The draft permit indicates Duke will comply when the coal-fired units are closed and the facility converts to a natural gas CC with closed cycle cooling.[46] In lieu of having to install the BTA, the draft permit includes a compliance schedule requiring Duke to close the coal-fired units as soon as practicable but no later than 60 months after the permit's effective date. IDEM's determination of the BTA being met through closure of the coal-fired units is

[43] IDEM, Cayuga Generating Station NPDES Renewal, Public Notice No: 20250307-IN0002763. https://www.in.gov/idem/files/notice_20250428_npdes_in0002763.pdf.
[44] *Id*.
[45] *Id*.
[46] *Id*.

contingent upon Duke providing an exact date of closure within two years of the permit's effective date.[47]

Because Duke's proposal is to comply with 316(b) by retiring the Cayuga coal units and replacing them with the Cayuga CC Project, it is not known what IDEM would consider the BTA if the coal or steam units were to continue operating beyond 2030 if Duke revised and re-submitted its NPDES renewal application. A new closed-cycle cooling water tower would qualify as the BTA for both impingement and entrainment mortality, but the 316(b) Rule allows IDEM to determine that a combination of other less-expensive technologies or other measures also qualify as the BTA.[48] Duke's assumption that the existing Cayuga steam units will be required to install a new closed-cycle cooling tower likely represents the upper end of 316(b) compliance costs.

Q: Are there potential benefits of installing a new closed-cycle cooling water tower to serve Cayuga Units 1 and 2?

A: Yes. A new closed-cycle cooling water tower should increase the availability of Cayuga Units 1 and 2, particularly in the summer. This would be the case if the units continued to operate on coal or converted to natural gas. Additionally, the existing auxiliary cooling towers **<HIGHLY CONFIDENTIAL>** [redacted]

[47] *Id*.

[48] 79 Federal Register 48321-48322. The BTA standard for impingement includes seven options for compliance, one of which is to operate any other combination of technologies, management practices and operational measures that the Director of the state permitting authority determines is the BTA for impingement reduction. For the entrainment standard, the state permitting authority Director is to establish the entrainment BTA on a site-specific basis.

[redacted] **<HIGHLY CONFIDENTIAL>**. [49]

Q: What is Duke's estimate to comply with the ELGs?

A: Duke estimates it will cost **<HIGHLY CONFIDENTIAL>** [redacted] **<HIGHLY CONFIDENTIAL>** to comply with the 2020 ELG Reconsideration Rule ("2020 ELGs") and allow the continued burning of coal at Cayuga into the 2030s.[50] However, Duke indicates in its IRP that it has already assumed ELG costs in the portfolios modeled,[51] so it appears that Duke expects to incur these costs even if it replaces the existing coal units with the Cayuga CC Project because compliance would be expected prior to Duke's anticipated retirement date in the Preferred Portfolio. Due to regulatory developments at the federal level, it is also uncertain if Duke will incur these costs if it continues to operate the Cayuga coal units.

Q: Why is it uncertain whether Duke will incur these costs?

A: The EPA announced it will be re-considering the most recent amendments to the ELGs, which were finalized in March 2024 ("2024 ELGs"). [52] These amended the 2020 ELGs finalized during the first Trump Administration.[53] The 2024 ELGs impose more stringent zero discharge standards for FGD wastewater, bottom ash ("BA") transport water, and combustion residual leachate ("CRL") from coal

[49] OUCC Attachment CMA-1-HC, Highly Confidential Attachment 6.4-A.
[50] OUCC Attachment CMA-1-HC.
[51] Gagnon Direct, Attachment 6-A, Duke 2024 IRP, Appendix J, p. 516-517.
[52] EPA Press Office. (March 12, 2025). *EPA Announces It Will Reconsider 2024 Water Pollution Limits for Coal Power Plants to Help Unleash American Energy (ELG: Steam Electric*). https://www.epa.gov/newsreleases/epa-announces-it-will-reconsider-2024-water-pollution-limits-coal-power-plants-help.
[53] 89 Federal Register 40199.

combustion residual disposal facilities.[54] If the current administration rescinds the 2024 standards, it is uncertain whether the federal administration will also revert back to the 2020 ELG requirements or issue different standards.

Q: What is Duke's current plan for Cayuga to comply with the ELGs?

A: Originally, Duke's 2021 compliance plan for Cayuga under the 2020 ELGs was to cease combustion of coal by 2028.[55] Under the 2020 ELGs, a unit could avoid meeting the arsenic, mercury, and other pollutant numeric limits for FGD wastewater and BA transport water requirements by committing to cease combustion of coal by 2028.[56] Otherwise, a generation source was required to meet the FGD wastewater and BA transport water limits by no later than December 31, 2025.[57] Now that Duke plans to operate Cayuga Unit 1 until September 2029 and Cayuga Unit 2 until May 2030, the units would be required to meet these standards, but Duke has elected to participate in the Voluntary Incentives Plan ("VIP").

The 2020 ELGs provided an option for a generation source to transition into the VIP if the source continued operating on coal past 2028.[58] The VIP gave sources until December 31, 2028 to meet effluent limits if they committed to more stringent effluent standards, but source operators/owners were required to notify their permitting authority of the source operator's choice to participate in the VIP by

[54] 89 FR 40199-40200.
[55] Cayuga NOPP Submittal 2021. (October 7, 2021.) May be accessed at the Duke Energy ELG Compliance Data and Information Website. https://www.duke-energy.com/our-company/environment/compliance-and-reporting/elg-rule-compliance.
[56] 89 FR 64679-64682. Sources committing to ceasing combustion of coal by 2028 were still required to meet limits for Total Suspended Solids ("TSS").
[57] 89 FR 64683-64684.
[58] 85 FR 64673.

December 31, 2025.[59] Cayuga's recent draft NPDES permit reflects that Duke notified IDEM of Cayuga's intent to participate in the VIP, and it has included numeric effluent limits for Cayuga's FGD wastewater and discharge limits for BA transport water.[60]

The 2024 ELGs allow sources that installed controls to comply with the 2020 ELGs that do not meet the zero discharge requirements to continue meeting these standards if they commit to cease combustion of coal by 2034.[61] Cayuga's draft NPDES permit also indicates Cayuga will notify IDEM if it intends to participate in this source category by no later than December 31, 2025.[62]

Q: Please describe the MATS and the effect these standards have on Cayuga Units 1 and 2's continued operation.

A: The MATS sets emission standards for hazardous air pollutants from coal-fired EGUs. Cayuga Units 1 and 2 have already implemented measures to comply with the MATS that were originally finalized in 2013. However, in March 2024, the EPA finalized more stringent MATS standards for particulate matter ("2024 MATS Update"). The filterable particulate matter emission limits were lowered from 0.03 lbs./MMBTU to 0.01 lbs./MMBTU on a 30-day rolling average.[63] On March 12, 2025, Administrator Zeldin announced the EPA will be reconsidering the 2024 MATS Update rule.[64]

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[59] 85 FR 64708-64709.
[60] IDEM, Cayuga Generating Station NPDES Renewal.
[61] 89 FR 40212-40215.
[62] IDEM, Cayuga Generating Station NPDES Renewal.
[63] 89 FR 38509-38510.
[64] EPA Press Office. (March 12, 2025) *Trump EPA to Reconsider Biden-Harris MATS Regulation That Targeted Coal-Fired Power Plants to be Shut Down*. https://www.epa.gov/newsreleases/trump-epa-reconsider-biden-harris-mats-regulation-targeted-coal-fired-power-plants-be.

Q: Are the MATS costs included in the $430 Million estimate to extend the lives of Cayuga Units 1 and 2?

A: No, because this is a compliance cost Duke expects to incur even if the Cayuga CC Project is constructed. Duke's 2024 IRP included costs to upgrade Cayuga Units 1 and 2 to meet the 2024 MATS Update.[65] Cayuga Units 1 and 2 have FGD systems, Selective Catalytic Reduction units, and electrostatic precipitators, which all control particulate matter.

Q: What estimated maintenance costs are included in the $430 Million additional costs Duke estimates are necessary for the Cayuga steam units to continue operating?

A: These costs include **<HIGHLY CONFIDENTIAL>** [redacted]. **<HIGHLY CONFIDENTIAL>**

Q: Are there any issues with considering these costs when determining whether to extend the lives of the existing steam units?

A: Yes. It is difficult to determine how much of the additional $430 Million is attributable to these projects because there may be an overlap between the costs associated with a new cooling water tower and **<HIGHLY CONFIDENTIAL>** [redacted][66]

[65] Duke 2024 IRP, Appendix J, page 506.
[66] OUCC Highly Confidential Workpaper CMA-WP1-HC, calculation based on DR Response to OUCC 6.4, Attachment 6.4-A.

[redacted]. **<HIGHLY CONFIDENTIAL>**

Additionally, it appears these projects are not limited to the option to continue operating the Cayuga steam units. **<HIGHLY CONFIDENTIAL>** [redacted].[67] **<HIGHLY CONFIDENTIAL>** If Duke is going to undertake these projects whether Petitioner retires or extends the operation of the steam units, it is not appropriate to use these as justification for retiring Cayuga Units 1 and 2.

Q: Given your criticisms above, are you proposing a different overall cost estimate to compare continuing to operate Cayuga Units 1 and 2 to constructing the Cayuga CC Project?

A: No. Although ELG costs are not included in the $430 Million estimate, it is also not clear whether all the maintenance costs should be included in this analysis. Furthermore, it is uncertain whether Duke will incur these costs if the EPA reconsiders the ELGs, and these costs appear to have already been accounted for in Duke's 2024 IRP analysis. Therefore, the OUCC uses Duke's $430 Million estimate to compare the ratepayer impact incremental capital costs to continue operating Cayuga Units 1 and 2 to the Cayuga CC Project's estimated capital costs, as shown in OUCC witness Baker's analysis.

Q: Do you recommend Duke pursue compliance options for continuing to operate Cayuga Units 1 and 2?

[67] OUCC Attachment CMA-1-HC, Attachment 6.4-A; and OUCC Highly Confidential Workpaper CMA-WP1-HC.

A: Yes. I recommend Duke further investigate extending the lives of Cayuga Units 1 and 2 and the associated compliance projects necessary to accomplish this. The incremental capital costs for Cayuga's compliance and maintenance projects are more affordable than constructing the Cayuga CC Project. With the recent changes in the federal regulatory environment, continuing to operate the existing units has become a more viable option that could provide cost savings for Duke's ratepayers. With Indiana now having the 28th lowest electricity costs among states nationally,[68] options that offer the opportunity for lower electricity costs and ratepayer affordability should be fully investigated. Additionally, as discussed above, the directives of current federal and state administrations call for re-evaluating the life of coal plants, not discarding this option prematurely.

V. CONCLUSION

Q: Please summarize your recommendations.

A: In concert with recommendations other OUCC witnesses make, I recommend the Commission deny Duke's request for a CPCN for construction of the Cayuga CC Project as proposed. I also recommend Duke further evaluate the cost of extending the operation of the Cayuga coal units for another 10 years. As part of this evaluation, Duke should assume these units can operate beyond 2032 without the constraints of the 111 Rule. Additionally, Duke should take into account reduced compliance costs for other rules the EPA recently announced it is reconsidering.

Q: Does this conclude your testimony?

[68] Indiana Executive Order 25-50. "Ensuring Economic Opportunity and Indiana's Energy Future by Supporting Life Extensions for Coal Energy Generation and Assessing Natural Gas Supplies." (Signed April 10, 2025). Accessible at: https://www.in.gov/gov/newsroom/executive-orders/.

A: Yes.

APPENDIX A

Q: Summarize your professional background and experience.

A: I graduated from the University of Evansville in 2004 with a Bachelor of Science degree in Environmental Administration. I graduated from Indiana University, Bloomington in May 2007 with a Master of Public Affairs degree and a Master of Science degree in Environmental Science. I have also completed internships with the Environmental Affairs Department at Vectren in the spring of 2004, with the U.S. Environmental Protection Agency in the summer of 2005, and with the U.S. Department of the Interior in the summer of 2006. During my final year at Indiana University, I served as a research and teaching assistant for a Capstone course offered at the School of Public and Environmental Affairs. I also have obtained my OSHA Hazardous Operations and Emergency Response ("HAZWOPER") Certification. I have been employed by the OUCC since May 2007. During my time at the OUCC, I was promoted to a Senior Utility Analyst in 2012, to a Chief Technical Advisor in June 2022, and to an Assistant Director in August 2023. As part of my continuing education at the OUCC, I have attended both weeks of the National Association of Regulatory Utility Commissioners' ("NARUC") seminar in East Lansing, Michigan, the Indiana Chamber of Commerce's ("Indiana COC's") Environmental Permitting Conference, and the Indiana COC's annual Environmental Conferences since 2014.

Q: Describe some of your duties at the OUCC.

A: I review and analyze utilities' requests and file recommendations on behalf of consumers in utility proceedings. Depending on the case at hand, my duties may

also include analyzing state and federal regulations, evaluating rate design and tariffs, examining books and records, inspecting facilities, and preparing various studies. Since my expertise lies in environmental science and policy, I assist in many cases where environmental compliance is an issue.

AFFIRMATION

I affirm, under the penalties for perjury, that the foregoing representations are true.

Cynthia M. Armstrong

Cynthia M. Armstrong
Assistant Director-Electric Division
Indiana Office of Utility Consumer Counsel

Cause No. 46193
DEI, LLC

Date: May 8, 2025

Office of Utility Consumer Counselor
IURC Cause No. **46193**
Data Request Set No. 2
Received: 3/6/2025

CONFIDENTIAL RESPONSE
OUCC 2.10

Request:

On p. 28 of Duke Energy Indiana's Witness Kelley A. Karn's direct testimony, she states: "First, to overcome the issue of frequent derates of the units due to river temperature limits, continued operation of the units would require additional investments to address the issues with the existing cooling towers." On p. 5, Ms. Karn states that new cooling towers will be constructed as part of the Cayuga CC Project.

a. Would the new cooling towers planned for the CC Project also address the issues with the existing facility? If not, please explain why.
b. Would there be any cost difference in installing new cooling towers for the existing facility versus constructing new cooling towers for the new CC units? If so, what is the cost difference?
c. Please provide any and all internal or external studies that were conducted showing all cost estimates for new cooling towers for the existing coal units and new CC units.
d. Are the costs associated with the new cooling towers included in the overall cost estimate for the Cayuga CC Project?

Objection:

Duke Energy Indiana objects to this request as overly broad and vague in that it seeks "any and all internal or external studies…showing all cost estimates…."

Duke Energy Indiana also objects to the request on the grounds and to the extent the request seeks information that is trade secret or other proprietary, confidential, and competitively sensitive business information of Duke Energy Indiana, its customers, or third parties. Duke Energy Indiana has made reasonable efforts to maintain the confidentiality of this information. Such information has independent economic value and disclosure of the requested information would cause an identifiable harm to Duke Energy Indiana, its customers, or third parties. The responses are "trade secret" under law (Ind. Code § 24-2-3-2) and entitled to protection against disclosure. See also Indiana Trial Rule 26(C)(7). All responses containing designated confidential information are being provided pursuant to nondisclosure agreements between Duke Energy Indiana and the receiving parties.

Response:

Subject to and without waiving or limiting its objections, Duke Energy Indiana responds as follows:

a) No, the cooling towers planned for the Cayuga CC Project are designed specifically for the thermal cooling load of the CCs.
b) The indicative cost estimate of cooling towers designed for the existing coal units is <BEGIN CONFIDENTIAL> [redacted] <END CONFIDENTIAL>. The cooling towers for the Cayuga CC project is approximately <BEGIN CONFIDENTIAL> [redacted] <END CONFIDENTIAL> and therefore the total cost difference is <BEGIN CONFIDENTIAL> [redacted] <END CONFIDENTIAL>.
c) The cooling tower indicative cost estimate for the existing coal units is based on information included in the Cayuga Station Clean Water Act §316(b) Compliance Submittal (Attachment OUCC 2.10-A). The cost was derived from the Closed-Cycle Cooling Retrofit cost shown in Table 10-20 on page 174. The costs shown in the table are 2019 dollars and have been adjusted for the expected compliance timeline accordingly.

   The cost of the cooling towers for the Cayuga CC Project is shown in the table below. The table was derived from the EPC's bid estimate spreadsheet (Confidential Workpaper 1-JRS). For bulk items in the estimate, such as excavation or electrical/controls, factored contributions towards the cooling towers have been applied. The installation cost amount was factored similarly off the value of the overall equipment installation.

<BEGIN CONFIDENTIAL>

[redacted]

<END CONFIDENTIAL>

d) Assuming this request seeks information regarding cooling towers for the Cayuga CC Project, yes, the cost of the cooling towers is included in the overall cost estimate for the Cayuga CC Project.

Witness: Kelley A. Karn (part a) / John Robert Smith (parts b-d)

CONFIDENTIAL PER ACCESS TO
COURT RECORDS RULE 5

Office of Utility Consumer Counselor
IURC Cause No. 46193
Data Request Set No. 6
Received: 3/25/2025

HIGHLY CONFIDENTIAL RESPONSE
OUCC 6.04

Request:

On page 6, lines 15-17 of Witness Karn's direct testimony, she mentions the continued operation of the coal units would require approximately $430 million in additional environmental and maintenance costs. Please provide all information supporting this statement and give a detailed breakdown of what these costs are.

Objection:

Duke Energy Indiana objects to this request as term "all information" is vague and overly broad.

Duke Energy Indiana also objects to the request on the grounds and to the extent the request seeks information that is trade secret or other proprietary, confidential, and competitively sensitive business information of Duke Energy Indiana, its customers, or third parties. Duke Energy Indiana has made reasonable efforts to maintain the confidentiality of this information. Such information has independent economic value and disclosure of the requested information would cause an identifiable harm to Duke Energy Indiana, its customers, or third parties. The responses are "trade secret" under law (Ind. Code § 24-2-3-2) and entitled to protection against disclosure. See also Indiana Trial Rule 26(C)(7). All responses containing designated confidential information are being provided pursuant to nondisclosure agreements between Duke Energy Indiana and the receiving parties. **Please note that the highly confidential information contained and or referenced within this response cannot be provided to Intervenor Reliable Energy, Inc. ("REI") or any other competitive intervenor due to the competitive nature of the information**.

Response:

Subject to and without waiving or limiting its objections, Duke Energy Indiana responds as follows:

Projected additional environmental and maintenance include the estimated **<BEGIN CONFIDENTIAL>** [redacted] **<END CONFIDENTIAL>** closed cycle cooling system referenced in the Company's confidential response to OUCC 2.10 and approximately **<BEGIN HIGHLY CONFIDENTIAL>** [redacted]

[redacted] <END HIGHLY CONFIDENTIAL> See Highly Confidential Attachment OUCC 6.4-A. In addition to those costs, the continued burning of coal into the 2030s would require compliance with the 2020 Effluent Guidelines Rule and includes an estimated <BEGIN HIGHLY CONFIDENTIAL> [redacted] <END HIGHLY CONFIDENTIAL> of capital.

Witness: Kelley A. Karn

Office of Utility Consumer Counselor
IURC Cause No. 46193
Data Request Set No. 11
Received: March 28, 2025

HIGHLY CONFIDENTIAL RESPONSE
OUCC 11.01

Request:

Please refer to the direct testimony of Kelley Karn, page 28, lines 7-15, where she discusses why the Cayuga CC Project is more beneficial than converting the Cayuga coal plants to natural gas or co-firing the units with coal and natural gas. Please answer the following:

a. Would the cooling towers planned for the proposed CC units be sufficient to achieve compliance with Clean Water Act Section 316(a) and 316(b) if the existing units were converted to co-firing or natural gas? If not, please explain why.
b. If cooling towers were to be sized and constructed to allow conversion of the coal units to either operate 100% on natural gas or co-fire with coal, could these cooling towers also be used later to support operation of a CC or multiple CC units? Please explain why or why not.
c. What environmental controls would Duke Energy Indiana ("Duke") need to continue operating if the coal units were converted to natural gas firing units? What environmental controls could cease operation if the existing coal units were converted to natural gas firing units?
d. Did Duke have any meetings with the Indiana Department of Environmental Management to discuss what possible permit requirements may apply to Cayuga if it were to convert to co-firing or solely burning natural gas?
e. What is the estimated cost of the "significant ongoing maintenance capital investments" as Witness Karn uses this phrase on pg. 28 line 13 of her direct testimony, if the Cayuga coal fired units were converted to coal and natural gas co-firing units? What is the cost of the "significant ongoing maintenance capital investments" if the Cayuga coal fired units were to convert to natural gas fired units?
f. Please provide a detailed cost breakdown of the significant environmental and ongoing capital maintenance investments Ms. Karn refers to.
g. If Duke were to complete these significant environmental and capital maintenance projects, how long would they extend the life of Cayuga Units 1 and 2?
h. When was the last time Cayuga Unit 1's turbine was overhauled?
i. When was the last time Cayuga Unit 2's turbine was overhauled?

Objection:

Duke Energy Indiana objects to part g of this request as it calls for speculation.

Duke Energy Indiana further objects to the request on the grounds and to the extent the request seeks information that is trade secret or other proprietary, confidential, and competitively sensitive business information of Duke Energy Indiana, its customers, or third parties. Duke

Energy Indiana has made reasonable efforts to maintain the confidentiality of this information. Such information has independent economic value and disclosure of the requested information would cause an identifiable harm to Duke Energy Indiana, its customers, or third parties. The responses are "trade secret" under law (Ind. Code § 24-2-3-2) and entitled to protection against disclosure. See also Indiana Trial Rule 26(C)(7). All responses containing designated confidential information are being provided pursuant to nondisclosure agreements between Duke Energy Indiana and the receiving parties. **Please note that the highly confidential information contained and or referenced within this response cannot be provided to Intervenor Reliable Energy, Inc. ("REI") or any other competitive intervenor due to the competitive nature of the information**.

Response:

Subject to and without waiving or limiting its objections, Duke Energy Indiana responds as follows:

a. See the response to Confidential OUCC 2.10(a).
b. No, cooling towers designed for the existing units would be of a different configuration and location than what would be required for CC units.
c. Subject to additional studies regarding space constraints and existing flue gas paths, and assuming that the units were converted to 100% natural gas firing, likely only the SCR would be required to meet air permit limits. Particulate and sulfur dioxide emissions would not likely warrant the operation of the ESP and scrubber, respectively. However, the scrubber may need to be partially operated to provide flue gas cooling that could only be determined if an engineering study was performed.
d. There were no meetings between the Indiana Department of Environmental Management and Duke Energy Indiana to discuss environmental permitting requirements for possible gas co-firing or conversion to 100% natural gas firing at Cayuga.
e. In both cases, the estimated cost of the additional capital maintenance is about **<BEGIN HIGHLY CONFIDENTIAL>** [redacted] **<END HIGHLY CONFIDENTIAL>** as referenced in the Company's Highly Confidential Response to OUCC 6.04. This is in addition to the environmental and capital conversion or co-firing cost.
f. For the ongoing capital maintenance and environmental costs, see the Company's Highly Confidential Response to OUCC 6.04.
g. See objection. Answering further, the projects were developed with respect to currently known environmental rules and site conditions to allow the Cayuga Units 1 and 2 to operate an additional 5 – 15 years.
h. Cayuga Unit 1 steam turbine was last overhauled in the spring of 2022.
i. Cayuga Unit 2 steam turbine **<BEGIN HIGHLY CONFIDENTIAL>** [redacted] **<END HIGHLY CONFIDENTIAL>**.

Witness: Kelley A. Karn

OUCC Attachment CMA-1 contains an Excel file which is HIGHLY CONFIDENTIAL