STATE OF INDIANA

INDIANA UTILITY REGULATORY COMMISSION

PETITION OF DUKE ENERGY INDIANA, LLC PURSUANT TO IND. CODE §§ 8-1-2-42.7 AND 8-1-2-61, FOR (1) AUTHORITY TO MODIFY ITS RATES AND CHARGES FOR ELECTRIC UTILITY SERVICE THROUGH A MULTI-STEP RATE IMPLEMENTATION OF NEW RATES AND CHARGES USING A FORECASTED TEST PERIOD; (2) APPROVAL OF NEW SCHEDULES OF RATES AND CHARGES, GENERAL RULES AND REGULATIONS, AND RIDERS; (3) APPROVAL OF REVISED ELECTRIC DEPRECIATION RATES APPLICABLE TO ITS ELECTRIC PLANT IN SERVICE, AND APPROVAL OF REGULATORY ASSET TREATMENT UPON RETIREMENT OF THE COMPANY'S LAST COAL-FIRED STEAM GENERATION PLANT; (4) APPROVAL OF AN ADJUSTMENT TO THE COMPANY'S FAC RIDER TO TRACK COAL INVENTORY BALANCES; AND (5) APPROVAL OF NECESSARY AND APPROPRIATE ACCOUNTING RELIEF, INCLUDING AUTHORITY TO: (A) DEFER TO A REGULATORY ASSET EXPENSES ASSOCIATED WITH THE EDWARDSPORT CARBON CAPTURE AND SEQUESTRATION STUDY, (B) DEFER TO A REGULATORY ASSET COSTS INCURRED TO ACHIEVE ORGANIZATIONAL SAVINGS, AND (C) DEFER TO A REGULATORY ASSET OR LIABILITY, AS APPLICABLE, ALL CALCULATED INCOME TAX DIFFERENCES RESULTING FROM FUTURE CHANGES IN INCOME TAX RATES.	)	**CAUSE NO. 46038**

CONFIDENTIAL INFORMATION REDACTED

DIRECT TESTIMONY OF DEVI GLICK

ON BEHALF OF

CITIZENS ACTION COALITION OF INDIANA, INC.

JULY 11, 2024

TABLE OF CONTENTS

LIST OF ATTACHMENTS

DG-1: Resume of Devi Glick

DG-2: Public Data Request Responses and Attachments

DG-2-C: Confidential Data Request Responses and Attachments

LIST OF TABLES

LIST OF FIGURES

1. INTRODUCTION AND PURPOSE OF TESTIMONY

Q Please state your name and occupation.

A My name is Devi Glick. I am a Senior Principal at Synapse Energy Economics, Inc. ("Synapse"). My business address is 485 Massachusetts Avenue, Suite 3, Cambridge, Massachusetts 02139.

Q Please describe Synapse Energy Economics.

A Synapse is a research and consulting firm specializing in energy and environmental issues, including electric generation, transmission, and distribution system reliability, ratemaking and rate design, electric industry restructuring and market power, electricity market prices, stranded costs, efficiency, renewable energy, environmental quality, and nuclear power.

Synapse's clients include state consumer advocates, public utilities commission staff, attorneys general, environmental organizations, federal government agencies, and utilities.

Q Please summarize your work experience and educational background.

A At Synapse, I conduct economic analysis and write testimony and publications that focus on a variety of issues related to electric utilities. These issues include power plant economics, electric system dispatch, integrated resource planning, environmental compliance technologies and strategies, and valuation of distributed energy resources. I have submitted expert testimony in more than 60 regulatory dockets before state utility regulators in 20 states.

In the course of my work, I develop in-house models and perform analysis using industry-standard electricity power system models. I am proficient in the use of spreadsheet analysis tools, as well as optimization and electric dispatch models. I

have directly run EnCompass and PLEXOS and reviewed inputs and outputs for several other models.

Before joining Synapse, I worked at Rocky Mountain Institute, focusing on various energy and electricity issues. I have a master's degree in public policy and a master's degree in environmental science from the University of Michigan, as well as a bachelor's degree in environmental studies from Middlebury College. I have more than 11 years of professional experience as a consultant, researcher, and analyst. A copy of my current resume is attached as Attachment DG-1.

Q On whose behalf are you testifying in this case?

A I am testifying on behalf of Citizens Action Coalition of Indiana, Inc. ("CAC").

Q Have you testified before the Indiana Utility Regulatory Commission ("Commission" or "IURC")?

A Yes. I submitted testimony in Cause Nos. 38707-FAC123, 38707-FAC124, 38707-FAC125, and 38707-FAC123 S1.

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

A The purpose of my testimony is to review the reasonableness and prudence of Duke Energy Indiana, LLC's ("Duke" or the "Company") historical and projected utilization and operation of its coal plants, including its use of the supply offer adjustment mechanisms. I evaluate the Company's coal procurement strategy and its proposal to allow its coal inventory in rate base to fluctuate based on its actual inventory levels.

Q How is your testimony structured?

A In Section 2, I summarize my findings and recommendations for the Commission.

In Section 3, I summarize Duke's rate case asks for the Commission.

In Section 4, I evaluate Duke's historical utilization of its coal plants, its unit commitment and operational practices, and the plants' overall reliability. I then assess the reasonableness of the Company's projections for the plants' operations going forward, which are used as the basis for its future coal procurement plans.

In Section 5, I detail Duke's current and planned procurement strategy and discuss my concerns with, and the likely ratepayer impacts of, Duke's strategy of procuring coal at the upper limit of projections, use of the supply offer adjustment strategy, and request to allow its coal inventory in rate base to fluctuate up and down based on its actual inventory level.

Q What documents do you rely upon for your analysis, findings, and observations?

A My analysis relies primarily upon the workpapers, exhibits, and discovery responses provided by Duke, as well as publicly available data.

2. FINDINGS AND RECOMMENDATIONS

Q Please summarize your findings.

A My primary findings are:

1. Cayuga, Gibson, and Edwardsport have operated with low capacity factors and higher-than-average outage rates over the past five years.
2. Duke has approached and continues to approach its fuel supply constraints with a binary focus on strategies to mitigate the cost and volatility of its fuel supply—which come at a cost to ratepayers. Instead, Duke should approach this as an electricity supply issue and consider strategies to reduce its reliance on the constrained fuel.
3. Duke's forward-going projection of coal burning is higher than historical levels of coal burning, and the Company has not justified that this increase in coal generation will materialize or be economic for its ratepayers.
4. Duke's inflated coal burn projections and its choice to procure at the "upper end" of those projections have led it to enter into more coal contracts than it likely needs. The long-term nature of the contracts will reduce its ability to respond to changes in market dynamics.
5. The supply offer adjustment will enable Duke to uneconomically burn excess coal if it over-procures. The Company has provided no analysis demonstrating the value of the strategy historically or going forward.
6. Duke has not justified the value to ratepayers of its request to track rate base coal inventory through its Fuel Adjustment Clause ("FAC") filings and recover a return on inventory in excess of its approved amount.
7. Duke's plan to procure coal at the upper end of its projected need, the supply offer adjustment mechanisms, and the rate of return on excess inventory together create incentives for Duke to over-buy coal. This could result in uneconomic commitment and dispatch of its coal plants; and,

barring action by the Commission, all associated costs will be passed onto ratepayers.

8. Edwardsport has been expensive to maintain and will continue to be so. Duke has spent over $411 million in non-fuel operations and maintenance ("O&M") costs at Edwardsport over the past five years and plans to spend another $175 million in 2024-2025. Duke spent $100 million in capital costs and $80 million in O&M costs for just two outages to repair the gasifiers in 2020 and 2023.

Q Please summarize your recommendations.

A Based on my findings, I offer the following recommendations:

1. The Commission should instruct DEI to revise its coal burn projection to procure in the middle of its projected range rather than the upper end. It should also instruct Duke to provide transparent documentation for the methodology behind its projection and explain any substantial deviation between historical data and projected need.
2. The Commission should not approve DEI's proposal to track the level of coal inventory in rate base through its FAC filings and recover a return on excess inventory above the level included in rate base.
3. The Commission should advise Duke that it will not allow recovery in future FAC dockets of excess fuel costs incurred from uneconomic commitment and dispatch practices resulting from Duke's reliance on an inflated coal-burn projection.
4. The Commission should order Duke to evaluate alternative fuel and electricity supply strategies to mitigate the impacts of the coal supply constraints and minimize uneconomic commitment of its coal generating units. These should include seasonal operations, increased market energy and capacity purchases, and strategies to use Edwardsport as a fuel supply hedging tool, among others.

5. The Company should plan to operate Edwardsport on gas and operate on coal only when needed to manage coal oversupply. The Commission should advise Duke that, in future FAC dockets, it will disallow recovery of fuel costs above what it would cost to operate Edwardsport on the lowest operating cost resource (which is generally gas) unless there is documentation showing that the decision was prudently incurred to manage fuel supply.

3. DUKE IS REQUESTING TO DELAY RETIREMENT OF ITS COAL PLANTS AND CHANGE HOW IT RECOVERS THE COSTS OF ITS COAL INVENTORY

Q What is Duke proposing in this docket related to its coal plants?

A First, Duke is asking to include in rates the cost to operate and maintain Cayuga Units 1 and 2, the Edwardsport Integrated Gasification Combined Cycle ("IGCC") plant, and Gibson Units 1 through 5, including O&M costs, capital expenditures ("capex"), and fuel inventory costs. Second, the Company is asking to set new depreciation rates for the Gibson Units 1–5 consistent with delayed retirement dates for some of the units, and to align the retirement dates for Cayuga with the depreciation dates of 2028 and 2029, respectively (Edwardsport retirement dates and depreciation dates are unchanged). Third, the Company is asking to include a representative balance of its coal inventory in rate base and track the actual inventory balance through the Company's quarterly FAC filings.[1] Fourth, the Company asks for regulatory asset treatment of its share of the cost of studying the feasibility of CCS at Edwardsport.[2] Finally, Duke also requests cost recovery associated with its coal ash waste.[3]

Q What is the application test year?

A Duke is utilizing a forward-looking test period consisting of the 12 months ending December 31, 2025,[4] and a historical base period (2023).

[1] Company Petition at 12.
[2] *Id*. This issue is addressed in the Testimony of CAC witness Ben Inskeep.
[3] The CCR issues are addressed by CAC witnesses Inskeep and Frank.
[4] Company Petition at 11.

Q Provide an overview of Duke Energy Indiana's resource portfolio.

A Duke's latest EnCompass modeling results show that [redacted] percent of its generation currently comes from coal, gas, or oil, and only [redacted] percent from solar and wind.[5] Duke plans to continue relying on fossil fuels for [redacted] percent of its generation in 2030 and [redacted] percent in 2035.[6] By the end of the modeling horizon in 2044, [redacted] percent of generation still comes from fossil fuels.[7]

Q Please provide an overview of Duke Energy Indiana's coal units.

A Duke Energy Indiana has eight coal-burning units across three power plants (Table 2).

Cayuga Station, located in Vermillion County, consists of two coal-fired steam turbines that currently provide steam and power to a paper plant located next door.[8] Unit 1 came online in 1970 and Unit 2 in 1972.[9] Units 1 and 2 each have a nameplate capacity of 531 MW[10] and have rated capacities of 500 MW and 495 MW respectively.[11]

Edwardsport is an 813 MW IGCC plant located in Knox County.[12] Its rated summer capacity is 555 MW (68 percent of nameplate).[13] The plant was built in

[5] Duke Supplemental Response to CAC Request 2.54, Confidential Attachment CAC 2.54-A (Attachments DG-2 and DG-2-C).
[6] *Id*.
[7] *Id*.
[8] Duke Energy, Cayuga Station. https://www.duke-energy.com/Our-Company/About-Us/Power-Plants/Cayuga-Station.
[9] Direct Testimony of Luke, Attachment 17-B (WCL).
[10] EIA form 860, 2023 Early Release data. Available at: https://www.eia.gov/electricity/data/eia860/.
[11] Duke Response to SC Request 1.17(b) Attachment SC 1.17-B.xlsx (Attachment DG-2).
[12] EIA form 860, 2023 Early Release data. Available at: https://www.eia.gov/electricity/data/eia860/.
[13] Duke Response to SC Request 1.17(b), Attachment SC 1.17-B.xlsx (Attachment DG-2).

2013[14] and is capable of burning both natural gas and syngas produced onsite through the gasification of coal. When operating on syngas, the plant's output is 555 MW (summer). When operating on just gas, its output is 451 MW (summer).[15]

Gibson Station is located in Gibson County and consists of five coal-fired steam turbine units, each with a nameplate capacity of 668 MW.[16] Their rated capacities range from 620 to 630 MW, for a total of 3,132 MW.[17] The units were all built between 1975 and 1982.[18] Duke owns Gibson Unit 5 jointly with Wabash Valley Power Alliance and the Indiana Municipal Power agency and holds the majority ownership share of the unit (50.05 percent).[19]

Q What is the undepreciated balance at each plant?

A The net book value for each of the Company's coal plants, as of December 31, 2023, is shown in Table 1 below. The total net book value / undepreciated balance of the Company's coal fleet sums to over $4 billion. The undepreciated plant balances are relevant because utilities generally view them as barriers to retirement.

[14] Direct Testimony of Luke, Attachment 17-B (WCL).
[15] Duke Response to IG Request 3.01 (Attachment DG-2).
[16] EIA form 860, 2023 Early Release data. Available at: https://www.eia.gov/electricity/data/eia860/.
[17] Duke Response to SC 1.17(b), Attachment SC 1.17-B.xlsx (Attachment DG-2).
[18] Direct Testimony of Luke, Attachment 17-B (WCL).
[19] Duke Response to CAC Request 2.65 (Attachment DG-2); Direct Testimony of Luke at 40.

Table 1. Net book value of Duke's coal fleet[20]

Plant	Balance
Cayuga	$0.5 Billion
Edwardsport	$1.8 Billion
Gibson	$1.7 Billion

Q What is the Company's plan for each of these coal units?

A Duke requests delaying the retirement dates at Gibson Units 3, 4, and 5 by between 2 and 5 years each, and to align the depreciation schedule with the updated retirement dates. The Company also requests delaying the retirement date for the Cayuga units by 1 and 2 years. Table 2 below shows the prior and updated retirement date for each unit, the depreciation schedule from the current 2023 Depreciation Study, and the depreciation schedule from the 2019 Depreciation Study.

[20] Duke Response to Sierra Club Request 1.08(c) (Attachment DG-2).

Table 2. Coal unit retirement dates[21]

Unit	Type	Ownership Share	Rated Capacity (MW)	In-Service Year	Retirement Year - 2021 IRP Preferred Portfolio	Retirement Year - 2024 Rate Case	2023 Depreciation Study *(2019 study)*
Cayuga 1	Coal	100%	500	1970	2027	2028	2028
Cayuga 2	Coal	100%	495	1972	2027	2029	2029 *(2028)*
Edwardsport IGCC	Syngas CC	100%	555	2013	None*	2045	2045
Gibson 1	Coal	100%	630	1976	2035	2035	2038
Gibson 2	Coal	100%	630	1975	2035	2035	2038
Gibson 3	Coal	100%	630	1978	2029	2031	2034
Gibson 4	Coal	100%	622	1979	2029	2031	2034 *(2026)*
Gibson 5	Coal	50.05%	620	1982	2025	2030	2030 *(2034)*

**Assumes that coal gasification ends or carbon capture utilization and storage is implemented in 2035.*

Q What costs associated with each plant are included in the test year?

A Duke included $268.2 million in O&M and $101.5 million in capex for its coal fleet in the future test year (Table 3). The projected O&M costs are in the same ballpark as its historical O&M expenses while the future capital expenses are around half the level of historical capex spending.

[21] Sources: Direct Testimony of Luke, Attachment 17-B (WCL); Duke Response to SC Request 1.17, Attachment SC 1.17-B.xlsx (Attachment DG-2); Duke Energy Indiana 2021 IRP at 26; Duke Response to SC Request 1.14(a) (Attachment DG-2); Direct Testimony of Spanos, Attachment 12-A(JJS) at III-9; Direct Testimony of Spanos in Cause No. 45253, Exhibit 14-A(JJS) at III-8.

Table 3. Base period and test year O&M and capex[22]

	Historical Base Period (12 months ending August 2023)		Forward-Looking Test Year Forecast	
Station	**O&M**	**Capital Expenditures**	**O&M**	**Capital Expenditures**
Cayuga	$43,637,767	$12,251,365	$47,339,114	$13,507,298
Edwardsport	$91,180,618	$68,801,304	$89,505,716	$29,421,059
Gibson	$111,135,440	$138,170,554	$131,389,765	$58,605,492
Total	**$245,953,825**	**$219,223,224**	**$268,234,595**	**$101,533,850**

[22] Duke Second Supplemental Response to SC Request 1.04, Second Revised Attachment SC 1.4-A (Attachment DG-2).

4. IN RECENT YEARS, DUKE'S COAL PLANTS HAVE HAD LOW UTILIZATION LEVELS AND HIGH OUTAGE RATES, AND THE COMPANY HAS FACED ONGOING CHALLENGES MAINTAINING A STABLE COAL SUPPLY

Q How have Cayuga, Gibson, and Edwardsport been utilized over the past 5 years?

A The average capacity factor of Duke's coal units has consistently declined since 2018.[23] Historically, Duke's coal-fired units had an average capacity factor in the range of 60 to 70 percent.[24] Between 2020 and 2023, Cayuga and Gibson had average capacity factors of less than 50 percent,[25] and Edwardsport never exceeded 55 percent (Figure 1 and Figure 2). Duke attributed the decline in 2019–2020 to the COVID-19 pandemic and the sustained low capacity factors in 2021–2022 to post-pandemic coal supply constraints, which it stated were largely resolved by 2023.[26] Despite resolving supply chain challenges, Duke explained that its coal units continued to have low utilization in 2023 due to several large scheduled maintenance outages.[27] When asked how the pandemic impacted utilization in 2019, Duke stated that "a combination of more time in economic reserve, more time in scheduled outages, and somewhat more time in forced outages" caused the declining capacity factor from 2018–2019.[28] In other words, the units were less economically competitive, required more maintenance, and were less reliable than was expected and is standard. These are the characteristics of the resources that should be slated for retirement—not those for which a utility should sign long-term fuel contracts and lock in for five to ten more years.

[23] Direct Testimony of Luke at 15.

[24] *Id*.

[25] During this time period, the capacity factors of individual units ranged from 36–58 percent at Cayuga and 9–51 percent at Gibson.

[26] Direct Testimony of Luke at 15–16.

[27] *Id*. 16.

[28] Duke Response to CAC Request 3.07(b) (Attachment DG-2).

Figure 1. Capacity factor for Cayuga and Edwardsport 2018–2023[29]

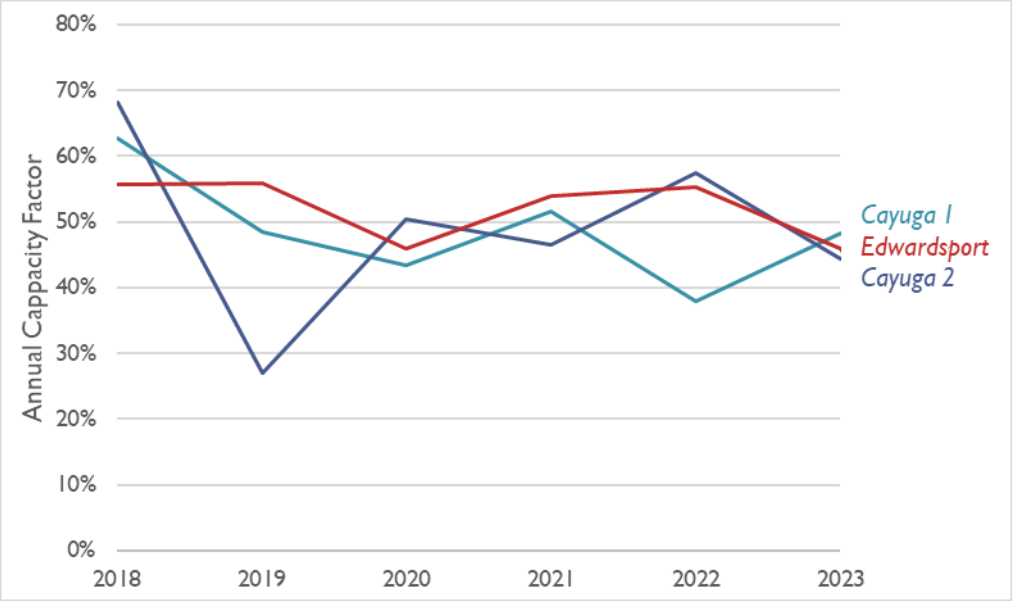
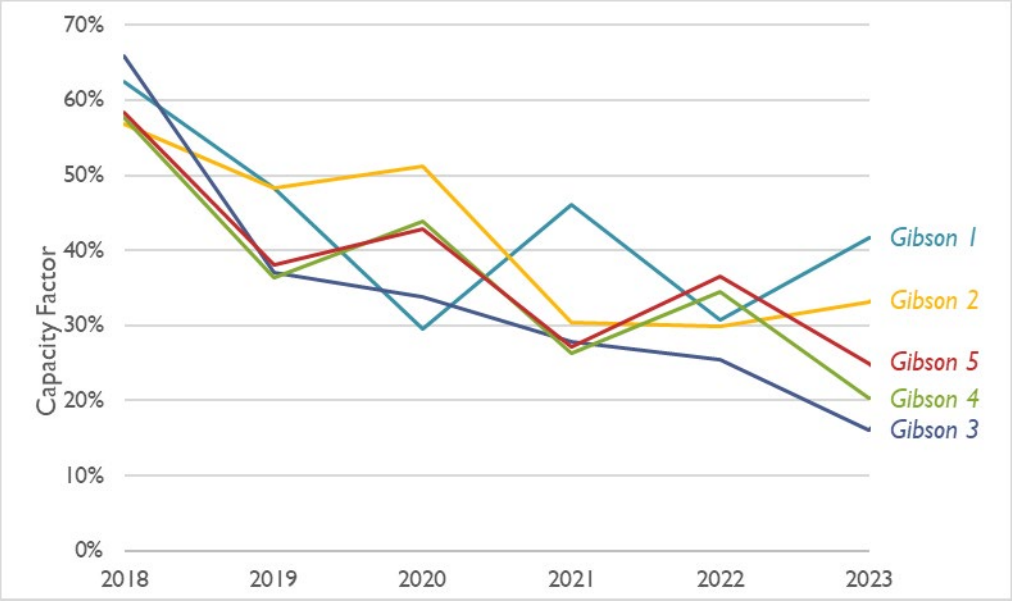


Figure 2. Capacity factor for Gibson 2018–2023[30]



[29] EIA Form 923 and EIA form 860, 2023 Early Release data.
[30] *Id*.

Q How reliable have Duke's coal plants been in recent years?

A Duke's coal units were relatively unreliable in recent years. The average Equivalent Forced Outage Rate ("EFOR") of Duke's coal units was worse than the North American Electric Reliability Corporation ("NERC") average for all years from 2018–2022.[31] Forced outage rates ("FOR") by unit are shown in Table 4 below.[32]

According to NERC's 2024 State of Reliability Technical Assessment, the weighted equivalent forced outage rate for all generators was 7.8 percent in 2023 and 12 percent for coal-fired generators, down from 13.9 percent for coal plants in 2022.[33] The EFOR for Duke's coal plants also improved in 2023 and some were better than the national average. Overall, the Gibson units had some of the highest unplanned outage rates, which each unit having a least one year since 2020 with an FOR above 10 percent.

[31] Direct Testimony of Luke at 12.

[32] FOR measures forced outage rates over the entire year. EFOR measures forced outage rates in the hours when the unit is needed. Duke did not provide unit-level EFOR or EFORd when asked in discovery.

[33] NERC, 2024 State of Reliability Technical Assessment at 57-59, June 2024, https://www.nerc.com/pa/RAPA/PA/Performance%20Analysis%20DL/NERC_SOR_2024_Technical_Assessment.pdf.

Table 4. Forced outage rates (FOR) for Duke's coal units[34]

	Forced Outage Rate (FOR)				
	2020	2021	2022	2023	2024 YTD
Cayuga Unit 1	3.35	4.70	5.26	8.93	0.14
Cayuga Unit 2	13.17	5.96	1.22	4.51	0.00
Edwardsport IGCC	2.22	1.60	0.14	0.18	0.00
Gibson Unit 1	34.93	8.55	6.19	0.90	0.06
Gibson Unit 2	5.83	15.77	9.22	4.01	0.00
Gibson Unit 3	9.27	8.46	11.04	13.97	0.00
Gibson Unit 4	19.17	11.52	9.84	6.00	0.00
Gibson Unit 5	7.47	14.13	15.54	1.91	0.02

Q Were there any notable outages in recent years?

A There was a major outage at Edwardsport from May through August 2020 to perform scheduled maintenance on the gasifiers and supporting gasification balance of the plant, combustion turbine, steam turbine, and other balance of plant equipment.[35] The outage cost $59.9 million in O&M costs[36] and $48.2 million in capital costs.

In 2023, there was a dual gasification outage; the plant remained operational on natural gas during the outage.[37] This outage cost $20.2 million in O&M costs and $51.6 million in capital costs.[38] Between these two outages, the Company spent over $80 million in O&M costs and just under $100 million in capital costs at Edwardsport.

[34] Duke Response to CAC Request 2.84, Attachment CAC 2.84-B (Attachment DG-2).
[35] Direct Testimony of Luke, at 7-8.
[36] *Id*. at 10.
[37] *Id*. at 11.
[38] Duke Response to CAC Request 3.05 (Attachment DG-2).

Q Are these costs unusual for the Edwardsport plant?

A No. Duke has already made approximately $499 million in capital additions to the Edwardsport plant from its in-service date through December 31, 2023.[39] The Company also incurred more than $411 million in non-fuel O&M costs at Edwardsport from 2020 through 2023 and anticipates incurring an additional $176 million in 2024 through 2025.[40] These O&M costs are very high compared to industry averages as calculated by Sargent and Lundy for the U.S. Energy Information Administration ("EIA"), especially considering the plant is only around a decade old (Table 5). These costs, and others, are avoidable with an early retirement.

Table 5. Duke O&M spending at Edwardsport compared to Sargent and Lundy industry averages[41]

	Duke's reported spending		**Sargent and Lundy industry averages**	
	Non-fuel O&M	$/kw-year	Non-fuel O&M	$/kw-year
2020	$151,121,563	$254	$61,516,182	$103
2021	$89,614,514	$151	$67,955,002	$114
2022	$83,344,359	$140	$69,100,579	$116
2023	$87,353,494	$157	$59,914,526	$108
2024	$86,982,019*			
2025	$89,505,716*			

Note: represents projected spending*

[39] Duke Response to IG Request 3.05(a) (Attachment DG-2).

[40] Duke Response to IG Request 3.03(a) (Attachment DG-2).

[41] Duke Response to IG Request 3.03(a) (Attachment DG-2); U.S. Energy Information Administration, Generating Unit Annual Capital and Life Extension Costs Analysis. Sargent and Lundy, December 2019. Available at https://www.eia.gov/analysis/studies/powerplants/generationcost/pdf/full_report.pdf

Q Are there other costs Duke is likely to incur at its coal fleet that are avoidable with plant retirement?

A Yes. The proposed extension of the operating life of Gibson 5 will necessitate additional investment in the unit's flue gas desulfurization (FGD) system to ensure stack emissions compliance post-2025.[42] Also, an additional HP/IP turbine major inspection will be necessary.[43] The combined cost of these upgrades is nearly $15 million (Table 6). These costs should be avoidable with early retirement.

Table 6. Maintenance costs at Gibson 5 that Duke will incur as a result of delayed retirement of the unit[44]

Maintenance Category	Expense Type	Cost ($M)
FGD maintenance	Capital investment	$7.3
	Outage O&M	$1.6
HP/IP turbine major inspection	Capital investment	$2.9
	Outage O&M	$3.0
Total		**$14.8**

Q Is Duke likely to see an improvement in the utilization, outage rates, or spending at its coal plants going forward?

A No, it is not likely Duke will see an improvement in its coal plants unless the Company changes how it thinks about the role of its coal fleet. NERC's 2024 State of the Market Report discussed the trend in increased outage rates at coal plants, attributing it to an increase in maintenance, a reduction in service hours, and an increase in cycling (in response to the changing resource mix) that all result in increased forced outage rates. NERC's analysis shows that baseload coal plants that operate below 60 percent capacity factor—as all Duke's coal units did between 2020 and 2023—experience a disproportionate increase in outage rates.

[42] Direct Testimony of Luke at 27.
[43] Duke Response to CAC Request 3.09(d) (Attachment DG-2).
[44] Duke Response to CAC Requests 3.09(a), (b), and (d) (Attachment DG-2).

In the context of the changing grid, Duke is putting its ratepayers in a lose-lose situation by relying so heavily on its coal assets. If it reduces operations at its coal plants in response to market signals, it will risk increasing the units' unplanned outage rates. On the other hand, if it maintains high utilization at its coal plants, it will incur high uneconomic operating costs. The only way to reduce both cost and risk to its ratepayers is to reduce how much it relies on its coal fleet (reduce operations and reduce system coal capacity) and to be intentional about when it does use its coal assets.

Seasonal operation, for example, would allow the utility to operate the unit just during times of year when it needs the capacity most. This would allow it to minimize cycling during times with lower demand. This would be much easier for Duke to do with the introduction of the Midcontinent Independent System Operator's ("MISO") seasonal capacity accreditation reform, which began with the 2023–2024 planning year. However, there is no evidence that Duke is considering a change in its operational practices at its coal fleet.

Q How are coal plants committed and dispatched in the MISO market?

A In MISO, utilities generally commit dispatchable generating units with a status of "economic"[45] thereby making the market operator responsible for unit commitment decisions.[46] While maintaining system reliability, the market operator makes

[45] MISO has five commitment statuses: outage, emergency, economic, must-run, and not participating. When a unit "self-commits" or operates as "must-run," this means the utility, in this case Duke, is independently deciding to operate a unit up to its minimum capacity regardless of whether MISO determines that it is economic to do so. In contrast, under economic commitment, MISO algorithms that take into account a unit's projected operational costs determine whether the unit will be online the next day.

[46] In my testimony, I will use the term "unit commitment" to refer to the decision made by the utility or the market on whether to operate a unit at its minimum operating level and therefore make it available to the market. I will use the term "unit dispatch" to refer to the decision by the utility or the market on how to operate a unit above its minimum operating level once the unit has been committed online.

operational decisions based on short-term economics to ensure customers are served by the lowest-cost resources. For units with long startup and shut-down times, such as coal plants, however, utilities may elect to maintain control of unit commitment decisions, designing independent processes outside of the MISO market to determine when to commit a unit at its minimum operating level.[47] Unlike the market operator, generation owners may choose not to incorporate costs into their decision-making processes and may elect to commit units as "must-run," regardless of economics.

A unit designated as must-run will operate at least at its minimum operating level. The market operator may then ramp the unit up from that minimum operating level, but a must-run designation ensures the unit remains online. During that time, it receives market revenue (and incurs incumbent operational costs) but does not set the market price of energy. Similarly, if the market price of energy falls below its operational cost, it will not turn off and can incur losses. As such, to net a benefit from the decision to commit a unit into the market, an operator must create market price projections. Utilities that elect to self-commit slow-ramp coal units may conduct a projection of market prices extending several days into the future to ensure that a commitment election has a likely net positive outcome.

Q How has Duke been committing its coal plants in recent years?

A As shown in Confidential Table 7 below, Duke has committed its plants with a must-run status [redacted] each was available in each of the past two years. Specifically, the Company self-committed Edwardsport with a must-run status [redacted] of the time that the plant was available in 2022–2023 and

[47] Minimum operating level is an output threshold often determined operationally and below which a generator is either less stable or operates inefficiently. Once the unit commitment decision is made, the level of generation output (above the minimum) is generally left to the market. The operating level is based upon the marginal running cost assumptions the owner provides in the form of offers or bids to MISO.

continues to do so in 2024. At Cayuga, Duke self-committed the units [redacted] they were available in 2022–2023, and again so far in 2024. At Gibson as well, Duke self-committed the units [redacted] they were available between 2022–2023. Only in 2024 do we see a decrease in self-commitment at Gibson Units 3–5; Units 1 and 2 are still regularly self-committed. This practice of self-commitment is concerning because plants that are committed with must-run commitment status are operated at at least the minimum operating level, regardless of economics.

Confidential Table 7. Commitment status during hours of the year when the unit was available (not in outage)[48]

	2022		2023		2024	
Units	**Economic**	**Must run**	**Economic**	**Must run**	**Economic**	**Must run**
Cayuga Unit 1	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
Cayuga Unit 2	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
Edwardsport IGCC	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
Gibson Unit 1	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
Gibson Unit 2	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
Gibson Unit 3	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
Gibson Unit 4	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
Gibson Unit 5	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]

Q How did Duke's coal plants perform in the market in recent years?

A Based on the Company's annual average production cost[49] and annual market revenues,[50] the Company's coal fleet generally earned positive net market revenues

[48] Calculated based on Duke Response to Sierra Club Request 1.16, Confidential Attachment SC 1.16A (Attachments DG-2 and DG-2-C).

[49] Duke Response to CAC Requests 2.66 (Attachment DG-2).

[50] Duke Response to CAC Data 2.84(c), (e), (k), (m) (Attachment DG-2); Confidential Attachment CAC 2.84-B (Attachment DG-2-C).

in 2022–2024 (to date).[51] Market revenues were elevated in 2022 due to abnormally high energy market prices that were driven by Covid and then the war in Ukraine. Market revenues were much lower in 2023 and 2024 to date. Gibson Units 2 and 5 did incur net negative revenues in 2023.

Looking at each plant's monthly performance between 2022 and the beginning of 2024, I find that each plant experienced periods of uneconomic operation, where ratepayers would have been better off if the plant had not operated in a given month. At Edwardsport, I find that the plant's annual production cost[52] exceeded its market revenues[53] (on a $/MWh basis) during [redacted]. At Cayuga, the annual production cost for both Unit 1 and Unit 2 exceeded its market revenues for [redacted] in avoidable losses. At Gibson, [redacted] (Confidential Table 8).[54] [redacted]

[51] I use actual production instead of marginal fuel cost. Because Duke utilizes supply offer adjustment mechanisms, its incremental costs do not reflect the Company's actual incremental cost of fuel.

[52] Calculated based on Duke Confidential Response to CAC Request 2.66; Duke Response to OUCC 8.1, Confidential Attachment OUCC 8.1 (Attachments DG-2 and DG-2-C).

[53] Calculated based on Duke Response to Sierra Club Request 1.16, Confidential Attachment 1.16-A; Duke Response to Sierra Club Request 1.19 (Attachments DG-2 and DG_2C).

[54] Calculated based on Duke Response to Sierra Club Request 1.16, Confidential Attachment 1.16-A; Duke Response to Sierra Club Request 1.19, Confidential Attachment 1-19-A; Duke Confidential Response to CAC Request 2.66 (Attachments DG-2 and DG_2C).

Confidential Table 8. Net revenue at Gibson in months with losses[55]

	2022	2023	2024
Gibson 1	[redacted]		
Gibson 2			
Gibson 3			
Gibson 4			
Gibson 5			
Total			

Q How did Duke operate Edwardsport in recent years?

A As shown in Confidential Table 9 below, Duke operated Edwardsport on coal—burning either syngas only, or co-firing on both coal and natural gas—[redacted]. In 2023, one of the gasifiers was in outage, so Duke operated the unit on natural gas only for about a quarter of the year. This period of operation [redacted]. In total, [redacted] If Duke had instead operated the plant on coal for the year, its net revenues [redacted]. In other words, the gasifier outage, which forced Duke to operate the plant on gas, [redacted] relative to what Duke would have paid to operate the unit just on coal in 2023.

[55] Source: Calculated based on Duke Response to Sierra Club Request 1.16, Confidential Attachment 1.16-A; Duke Response to Sierra Club Request 1.19, Confidential Attachment 1.19-A; Duke Confidential Response to CAC Request 2.66 (Attachments DG-2 and DG-2-C).

Confidential Table 9. Edwardsport hours operated on each fuel[56]

	2019	2020	2021	2022	2023
Syngas Only	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
Co-Fire	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
Nat Gas Only	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
All Off-Line	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]

This is concerning because, except for a period in 2021 and 2022, it is substantially cheaper for Duke to operate the plant on gas than on coal (in 2023, the production cost of Edwardsport on coal was $30.88/MWh while the cost on gas was only $26.79/MWh).[57] This has been the case for years and barring another global conflict, it should continue to be the case. Duke should be responding to market signals when deciding which fuel to use at the plant—not locking its ratepayers into long-term coal contracts.

Q How stable has Duke's coal supply been in recent years?

A According to Duke's witness, the Company had a number of challenges with its fuel supply in recent years.[58] These include:

1. Inability of coal suppliers to react to changes in demand in a timely manner;
2. Natural gas and power price volatility;
3. Pending federal environmental regulation of coal-fired power plants;
4. Global demand for thermal and metallurgical coal, and shifts towards greater production of metallurgical rather than thermal coal;
5. Tightened access to financing; and
6. Labor and resource constraints, including threats of rail strikes.

[56] Duke Response to OUCC Data Request 8.1, Confidential Attachment OUCC 8.1-A_Edwardsport (Attachments DG-2 and DG-2-C).
[57] Duke Response to CAC Request 2.66 (Attachment DG-2).
[58] Direct Testimony of Verderame at 6.

Despite Duke's discussion of fuel supply challenges, the Company also acknowledged that at no time have any of its plants been unable to operate due to constraints on coal deliveries and that when the Company did face supply constraints in the summer of 2021, it was able to successfully procure coal in the spot market.[59]

Q What has Duke done to manage its unstable coal supply?

A Starting in March 2020, Duke utilized decrement pricing to manage its coal supply.[60] With decrement pricing, the Company artificially deflated the cost of dispatching its coal plants so that they would run more and reduce its oversupply. The Company incurred costs to store excess coal, defer delivery of coal, and even refuse delivery of coal. Duke used the decrement pricing to avoid or reduce its surplus coal inventories. It claimed this strategy would benefit ratepayers because increasing dispatch of the units allowed it to avoid higher cost alternatives to manage its inventory.[61] It then switched to a supply offer adjustment strategy in 2021 (as discussed below).[62]

Q How is Duke's current situation different from when it first began using decrement pricing in 2021, and which was approved by the Commission in the past?

A Back in 2021, in FAC proceedings 123–125, Duke was dealing with oversupply challenges resulting from the COVID pandemic that were arguably not entirely foreseeable. In the present, however, Duke is clear that it plans to deliberately over-

[59] Duke Response to CAC Request 3.08(b) (Attachment DG-2).
[60] Cause No. 38707-FAC124. Direct Testimony of John Swez at 18.
[61] *Id*. at. 16.
[62] Duke Response to CAC Request 5.01(b) (Attachment DG-2).

forecast coal burns and purchase coal at the upper end of its need. This is likely to lead to a foreseeable oversupply.

Q Does Duke have alternatives for managing its coal supply that would help avoid oversupply issues?

A Yes. When facing fuel supply constraints or cost challenges, there are two general approaches a utility can take: (1) implement strategies to mitigate the cost and volatility of the fuel supply—which come at a cost premium to ratepayers; and (2) reduce how much it relies on the constrained fuel. My concern is that Duke is acting like its coal plants are locked in, and the only option is to manage its fuel supply. In the process, Duke is locking ratepayers into this strategy by switching towards long-term fuel contracts.[63] Duke is ignoring the second, more prudent approach, which is to reduce how much it relies on its coal resources. As I will discuss more throughout this testimony, Duke can do this by reducing its uneconomic commitment practices, evaluating a switch to seasonal operations, diversifying its generation mix, and increasing reliance on market energy and capacity purchases and other economic alternatives. Duke has done no analysis to show that its proposed fuel strategy is lower cost or better for customers than reducing reliance on coal.

[63] Duke Response to CAC Request 3.10(e) (Attachment DG-2).

5. DUKE'S OPERATIONAL PROJECTIONS AND PROCUREMENT PLANS FOR ITS COAL PLANTS GOING FORWARD ARE NOT IN THE BEST INTEREST OF RATEPAYERS

i. Duke's projections of future utilization levels at its coal fleet are unrealistically high

Q How does Duke project coal unit generation levels and fuel needs?

A Duke uses several tools to project its coal plant utilization.

First, for its long-term resource planning, Duke utilizes the EnCompass capacity expansion and production cost model. The Company utilizes EnCompass in its integrated resource planning ("IRP") process.

Second, Duke utilizes the Fleet Analytics Stochastic Tool ("FAST") stochastic production cost model to inform fuel procurement.[64] FAST is Duke Energy's configuration of the PowerSimm production cost model developed by Ascend Analytics.[65] This is the tool that the Company uses to develop the forecast used in its quarterly FAC filings.[66] Duke enters the capacity, fuel, heat rate, and emissions rate of each plant, and the model produces forecasts of commitment status, projected dispatch fuel cost for each unit, planned outages, anticipated forced

[64] Duke stated in discovery that it began using FAST in April 2023 and previously used a deterministic model (Duke Response to OUCC 22.22 (Attachment DG-2)). However, there is conflicting information elsewhere in discovery about when Duke began using a stochastic modeling process. See, for example, Duke Response to CAC 3.11, Confidential Attachment CAC 3.11-A (Attachments DG-2 and DG-2C).

[65] Duke Response to CAC Request 11.01 (Attachment DG-2).

[66] Direct Testimony of John Swez at 15.

outage rates, the market value for emission allowances, the market price for energy, and the Company's load forecast for native load and other customers.[67]

Q How does Duke plan to operate its coal fleet in the coming years?

A Duke projects (based on the EnCompass model (Confidential Figure 3)) that the utilization of its coal units will [redacted].[68,69] Utilization of Edwardsport especially [redacted].[70]

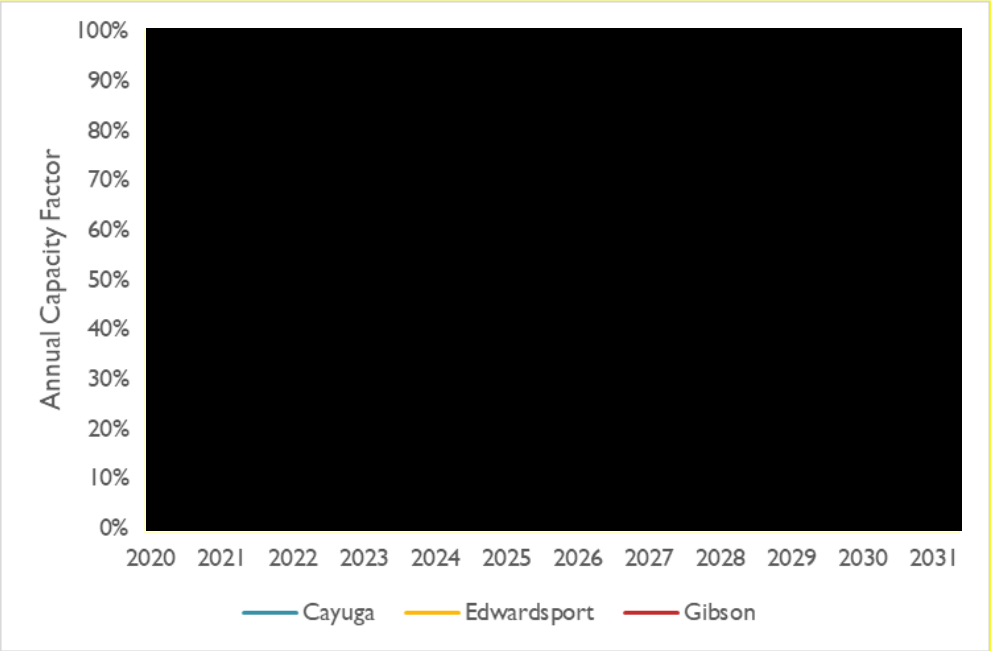
[67] *Id*.

[68] Duke Response to CAC Request 12.02(a) (Attachment DG-2).

[69] In Duke's Response to CAC Request 12.02(b) (Attachment DG-2), Duke indicated that it did not have a FAST forecast for generation at Cayuga, Gibson, and Edwardsport broken out by year and unit. This is concerning because the FAST model is the basis of Duke's fuel purchasing decisions.

[70] Duke Supplemental Response to CAC Request 2.54, Confidential Attachment CAC 2.54-A (Attachments DG-2 and DG-C).

Confidential Figure 3. Duke's actual and projected capacity factors for its coal plants[71]

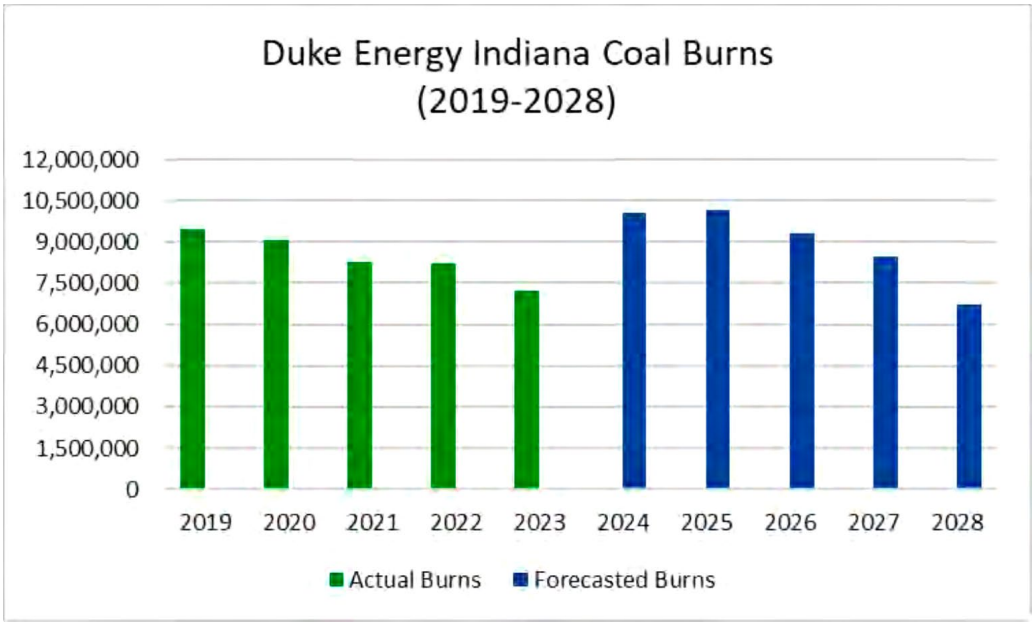


Q How much coal does Duke project it will need over the next five years?

A Duke has historically averaged 8.4 million tons of coal for each of the last five years. In 2024 and 2025, Duke projects that total coal usage will jump to more than 10 million tons per year, and from 2024 through 2028, Duke projects it will use an annual average of 8.9 million tons.

[71] Duke Response to SC Request 1.17, "Attachment 1.17-B.xlsx"; Duke Response to SC Request 1.18-C, "Confidential Attachment SC 1.18-A.xlsx" (Attachments DG-2 and DG-2-C); EIA Form 860, 2023 Early Release Data.

Figure 4. Duke projection of coal burn levels[72]



Q How does Duke explain the substantial jump in utilization and projected coal burns in 2024 relative to 2023?

A Duke argues that it expects ideal conditions for coal plants to return in 2024. It lists a number of challenges the units have faced over the past five years: demand reduction caused by COVID-19; followed by coal supply chain issues; followed by declining gas prices, moderate weather, and coal unit maintenance outages.[73] Rather than interpreting this sequence of challenges as a sign that its coal units are not well-adapted to current power sector needs, Duke insists that coal burning in 2024 will rebound to a higher annual level than it saw in the entire period 2019–2023 (Figure 4).

[72] Source: Direct Testimony of Verderame at 4.

[73] Duke Response to CAC 11.02 (Attachment DG-2).

From January to March 2024 (the last month for which Duke provided data), the actual capacity factors of Cayuga, Edwardsport, and Gibson were substantially lower than what Duke had projected for this time period (Confidential Table 10).

Confidential Table 10. Actual capacity factor of coal units in 2024 compared to Duke projection[74]

	Actual Capacity Factor Jan–Mar 2024	Projected 2024 Capacity Factor
Cayuga	[redacted]	[redacted]
Edwardsport	[redacted]	[redacted]
Gibson	[redacted]	[redacted]

Q What are the driving factors behind both Duke's actual and projected utilization of its coal plants?

A Actual utilization at Duke's coal plants is driven by several factors, including actual market prices, demand, unit costs, supply adjustment pricing, outages, and external market factors.

Forward-going market price projections are produced by the FAST model. Results are driven by input projections of coal costs, other variable operating costs, supply adjustment pricing, outage projections, and demand projections.

Q Historically, how close has Duke been with its projections of future coal consumption?

A As shown in Confidential Table 11, Duke's projection of its coal use in 2023 was [redacted] than its actual coal use was that year. In discovery, the Company provided several coal burn forecasts that it created from 2021–2023 (Confidential

[74] Duke Response to SC Request 1.17-B, "Attachment 1.17-B.xlsx"; Duke Response to SC Request 1.18(c), "Confidential Attachment SC 1.18-A.xlsx" (Attachments DG-2 and DG-2-C); EIA Form 860, 2023 Early Release Data.

Figure 5).[75] The Company's most recent projection, from December 2023 (shown in red in the figure below), [redacted]

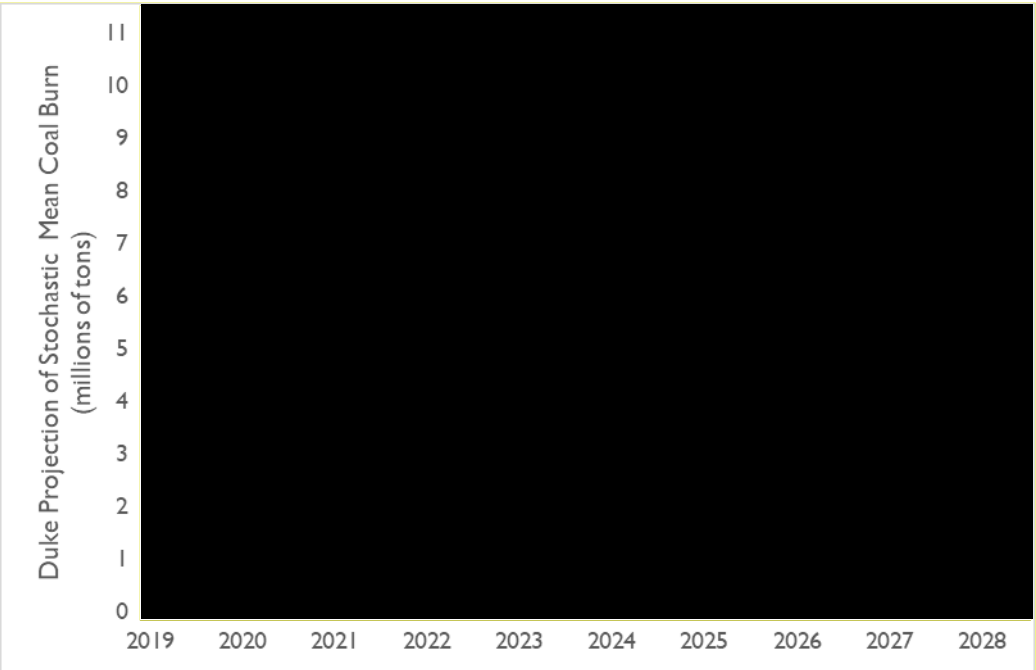
Confidential Table 11. Actual vs. projected coal burns in 2023[76]

	Actual Coal Burns (tons)	**Projected Coal Burns (2023)**	**Percent Difference**
Cayuga	[redacted]	[redacted]	[redacted]
Edwardsport IGCC			
Gibson			
Total System			

[75] In response to OUCC 22.22 (Attachment DG-2), Duke stated that it began using FAST in April 2023, which would imply projections from 2021 and 2022 were produced using a prior stochastic model. However, this conflicts with information that Duke provided elsewhere in discovery (e.g., the Company response to CAC 3.11, Confidential Attachment CAC 3.11-A (Attachments DG-2 and DG-2-C)). Either way, Duke's latest projection, from December 2023, appears to be the most extreme overestimate out of all the projections it provided.

[76] Duke Response to CAC Request 2.83, "Confidential Attachment CAC 2.83-A.xlsx" (Attachments DG-2 and DG-2-C).

Confidential Figure 5. Duke's projections of stochastic mean coal burn compared to historical data[77]



The onus is on Duke to calibrate its model correctly and make corrections going forward. It is understandable for Duke to be wrong in its projections for a given time. It is not reasonable for Duke to continually over-project and not use that information as feedback in its system to improve the accuracy of its future projections. I appreciate that Duke took the step to transition to a new stochastic model. The Company should be vigilant and monitor how accurately the model is projecting coal supply needs and utilization going forward, and it should make updates as needed.

Further, over-projecting and accumulating an oversupply is not an effective hedge against price or supply volatility in the coal or gas volatility. While it does decrease the likelihood that the Company will face a coal shortage, the Company has

[77] Duke Response to IG Request 4.1, Confidential Attachments IG 4.1-G, H, and I; Duke Confidential Response to CAC Request 2.53 (d) and (e) (Attachments DG-2 and DG-2-C).

provided no analysis on either the cost and risk of a shortage, or the cost of storing and handling an oversupply and increasing dispatch of the plants to use up the oversupply. Additionally, as discussed above, there has been no time when Duke could not operate due to constraints on coal deliveries.[78]

ii. Duke's use of a supply offer adjustment strategy results in uneconomic operation of its coal plants and could allow Duke to maintain an oversupply of coal at the expense of ratepayers

Q What is the supply offer adjustment strategy?

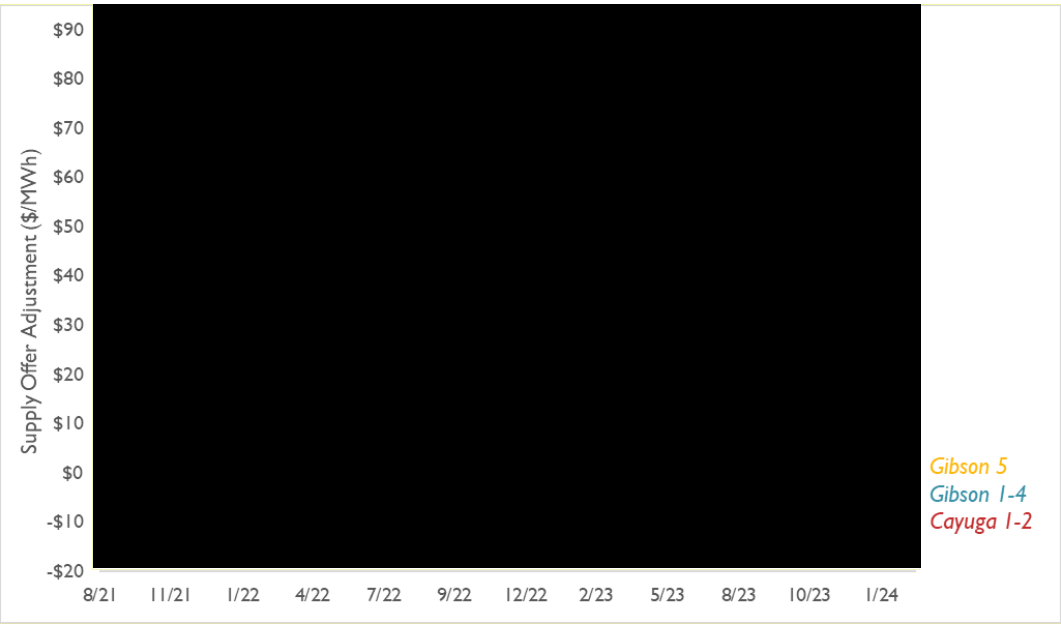
A The supply offer adjustment strategy allows Duke to adjust the coal cost that it uses to calculate a unit's offer into the MISO market.[79] Duke has used this adjustment at Gibson since August 2021 and Cayuga since October 2021.[80] As discussed above, Duke claims it is analogous to the older decrement pricing methodology that Duke introduced in March of2020,[81] but that it uses a "more sophisticated model."[82]

[redacted].[83]

[redacted].[84]

[78] Duke Response to CAC Request 3.08(b) (Attachment DG-2).
[79] Duke Response to CAC Request 7.02(a) (Attachment DG-2).
[80] Duke Response to CAC Request 5.01(b) (Attachment DG-2).
[81] Case No. 38797-FAC124. Direct Testimony of John Swez at 19.
[82] Duke Response to CAC Request 5.01(i) (Attachment DG-2).
[83] Duke Response to CAC Request 3.11(a), Confidential Attachment CAC 3.11-A.xlsx (Attachments DG-2 and DG-2-C).
[84] *Id*.

Confidential Figure 6. Historical supply offer adjustments at Gibson and Cayuga[85]



Q How often has Duke used the supply offer adjustment strategy?

A Duke has used the supply offer adjustment at Gibson since August 2021 and Cayuga since October 2021.[86] More specifically, Duke has used the strategy at [redacted].[87] [redacted].[88] Duke indicated that it expects to continue utilizing the adjustment at Gibson Units 1–5 and Cayuga Units 1–2 as a normal course of business.[89]

[85] Duke Response to CAC Request 3.11(a), "Confidential Attachment CAC 3.11-A.xlsx (Attachments DG-2 and DG-2-C).

[86] Duke Response to CAC Request 5.01(b) (Attachment DG-2).

[87] Duke Response to IG Request 4.3(a), Confidential Attachments IG 4.3(a) through IG 4.3 (j) (Attachments DG-2 and DG-2-C).

[88] *Id*.

[89] Duke Response to CAC Request 5.01(f) (Attachment DG-2).

Q What is the impact of the supply offer adjustment strategy on ratepayers?

A Duke claims that the strategy allows the Company to maintain a stable coal supply while balancing fuel security and economic considerations.[90] Such a mechanism is reasonable in theory in specific circumstances (and when coupled with analysis to demonstrate the value of the strategy)—mainly if (1) Duke was locked into its coal plants with no alternatives and (2) Duke needed to resolve a short-term emergency surplus. But Duke is not facing either of those circumstances. It has alternative ways to manage how much it needs to operate its coal plants, it has alternative sources of energy and capacity in both the short and long terms, and it is not currently using any off-site storage facilities[91] so it does not have a near-term emergency oversupply. In short, the Company has other, cheaper ways to ensure the security of its fuel and energy supply.

While Duke indicated that it plans to continue using the adjustment as a normal course of business.[92] Duke has not done enough to consider alternative electricity supply options and even fuel management options to reduce how much it relies on this fuel (such as seasonal operations). Nor has it taken steps to ensure that its coal burn projections and purchases reasonably reflect what the Company would likely burn if it were committing its coal units economically.

And Duke is not using the adjustment mechanism in isolation. The Company is asking for approval of multiple measures in this rate case: (1) to set rate base inventory levels at the upper end of its projections, and (2) to include excess inventory above approved levels in rate base. Approval of these two measures will essentially shield Duke from oversight and responsibility in the FAC dockets if it over-procures coal and allow it to collect a rate of return on excess inventory. When coupled with the supply offer adjustment mechanism, Duke will also be

[90] Duke Response to CAC Request 5.01(a) (Attachment DG-2).
[91] Duke Response to CAC Request 5.02(a) (Attachment DG-2).
[92] Duke Response to CAC Request 5.01(f) (Attachment DG-2).

allowed to ignore market economics when operating the units and not have to justify any excess operational costs incurred as a result in subsequent FAC dockets. If the Commission approves these measures, it is essentially taking the burden of proof off of Duke to ever defend its coal procurement or operational decisions at its coal plants.

Q Has Duke provided any analysis showing that the supply offer adjustment strategy provided value to ratepayers?

A No. When asked directly about the value the strategy has provided to ratepayers, Duke responded, "The Company is unable to determine the specific cost associated with the supply offer adjustment."[93] This means Duke is asking the Commission to continue to allow it to use a strategy to uneconomically commit and dispatch its power plants at the expense of ratepayers without being able to demonstrate or quantify the value of the strategy. While it is true that Duke would have to make certain assumptions to quantify the benefits of the strategy, Duke has sufficient information to estimate the value. The main pieces of information it needs are the following:

1. All the times it used the mechanism, the units, and MWh to which it was applied;
2. The costs it avoided from oversupply (storage costs and must-take penalties);
3. The spot market prices it avoided at times when it faced a shortage; and
4. The $/MWh adjustment it applied to each MWh, resulting in the difference between costs incurred and revenue earned in the market with and without the mechanism every time the mechanism was used.

Any other uncertain or larger market impacts, while important, are not significant enough to warrant not performing an analysis.

[93] Duke Response to CAC Request 3.12 (Attachment DG-2).

Q Are there other ways Duke could reduce the impact of coal supply issues on ratepayers?

A Yes. As discussed throughout this testimony, Duke is approaching this primarily as a fuel supply issue, not an electricity supply issue. There are other ways Duke could reduce the impacts. The Company could set its inventory levels based on the middle of its projections rather than at the upper end. Operationally, Duke could economically commit its coal plants to reduce their utilization (either using the market economic commitment status or using the Company's own internal analysis and only committing a plant when it is projected to be economic) or switch to only seasonal operations. It could negotiate coal supply agreements that allow it to utilize Edwardsport as a supply hedge (as discussed later) and primarily run the plant on gas. It could increase market purchases and decrease its need to rely on its coal plants for energy. And it could retire the plants and replace them with alternatives that do not rely on such an uncertain fuel supply, such as solar and wind paired with peaking capacity resources.

iii. Duke's coal procurement strategy is likely to result in an oversupply of coal, which could, in turn, result in the need to over-commit and dispatch the units to manage the oversupply at the expense of ratepayers

Q Please explain the Company's coal procurement strategy.

A Duke bases its target procurement levels on the stochastic mean coal forecast. It also incorporates the P25 and P75[94] projections into its forecast.[95] Since late 2021, Duke has used the coal hedging targets in Confidential Table 12 to guide the amount of coal that it secures through long-term contracts.[96] For example, Duke aims to secure [redacted]. Whatever coal the Company needs that it has not contracted through long-term agreements, it buys from the spot market.

Confidential Table 12. Duke coal hedging targets[97]

Prompt to 12 Months	13-24 Months	25-36 Months	37-48 Months	49-60 Months	Beyond 60 Months
[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]

[94] The stochastic mean (P50) represents a level where Duke anticipates that there is a 50 percent chance that fuel burns will be higher, and a 50 percent chance that fuel burns will be lower than the level projected. P25 and P75 refers to a probabilistic output of the model at the forecasted 25th percentile and 75th percentile range of outcomes. P25 represents a level where there should be a 75 percent chance that the fuel burn will exceed the estimate, while P75 represents a level where there should be a 75 percent change that fuel burns are less than the estimate.

[95] Direct Testimony of Verderame at 7.

[96] Duke Response to IG Request 4.1(i) Confidential Attachment IG 4.3-I at 22 (Attachments DG-2 and DG-2-C).

[97] Duke Response to IG 4.1(i), Confidential Attachment IG 4.1-I at 22 (Attachments DG-2 and DG-2-C).

The hedging targets in Confidential Table 12 set broad target ranges for coal procurement as percentages of the P25 and P75 coal forecasts, leaving the Company discretion about how much coal to contract for within these ranges. Duke reports that it executed a strategy of "procuring longer term agreements at the upper end of the Company's forecasted procurement needs" in response to supply chain challenges.[98] Specifically, Duke claims this approach is necessary "to offset the potential exposure to price and availability risk and to ensure reliability of supply."[99]

Accordingly, the Company's coal positions from 2022 and 2023 show that their inventory hedge percentage (the percentage of the P50 coal burn level provided by existing inventory or long-term contracts) [redacted] (Confidential Table 13). While Duke has currently contracted for [redacted][100]—it is unclear if this represents a true shift in approach or if Duke will enter additional contracts until the percentages are closer to those seen in Confidential Table 13.

[98] Direct Testimony of Verderame at 3.

[99] *Id*.

[100] Confidential Duke Response to CAC 2.53(c) (Attachment DG-2C).

Confidential Table 13. Inventory adjusted coal hedge percentage including off-site storage[101]

Date of Analysis	Prompt to 12 Months	13-24 Months	25-36 Months	37-48 Months
[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
[redacted]	[redacted]	[redacted]	[redacted]	[redacted]

Q Is Duke's strategy to procure coal at the upper end of its hedging target ranges justified?

A No. Duke has not demonstrated that this strategy is necessary or in the best interest of ratepayers. And it has not evaluated or considered alternative strategies.

Duke already has a generation asset at Edwardsport with IGCC technology designed to shift between gas and coal based on market conditions. The unit can co-fire on both resources and vary the portion of coal and gas being burned at any given time. Rather than overbuying coal for its fleet, Duke should buy only what it needs to economically operate Gibson and Cayuga, using Edwardsport as a hedge. This means operating the unit on a high percentage of coal as a last resort if it has an oversupply but otherwise operating the unit on gas, especially if it faces any coal supply shortages. This would require some level of flexibility and strategy in its coal contracts to allow the delivery of coal to shift between locations. Still, Duke should consider this strategy and whether it could be lower cost than the strategies it is currently considering.

[101] Duke Response to IG 4.1, Confidential Attachments IG 4.1 (g,h,i) (Attachments DG-2 and DG-2-C).

Q What will happen if Duke procures at the "upper end" of the Company's forecast and ends up with an oversupply of coal?

A If Duke buys at the "upper end," it could end up with an oversupply of coal, especially because even the mean forecast is likely an overestimate of coal unit utilization. This oversupply can trigger the use of a supply adjustment strategy to manage the oversupply. This will likely result in the Company operating its coal fleet more than is economic. Barring action from the Commission, these excess costs can be passed onto ratepayers through fuel costs in the FAC dockets. Meanwhile, the oversupply will increase Duke's coal inventory levels above the requested 45 days (as discussed in this next section). Per Duke's proposal, this excess inventory can also go into rate base, and the utility can collect a rate of return on this oversupply from ratepayers.

Q Did Duke quantify the likely impact on ratepayers of purchasing at the "upper end" of its coal projection?

A No. Once again, Duke has provided no analysis to support its proposal to include an inventory level at the upper end of its projections in rate base.

Q How does the inventory level Duke is proposing to include in rates compare to the prior rate case inventory levels?

A Duke's inventory levels are lower than in the prior rate case (Table 14), but it has also retired one of its coal plants at Gallagher since the last rate case. The total cost per ton is higher as is the rate of return, resulting in a higher revenue requirement in this rate case.

Table 14. Duke's coal inventory comparison to prior rate case[102]

	Current rate case	Cause No. 45253	Difference
Coal inventory in base rates (tons)	2,333,474	2,517,963	-184,489
Inventory days	46	45	-1
Coal inventory in rate base (dollars in thousands)	$130,594	$114,710	$15,884
Rate of return	6.52%	5.71%	0.81%
Revenue requirement (dollars in thousands)	$8,515	$6,550	$1,965

Note: The revenue requirement for the rate of return on the Company's coal inventory provided in Duke Response to CAC Request 2.82 is slightly different than the value provided in Duke Response to IG Request 4.06.

Q Please summarize and comment on Duke's coal procurement plans.

A Duke is shifting towards long-term contracts. Specifically, about its procurement plant, Duke said:

[redacted].[103]

While it is reasonable for Duke to respond to the changing realities of coal markets, it is concerning that Duke's actions further engrain itself with the coal industry and long-term coal supply contracts when it is not in the best interest for ratepayers. As

[102] Duke Response to CAC Request 2.82 (Attachment DG-2).

[103] Duke Confidential Response to CAC Request 3.10 (Attachment DG-2C).

discussed above, Duke is not considering any of the available risk mitigation strategies.

iv. Duke's proposal to add an FAC tracker that will adjust its coal inventory in rate base to match actual inventory removes incentives for the Company to accurately project coal burns

Q What else is Duke proposing regarding its coal inventory?

A Duke is proposing to include a representative balance of 45 days of inventory in rate base.[104] This is similar to the level of rate base inventory that the Commission approved in the previous rate case, which was about 46 days.[105] It is normal for a utility to include a set level of fuel inventory in rate base.[106]

What is not normal is that Duke is also proposing to calculate the difference between its actual coal inventory balance at the end of each FAC reconciliation period and compare that to the inventory included in rate base. The Company then wants to calculate a rate of return on the differential and the associated revenue requirement. Duke provided no calculations showing how it would calculate and measure coal inventory.[107]

[104] Direct Testimony of Verderame at 19.

[105] Duke Response to CAC Request 2.82(a) (Attachment DG-2).

[106] See, for example, Darryl Tiejen, Public Utility Commission of Texas. *Tariff Development 1: The Basic Ratemaking Process.* Available at https://pubs.naruc.org/pub.cfm?id=538E730E-2354-D714-51A6-5B621A9534CB.

[107] Direct Testimony of Graft at 39-40; Direct Testimony of Verderame at 19-21; Duke Supplemental Response to CAC Requests 8.03(b), 8.03(c), and 8.03(d) (Attachment DG-2).

Q What is the likely result of Duke using the tracker?

A If Duke's coal inventory rises above the 45 days included in rate base, the Company would be allowed to earn a rate of return on that larger inventory.[108] It is unclear from Duke's proposal if the Company would be required to provide any justification for why this particular inventory level is reasonable, or if it would be presumed that its inventory was reasonable allowing Duke to add it to rate base in each FAC docket.

This means that Duke would collect a rate of return on oversupply and therefore profit for over-projecting coal burns and over-procuring coal. I am concerned that this will remove all incentives for the Company to properly project coal burns and, in fact, will incent Duke to over-project and overbuy coal. This will impose unnecessary costs on ratepayers without providing any value.

Q Has Duke provided any analysis or justification for this strategy?

A Duke defended this proposal by saying that it is reasonable given the volatility the Company has experienced in its inventory in recent years. The Company went on to say that the proposal will provide a credit to ratepayers when its inventory levels drop below the levels in base rates and ensure timely recovery of financing costs for the Company when its inventory levels rise above the levels in base rates.[109] But this justification does not explain why a rate of return is necessary when its inventory deviates from the level in base rates or what value that provides to ratepayers.

[108] Duke Response to CAC Request 8.03(a) (Attachment DG-2).
[109] Direct Testimony of Graft at 39-40.

Q How much is this likely to cost ratepayers?

A For a representative example of how much this proposal may cost ratepayers, I looked at Duke's ending coal inventory for its three coal plants at Cayuga, Edwardsport, and Gibson as of December 1, 2023 (Table 15). I calculated the revenue requirement of the 45-day inventory requested in this rate case and compared that to the revenue requirement for its actual ending inventory levels at each plant on December 1, 2023, which ranged between 53 and 73 days. With a 45-day inventory, the revenue requirement of the rate of return would be $9.9 million. With its actual inventory, the revenue requirement of the rate of return would increase to $13.9 million. That difference of around $5 million per year is associated with the higher inventory levels that ratepayers would be on the hook for under Duke's proposal (assuming Duke maintained the December 2023 inventory levels for the year).

Table 15. Representative calculation of FAC tracker proposal[110]

(As of 12/1/2023)	**Ending Inventory (Tons)**	**Ending Inventory (Days)**	**Ending Inventory Cost**	**45-day tons**	**45-day inventory cost**
Cayuga	779,676	73	$50,129,549	483,750	$31,102,892
Edwardsport	333,708	53	$18,499,021	280,800	$15,566,063
Gibson	2,140,331	62	$144,411,999	1,552,500	$104,749,988
Total	3,253,715		$213,040,569	2,317,050	$151,418,943
Return on coal inventory (6.52% rate of return)			$13,890,245		$9,872,515
Revenue requirement of return (1.24227 revenue conversion factor)			$17,255,435		$12,264,329
Difference					$4,991,106

[110] Calculated based on Duke Response to OUCC Request 22, Attachment OUCC 22.8-A (Attachment DG-2).

Q **Does this conclude your testimony?**

A Yes.

VERIFICATION

I, Devi Glick, affirm under penalties of perjury that the foregoing representations are true and correct to the best of my knowledge, information and belief.

Devi Glick _____ July 11, 2024

Devi Glick

ATTACHMENT DG-1

Devi Glick, Senior Principal

Synapse Energy Economics I 485 Massachusetts Avenue, Suite 3 I Cambridge, MA 02139 I 617-453-7050
dglick@synapse-energy.com

PROFESSIONAL EXPERIENCE

Synapse Energy Economics Inc., Cambridge, MA. *Senior Principal*, May 2022 – Present; *Principal Associate*, June 2021 – May 2022; *Senior Associate*, April 2019 – June 2021; *Associate*, January 2018 – March 2019.

Conducts research and provides expert witness and consulting services on energy sector issues. Examples include:

- Modeling for resource planning using PLEXOS and Encompass utility planning software to evaluate the reasonableness of utility IRP modeling.
- Modeling for resource planning to explore alternative, lower-cost and lower-emission resource portfolio options.
- Providing expert testimony in rate cases on the prudence of continued investment in, and operation of, coal plants based on the economics of plant operations relative to market prices and alternative resource costs.
- Providing expert testimony and analysis on the reasonableness of utility coal plant commitment and dispatch practice in fuel and power cost adjustment dockets.
- Serving as an expert witness on avoided cost of distributed solar PV and submitting direct and surrebuttal testimony regarding the appropriate calculation of benefit categories associated with the value of solar calculations.
- Reviewing and assessing the reasonableness of methodologies and assumptions relied on in utility IRPs and other long-term planning documents for expert report, public comments, and expert testimony.
- Evaluating utility long-term resource plans and developing alternative clean energy portfolios for expert reports.
- Co-authoring public comments on the adequacy of utility coal ash disposal plans, and federal coal ash disposal rules and amendments.
- Analyzing system-level cost impacts of energy efficiency at the state and national level.

Rocky Mountain Institute, Basalt, CO. August 2012 – September 2017
Senior Associate

- Led technical analysis, modeling, training and capacity building work for utilities and governments in Sub-Saharan Africa around integrated resource planning for the central electricity grid energy. Identified over one billion dollars in savings based on improved resource-planning processes.

- Represented RMI as a content expert and presented materials on electricity pricing and rate design at conferences and events.
- Led a project to research and evaluate utility resource planning and spending processes, focusing specifically on integrated resource planning, to highlight systematic overspending on conventional resources and underinvestment and underutilization of distributed energy resources as a least-cost alternative.

Associate

- Led modeling analysis in collaboration with NextGen Climate America which identified a CO2 loophole in the Clean Power Plan of 250 million tons, or 41 percent of EPA projected abatement. Analysis was submitted as an official federal comment which led to a modification to address the loophole in the final rule.
- Led financial and economic modeling in collaboration with a major U.S. utility to quantify the impact that solar PV would have on their sales and helped identify alternative business models which would allow them to recapture a significant portion of this at-risk value.
- Supported the planning, content development, facilitation, and execution of numerous events and workshops with participants from across the electricity sector for RMI's Electricity Innovation Lab (eLab) initiative.
- Co-authored two studies reviewing valuation methodologies for solar PV and laying out new principles and recommendations around pricing and rate design for a distributed energy future in the United States. These studies have been highly cited by the industry and submitted as evidence in numerous Public Utility Commission rate cases.

The University of Michigan, Ann Arbor, MI. *Graduate Student Instructor*, September 2011 – July 2012

The Virginia Sea Grant at the Virginia Institute of Marine Science, Gloucester Point, VA. *Policy Intern*, Summer 2011

Managed a communication network analysis study of coastal resource management stakeholders on the Eastern Shore of the Delmarva Peninsula.

The Commission for Environmental Cooperation (NAFTA), Montreal, QC. *Short Term Educational Program/Intern*, Summer 2010

Researched energy and climate issues relevant to the NAFTA parties to assist the executive director in conducting a GAP analysis of emission monitoring, reporting, and verification systems in North America.

Congressman Tom Allen, Portland, ME. *Technology Systems and Outreach Coordinator*, August 2007 – December 2008

Directed Congressman Allen's technology operation, responded to constituent requests, and represented the Congressman at events throughout southern Maine.

EDUCATION

The University of Michigan, Ann Arbor, MI
Master of Public Policy, Gerald R. Ford School of Public Policy, 2012
Master of Science, School of Natural Resources and the Environment, 2012
Masters Project: *Climate Change Adaptation Planning in U.S. Cities*

Middlebury College, Middlebury, VT
Bachelor of Arts, 2007
Environmental Studies, Policy Focus; Minor in Spanish
Thesis: *Environmental Security in a Changing National Security Environment: Reconciling Divergent Policy Interests, Cold War to Present*

PUBLICATIONS

Kwok, S., D. Glick, R. Anderson, T. Gyalmo. 2023. *Review of Southwestern Public Service Company 2023 Integrated Resource Plan*. Synapse Energy Economics for Sierra Club.

Kwok, S., J. Smith, D. Glick. 2023. *Review of Cleco Power's 2021 IRP Report.* Synapse Energy Economics for Sierra Club.

Addleton, I., D. Glick, R. Wilson. 2021. *Georgia Power's Uneconomic Coal Practices Cost Customers Millions*. Synapse Energy Economics for Sierra Club.

Glick, D., P. Eash-Gates, J. Hall, A. Takasugi. 2021. *A Clean Energy Future for MidAmerican and Iowa.* Synapse Energy Economics for Sierra Club, Iowa Environmental Council, and the Environmental Law and Policy Center.

Glick, D., S. Kwok. 2021 *Review of Southwestern Public Service Company's 2021 IRP and Tolk Analysis.* Synapse Energy Economics for Sierra Club.

Glick, D., P. Eash-Gates, S. Kwok, J. Tabernero, R. Wilson. 2021. *A Clean Energy Future for Tampa.* Synapse Energy Economics for Sierra Club.

Glick, D. *2021. Synapse Comments and Surreply Comments to the Minnesota Public Utility Commission in response to Otter Tail Power's 2021 Compliance Filing* Docket E-999/CI-19-704. Synapse Energy Economics for Sierra Club.

Eash-Gates, P., D. Glick, S. Kwok. R. Wilson. 2020. *Orlando's Renewable Energy Future: The Path to 100 Percent Renewable Energy by 2020.* Synapse Energy Economics for the First 50 Coalition.

Eash-Gates, P., B. Fagan, D. Glick. 2020. *Alternatives to the Surry-Skiffes Creek 500 kV Transmission Line.* Synapse Energy Economics for the National Parks Conservation Association.

Biewald, B., D. Glick, J. Hall, C. Odom, C. Roberto, R. Wilson. 2020. *Investing in Failure: How Large Power Companies are Undermining their Decarbonization Targets.* Synapse Energy Economics for Climate Majority Project.

Glick, D., D. Bhandari, C. Roberto, T. Woolf. 2020. *Review of benefit-cost analysis for the EPA's proposed revisions to the 2015 Steam Electric Effluent Limitations Guidelines.* Synapse Energy Economics for Earthjustice and Environmental Integrity Project.

Glick, D., J. Frost, B. Biewald. 2020. *The Benefits of an All-Source RFP in Duke Energy Indiana's 2021 IRP Process.* Synapse Energy Economics for Energy Matters Community Coalition.

Camp, E., B. Fagan, J. Frost, N. Garner, D. Glick, A. Hopkins, A. Napoleon, K. Takahashi, D. White, M. Whited, R. Wilson. 2019. *Phase 2 Report on Muskrat Falls Project Rate Mitigation, Revision 1 – September 25, 2019.* Synapse Energy Economics for the Board of Commissioners of Public Utilities, Province of Newfoundland and Labrador.

Camp, E., A. Hopkins, D. Bhandari, N. Garner, A. Allison, N. Peluso, B. Havumaki, D. Glick. 2019. *The Future of Energy Storage in Colorado: Opportunities, Barriers, Analysis, and Policy Recommendations.* Synapse Energy Office for the Colorado Energy Office.

Glick, D., B. Fagan, J. Frost, D. White. 2019. *Big Bend Analysis: Cleaner, Lower-Cost Alternatives to TECO's Billion-Dollar Gas Project*. Synapse Energy Economics for Sierra Club.

Glick, D., F. Ackerman, J. Frost. 2019. *Assessment of Duke Energy's Coal Ash Basin Closure Options Analysis in North Carolina.* Synapse Energy Economics for the Southern Environmental Law Center.

Glick, D., N. Peluso, R. Fagan. 2019. *San Juan Replacement Study: An alternative clean energy resource portfolio to meet Public Service Company of New Mexico's energy, capacity, and flexibility needs after the retirement of the San Juan Generating Station*. Synapse Energy Economics for Sierra Club.

Suphachalasai, S., M. Touati, F. Ackerman, P. Knight, D. Glick, A. Horowitz, J.A. Rogers, T. Amegroud. 2018. *Morocco – Energy Policy MRV: Emission Reductions from Energy Subsidies Reform and Renewable Energy Policy.* Prepared for the World Bank Group.

Camp, E., B. Fagan, J. Frost, D. Glick, A. Hopkins, A. Napoleon, N. Peluso, K. Takahashi, D. White, R. Wilson, T. Woolf. 2018. *Phase 1 Findings on Muskrat Falls Project Rate Mitigation.* Synapse Energy Economics for Board of Commissioners of Public Utilities, Province of Newfoundland and Labrador.

Allison, A., R. Wilson, D. Glick, J. Frost. 2018. *Comments on South Africa 2018 Integrated Resource Plan.* Synapse Energy Economics for Centre for Environmental Rights.

Hopkins, A. S., K. Takahashi, D. Glick, M. Whited. 2018. *Decarbonization of Heating Energy Use in California Buildings: Technology, Markets, Impacts, and Policy Solutions*. Synapse Energy Economics for the Natural Resources Defense Council.

Knight, P., E. Camp, D. Glick, M. Chang. 2018. *Analysis of the Avoided Costs of Compliance of the Massachusetts Global Warming Solutions Act*. Supplement to 2018 AESC Study. Synapse Energy

Economics for Massachusetts Department of Energy Resources and Massachusetts Department of Environmental Protection.

Fagan, B., R. Wilson, S. Fields, D. Glick, D. White. 2018. *Nova Scotia Power Inc. Thermal Generation Utilization and Optimization: Economic Analysis of Retention of Fossil-Fueled Thermal Fleet to and Beyond 2030 – M08059*. Prepared for Board Counsel to the Nova Scotia Utility Review Board.

Ackerman, F., D. Glick, T. Vitolo. 2018. *Report on CCR proposed rule*. Prepared for Earthjustice.

Lashof, D. A., D. Weiskopf, D. Glick. 2014. *Potential Emission Leakage Under the Clean Power Plan and a Proposed Solution: A Comment to the US EP*A. NextGen Climate America.

Smith, O., M. Lehrman, D. Glick. 2014. *Rate Design for the Distribution Edge*. Rocky Mountain Institute.

Hansen, L., V. Lacy, D. Glick. 2013. *A Review of Solar PV Benefit & Cost Studies*. Rocky Mountain Institute.

TESTIMONY

State of Vermont Public Utility Commission (Case No. 23-1447-PET): Rebuttal testimony of Devi Glick in the Petition of VT Real Estate Holdings 1 LLC for a Certificate of Public Good, pursuant to 30 V.S.A. § 248, for a 20 MW ground-mounted solar array in Shaftsbury, Vermont. Revised June 27, 2024.

State of Vermont Public Utility Commission (Case No. 23-1447-PET): Direct testimony of Devi Glick in the Petition of VT Real Estate Holdings 1 LLC ("Shaftsbury Solar") for a Certificate of Public Good, pursuant to 30 V.S.A. § 248, authorizing the installation and operation of a 20 MW solar electric generation facility off Holy Smoke Road in Shaftsbury, Vermont to be known as the "Shaftsbury Solar Project". On behalf of VT Real Estate Holdings 1 LLC ("Shaftsbury Solar"). Revised June 27, 2024.

Florida Public Service Commission (Docket No. 20240026-EI): Direct testimony of Devi Glick in petition for rate increase by Tampa Electric Company. On behalf of Sierra Club. June 6, 2024.

Iowa Utilities Board (RPU-2023-0002): Surrebuttal Testimony of Devi Glick in re: Interstate Power and Light Company, Proposed Rate Increase. On behalf of Environmental Intervenors. June 3, 2024.

Iowa Utilities Board (RPU-2023-0002): Direct Testimony of Devi Glick in re: Interstate Power and Light Company, Proposed Rate Increase. On behalf of Environmental Intervenors. April 16, 2024.

Michigan Public Service Commission (Case No. U-21051): Direct Testimony of Devi Glick in the Matter of the application of DTE Electric Company for reconciliation of its power supply cost recovery plan (Case No. U-21050) for the 12 months ended December 31, 2022. On behalf of Michigan Environmental Council. March 8, 2024.

Michigan Public Service Commission (Case No. U-21427): Direct Testimony of Devi Glick in the matter of the Application of Indiana Michigan Power Company for approval of a Power Supply Cost Recovery plan and factors (2024). On behalf of Sierra Club and Citizens Utility Board of Michigan. March 4, 2024.

Georgia Public Service Commission (Docket No. 55378): Direct Testimony of Devi Glick and Lucy Metz in Re: Georgia Power Company's 2023 Integrated Resource Plan Update. On behalf of Sierra Club. February 15, 2024.

Louisiana Public Service Commission (Docket No. U-36923): Direct Testimony of Devi Glick in the Application of Cleco Power LLC for: (1) Implementation of changes in rates to be effective July 1, 2024; and (2) extension of existing formula rate plan. On behalf of Sierra Club. February 5, 2024.

Public Service Commission of South Carolina (Docket No. 2023-154-E): Supplemental Testimony of Devi Glick in re: 2023 Integrated Resource Plan for the South Carolina Public Service Authority. On behalf of Sierra Club. January 29, 2024.

Public Service Commission of South Carolina (Docket No. 2023-154-E): Surrebuttal Testimony of Devi Glick in re: 2023 Integrated Resource Plan for the South Carolina Public Service Authority. On behalf of Sierra Club. November 17, 2023.

Public Utilities Commission of Ohio (Case No. 21-477-EL-RDR): Direct Testimony of Devi Glick in the Matter of the OVEC Generation Purchase Rider Audits Required by 4928.148 for Duke Energy Ohio, Inc. the Dayton Power and Light Company, and AEP Ohio. On behalf of Union of Concerned Scientists and the Citizens Utility Board. October 10, 2023.

Public Service Commission of South Carolina (Docket No. 2023-154-E): Direct Testimony of Devi Glick in re: 2023 Integrated Resource Plan for the South Carolina Public Service Authority. On behalf of Sierra Club. September 22, 2023.

Public Utilities Commission of Ohio (Case No. 20-165-EL-RDR): Direct Testimony of Devi Glick in the matter of the review of the Reconciliation Rider of the Dayton Power and Light Company. On behalf of Office of the Ohio Consumers' Counsel. September 12, 2023.

Virginia State Corporation Commission (Case No. PUR-2023-00066): Direct Testimony of Devi Glick in re: Virginia Electric and Power Company's 2023 Integrated Resource Plan filing pursuant to Virginia Code to §56-597 *et seq.* On behalf of Sierra Club. August 8, 2023.

Public Utility Commission of Texas (PUC Docket No. 54634): Direct Testimony of Devi Glick in the application of Southwestern Public Service Company for authority to change rates. On behalf of Sierra Club. August 4, 2023

Arizona Corporation Commission (Docket No. E-1345A-22-0144): Surrebuttal Testimony of Devi Glick in the matter of the application of Arizona Public Service Company for a hearing to determine the fair value of the utility property of the company for ratemaking purposes, to fix a just and reasonable rate of return thereon, and to approve rate schedules designed to develop such return. On Behalf of Sierra Club. July 26, 2023.

Arizona Corporation Commission (Docket No. E-01345A-22-0144): Direct Testimony of Devi Glick in the matter of the application of Arizona Public Service Company for a hearing to determine the fair value of the utility property of the company for ratemaking purposes, to fix a just and reasonable rate of return

thereon, and to approve rate schedules designed to develop such return. On Behalf of Sierra Club. June 5, 2023.

Virginia State Corporation Commission (Case No. PUR-2023-00005): Direct Testimony of Devi Glick in the Petition of Virginia Electric & Power Company for revision of rate adjustment clause, Rider E, for the recovery of costs incurred to comply with state and federal environmental regulations pursuant to §56-585.1 A 5 e of the Code of Virginia. On behalf of Sierra Club. May 23, 2023.

New Mexico Public Regulation Commission (Case No, 22-00286-UT): Direct Testimony of Devi Glick in the matter of Southwestern Public Service Company's application for: (1) Revisions of its retail rates under advance no. 312; (2) Authority to abandon the Plant X Unit 1, Plant X Unit 2, and Cunningham Unit 1 Generating Stations and amend the abandonment date of the Tolk Generating Station; and (3) other associated relief. On behalf of Sierra Club. April 21, 2023.

Michigan Public Service Commission (Case No. U-20805): Direct Testimony of Devi Glick in the matter of the Application of Indiana Michigan Power Company for a Power Supply Cost Recovery Reconciliation proceeding for the 12-month period ended December 31, 2021. On behalf of Michigan Attorney General. April 17, 2023.

Michigan Public Service Commission (Case No. U-21261): Direct Testimony of Devi Glick in the matter of the application of Indiana Michigan Power Company for approval to implement a Power Supply Cost Recovery Plan for the twelve months ending December 31, 2023. On Behalf of Sierra Club. March 23, 2023.

New Mexico Public Regulation Commission (Case No. 19-00099-UT / 19-00348-UT): Direct Testimony of Devi Glick in the matter of El Paso Electric Company's Application for Approval of Long-Term Purchased Power Agreements with Hecate Energy Santa Teresa, LLC, Buena Vista Energy, LLC, and Canutillo Energy Center LLC. On Behalf of New Mexico Office of the Attorney General, January 23, 2023.

Arizona Corporation Commission (Docket No. E-01933A-22-0107): Direct Testimony of Devi Glick in the matter of the application of Tucson Electric Power Company for the establishment of just and reasonable rates and charges designed to realize a reasonable rate of return on the fair value of the properties of Tucson Electric Power Company devoted to its operations throughout the state of Arizona for related approvals. On Behalf of Sierra Club. January 11, 2023.

New Mexico Public Regulation Commission (Case No. 22-00093-UT): Direct Testimony of Devi Glick in the amended application for approval of El Paso Electric Company's 2022 renewable energy act plan pursuant to the renewable energy act and 17.9.572 NMAC, and sixth revised rate no. 38-RPS cost rider. On Behalf of New Mexico Office of the Attorney General, January 9, 2023.

Iowa Utilities Board (Docket No. RPU-2022-0001): Supplemental Direct and Rebuttal Testimony of Devi Glick in MidAmerican Energy Company Application for a Determination of Ratemaking Principles. On behalf of Environmental Intervenors. November 21, 2022.

Public Utility Commission of Texas (PUC Docket No. 53719): Direct Testimony of Devi Glick in the application of Entergy Texas, Inc. for authority to change rates. On behalf of Sierra Club. October 26, 2022.

Virginia State Corporation Commission (Case No. PUR-2022-00051): Direct Testimony of Devi Glick in re: Appalachian Power Company's Integrated Resource Plan filing pursuant to Virginia Code §56-597 *et seq*. On behalf of Sierra Club. September 2, 2022.

Public Service Commission of the State of Missouri (Case No. ER-2022-0129, Case No. ER-2022-0130): Surrebuttal Testimony of Devi Glick in the matter of Every Missouri Metro and Evergy Missouri West request for authority to implement a general rate increase for electric service. On behalf of Sierra Club. August 16, 2022.

Iowa Utilities Board (Docket No. RPU-2022-0001): Direct Testimony of Devi Glick in MidAmerican Energy Company Application for a Determination of Ratemaking Principles. On behalf of Environmental Intervenors. July 29, 2022.

Public Service Commission of the State of Missouri (Case No. ER-2022-0129, Case No. ER-2022-0130): Direct Testimony of Devi Glick in the matter of Every Missouri Metro and Evergy Missouri West request for authority to implement a general rate increase for electric service. On behalf of Sierra Club. June 8, 2022.

Virginia State Corporation Commission (Case No. PUR-2022-00006): Direct Testimony of Devi Glick in the petition of Virginia Electric & Power Company for revision of rate adjustment clause: Rider E, for the recovery of costs incurred to comply with state and federal environmental regulations pursuant to §56-585.1 A 5 e of the Code of Virginia. On behalf of Sierra Club. May 24, 2022.

Oklahoma Corporation Commission (Case No. PUD 202100164): Direct Testimony of Devi Glick in the matter of the application of Oklahoma gas and electric company for an order of the Commission authorizing application to modify its rates, charges, and tariffs for retail electric service in Oklahoma. On behalf of Sierra Club. April 27, 2022.

Public Utility Commission of Texas (PUC Docket No. 52485): Direct Testimony of Devi Glick in the application of Southwestern Public Service Company to amend its certifications of public convenience and necessity to convert Harrington Generation Station from coal to natural gas. On behalf of Sierra Club. March 25, 2022.

Public Utility Commission of Texas (PUC Docket No. 52487): Direct Testimony of Devi Glick in the application of Entergy Texas Inc. to amend its certificate of convenience and necessity to construct Orange County Advanced Power Station. On behalf of Sierra Club. March 18, 2022.

Michigan Public Service Commission (Case No. U-21052): Direct Testimony of Devi Glick in the matter of the application of Indiana Michigan Power Company for approval of a Power Supply Cost Recovery Plan and Factors (2022). On Behalf of Sierra Club. March 9, 2022.

Arkansas Public Service Commission (Docket No. 21-070-U): Surrebuttal Testimony of Devi Glick in the Matter of the Application of Southwestern Electric Power Company for approval of a general change in rate and tariffs. On behalf of Sierra Club. February 17, 2022.

New Mexico Public Regulation Commission (Case No. 21-00200-UT): Direct Testimony of Devi Glick in the Matter of the Southwestern Public Service Company's application to amend its certifications of public convenience and necessity to convert Harrington Generation Station from coal to natural gas. On behalf of Sierra Club. January 14, 2022.

Public Utilities Commission of Ohio (Case No. 18-1004-EL-RDR): Direct Testimony of Devi Glick in the Matter of the Review of the Power Purchase Agreement Rider of Ohio Power Company for 2018 and 2019. On behalf of the Office of the Ohio Consumer's Counsel. December 29, 2021.

Arkansas Public Service Commission (Docket No. 21-070-U): Direct Testimony of Devi Glick in the Matter of the Application of Southwestern Electric Power Company for Approval of a General Change in Rates and Tariffs. On behalf of Sierra Club. December 7, 2021.

Michigan Public Service Commission (Case No. U-20528): Direct Testimony of Devi Glick in the matter of the Application of DTE Electric Company for reconciliation of its power supply cost recovery plan (Case No. U-20527) for the 12-month period ending December 31, 2020. On behalf of Michigan Environmental Council. November 23, 2021.

Public Utilities Commission of Ohio (Case No. 20-167-EL-RDR): Direct Testimony of Devi Glick in the Matter of the Review of the Reconciliation Rider of Duke Energy Ohio, Inc. On behalf of The Office of the Ohio Consumer's Counsel. October 26, 2021.

Public Utilities Commission of Nevada (Docket No. 21-06001): Phase III Direct Testimony of Devi Glick in the joint application of Nevada Power Company d/b/a NV Energy and Sierra Pacific Power Company d/b/a NV Energy for approval of their 2022-2041 Triennial Intergrade Resource Plan and 2022-2024 Energy Supply Plan. On behalf of Sierra Club and Natural Resource Defense Council. October 6, 2021.

Public Service Commission of South Carolina (Docket No, 2021-3-E): Direct Testimony of Devi Glick in the matter of the annual review of base rates for fuel costs for Duke Energy Carolinas, LLC (for potential increase or decrease in fuel adjustment and gas adjustment). On behalf of the South Carolina Coastal Conservation League and the Southern Alliance for Clean Energy. September 10, 2021.

North Carolina Utilities Commission (Docket No. E-2, Sub 1272): Direct Testimony of Devi Glick in the matter of the application of Duke Energy Progress, LLC pursuant to N.C.G.S § 62-133.2 and commission R8-5 relating to fuel and fuel-related change adjustments for electric utilities. On behalf of Sierra Club. August 31, 2021.

Michigan Public Service Commission (Docket No. U-20530): Direct Testimony of Devi Glick in the application of Indiana Michigan Power Company for a Power Supply Cost Recovery Reconciliation proceeding for the 12-month period ending December 31, 2020. On behalf of the Michigan Attorney General. August 24, 2021.

Public Utilities Commission of Nevada (Docket No. 21-06001): Phase I Direct Testimony of Devi Glick in the joint application of Nevada Power Company d/b/a NV Energy and Sierra Pacific Power Company d/b/a NV Energy for approval of their 2022-2041 Triennial Intergrade Resource Plan and 2022-2024 Energy Supply Plan. On behalf of Sierra Club and Natural Resource Defense Council. August 16, 2021.

North Carolina Utilities Commission (Docket No. E-7, Sub 1250): Direct Testimony of Devi Glick in the Mater of Application Duke Energy Carolinas, LLC Pursuant to §N.C.G.S 62-133.2 and Commission Rule R8-5 Relating to Fuel and Fuel-Related Charge Adjustments for Electric Utilities. On behalf of Sierra Club. May 17, 2021.

Public Utility Commission of Texas (PUC Docket No. 51415): Direct Testimony of Devi Glick in the application of Southwestern Electric Power Company for authority to change rates. On behalf of Sierra Club. March 31, 2021.

Michigan Public Service Commission (Docket No. U-20804): Direct Testimony of Devi Glick in the application of Indiana Michigan Power Company for approval of a Power Supply Cost Recovery Plan and factors (2021). On behalf of Sierra Club. March 12, 2021.

Public Utility Commission of Texas (PUC Docket No. 50997): Direct Testimony of Devi Glick in the application of Southwestern Electric Power Company for authority to reconcile fuel costs for the period May 1, 2017- December 31, 2019. On behalf of Sierra Club. January 7, 2021.

Michigan Public Service Commission (Docket No. U-20224): Direct Testimony of Devi Glick in the application of Indiana Michigan Power Company for Reconciliation of its Power Supply Cost Recovery Plan. On behalf of the Sierra Club. October 23, 2020.

Public Service Commission of Wisconsin (Docket No. 3270-UR-123): Surrebuttal Testimony of Devi Glick in the application of Madison Gas and Electric Company for authority to change electric and natural gas rates. On behalf of Sierra Club. September 29, 2020.

Public Service Commission of Wisconsin (Docket No. 6680-UR-122): Surrebuttal Testimony of Devi Glick in the application of Wisconsin Power and Light Company for approval to extend electric and natural gas rates into 2021 and for approval of its 2021 fuel cost plan. On behalf of Sierra Club. September 21, 2020.

Public Service Commission of Wisconsin (Docket No. 3270-UR-123): Direct Testimony and Exhibits of Devi Glick in the application of Madison Gas and Electric Company for authority to change electric and natural gas rates. On behalf of Sierra Club. September 18, 2020.

Public Service Commission of Wisconsin (Docket No. 6680-UR-122): Direct Testimony and Exhibits of Devi Glick in the application of Wisconsin Power and Light Company for approval to extend electric and natural gas rates into 2021 and for approval of its 2021 fuel cost plan. On behalf of Sierra Club. September 8, 2020.

Indiana Utility Regulatory Commission (Cause No. 38707-FAC125): Direct Testimony and Exhibits of Devi Glick in the application of Duke Energy Indiana, LLC for approval of a change in its fuel cost adjustment for electric service. On behalf of Sierra Club. September 4, 2020.

Indiana Utility Regulatory Commission (Cause No. 38707-FAC123 S1): Direct Testimony and Exhibits of Devi Glick in the Subdocket for review of Duke Energy Indian, LLC's Generation Unit Commitment Decisions. On behalf of Sierra Club. July 31, 2020.

Indiana Utility Regulatory Commission (Cause No. 38707-FAC124): Direct Testimony and Exhibits of Devi Glick in the application of Duke Energy Indiana, LLC for approval of a change in its fuel cost adjustment for electric service. On behalf of Sierra Club. June 4, 2020.

Arizona Corporation Commission (Docket No. E-01933A-19-0028): Reply to Late-filed ACC Staff Testimony of Devi Glick in the application of Tucson Electric Power Company for the establishment of just and reasonable rates. On behalf of Sierra Club. May 8, 2020.

Indiana Utility Regulatory Commission (Cause No. 38707-FAC123): Direct Testimony and Exhibits of Devi Glick in the application of Duke Energy Indiana, LLC for approval of a change in its fuel cost adjustment for electric service. On behalf of Sierra Club. March 6, 2020.

Public Utility Commission of Texas (PUC Docket No. 49831): Direct Testimony of Devi Glick in the application of Southwestern Public Service Company for authority to change rates. On behalf of Sierra Club. February 10, 2020.

New Mexico Public Regulation Commission (Case No. 19-00170-UT): Testimony of Devi Glick in Support of Uncontested Comprehensive Stipulation. On behalf of Sierra Club. January 21, 2020.

Nova Scotia Utility and Review Board (Matter M09420): Expert Evidence of Fagan, B, D. Glick reviewing Nova Scotia Power's Application for Extra Large Industrial Active Demand Control Tariff for Port Hawkesbury Paper. Prepared for Nova Scotia Utility and Review Board Counsel. December 3, 2019.

New Mexico Public Regulation Commission (Case No. 19-00170-UT): Direct Testimony of Devi Glick regarding Southwestern Public Service Company's application for revision of its retail rates and authorization and approval to shorten the service life and abandon its Tolk generation station units. On behalf of Sierra Club. November 22, 2019.

North Carolina Utilities Commission (Docket No. E-100, Sub 158): Responsive testimony of Devi Glick regarding battery storage and PURPA avoided cost rates. On behalf of Southern Alliance for Clean Energy. July 3, 2019.

State Corporation Commission of Virginia (Case No. PUR-2018-00195): Direct testimony of Devi Glick regarding the economic performance of four of Virginia Electric and Power Company's coal-fired units and the Company's petition to recover costs incurred to company with state and federal environmental regulations. On behalf of Sierra Club. April 23, 2019.

Connecticut Siting Council (Docket No. 470B): Joint testimony of Robert Fagan and Devi Glick regarding NTE Connecticut's application for a Certificate of Environmental Compatibility and Public Need for the Killingly generating facility. On behalf of Not Another Power Plant and Sierra Club. April 11, 2019.

Public Service Commission of South Carolina (Docket No. 2018-3-E): Surrebuttal testimony of Devi Glick regarding annual review of base rates of fuel costs for Duke Energy Carolinas. On behalf of South Carolina Coastal Conservation League and Southern Alliance for Clean Energy. August 31, 2018.

Public Service Commission of South Carolina (Docket No. 2018-3-E): Direct testimony of Devi Glick regarding the annual review of base rates of fuel costs for Duke Energy Carolinas. On behalf of South Carolina Coastal Conservation League and Southern Alliance for Clean Energy. August 17, 2018.

Public Service Commission of South Carolina (Docket No. 2018-1-E): Surrebuttal testimony of Devi Glick regarding Duke Energy Progress' net energy metering methodology for valuing distributed energy resources system within South Carolina. On behalf of South Carolina Coastal Conservation League and Southern Alliance for Clean Energy. June 4, 2018.

Public Service Commission of South Carolina (Docket No. 2018-1-E): Direct testimony of Devi Glick regarding Duke Energy Progress' net energy metering methodology for valuing distributed energy resources system within South Carolina. On behalf of South Carolina Coastal Conservation League and Southern Alliance for Clean Energy. May 22, 2018.

Public Service Commission of South Carolina (Docket No. 2018-2-E): Surrebuttal testimony of Devi Glick on avoided cost calculations and the costs and benefits of solar net energy metering for South Carolina Electric and Gas Company. On behalf of South Carolina Coastal Conservation League and Southern Alliance for Clean Energy. April 4, 2018.

Public Service Commission of South Carolina (Docket No. 2018-2-E): Direct testimony of Devi Glick on avoided cost calculations and the costs and benefits of solar net energy metering for South Carolina Electric and Gas Company. On behalf of South Carolina Coastal Conservation League and Southern Alliance for Clean Energy. March 23, 2018.

Resume updated June 2024

ATTACHMENT DG-2

Please see the following separately-filed Excel attachments:
- DEI Response to CAC Request 2.84, Attachment B
- DEI Response to Sierra Club Request 1.04, Revised Attachment A
- DEI Response to Sierra Club Request 1.17, Attachment B
- DEI Response to OUCC DR 22, Attachment 22.8

Citizens Action Coalition of Indiana, Inc.
IURC Cause No. 46038
Data Request Set No. 2
Received: April 23, 2024

SUPPLEMENTAL RESPONSE 6/7/24
SUPPLEMENTAL INFORMATION IS IN BOLD
CAC 2.54

Request:

Refer to Luke Direct Testimony, p. 29, line 11. Please explain in detail what modeling or analysis is "showing Cayuga Unit 2 with a May 2029 retirement date now." Does this refer to 2021 IRP results, IRP "refreshes" that were completed subsequent to the 2021 IRP, or something else? Provide the full modeling, analysis, and results used by DEI to reach the determination to delay retirement of Cayuga Unit 2 to May 2029.

Objection:

Duke Energy Indiana 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:

Mr. Luke's testimony on page 29, line 11 was intending to refer to what the Company is showing in its 2024 rate case proceeding depreciation study. As his testimony goes on to explain following the statement on page 29, line 11,

> However, we are showing Cayuga Unit 2 with a May 2029 retirement date now (delayed one year from the prior expectation) to ensure the availability of capacity and energy for system reliability. It is my understanding that the Company is assessing the potential replacement generation for Cayuga Unit 2 in its 2024 IRP. To the extent replacement generation can be available sooner, we will coordinate the retirement of Cayuga Unit 2 with that earlier date. Performance of the Cayuga Unit 2 HP/IP turbine major inspection in 2025 is necessary in either case.

Supplemental Response 6/7/24:

Subject to and without waiving or limiting its objections, see Confidential Attachment CAC 2.54-A for Duke Energy Indiana's December 2023 IRP modeling results.

Witness: William C. Luke

Citizens Action Coalition of Indiana, Inc.
IURC Cause No. 46038
Data Request Set No. 2
Received: April 23, 2024

CAC 2.65

Request:

Refer to Swez, p. 25, line 11-12 ("certain joint owner agreements"). Please identify and summarize each agreement.

Response:

"Certain joint owner agreements" refers to the:

(1) Gibson Unit No. 5 Joint Ownership, Participation, Operation and Maintenance Agreement

(2) Transmission and Local Facilities Ownership, Operation and Maintenance Agreement between WVPA, IMPA, and Duke Energy Indiana

(3) Rate Schedule No. 267 Amended and Restated Power Coordination Agreement Among Wabash Valley Power Association, Inc. and Duke Energy Business Services, LLC on behalf of Duke Energy Indiana, LLC

(4) Power Coordination Agreement Between Indiana Municipal Power Agency and Duke Energy Indiana, Inc.

(5) Midwest Market Operation and Scheduling Guidelines between WVPA and Duke Energy Indiana

(6) Midwest Market Operation and Scheduling Guidelines between IMPA and Duke Energy Indiana

Specifically, Gibson 5 is jointly owned by Duke Energy Indiana (50.05% ownership), Indiana Municipal Power Agency (IMPA, 24.95% ownership), and Wabash Valley Power Alliance (WVPA, 25% ownership). These agreements detail the ownership, participation, operation, and maintenance of the jointly owned Gibson 5 and transmission system.

Witness: John D. Swez

Citizens Action Coalition of Indiana, Inc.
IURC Cause No. 46038
Data Request Set No. 2
Received: April 23, 2024

CONFIDENTIAL RESPONSE
CAC 2.66

Request:

Refer to Swez, p. 25, lines 13-14. Provide the average production costs, ranked lowest to highest cost, for DEI's generation units in each of the following years: 2021, 2022, 2023, as well as forecasted 2024 and forecasted 2025.

Objection:

Duke Energy Indiana objects to this request to the extent it seeks information not maintained in the ordinary course of business. 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.

Response:

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

Response for 2021, 2022, & 2023:

Following are the average production costs, ranked lowest to highest cost on a $/MWh basis, for Duke Energy Indiana's generating units for 2021, 2022, and 2023.

2021*	Production Cost, $/MWh	2022*	Production Cost, $/MWh	2023*	Production Cost, $/MWh
Markland	0.00	Markland	0.00	Markland	0.00
Crane Solar	0.00	Crane Solar	0.00	Crane Solar	0.00
Gibson Unit 1	23.33	Cayuga Unit 2	28.03	Noblesville - C.T.	21.04
Gibson Unit 4	24.63	Cayuga Unit 1	28.93	Edwardsport IGCC (Gas)	26.79
Gibson Unit 3	25.44	Edwardsport IGCC (Coal)	29.28	Henry County - C.T.	27.44
Gibson Unit 5	25.48	Gibson Unit 1	29.79	Cayuga Unit 1	28.52
Cayuga Unit 2	25.62	Gibson Unit 4	30.55	Cayuga Unit 2	29.67
Cayuga Unit 1	25.74	Gibson Unit 2	30.58	Edwardsport IGCC (Coal)	30.88
Gibson Unit 2	25.89	Gibson Unit 5	32.84	Madison - C.T.	32.94
Edwardsport IGCC (Coal)	26.02	Gibson Unit 3	32.98	Purdue	33.84
Noblesville - C.T.	40.02	Noblesville - C.T.	54.06	Vermillion - C.T.	33.92
Edwardsport IGCC (Gas)	45.92	Edwardsport IGCC (Gas)	66.06	Wheatland - C.T.	34.22
Wheatland - C.T.	56.42	Henry County - C.T.	81.87	Cayuga Unit 4 - C.T.	35.18
Madison - C.T.	57.67	Purdue	87.28	Gibson Unit 4	35.71
Vermillion - C.T.	59.41	Madison - C.T.	88.65	Gibson Unit 1	36.16
Gallagher Unit 4	72.15	Vermillion - C.T.	90.49	Gibson Unit 2	37.32
Gallagher Unit 2	76.68	Cayuga Unit 4 - C.T.	95.05	Gibson Unit 3	38.40
Cayuga Unit 4 - C.T.	81.98	Wheatland - C.T.	108.13	Gibson Unit 5	40.86
Henry County - C.T.	90.69	Cayuga Unit 3 - I.C.	693.32	Cayuga Unit 3 - I.C.	472.62
Cayuga Unit 3 - I.C.	130.61				

*Data from December year-end DEI Consumed Stats Report for respective year

The Company's available data does not include additional components included in a unit's generating unit offer, such as variable O&M nor emissions allowance expense.

Response for 2024 & 2025:

Following are the average production costs forecasted from EnCompass v.7.1.4, ranked lowest to highest on a $/MWh basis, for Duke Energy Indiana's generating units for 2024 and 2025.

<**BEGIN CONFIDENTIAL**>

<**END CONFIDENTIAL**>

This data includes costs for fuel, non-fuel variable cost, emission costs and costs for starts and shutdowns.

Witness: John D. Swez (2021-2023)

Citizens Action Coalition of Indiana, Inc.
IURC Cause No. 46038
Data Request Set No. 2
Received: April 23, 2024

CAC 2.82

Request:

Refer to the Petition at page 12. With regards to Duke's proposal to "build into its base rates a representative balance of coal inventory," for each of the Edwardsport, Gibson, and Cayuga plants:

a. Identify in tons and days of coal supply at full load burn rate the coal inventory level currently built into Duke's base rates.
b. Identify in tons and days of coal supply at full load burn rate the coal inventory level that Duke is proposing to build into its base rates.
c. Identify the impact on revenue requirement and rates that the change from the current coal inventory levels to the levels proposed by Duke in this proceeding would have.

Objection:

Duke Energy Indiana objects to this request to the extent it seeks information not maintained by the Company in the ordinary course of business. Duke Energy Indiana also objects to this request to the extent it seeks a study the Company has not performed and to which it objects performing.

Response:

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

a. Base rates from Cause No. 45253 reflect 2,517,963 tons of coal inventory, or approximately 46 full load burn days. This includes coal inventory at Edwardsport, Gibson, Cayuga, and Gallagher.
b. Base rates proposed in Cause No. 46038 reflect 2,333,474 tons of coal inventory, or approximately 45 full load burn days. This includes coal inventory at Edwardsport, Gibson, and Cayuga.
c. See the table below for the retail revenue requirement associated with fuel inventory as proposed in Cause No. 46038 compared to the retail revenue requirement associated with fuel inventory reflected in current base rates approved in Cause No. 45253.

(dollars in thousands)	Cause No. 46038	Cause No. 45253	Difference
Coal inventory in rate base	$130,594	$114,710	
Rate of return	6.52%	5.71%	
Revenue requirement	$8,515	$6,550	$1,965

Witness: John A. Verderame (a and b) / Christa L. Graft (c)

Citizens Action Coalition of Indiana, Inc.
IURC Cause No. 46038
Data Request Set No. 2
Received: April 23, 2024

CAC 2.83

Request:

Refer to the Direct Testimony of John Verderame at page 9 lines 7 through 20. For each of the Edwardsport, Gibson, and Cayuga plants:

a. Identify the actual 2023 coal burns through the end of August 2023 and for the full year.
b. Identify the projected 2023 coal burns through the end of August 2023 and for the full year. Identify the date(s) of such projections.
c. Identify in tons and days of coal supply at full load burn the coal inventory levels at the end of August 2023, the end of 2023, and the end of March 2024.
d. Identify in tons and days of coal supply at full load burn the amounts of coal that Duke had in off-site storage as of the end of March 2024.
e. Identify in tons and days of coal supply at full load burn the forecasted coal inventory balance as of December 31, 2025.
f. Identify and produce any modeling input and output files, workpapers, and other documents used in forecasting Duke's coal inventory balance as of the end of 2025.

Objection:

Duke Energy Indiana 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.-e. See Confidential Attachment CAC 2.83-A.
f. See Confidential Attachment CAC 2.53-B.

Witness: John Verderame

Citizens Action Coalition of Indiana, Inc.
IURC Cause No. 46038
Data Request Set No. 2
Received: April 23, 2024

SECOND SUPPLEMENTAL RESPONSE 7-5-24
SUPPLEMENTAL INFORMATION IN BOLD
CAC 2.84

Request:

For each of the Edwardsport, Gibson, and Cayuga generating units, provide the following historical annual data by unit, or, if Duke does not maintain unit-level data, by plant, for 2020 through 2023:

a. Fixed O&M cost
b. Non-fuel variable O&M cost
c. Fuel costs
d. Capital costs
e. Heat rate
f. Generation
g. Capacity rating
h. Capacity factor
i. Forced outage rate
j. Planned outage rate
k. Energy revenues
l. Capacity revenues
m. Ancillary services revenues.
n. Unforced capacity ("UCAP")

Objection:

Duke Energy Indiana 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. See Confidential Attachment CAC 2.84-A, tab "Part (a. b.) Summary O&M". Note: Duke Energy does not have a separation for Fixed O&M vs. Variable.
b. See Confidential Attachment CAC 2.84-A, tab "Part (a. b.) Summary O&M". Note: Duke Energy does not have a separation for Fixed O&M vs. Variable.
c. See Attachment CAC 2.84-B.
d. See Confidential Attachment CAC 2.84-A, tab "Part (d.) Summary CAP".
e. See Attachment CAC 2.84-B.
f. See Attachment CAC 2.84-B.
g. See Attachment CAC 2.84-B.
h. See Attachment CAC 2.84-B.
i. See Attachment CAC 2.84-B.
j. See Attachment CAC 2.84-B. Note: For part j., Planned Outage Rate (POR) is not a measured NERC value. Duke Energy measures and provided Equivalent Planned Outage Rate (EPOR).
k. See Attachment CAC 2.84-B.
l. See Confidential Attachment CAC 2.84-C for capacity revenues by MISO Planning Year for the Duke Energy Indiana asset owners Gibson 5, Edwardsport, and PSI. Duke Energy Indiana has 7 different applicable Asset Owners; Crane Solar, Benton County, Gibson 5, Vermillion, Henry County, Edwardsport, and PSI. The PSI Asset Owner includes all other resources other than those contained within the other individual asset owners, including Gibson 1-4 and Cayuga 1-2. Thus, capacity revenues for Edwardsport and Gibson 5 have been provided individually since these units have individual asset owner designations with MISO, but capacity revenue data for Gibson 1-4 and Cayuga 1-2 are not individually reported by MISO since this data is aggregated with other Duke Energy Indiana resources in the PSI Asset Owner. Additionally, note that annual data is included for the 2020-2021, 2021-2022, and 2022-2023 MISO planning years, but seasonally for the 2023-2024 MISO plan year.
m. See Attachment CAC 2.84-B.
n. Please refer to Confidential Attachment CAC 2.84-C for the amount of unforced capacity by resource for each planning year/season.

Supplemental Response (6/14/24):

Subject to and without waiving or limiting its objections and after discovering an inadvertent error in its prior response, Duke Energy Indiana is providing the following supplemental information:

a. See Revised Confidential Attachment CAC 2.84-A, tab "Part (a. b.) Summary O&M". Note: Duke Energy does not have a separation for Fixed O&M vs. Variable.

b. See Revised Confidential Attachment CAC 2.84-A, tab "Part (a. b.) Summary O&M". Note: Duke Energy does not have a separation for Fixed O&M vs. Variable.

d. See Revised Confidential Attachment CAC 2.84-A, tab "Part (d.) Summary CAP".

Second Supplemental Response (7/5/24):

Subject to and without waiving or limiting its objections and after discovering an additional inadvertent error in its prior response, Duke Energy Indiana is providing the following supplemental information:

d. See Second Revised Confidential Attachment CAC 2.84-A, tab "Part (d.) Summary CAP" which includes corrected Capital for the requested periods.

Witness: John Swez (k, l, m)

Citizens Action Coalition of Indiana, Inc.
IURC Cause No. 46038
Data Request Set No. 3
Received: April 29, 2024

CAC 3.05

Request:

Refer to Luke direct testimony, p. 11, lines 1-4. Identify the actual O&M cost, and the actual capital cost, of the 2023 dual gasifier outage at Edwardsport.

Objection:

Duke Energy Indiana objects to this request as vague and ambiguous, particularly the reference to the "2023 dual gasifier outage" without explanation.

Response:

Subject to and without waiving or limiting its objections and assuming this request seeks information regarding the Spring 2023 outage at Edwardsport, the Company responds as follows: Actual outage O&M costs were $20.2M and actual outage capital costs were $51.6M.

Witness: William C. Luke

Citizens Action Coalition of Indiana, Inc.
IURC Cause No. 46038
Data Request Set No. 3
Received: April 29, 2024

CAC 3.07

Request:

Refer to Luke direct testimony, p. 15. With regards to the statement that "[t[he NCF of the coal-fired units began to decline noticeably in the 2019-2020 timeframe due to load demand reductions caused by the COVID-19 pandemic"

a. Explain how NCF declines in 2019 could be explained by the COVID-19 pandemic, which did not become a pandemic until March 2020.
b. Explain the causes for the decline in the net capacity factor for Duke's coal-fired generating units from 2018 to 2019, as shown in Graph 2.

Objection:

Duke Energy Indiana objects to this request to the extent it seeks an analysis that has not been performed and that the Company objects to performing. Duke Energy Indiana also objects to this request as not reasonably calculated to lead to admissible evidence in this proceeding, particularly to the extent it seeks information related to 2018-2019.

Response:

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

a. Mr. Luke's testimony is referring to the general decline in NCF between 2019 and 2020, some of which is attributed to the effects of the pandemic.

b. From 2018 into 2019, a combination of more time in economic reserve, more time in scheduled outages, and somewhat more time in forced outages contributed to declining capacity factors in that timeframe. The occurrence and causation of forced outages is recorded in NERC GADS (please see the Company's response to OUCC 6.33). The causation of scheduled outages is to perform needed maintenance to maintain safe, reliable, efficient, and environmentally compliant operations. The causation of time in economic reserve is multifaceted (relationships among fuel prices, energy prices, load demand, weather, etc. multiple pieces of which were affected by the pandemic) and is not specifically identified for every reserve shutdown event of every unit.

Witness: William C. Luke

Citizens Action Coalition of Indiana, Inc.
IURC Cause No. 46038
Data Request Set No. 3
Received: April 29, 2024

CAC 3.08

Request:

Refer to Luke direct testimony, p. 16 lines 4-10.

a. Identify in detail specific constraints on coal deliveries that Duke experienced "moving out of 2021 into 2022."
b. Identify any time periods during which Duke's coal units were unable to operate, or reduced operation, due to constraints on coal deliveries. For each such period, identify the unit(s) impacted and the resulting reduction in operations at such unit(s)
c. State whether Duke has experienced any constraints on coal deliveries since early 2023. If so, identify each such constraint, the unit(s) impacted, and the resulting reduction in operations at such unit.

Objection:

Duke Energy Indiana objects to this request as overly broad and not reasonably calculated to lead to admissible evidence in this proceeding. Duke Energy Indiana also objects to this request as vague, particularly the portion seeking the Company to "identify any time periods . . ." without definition or explanation.

Response:

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

a. The coal supply chain constraints impacting deliveries in 2021 and 2022, included: the limited ability of producers to rapidly increase production; delayed delivery responses by rail transportation providers; and overall limited coal supply availability in the domestic market due to strong demand. More specifically, impacts from continued COVID-19 workplace protocols and outbreaks impacted railroad and mining labor resources over the course of 2021. In 2022, the Company continued to experience significant delivery delays created by rail transportation labor and resource shortages, these shortages were worsened by the on-going threat of a rail strike in Q4 2022.

b. At no time have Duke Energy Indiana's coal plants been unable to operate due to constraints on coal deliveries. During August and October 2021, the Company determined the coal inventory constraints at Gibson and Cayuga, respectively, could potentially impact the operation of its system. The Company actively pursued inventory mitigation efforts to alleviate the potential impacts to the system while

continuing to meet the Company's coal supply needs. The Company conducted two spot solicitations for coal supply, one in July 2021 and another in August 2021, as well as a long-term solicitation in September 2021 to ensure increased diversity of supply for Winter 2022 and to meet the Company's projected needs for 2022 and 2023. The spot solicitations were successful in securing supply from additional locations creating supply diversity and alternative supply routes. The Company also added truck deliveries where logistically feasible and adjusted shipping schedules to ensure coal was delivered to where it was most needed. Finally, as discussed in the testimony of Mr. Verderame, Duke Energy Indiana began including a price adjustment to its MISO offer to manage inventories at both ends of the inventory spectrum while economically and reliably serving customers, providing fuel security and mitigating exposure to price and availability risk by maintaining minimum and maximum coal inventory boundaries.

c. In 2023, the Company saw improvement in deliveries following the delivery constraints experienced in 2022.

Witness: William C. Luke / John Verderame

Citizens Action Coalition of Indiana, Inc.
IURC Cause No. 46038
Data Request Set No. 3
Received: April 29, 2024

CAC 3.09

Request:

Refer to Luke direct testimony, p. 27 line 20 to p. 28 line 1. With regards to the planned "material maintenance investment in the Gibson Unit 5 FGD in 2025":

a. identify the projected O&M cost of that project
b. identify the projected capital cost of that project
c. Confirm that the project would not need to be carried out if Gibson Unit 5 were still to be retired in 2026 rather than "into the 2030 timeframe." If not confirmed, explain why not.
d. State whether there are any other Gibson 5 O&M or capital projects that you anticipate incurring in 2024 or 2025 that would not have needed to be incurred if Gibson 5 were still to be retired in 2026. If so, identify each such project and its cost.

Objection:

Duke Energy Indiana objects to this request as overly broad and unduly burdensome. Duke Energy Indiana also objects to this request to the extent it seeks an analysis that has not been performed and that the Company objects to performing.

Response:

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

a. The planned 2025 Outage O&M cost for the Gibson U5 FGD is $1.6M.
b. The planned 2025 Outage Capital investment for the Gibson U5 FGD is $7.3M.
c. Deny. In order to maintain environmentally compliant operations, the investment in the Gibson Unit 5 FGD would still be needed to continue operations to 2026.
d. Yes. Duke Energy Indiana is planning to perform an HP/IP turbine major inspection in 2025 that the Company otherwise would not have performed. The estimated cost of that project is $3.0M Outage O&M and $2.9M Capital. There could be other smaller changes to the maintenance plan for the unit, but the Company has not developed maintenance scenarios for every option at this time, hence see objection.

Witness: William C. Luke

Citizens Action Coalition of Indiana, Inc.
IURC Cause No. 46038
Data Request Set No. 3
Received: April 29, 2024

CONFIDENTIAL RESPONSE
CAC 3.10

Request:

Refer to Verderame direct testimony, Chart 1 on p. 4, and p. 7 lines 3-21. With regards to the Dec. 1, 2023 stochastic mean coal burn forecast set forth in Chart 1

a. identify for each of the years 2024 through 2028 the forecasted 25th percentile modeling outcome
b. identify for each of the years 2024 through 2028 the forecasted 75th percentile modeling outcome
c. explain the coal procurement plan for the years 2024 through 2028 created from the December 1, 2023 coal burn forecast, and produce any documentation of the same
d. explain how the 25th and 75th percentile range of outcomes from the stochastic modeling impacted the coal procurement plan for the years 2024 through 2028
e. identify the length of the "longer term agreements" that Duke has a "strategy of procuring"

Objection:

Duke Energy Indiana 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:
a.

DEI System Total-P25		8,942,369	8,863,590	7,732,031	6,180,979	4,887,126
		2024	2025	2026	2027	2028

b.

DEI System Total-P75		11,702,683	11,920,545	11,158,426	10,487,278	8,548,391
		2024	2025	2026	2027	2028

c. See Confidential Attachment CAC 3.10-A for Duke Energy Indiana's 2024-2025 Coal Procurement Plan.

<BEGIN CONFIDENTIAL>

[redacted]

<END CONFIDENTIAL>

Witness: John Verderame

Citizens Action Coalition of Indiana, Inc.
IURC Cause No. 46038
Data Request Set No. 3
Received: April 29, 2024

CAC 3.11

Request:

Refer to Verderame direct testimony, p. 8 lines 1-13. With regards to the "supply offer adjustment" discussed therein:

a. Explain in detail how Duke decides when to utilize a supply offer adjustment
b. Explain in detail how Duke determines the size of the adjustment to be utilized
c. For each time that Duke utilized a "supply offer adjustment" since the beginning of 2021, identify:
    i. the time period during which you utilized the adjustment
    ii. the generating unit or units for which you utilized the adjustment
    iii. the amount of the adjustment
    iv. iv. the reason for utilizing the adjustment

Objection:

Duke Energy Indiana objects to this request as not reasonably calculated to lead to admissible evidence in this proceeding, particularly to the extent it seeks information related to 2021.

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.

Response:

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

a. The Company uses the supply offer adjustments to maintain reliable levels of coal inventory at Gibson units 1-5 and Cayuga units 1-2 to the benefit of its customers. The supply offer adjustment methodology works to proactively address factors that complicate the equilibrium of the coal supply and transportation chain and demand for coal generation in the power markets. The main factors that impact the supply offer adjustment are the reliability of the

coal supply and transportation chain, and volatility of power and natural gas prices. As energy market price volatility, fuel inventory supply chain constraints, and shifting dynamics in the market fuel resource mix continue to impact fuel inventories and fuel reliability, utilizing a dynamic supply offer adjustment methodology allows the Company to proactively protect customers from otherwise larger swings in fuel inventories over time.

b. The objective of the modeling process remains to maintain reliable and operationally sound minimum and maximum coal inventory levels while ensuring reliable coal inventory for the upcoming winter. To determine the amount of adjustment necessary, Company personnel utilize a stochastic modeling approach to determine the amount of adjustment to unit offers needed to maintain reliable inventory levels and supply chain dynamics most economically. This modeling approach accounts most objectively for all variables impacting forecasted coal burn and therefore projected coal inventory. The model utilizes up-to-date spot and future commodity and power prices, along with actual and expected coal deliveries, and actual and targeted station coal inventory. Contractual options undertaken by the Company to manage potential over or undersupply conditions are embedded in the expected coal delivery forecast. Overall, the stochastic modeling approach allows for an improved ability to simulate a range of generation unit availability, train deliveries, and price inputs to provide ranges for key outputs, such as coal burns, supply offer adjustments, station specific coal deliveries and coal inventory. This stochastic modeling process produces 100 simulations after which the model selects a supply offer adjustment that provides the expected least cost outcome within coal inventory bounds set for reliability purposes.

c. See objection. See Confidential Attachment CAC 3.11-A for the weekly supply offer adjustments (December 2021- February 2024).

Witness: John Verderame /John Swez

Citizens Action Coalition of Indiana, Inc.
IURC Cause No. 46038
Data Request Set No. 3
Received: April 29, 2024

CAC 3.12

Request:

Refer to Verderame direct testimony, p. 8 line 14 to p. 9 line 6.

a. Identify and produce any analysis, including supporting modeling files and workpapers, of whether Duke's utilization of a supply offer adjustment since the beginning of 2021 has reduced overall costs for its ratepayers. If no such analysis has been performed, explain why not.
b. Identify and produce any analysis, including supporting modeling files and workpapers, of whether Duke's expected continued "utilization of the supply offer adjustment in its normal course of business" is expected to reduce overall costs for its ratepayers. If no such analysis has been performed, explain why not.

Objection:

Duke Energy Indiana objects to this request as overly broad and unduly burdensome, particularly the portion seeking "any analysis" and "…since the beginning of 2021." Duke Energy Indiana also to the extent it seeks a calculation or compilation that has not already been performed and that Duke Energy Indiana objects to performing.

Response:

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

The Company is unable to determine the specific cost associated with the supply offer adjustment. Such a calculation would include a host of assumptions, including what resulting unit commitment, Locational Marginal Prices (LMP), and behavior of other market participants would have been during this time absent the Company's use of a supply offer adjustment.

Estimating the costs and/or impacts associated with the application of the supply offer adjustment to generation offers comes with a host of limitations and complications and requires a myriad of assumptions. First, there is not a way to know how MISO would have committed or dispatched generating units any differently in either the day-ahead or real-time market due to the supply offer adjustment, because there is no way to know whether a supply offer adjustment has direct impact on MISO LMP. Second, there is no way to assume MISO would have cleared or deployed ancillary services any differently. Third, while there is no way to know for sure, other market participants could be taking similar actions, which complicates the assumptions for overall impact even further. Additionally, Duke Energy Indiana does not have access to MISO's optimization software that makes commitment and dispatch decisions and performs pricing

calculations and therefore cannot assess other market participant actions. Finally, this calculation would also have to assume a future replacement market price for coal that was not consumed and not utilize the current weighted average or contract price of delivered coal. There is also not an accurate way to assess the cost of purchase power risk to customers in the event Duke Energy Indiana does not have reliable inventory to operate its coal units in future periods. For these reasons, Duke Energy Indiana is unable to state with any level of certainty the impact on its customers in current or future periods.

Witness: John D. Swez

Citizens Action Coalition of Indiana, Inc.
IURC Cause No. 46038
Data Request Set No. 5
Received: May 10, 2024

CONFIDENTIAL RESPONSE
CAC 5.01

Request:

Re: direct testimony of Verderame (DEI Ex. 21) at page 8, lines 2-13:

> "During 2021, Duke Energy Indiana instituted the use of a supply offer adjustment to ensure reliable levels of coal inventory to the benefit of its customers. The supply offer adjustment methodology proactively addresses factors that complicate the equilibrium of the coal supply and transportation chain and demand for coal generation in the power markets. The main factors that impact the supply offer adjustment are the reliability of the coal supply and transportation chain, and volatility of power and natural gas prices. The supply offer adjustment implemented by the Company is an empirical and repeatable modeling solution to account for these factors and to objectively balance dispatch economics in a dynamic and volatile energy market environment while also accounting for retaining a reliable amount of coal inventory for future peak periods. This methodology is in the best interest of customers because it provides economically driven fuel security."

a. Please describe in detail all methodologies, calculations, formulae, quantitative inputs, rules, protocols, or standards that comprise the referenced "supply offer adjustment." Please provide any necessary spreadsheets or workpapers in native form.
b. When exactly did Duke begin the supply offer adjustment?
c. Is Duke still using the supply offer adjustment today?
d. If the answer to part (c) is No, when did Duke stop using the supply offer adjustment?
e. If the answer to part (c) is No, does Duke intend to reintroduce the supply offer adjustment in the future under particular circumstances? Please explain.
f. If the answer is part (c) is Yes, does Duke intend to cease using the supply offer adjustment in the future under particular circumstances? Please explain.
g. Which generating units does the supply offer adjustment apply to?
h. How does Duke define or measure or evaluate a "reliable amount of coal inventory for future peak periods"? Please explain in detail.
i. Please describe any similarities between Duke's "coal decrement pricing" methodology used in 2020 (as discussed in, *e.g.,* Cause No. 38707 FAC 125) and the "supply offer adjustment" methodology begun in 2021.

Objection:

Duke Energy Indiana objects to this request as not reasonably calculated to lead to admissible evidence in this proceeding. Duke Energy Indiana objects to this request as vague and overly broad, particularly the reference to "all methodologies, calculations, formulae, quantitative inputs, rules, protocols, or standards…" and "any necessary spreadsheets or workpapers…"

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.

Response:

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

a. The supply offer adjustment methodology allows Company personnel to dynamically manage inventory and volatile energy market conditions reliably and economically throughout the year. As energy market price volatility, fuel inventory supply chain constraints, and shifting dynamics in the market fuel resource mix continue to impact fuel inventories and fuel reliability, utilizing a dynamic supply offer adjustment methodology allows the Company to proactively protect customers from otherwise larger swings in fuel inventories over time. The Company has implemented a reasonable and objective modeling solution to account for these constraints and to objectively balance dispatch economics in a dynamic and volatile energy market environment while also accounting for retaining a reliable amount of coal inventory for future periods. This is in the best interest of customers from a fuel security standpoint as well as an economic standpoint.

   The Company continues the use of supply offer adjustments to maintain reliable levels of coal inventory at Gibson units 1-5 and Cayuga units 1-2 to the benefit of its customers. The supply offer adjustment methodology continues to proactively address factors that complicate the equilibrium of the coal supply and transportation chain and demand for coal generation in the power markets. The main factors that impact the supply offer adjustment are the reliability of the coal supply and transportation chain, and volatility of power and natural gas prices.

   The objective of the modeling process remains to maintain reliable and operationally sound minimum and maximum coal inventory levels while ensuring a reliable coal inventory. To determine the amount of adjustment necessary, Company personnel utilizes a stochastic modeling approach to determine the amount of adjustment to unit offers needed to maintain reliable inventory levels and supply chain dynamics most economically. This modeling approach accounts most objectively for all variables impacting forecasted coal burn and therefore projected coal inventory. The model utilizes up-to-date spot and future commodity and power prices, along with actual and expected coal deliveries, and actual and targeted station coal inventory. Contractual options undertaken by the Company to manage potential over or undersupply conditions are embedded in the expected coal delivery forecast. Overall,

the stochastic modeling approach allows for an improved ability to simulate a range of generation unit availability, train deliveries, and price inputs to provide ranges for key outputs, such as coal burns, supply offer adjustments, station specific coal deliveries and coal inventory. This stochastic modeling process produces 100 simulations after which the model selects a supply offer adjustment that provides the expected least cost outcome within coal inventory bounds set for reliability purposes. Offers are determined by both the amount and availability of generation and the generator's offer price. The offer price of a generator is largely determined by the input price of the commodity used to produce power, which includes the price of fuel, emission allowances, and variable O&M. In the case of the adjustment to the Company's supply offers at Gibson 1-5 and Cayuga 1-2, offers are calculated as they would be normally and then adjusted by the necessary $/MWh supply offer adjustment amount. The Company monitors commodity prices and coal inventories within its normal course of business and continues to update the $/MWh adjustment to offers at Gibson and Cayuga stations on a weekly basis.

The adjustment could be zero, positive, or negative in a certain period of time or even a positive value at one station and a negative value at the other within the same week, as both cases have occurred historically. The adjustment process is specific to each station and an enhancement to a broad-brush approach; thus the values may be different.

b. The supply offer adjustment began August 5, 2021 for Gibson and October 23, 2021 for Cayuga.

c. Yes, the Company is still using the supply offer adjustment.

d. N/A

e. N/A

f. The Company expects to continue utilizing its supply offer adjustment process for Gibson 1-5 and Cayuga 1-2 as a normal course of business. The Company believes that energy market volatility, supply chain uncertainty and shifting industry fuel portfolio mixes continues to require an objective and proactive methodology to manage commitment and dispatch of its coal generators while continuing to responsibly manage its fuel inventory economically and reliably.

g. The Supply offer adjustment applies to Gibson 1-5 and Cayuga 1-2.

h. The Company actively manages coal inventories within established reliability and operational safety tolerances, which are typically a minimum of <**BEGIN CONFIDENTIAL**> [redacted] <**END CONFIDENTIAL**> and a maximum of between <**BEGIN CONFIDENTIAL**> [redacted] <**END CONFIDENTIAL**>.

i. At a high-level, both the 2020 decrement and current supply offer adjustment methodologies involve searching for cost-minimizing adjustments to unit offer pricing for the purpose of managing coal inventory levels. However, the 2020 decrement required a time-consuming

manual search process that evaluated the impact of decrement pricing on future coal burn by running iterative production cost model simulations. The current supply offer adjustment leverages a regression-based model of station coal burn to run an automated optimization algorithm that co-optimizes offer pricing and no-cost supply chain actions (e.g. limited delivery deferrals) to minimize long-term system fuel cost under coal supply chain constraints.

Witness: John D. Swez

Citizens Action Coalition of Indiana, Inc.
IURC Cause No. 46038
Data Request Set No. 5
Received: May 10, 2024

CAC 5.02

Request:

Re: testimony of Verderame, DEI Ex. 21, at page 9, line 2 (describing Duke's efforts at "improving coal inventory practices").

a. Is Duke now storing any coal in interim storage locations?
b. Is Duke planning to store any coal in interim storage locations during the 2025 test year?
c. If the answer to part (a) or part (b) is Yes, does Duke intend to stop storing coal in interim storage locations under particular circumstances? Please explain.
d. If the answer to part (a) or part (b) is Yes, then please state the interim storage locations and produce relevant contracts for such interim storage.
e. If the answer to part (b) is Yes, then please state the interim storage locations planned for the 2025 test year and produce relevant contracts for such interim storage.
f. If the answer to part (b) is Yes, then please state the tons of coal in the interim storage locations planned for the 2025 test year.
g. If the answer to part (b) is Yes, please state the carrying cost (per ton and per unit of time) for the 2025 test year for coal stored at interim storage sites.
h. Is Duke including any interim storage costs of coal in the 2025 test year revenue requirement? Please describe in detail and explain all cost calculations.

Response:

a. The Company is not storing coal at an interim Storage location.
b. The Company does not, as of now, plan on storing coal at an interim storage location during the 2025 test year.
c. N/A
d. N/A
e. N/A
f. N/A
g. N/A
h. Duke Energy Indiana is not including any interim storage costs of coal in the 2025 test year revenue requirement.

Witness: John Verderame

Citizens Action Coalition of Indiana, Inc.
IURC Cause No. 46038
Data Request Set No. 7
Received: May 24, 2024

CONFIDENTIAL RESPONSE
CAC 7.02

Request:

Duke response to data request SC-1-16, Confidential Attachment SC 1-16-A; Duke response to data request CAC 3-11, Confidential Attachment CAC 3-11-A; Duke response to data request CAC 5.01.

(a) Which offer categories shown in the SC 1-16-A confidential attachment have been adjusted using the "supply offer adjustment" values ($ per MWh) shown on the CAC 3-11-A confidential attachment?

(b) Please describe the "regression-based model of station coal burn" described in response to data request CAC 5.01(i).

(i) Does this mean Ordinary Least Squares regression?

(ii) What is the dependent variable and what are the independent variables in this regression-based model?

(iii) How often is the structure of the regression model updated?

(iv) Please provide the specific regression equation used for the model.

(v) Please provide output results of this regression analysis for a sample run as of a particular time.

(c) Does the "supply offer adjustment" modeling process assume that, as of any time the analysis is run, the same supply offer adjustment ($ per MWh) will be used at all future times? Or does the model (when it is run at any moment) produce an optimal time path of future supply offer adjustments that may vary over time? Please explain in detail.

Objection:

Duke Energy Indiana 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) The supply offer adjustment results in a change to the coal cost used for the purposes of calculating the units offer to MISO. Any calculation that uses the units fuel cost as an input is impacted, namely the offered no-load cost ($/hour), incremental cost ($/MWh), and startup cost ($/start). Note that since fuel oil is the primary fuel used for the Duke Energy Indiana coal unit's startup costs, a change in coal cost will have an insignificant effect on a unit's startup cost.

(b) <BEGIN CONFIDENTIAL>

[redacted]

[redacted]

<END CONFIDENTIAL>

Witness: John D. Swez

Citizens Action Coalition of Indiana, Inc.
IURC Cause No. 46038
Data Request Set No. 8
Received: May 30, 2024

SUPPLEMENTAL RESPONSE 6/24/24
SUPPLEMENTAL INFORMATION IS IN BOLD
CAC 8.03

Request:

Please refer to DEI's requests in this proceeding with respect to coal inventory.

a) Please confirm or deny with explanation that under DEI's proposal in this case, DEI's return on coal inventory would increase if DEI's actual coal inventory is higher than 45 days during a future FAC reconciliation period.
b) Please provide in spreadsheet format the calculation(s) that DEI will use to track differences in coal inventory in its FAC filings.
c) Please provide in spreadsheet format the calculation(s) that DEI will use to calculate the adjustment to its requested FAC revenue in the event that DEI calculates a non-zero difference between 45 days coal inventory and its actual coal inventory.
d) Please provide in spreadsheet format an illustrative example of how DEI's proposal to track differences in coal inventory will impact the amount of revenue requested in an FAC proceeding, using the example in which DEI actually has 50 days instead of 45 days of coal inventory as requested in this case.

Objection:

Duke Energy Indiana objects to subparts b)-d) of this request to the extent they seek a study or analysis the Company has not performed and to which it objects performing.

Response:

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

a) Confirm. Answering further, the Company is proposing to make an adjustment during each quarter to the cost of inventory.
b) See objection.
c) See objection.
d) See objection.

Supplemental Response (6/24/24):

b) See the testimony of Christa L. Graft at page 39, lines 12 through 20 for a narrative description of the calculation to be included in Duke Energy Indiana's FAC filings, as further illustrated below.

1	Coal inventory balance at FAC cutoff date in dollars	$xxx,xxx,xxx	
2	Retail jusisdictional percentage	xx.xx%	
3	Retail jurisdictional coal inventory balance af FAC cutoff date	xxx,xxx,xxx	line 1 x line 2
4	Retail jurisdictional coal inventory balance in base rate	xxx,xxx,xxx	
5	Difference	xx,xxx,xxx	line 3 - line 4
6	Most recently approved weighted average cost of capital	x.xx%	
7	Revenue conversion factor for return	x.xxxxx	
8	Revenue requirement for increase/(decrease) in retail jurisdictional coal inventory balance	$x,xxx,xxx	line 5 x line 6 x line 7

c) See objection. See response to subpart b).

d) See objection. See response to subpart b).

Citizens Action Coalition of Indiana, Inc.
IURC Cause No. 46038
Data Request Set No. 11
Received: June 17, 2024

CAC 11.01

Request:

Refer to DEI's response to CAC 2.53, attachment (b) regarding the Company's fuel burn forecast and CAC 3.10, Attachment A regarding the Company's coal procurement strategy.

a. Provide a narrative description of how the Annual Coal Burn results are developed by the FAST model.
b. Provide all model documentation and manuals available to the Company for the FAST model.
c. Provide all inputs the company provides to the model including, but not limited to, load, fuel prices, outage and maintenance plans.
d. Provide all inputs the company uses to develops model assumptions for "correlated weather, fuel and power commodity prices, and plant availability."
e. Provide all internal reports, analysis, and communications regarding the Company's projected coal burns for this rate case.
f. Provide all communications with any of Duke's coal suppliers regarding the Company's projected coal burns for this rate case.

Objection:

Duke Energy Indiana objects to this request as the phrases "all model documentation," "all inputs," "all internal reports, analysis and communications," and "all communications" are overly broad and unduly burdensome. 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.

Response:

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

The Fleet Analytics Stochastics Tool (FAST) is the Duke Energy configuration of the PowerSIMM production cost model developed by Ascend Analytics, with post-processed

reporting output tailored to the purpose of mid-term timeframe fuel forecasting. The following description is specific to the use case of coal burn forecasts derived for Duke Energy Indiana.

a. Market forwards for gas and power are imported for a given COB date from exchange data, chiefly Intercontinental Exchange, Inc. and CME Group. Coal pricing is derived from expected deliveries from existing contracts, and market projections provided by CoalDesk. In PowerSIMM, historical weather, load, and price behaviors are used to derive 100 unique, correlated sets of price trajectories granular to the hourly level. This pool of 100 simulation sets is then scaled so that on a monthly level, the averages of various parameters (loads and market prices) correspond to provided forward price curves and load forecasts. A fixed portfolio of Indiana generation assets are market dispatched against these 100 price simulation sets, resulting in 100 sets of output data. Outputs from PowerSIMM are then postprocessed to establish the generating stack (native vs non-native, etc.) on an hourly basis, derive summary statistics (percentiles, means, etc.), and accommodate any necessary fuel re-costing or derived variables (Coal WACI, etc.). This postprocessed data is provided as compiled reports to coal procurement.

b. See Confidential Attachment CAC 11.1-A.

c. See Confidential Attachments CAC 11.1-B thru 11.1-F for the FAST load, coal price, gas/oil prices, market prices, and scheduled outages inputs.

d. See objection.

e. See Confidential Attachment CAC 11.1-G.

f. The Company does not have requested communications as it does not provide coal suppliers projected coal burns.

Witness: John Verderame

Citizens Action Coalition of Indiana, Inc.
IURC Cause No. 46038
Data Request Set No. 11
Received: June 17, 2024

CAC 11.02

Request:

Refer to the direct testimony of Verderame at 4. How does the Company explain the jump in coal burns between its actual burns in 2019-2023 and its forecasted burns in 2024-2028.

Response:

Fuel burn swings are primarily caused by natural gas and coal unit commitment and dispatch into the MISO energy market, competing for placement in the generation dispatch stack.
Starting in the 2020 timeframe, the Company's coal-fired unit burns began to decline noticeably due to demand reductions caused by the COVID-19 pandemic. Lower system demands lead to lower MISO energy market prices, making it more economic for customers for the Company's generators to operate less, and instead buy more energy from the MISO market. Post-pandemic, the Company experienced load demand rebound, but became constrained on coal deliveries due to challenges in the supply chain. That constrained the coal-fired units' burn performance from the late-half of 2021 through 2022. While those supply chain issues were largely resolved by early 2023, rapidly declining natural gas prices, moderate weather driven demand, and planned station maintenance again caused an overall decline in actual coal burns. The Company's forecast as of COB 12/01/2023, which was the basis for Mr. Verderame's direct testimony at 4, forecasted coal burns to increase relative to actual coal burns as higher expected demand, moderating commodity prices, and planned unit availability, particularly in 2024 and 2025, caused the Company's production cost model to increase dispatch of the Company's owned generation.

Witness: John Verderame

Citizens Action Coalition of Indiana, Inc.
IURC Cause No. 46038
Data Request Set No. 12
Received: June 21, 2024

CAC 12.02

Request:

Refer to DEI's response to SC 1.18-C, contained within "Confidential Attachment SC 1.18-A.xlsx," which gives projected generation levels at Cayuga, Gibson, and Edwardsport.

a. Please confirm whether these projections were produced using the FAST model. If no, please specify which model DEI used to produce these values.
b. Please provide the most recent FAST forecast for generation at Cayuga, Gibson, and Edwardsport, broken out by unit and year, and specify the date of the forecast.

Objection:

Duke Energy Indiana objects to this request as vague and not reasonably calculated to lead to admissible evidence in this proceeding. Duke Energy Indiana also objects to subpart b to the extent it seeks information not maintained in the ordinary course of business.

Response:

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

a. No. Generation projections were produced using the EnCompass planning model. EnCompass uses a detailed production-cost model for simulation of the optimal operation of an electric utility's generation facilities.
b. See objection. Duke Energy Indiana does not maintain the requested information.

Sierra Club
IURC Cause No. 46038
Data Request Set No. 1
Received: May 2, 2024

SECOND SUPPLEMENTAL RESPONSE 7-5-24
SUPPLEMENTAL INFORMATION IN BOLD
SC 1.04

Request:

For each of the Company's coal- or solid-fuel units (Gibson, Cayuga, and Edwardsport), please identify the amount of money that Duke has included in the Company's Test Year spending—both forward-looking test year (2025) and historic base period (2023)—as proposed in this case, by the following types:

a. Fixed operations & maintenance
b. Variable operations & maintenance
c. Environmental capital
d. Non-environmental capital
e. Coal costs
f. Other fuel costs (please specify)
g. Other (please specify)

Objection:

Duke Energy Indiana objects to this request to the extent it seeks information not maintained in the ordinary course of business. Duke Energy Indiana also objects to subparts e, f and g of this request as vague and overbroad, specifically the references to "Coal costs", "Other fuel costs (please specify)" and "Other (please specify)" without explanation or definition.

Response:

Subject to and without waiving or limiting its objections and with the additional explanation for subparts c and d that test year forecasted capital will not equal test year forecasted rate base, Duke Energy Indiana responds as follows:

a. See objection. Fixed and Variable O&M are not tracked separately. Please see Attachment SC 1.4-A for total O&M.
b. See objection. Fixed and Variable O&M are not tracked separately. Please see Attachment SC 1.4-A for total O&M.
c. See objection. Environmental and Non-environmental capital are not tracked separately. Please see Attachment SC 1.4-A for total capital.
d. See objection. Environmental and Non-environmental capital are not tracked separately. Please see Attachment SC 1.4-A for total capital.
e. See objection. Assuming this request seeks information regarding coal inventory sought for inclusion in rate base in this proceeding, please see MSFR 1-15-12 (c) (v)-(vi).

f. See objection. Assuming this request seeks information regarding diesel fuel inventory sought for inclusion in rate base in this proceeding, please see MSFR 1-15-12 (c)(v)-(vi).
g. See objection.

Supplemental Response (6/14/24):

Subject to and without waiving or limiting our objections and after discovering an inadvertent error in the prior response, Duke Energy Indiana is providing the following supplemental information:

a. See objection. Fixed and Variable O&M are not tracked separately. Please see Revised Attachment SC 1.4-A for total O&M.
b. See objection. Fixed and Variable O&M are not tracked separately. Please see Revised Attachment SC 1.4-A for total O&M.
c. See objection. Environmental and Non-environmental capital are not tracked separately. Please see Revised Attachment SC 1.4-A for total capital.
d. See objection. Environmental and Non-environmental capital are not tracked separately. Please see Revised Attachment SC 1.4-A for total capital.

Second Supplemental Response (7/5/24):

Subject to and without waiving or limiting our objections and after discussions with Counsel for Sierra Club, Duke Energy Indiana is providing Second Revised Attachment SC 1.4-A, which contains the available data by unit. The total capital (parts c and d) has also been revised due to an inadvertent error.

Sierra Club
IURC Cause No. 46038
Data Request Set No. 1
Received: May 2, 2024

SC 1.08

Request:

For each of the Company's coal- or solid-fuel units (Gibson, Cayuga, and Edwardsport), please provide:

a. Identify any transmission grid upgrades or changes that would be needed to allow for the retirement of any of the units.
b. Produce any analysis or assessment of the need for the continued operation of each unit.
c. Provide the remaining book value (plant balance) at the start of 2024.
d. Identify the current undepreciated book value, and the expected undepreciated book value for each year of the remaining operating life of the unit.
e. Produce any analysis or assessment of the impact that retirement of each unit would have on capacity adequacy, transmission grid stability, transmission grid support, voltage support, or transmission system reliability.

Objection:

Duke Energy Indiana objects to this request as not reasonably calculated to lead to admissible evidence in this proceeding. Duke Energy Indiana also objects to this request to the extent it seeks information not maintained by the Company in the ordinary course of business. Duke Energy Indiana objects to subpart e of this request to the extent it seeks a study or assessment the Company has not performed and to which it objects performing. Duke Energy Indiana also objects to subparts b and e as overbroad and vague, specifically the portion seeking "any analysis or assessment" without explanation or limitation.

Response:

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

a. See objection. Explaining further, upon submittal of an Attachment Y by the Company, MISO would then perform its generation retirement studies.
b. See objection. Answering further, please see the Company's 2021 IRP and updated modeling, which are referenced on the following website: Indiana 2021 IRP Stakeholder Engagement - Duke Energy (duke-energy.com)
c. Net Book Value as of December 31, 2023:
    a. Cayuga $0.5B
    b. Edwardsport $1.8B
    c. Gibson $1.7B

d. Please see detail in Exhibit 26, Attachment 26-C, Workpaper RB2 and 3. There are summaries by station in these workpapers for each month from August 2023 through December 2025 for Plant in Service and Depreciation Reserve.
e. See objection. Please also see the Company's response to subpart a.

Sierra Club
IURC Cause No. 46038
Data Request Set No. 1
Received: May 2, 2024

SC 1.14

Request:

For each of the Company's coal- or solid-fuel units (Gibson, Cayuga, and Edwardsport) included in the Test Year costs (base historic period and forward-looking year):

a. Identify Duke's ownership share.
b. Identify the currently planned retirement date.
c. Explain the basis for each planned retirement date that is identified.
d. Please provide all supporting analyses, calculations, data, documents, modeling input and output files, and workpapers associated with or used in determining each planned retirement date.

Response:

a. Duke Energy Indiana has 100% ownership share in all coal- or solid-fuel units requested with the exception of Gibson Unit 5, which is 50.05% Duke share owned.
b. See Attachment 17-B (WCL) submitted with the direct testimony of William C. Luke.
c. Please refer to the updated modeling from December 2023, as referenced on the Company's public IRP website: 2022-2023 RFP & CPCN Process - Duke Energy (duke-energy.com).
d. Please refer to the updated modeling from December 2023, as referenced on the Company's public IRP website: 2022-2023 RFP & CPCN Process - Duke Energy (duke-energy.com).

Witness: William C. Luke (part a., b.)

Sierra Club
IURC Cause No. 46038
Data Request Set No. 1
Received: May 2, 2024

SC 1.16

Request:

With respect to each coal- or solid-fuel electric generating unit owned by Duke and their interaction with MISO, please provide the following monthly information for each year from 2018 through 2024 (latest available).

a. Duke's average bid price into the market
b. To the extent that Duke's average bids differ from production costs, provide a detailed explanation why and supporting analysis for these bid values.
c. The hours for which each unit was self-committed into MISO.
d. The hours for which each unit self-scheduled into MISO.

Objection:

Duke Energy Indiana objects to this request as overly broad and unduly burdensome, particularly the portion seeking "for each year from 2018…" Duke Energy Indiana also objects to this request as vague and ambiguous, particularly the reference to "average bid price" and "production costs." 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, see Duke Energy Indiana's response below:

a. See objection. Assuming the request is for unit offer, see Confidential Attachment SC 1.16-A, "Incremental Cost Offers" sheet, columns F-Q, "No Load Cost" sheet, column E, "Startup Cost" sheet, columns C-E, and "Ancillary Services" sheets, columns G, H, J, and L for the incremental cost offer, no-load cost offer, startup cost, and ancillary services offer, respectively, which collectively are the units supply offer to MISO for the applicable units from 2022 to 2024.

b. See objection. Assuming this request relates to unit offer and "Production costs" is assumed to mean the Weighted Average Cost of Inventory (WACI), Duke Energy Indiana responds as follows: For purposes of calculating the offer of a Company's coal or solid fuel generating unit in the MISO energy market, Duke Energy Indiana does not use a unit's WACI price as an input to calculate a unit's offer. The Company uses the weighted average of forecasted contract deliveries of coal to a station during the prompt month as an input to the offer cost calculation. Please also see Confidential Attachment CAC 3.11.

c. See Confidential Attachment SC 1.16-A, "Day-Ahead Clear and Status" sheet, column E for the hours in which each applicable unit was self-committed by the Company (Commitment Status of Must Run) in the Company's offers to MISO for the applicable units from 2022 to 2024.

d. See Confidential Attachment SC 1.16-A, "Real-Time Unit Parameters" sheet, column G and J for the hours in which each applicable unit was self-scheduled in the Company's offers to MISO for the applicable units from 2022 to 2024. The assumption is made here that "self-scheduled" means that a specific generating unit output amount was specified by the Company to MISO. Thus, if the difference between the Min Economic Limit in column G and Max Economic Limit in column J is zero, the unit was "self-scheduled".

Witness: John D. Swez

Sierra Club
IURC Cause No. 46038
Data Request Set No. 1
Received: May 2, 2024

SECOND SUPPLEMENTAL RESPONSE 7-5-24
SUPPLEMENTAL INFORMATION IN BOLD
SC 1.17

Request:

For each of the Company's coal- or solid-fuel units (Gibson, Cayuga, and Edwardsport), please provide the following historical annual data since 2018 through 2024 (year-to-date):

a. Installed Capacity
b. Unforced Capacity
c. Generation
d. Equivalent Availability Factor (EAF)
e. Heat Rate
f. Forced outage rate
g. Cold start-up costs
h. Warm start-up costs
i. Number of starts
j. Planned outage rate
k. Effective forced outage rate (EFORd)
l. Fixed O&M costs
m. Non-Fuel Variable O&M costs
n. Fuel Costs (by fuel type)
o. Environmental capital costs
p. Non-environmental capital cost
q. Energy revenues
r. Capacity revenues
s. Ancillary services revenues
t. Any other revenues (please specify)
u. Depreciation
v. Undepreciated net book value

Objection:

Duke Energy Indiana objects to this request as overly broad and unduly burdensome, particularly the portion of the request seeking data from 2018-2024. Duke Energy Indiana also objects to this request to the extent it seeks a calculation or compilation that has not already been performed and that Duke Energy Indiana objects to performing. Duke Energy Indiana objects to this request to the extent it seeks information not maintained by the Company in the ordinary course of business.

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.

Response:

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

a. See Attachment SC 1.17-B.
b. See Duke Energy Indiana's response to CAC 2.84, Confidential Attachment CAC 2.84-C
c. See Attachment SC 1.17-B.
d. See Attachment SC 1.17-B.
e. See Attachment SC 1.17-B.
f. See Attachment SC 1.17-B.
g. See Confidential Attachment SC 1.16-A, "Startup Cost" sheet, for the Cold startup costs used in the Company's offers to MISO for the applicable units from 2022 to 2024.
h. See Confidential Attachment SC 1.16-A, "Startup Cost" sheet, for the Intermediate (Warm) startup costs used in the Company's offers to MISO for the applicable units from 2022 to 2024.
i. See objection. Duke Energy Indiana does not maintain this information.
j. See Attachment SC 1.17-B.
k. See objection. Duke Energy Indiana does not maintain this information.
l. See Confidential Attachment SC 1.17-A.
m. See Confidential Attachment SC 1.17-A.
n. See Attachment SC 1.17-B.
o. See objection. Duke Energy Indiana does not maintain this information.
p. See Confidential Attachment SC 1.17-A.
q. See Attachment SC 1.17-B.
r. See Duke Energy Indiana's response to CAC 2.84, Confidential Attachment CAC 2.84-C
s. See Attachment SC 1.17-B.
t. No information related to "any other revenues" available.
u. See Attachment SC 1.17-C.
v. See Duke Energy Indiana's response to SC 1.8, subpart c.

Supplemental Response (6/14/24):

Subject to and without waiving or limiting its objections and upon locating an inadvertent error in the previous response, Duke Energy Indiana is providing the following supplemental information:

l. See Revised Confidential Attachment SC 1.17-A which includes corrected 2024 O&M to date.

m. See Revised Confidential Attachment SC 1.17-A which includes corrected 2024 O&M to date.

Second Supplemental Response (7/5/24):

Subject to and without waiving or limiting its objections and upon locating an additional inadvertent error in the previous response, Duke Energy Indiana is providing the following supplemental information:

l. See Second Revised Confidential Attachment SC 1.17-A which includes corrected 2024 O&M to date.
m. See Second Revised Confidential Attachment SC 1.17-A which includes corrected 2024 O&M to date.
o. See Second Revised Confidential Attachment SC 1.17-A which includes corrected Capital for the requested periods.

Witness: John D. Swez (g, h, m, q, r, s)

Sierra Club
IURC Cause No. 46038
Data Request Set No. 1
Received: May 2, 2024

SC 1.18

Request:

For each of the Company's coal- or solid-fuel units (Gibson, Cayuga, and Edwardsport), for each of the years 2024 through 2043 (or latest projection year), please provide the Company's most recent projection of:

a. Installed Capacity
b. Unforced Capacity
c. Generation
d. Equivalent Availability Factor (EAF)
e. Heat Rate
f. Forced outage rate
g. Cold start-up costs
h. Warm start-up costs
i. Number of starts
j. Planned outage rate
k. Effective forced outage rate (EFORd)
l. Fixed O&M costs
m. Non-Fuel Variable O&M costs
n. Fuel Costs (by fuel type)
o. Environmental capital costs
p. Non-environmental capital cost
q. Energy revenues
r. Capacity revenues
s. Ancillary services revenues
t. Any other revenues (please specify)
u. Depreciation
v. Undepreciated net book value

Objection:

Duke Energy Indiana objects to this request as overly broad and unduly burdensome, particularly the portion of the request seeking data from 2024-2043. Duke Energy Indiana also objects to this request to the extent it seeks a calculation or compilation that has not already been performed and that Duke Energy Indiana objects to performing. Duke Energy Indiana objects to this request to the extent it seeks information not maintained by the Company in the ordinary course of business.

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.

Response:

Subject to and without waiving or limiting its objections and providing information maintained by the Company, Duke Energy Indiana responds as follows:

a. See Confidential Attachment SC 1.18-A.
b. See Confidential Attachment SC 1.18-A.
c. See Confidential Attachment SC 1.18-A.
d. See Confidential Attachment SC 1.18-A.
e. See Confidential Attachment SC 1.18-A.
f. See Confidential Attachment SC 1.18-A.
g. See Confidential Attachment SC 1.18-A for total direct cost of starts and shutdowns.
h. See response to subpart g.
i. See Confidential Attachment SC 1.18-A.
j. See Confidential Attachment SC 1.18-A.
k. See Confidential Attachment SC 1.18-A.
l. See Confidential Attachment SC 1.18-A.
m. See Confidential Attachment SC 1.18-A.
n. See Confidential Attachment SC 1.18-A.
o. See objection. Duke Energy Indiana does not maintain this information.
p. See Confidential Attachment SC 1.18-A.
q. See Confidential Attachment SC 1.18-A.
r. See objection. Duke Energy Indiana does not maintain this information.
s. See Confidential Attachment SC 1.18-A.
t. See objection. No other revenues are modeled.
u. See objection. Refer to Company witness Spanos' Attachment 12-A (JJS).
v. See objection. Refer to Company witness Spanos' Attachment 12-A (JJS).

Sierra Club
IURC Cause No. 46038
Data Request Set No. 1
Received: May 2, 2024

SC 1.19

Request:

For each of the Company's coal- or solid fuel units (Gibson, Cayuga, and Edwardsport), please provide the following hourly information for each year from 2018 through 2024 (or latest available). For each sub question, if not available at an hourly scale, explain why not and provide at the most temporally granular scale available.

a. Price ($/MWh) of offers submitted into MISO Marketplace
b. Quantity (MW) of offers submitted into the MISO Marketplace
c. For each offer, whether that offer was accepted by MISO
d. Day-ahead dispatch status, such as market/economic, self/must run, outage, reliability, not participating or other recorded purposes
    i. If there is an outage, please indicate whether it was planned or unplanned.
e. Real-time dispatch status, such as market/economic, self/must run, outage, reliability, not participating or other recorded purposes
    i. If there is an outage, please indicate whether it was planned or unplanned.
f. Day-ahead unit commitment status, such as market/economic, self/must run, outage, reliability, not participating or other recorded purposes
    i. If there is an outage, please indicate whether it was planned or unplanned.
g. Real-time unit commitment status, including market/economic, self/must run, outage, reliability, not participating or other recorded purposes
    i. If there is an outage, please indicate whether it was planned or unplanned.
h. Accounting fuel costs ($/MWh)
i. Marginal (variable) fuel costs ($/MWh)
j. Start-up costs ($)
k. Other variable costs of production ($/MWh), including fuel, variable O&M, and any other variable operating costs
l. Other marginal variable costs of production ($/MWh), including fuel, variable O&M, and any other variable operating costs
m. Net generation cleared in day-ahead market (MWh)
n. Net generation in real-time market (MWh)
o. Locational marginal price received ($/MWh)
p. Energy market revenues ($)
q. Ancillary market revenues ($)
r. Congestion revenues ($)
s. Make whole payments from MISO ($)
t. Other revenues not included above (please specify)
u. Heat rate (Btu/kWh)
v. Economic minimum level (MW)
w. Economic maximum level (MW).

Duke Energy Indiana objects to this request as overly broad and unduly burdensome, particularly the portion of the request seeking data from 2018-2024. Duke Energy Indiana also objects to this request to the extent it seeks a calculation or compilation that has not already been performed and that Duke Energy Indiana objects to performing. Duke Energy Indiana objects to this request to the extent it seeks information not maintained by the Company in the ordinary course of business.

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.

Response:

Subject to and without waiving or limiting its objections and providing information maintained by the Company, Duke Energy Indiana responds as follows:

a. See the Company's response to SC 1.16.

b. See Confidential Attachment SC 1.16-A, "Real-Time Unit Parameters" sheet, column K for the Maximum Capability offer of each unit in the Company's offers to MISO for the applicable units from 2022 to 2024.

c. See Confidential Attachment SC 1.16-A, "Day-Ahead Clear and Status" sheet, column D or "Day-Ahead Awards" sheet, column D for the cleared Day-Ahead unit award received by the Company's offer to MISO for the applicable units from 2022 to 2024.

d. See Confidential Attachment SC 1.16-A, "Day-Ahead Clear and Status" sheet, Column E for the Day-Ahead commitment status offer of each unit in the Company's offers to MISO for the applicable units from 2022 to 2024. Refer to the Company's response to OUCC 6.33 for NERC GADS data for the outage type.

e. See Confidential Attachment SC 1.16-A, "Real-Time Unit Parameters" sheet, column E for the Real-Time commitment status offer of each unit in the Company's offers to MISO for the applicable units from 2022 to 2024. Refer to the Company's response to OUCC 6.33 for NERC GADS data for the outage type.

f. See the Company's response to subpart d.

g. See the Company's response to subpart e.

h. Please see the Company's response to CAC 2.84.

i. See objection. Answering further, see the Company's response to SC 1.16(a). Note that incremental cost, no-load cost, start-up cost offer data contains fuel costs, reagents costs, emissions costs, variable O&M costs, etc. and hourly offer data is not available split into components.

j. See the Company's responses to SC 1.17(g) and (h).

k. See the Company's response to SC 1.16.

l. See the Company's response to SC 1.16.

m. See the Company's response to subpart c.

n. See Confidential Attachment SC 1.16-A, "Meter Data" sheet, column E for the metered generation amount for each applicable unit from 2022 to 2024. Note that negative values for a generator represent an injection into the grid and a positive value for a generator represents when the generating unit was taking energy from the grid.

o. See Confidential Attachment SC 1.16-A, "Day-Ahead Awards" sheet, column L and "Meter Data" sheet, column D for the Day-Ahead and Real-Time LMP's received for the applicable units from 2022 to 2024.

p. See the Company's responses to subparts c, n, and o. Note that hourly energy market revenues can be calculated by taking the Day-Ahead unit cleared generation (MW) multiplied by the Day-Ahead LMP ($/MWh) plus/minus the difference between the Day-Ahead unit cleared generation (MW) and Metered Output (MW) multiplied by the Real-Time LMP. In addition, see the Company's response to CAC 2.84.

   Finally, note that the energy market revenues supplied in this response include all three components of the locational marginal price (Energy Component + Congestion Component + Loss Component).

q. See Confidential Attachment SC 1.16-A, "Day-Ahead Clear and Status" sheet, Columns F through O. Day-Ahead market ancillary services market revenue can be calculated by taking column F multiplied by column G + column H multiplied by column I + column J multiplied by column K + column L multiplied by column M + column N multiplied by column O. Data to calculate hourly Real-Time ancillary services revenue is not available to be calculated due to the intra 5-minute settlement complexities of ancillary services. However, see response to CAC 2.84, for an annual revenue summary for each unit.

r. See the Company's response to subpart p. Congestion revenues are included as a component of energy in that response.

s. Make Whole Payments are assumed to be comprised of:
    a. Day-Ahead Revenue Sufficiency Guarantee Make Whole Payment
    b. Real-Time Revenue Sufficiency Guarantee Make Whole Payment
    c. Real-Time Price Volatility Make Whole Payment

    Additionally, note that the charge or credit for Make Whole Payments contained in this response are already contained in the amount of energy revenue reported in the Company's response to subpart p.

    See Confidential Attachment SC 1.19-A for individual Make Whole Payments.

t. See the Company's response to CAC 2.84.

u. See objection. Please see the Company's response to CAC 2.84.

v. See Confidential Attachment SC 1.16-A, "Real-Time Unit Parameters" sheet, column G for the Economic Minimum offer of each unit in the Company's offers to MISO for the applicable units from 2022 to 2024.

w. See Confidential Attachment SC 1.16-A, "Real-Time Unit Parameters" sheet, column J for the Economic Maximum offer of each unit in the Company's offers to MISO for the applicable units from 2022 to 2024.

Witness: John Swez (Parts a-g, i-t, v-w)

Duke Industrial Group
IURC Cause No. 46038
Data Request Set No. 3
Received: May 15, 2024

IG 3.01

Request:

Please provide the following information about the Edwardsport generating station. To the extent your answer varies seasonally, please define the seasons and provide the requested information for each season.

a. Please provide the net capacity of Edwardsport when run on synthetic gas and natural gas.
b. Please provide the net capacity of Edwardsport when run only on natural gas.

Objection:

Duke Energy Indiana objects to this request as vague and ambiguous as it does not fully specify the operating conditions under which the net capacity ratings are requested.

Response:

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

a. When operated on 100% syngas fuel, the current internal net capacity ratings of Edwardsport are as follows:

   Summer: 555MW
   Fall/Spring: 566MW
   Winter: 578MW

   When co-firing syngas and natural gas fuel at the same time, the net capacity output rating will be lower than the values above, reducing continuously as the amount of natural gas fuel being co-fired increases.

b. When operated on 100% natural gas fuel, with gasification systems completely shut down, the current theoretical internal net capacity ratings of Edwardsport are as follows:

   Summer: 451MW
   Fall/Spring: 487MW
   Winter: 541MW

These ratings for 100% natural gas fuel are based on original GE design performance specifications for a "pure" natural gas combined cycle mode of operation. During much of the time that Edwardsport operates on 100% natural gas fuel, typically some gasification systems are still in service drawing auxiliary power. Hence, the plant typically operates at net output levels lower than the theoretical values provided above, when firing 100% natural gas fuel. The actual performance of the plant in producing power in "pure" natural gas combined cycle mode, firing 100% natural gas fuel and with all gasification systems' auxiliary power demands shut down, has rarely been (if ever) truly experienced, and certainly has not been tested in all seasons under all potential operating conditions.

Witness: William C. Luke

Duke Industrial Group
IURC Cause No. 46038
Data Request Set No. 3
Received: May 15, 2024

IG 3.03

Request:

Please provide the following information with respect to the Edwardsport generating station for each of the following years: actual for 2020, 2021, 2022, and 2023; as well as projected for 2024 and 2025.

a. Non-fuel O&M
b. Number of employees
c. Number of contractors
d. Cost of employees (including salary, incentives, benefits, and payroll tax)
e. Cost of contractors (including salary, incentives, benefits, and payroll tax)

Objection:

Duke Energy Indiana objects to this request as not reasonably calculated to lead to admissible evidence in this proceeding, particularly the portion seeking information from 2020 and 2021, which is outside the scope of this proceeding. In addition, Duke Energy Indiana objects to this request as vague and ambiguous, specifically the reference to "contractors" without sufficient definition or explanation.

Duke Energy Indiana 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. 2020: $151,121,563
   2021: $89,614,514
   2022: $83,344,359
   2023: $87,353,494

2024: $86,982,019
2025: $89,505,716 (see also the Company's response to IG 3.2)

b. See Confidential Attachment IG 3.3-A.

c. See objection. Assuming this request seeks information regarding contractors who work at the station on a long-term basis and not contractors brought in for a special project on a short-term basis, please see Confidential Attachment IG 3.3-A for the average number of contractors by year.

d. See Confidential Attachment IG 3.3-A.

e. See objection. Please see Confidential Attachment IG 3.3-A for the cost of labor charged to O&M associated with the contractors identified in the response to subpart c of this request.

Duke Industrial Group
IURC Cause No. 46038
Data Request Set No. 3
Received: May 15, 2024

IG 3.05

Request:

Please provide the following information with respect to the Edwardsport generating station.

a. The total amount of post-in-service capital cost (PISCC) investment for Edwardsport generating station to date.
b. The total amount of PISCC investment related to gasification equipment, coal handling, and other syngas-related plant to date.
c. The total amount of PISCC for Edwardsport included in Duke's proposed annual revenue requirement in this case.
d. The total amount of PISCC related to gasification equipment, coal handling, and other syngas-related plant included in Duke's proposed annual revenue requirement in this case.

Objection:

Duke Energy Indiana objects to this request as vague and ambiguous, particularly the reference to "post-in-service capital cost" without additional definition or explanation. Duke Energy Indiana objects to subparts b and d of this request to the extent they seek a calculation or compilation that has not already been performed and that Duke Energy Indiana objects to performing. Duke Energy Indiana also objects to subparts b and d of this request on the grounds that they seek information that is not maintained or used by the Company.

Response:

Subject to and without waiving or limiting its objections and assuming this request seeks information regarding plant additions to Edwardsport after in-service, Duke Energy Indiana responds as follows:

a. The capital additions from in-service to December 2023 at Edwardsport are approximately $499M.
b. See objection.
c. Please see Exhibit 26, Attachment 26-C, Workpaper RB3. This workpaper reflects Edwardsport plant in service included in the proposed annual revenue requirement, along with the pro-formas to remove the investment for the IGCC Pipeline Lease and IGCC Capital Maintenance over the agreed upon cap in Cause No. 43114 IGCC-15.
d. See objection.

Witness: Kathryn C. Lilly

Office of Utility Consumer Counselor
IURC Cause No. 46038
Data Request Set No. 8
Received: April 24, 2024

OUCC 8.01

Request:

On page 8, line 13, Hoeflich mentions that Edwardsport must be a "coal electric generation-only" facility in order to qualify for the federal grant.

a. Does this mean that Edwardsport cannot use natural gas at the facility during the study? If so, how long a period must Edwardsport use coal as the only fuel source? If not, please explain in detail.
b. Has Duke Energy Indiana performed any cost analysis to determine the effects of burning only syngas as opposed to both syngas and natural gas? If so, please provide the analysis.
c. Would burning only coal syngas increase Edwardsport's environmental compliance costs? If so, please provide the projected cost increase on a monthly basis for the project funding period.
d. Please provide a month-by-month breakdown of the percentage of time the Edwardsport unit burned syngas versus burning natural gas. Please provide this breakdown for each of the years 2021, 2022, and 2023, respectively.

Objection:

Duke Energy Indiana objects to this request as not reasonably calculated to lead to the discovery of admissible evidence in this proceeding. 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. Duke Energy Indiana further objects to subpart d. as seeking a study or analysis the Company has not performed and to which it objects performing.

Response:

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

a. There is no study requirement that would limit the use of natural gas at Edwardsport.

b. Please see objection.
c. Please see objection.
d. Please see objection. Please also see Confidential Attachment OUCC 8.1-A for the requested data in the format maintained by the Company in the ordinary course of business.

Witness: Peter C. Hoeflich for subpart a.

Office of Utility Consumer Counselor
IURC Cause No. 46038
Data Request Set No. 22
Received: May 23, 2024

OUCC 22.08

Request:

Please provide monthly information by generating station and total company for each of the calendar years ending December 31, 2021, 2022, 2023, and 2024 for the following:

a. Coal inventory levels (days, tons, dollars);
b. Average weighted cost of coal inventory;
c. Amount of coal burned (days, tons, dollars);
d. Average cost of coal burned;
e. Average cost of rail transportation by provider;
f. Total rail transportation expense by provider;
g. Average cost of truck transportation by provider; and
h. Total truck transportation expense by provider.

Objection:

Duke Energy Indiana objects to this request to the extent it seeks a calculation or compilation that has not already been performed and that Duke Energy Indiana objects to performing.

Response:

Subject to and without waiving or limiting its objections, please see Attachment OUCC 22.8-A for calendar years ending 2021 through 2023.

Witness: John Verderame

Office of Utility Consumer Counselor
IURC Cause No. 46038
Data Request Set No. 22
Received: May 23, 2024

OUCC 22.22

Request:

Witness Verderame's testimony mentions a "stochastic production costing model". Please provide the date DEI began using the "Stochastic production model" to forecast fuel costs. In addition, please explain why the company switched from its old method to the "Stochastic production costing model."

Response:

Starting in April 2023 (FAC 136) the Fleet Analytics Stochastic Tool "FAST" model outputs began being used as part of forecasting future fuel costs.

The previous production cost model was a deterministic model that produced a single set of fuel and operational results (ie., perfect foresight of the future). The Company switched to a stochastic production cost model that contained correlated iterations of the inputs such as, but not limited to, fuel prices, weather, load and outages so the Company could see a range of fuel and operational forecasts for forward periods versus one forecast, along with the associated probability of each forecast. The current stochastic production cost model produces 100 simulations for each period which can be analyzed with probability ranges produced and reported for planning purposes.

The effort to develop and implement a stochastic production costing model was in recognition by the Company that it needed the capability to produce a range of potential fuel burn and operational outcomes and probabilities, so fuel and planning strategies could be evaluated and executed to ensure a flexible, reliable and cost-effective fuel and power portfolio across a range of forecasted outcomes versus a single outcome given fuel and power market volatility.

Witness: John Verderame