OFFICIAL EXHIBITS

STATE OF INDIANA

INDIANA UTILITY REGULATORY COMMISSION

APPLICATION OF DUKE ENERGY INDIANA, LLC FOR APPROVAL OF A CHANGE IN ITS FUEL COST ADJUSTMENT FOR ELECTRIC SERVICE AND FOR APPROVAL OF A CHANGE IN ITS FUEL COST ADJUSTMENT FOR HIGH PRESSURE STEAM SERVICE, IN ACCORDANCE WITH INDIANA CODE §8-1-2-42, INDIANA CODE §8-1-2-42.3, AND VARIOUS ORDERS OF THE INDIANA UTILITY REGULATORY COMMISSION	)	CAUSE NO. 38707 FAC-133

IURC
INTERVENOR'S IG
EXHIBIT NO. 1
9-19-22 AT
DATE REPORTER

Verified Direct Testimony and Attachment of

Michael P. Gorman

On behalf of

Duke Industrial Group

September 1, 2022

BRUBAKER & ASSOCIATES, INC.

Project 11356

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Verified Direct Testimony of Michael P. Gorman

Q PLEASE STATE YOUR NAME AND BUSINESS ADDRESS.

A Michael P. Gorman. My business address is 16690 Swingley Ridge Road, Suite 140, Chesterfield, MO 63017.

Q WHAT IS YOUR OCCUPATION?

A I am a consultant in the field of public utility regulation and a Managing Principal with the firm of Brubaker & Associates, Inc. ("BAI"), energy, economic and regulatory consultants.

Q PLEASE DESCRIBE YOUR EDUCATIONAL BACKGROUND AND EXPERIENCE.

A This information is included in Appendix A to this testimony.

Q ON WHOSE BEHALF ARE YOU APPEARING IN THIS PROCEEDING?

A The Duke Indiana Industrial Group ("IG"). Industrial Group members purchase substantial quantities of electric energy service from Duke Energy Indiana, LLC ("Duke" or "Company"). As customers of Duke, then, they have a substantial stake in the outcome of this proceeding as they will experience rate impacts depending on the final resolution by the Indiana Utility Regulatory Commission ("IURC" or "Commission").

Q WHAT IS THE PURPOSE OF YOUR TESTIMONY?

A The purpose of my testimony is to respond to the Company's request for approval of its requested fuel cost adjustment.

To the extent I do not address a particular issue in the Company's testimony does not imply tacit agreement with the Company's position on that issue.

Q PLEASE SUMMARIZE YOUR CONCLUSIONS AND RECOMMENDATIONS.

A My conclusions and recommendations are as follows:

1. Duke has failed to maintain adequately coal inventories for its baseload coal units. As a result, it has implemented a MISO supply offer adjustment to its steam generation in order to reduce the operation of its coal units by artificially increasing the dispatch cost. Because the frequency of dispatch of the steam generation is reduced by the offer adjustment, Duke has increased reliance on purchased power transactions at market prices that were above the cost of coal-fired generation. This resulted in an estimated increase in FAC costs of $128.8 million.

2. Duke's failure to maintain adequate coal inventories at Gibson and Cayuga is a direct result of its failure to negotiate contracts for sufficient firm delivery of coal to its coal-fired plants. Duke also failed to adjust its fuel cost hedging policy to lock in lower cost natural gas prices, and/or lock in lower cost MISO market energy purchases to reflect the expected loss of, or reduced availability from its coal facilities to produce energy. These failures are imprudent, and increase FAC costs.

3. Duke has not demonstrated that its increased reliance on purchased power transactions to replace displaced coal generation output resulting from coal inventory problems is reasonable. I recommend a disallowance in this FAC of $128.8 million.

4. Because these issues are ongoing, I recommend the Commission create a subdocket to investigate Duke's increased reliance on purchased power transactions, due to constraints with coal transportation deliveries. This should also consider Duke's ability to divert the delivery of coal from Edwardsport to other coal units, operating Edwardsport on natural gas and lower FAC costs.

   This subdocket should also consider improvements to Duke's hedging policy, to allow it to make informed decisions based on expectations of limited coal deliveries, and its ability to lock in the cost of natural gas and/or market purchases to offset the lost production of coal-fired generation due to coal delivery limitations.

Q HAVE YOU REVIEWED THE COMPANY'S TESTIMONY AND RESPONSES TO DISCOVERY IN THIS CASE?

A Yes.

Q WHAT IS THE COMPANY'S REQUEST IN THIS PROCEEDING?

A The Company requests approval to recover its cost of fuel and purchased power from ratepayers.

I. PURCHASE POWER AND SUPPLY OFFER ADJUSTMENT

Q AS PART OF ITS REQUEST, DOES THE COMPANY REQUEST TO RECOVER THE COSTS OF PURCHASED POWER FROM RATEPAYERS THAT DISPLACED COAL GENERATION?

A Yes, it does.

Q HOW DOES THE COST OF THE COMPANY'S PURCHASED POWER COMPARE TO THE COSTS OF THE COMPANY'S OWN GENERATING UNITS?

A The Company's cost of purchased power in the FAC is much higher than the cost of fuel at its own generating units.

Q HAS THE COMPANY HAD TO RELY ON INCREASED PURCHASED POWER AMOUNTS TO DISPLACE GENERATION FROM ITS STEAM PLANTS?

A Yes.

Q WHY HAS THE COMPANY RELIED ON INCREASED PURCHASED POWER AMOUNTS?

A The Company has relied on increased purchased power to meet its customers' loads as a result of implementing a price adjustment to conserve coal inventory. The price adjustment affects the dispatch by the Midcontinent Independent System Operator, Inc. ("MISO"). This adjustment makes Duke's generation more expensive and less likely to be dispatched. As a result, Duke has increased its reliance on purchased power.

Q WHAT IS THE IMPACT OF THE MISO PRICE ADJUSTMENT?

A The price adjustment makes the coal units more expensive to operate and as a result, MISO dispatches the units less. As a result, Duke has to buy power on the market that is more expensive in order to cover the shortfall in its coal generation output.

Q WHY HAS THE COMPANY HAD TO CONSERVE COAL INVENTORY?

A The Company states the following in the response to IG DR 1.5[1] with respect to its coal inventory:

> ...challenges in the coal supply delivery chain that have significantly impacted Duke Energy Indiana's ability to obtain delivery of its contracted coal supply. . . .
>
> In response to the coal supply issues, Duke Energy Indiana implemented an adjustment to its supply offers to MISO, as discussed in Mr. Daniel's testimony, with the intent of ensuring adequate station inventory to reliably serve customers. As a result of the drivers above, at times, Duke

[1]Provided in Attachment MPG-1.

Energy Indiana's coal and natural gas generating units have been dispatched less often, which has contributed to an increase in purchased power.

Q HAS DUKE RECOGNIZED THE IMPORTANCE OF COAL INVENTORY FOR THE RELIABLE OPERATION OF ITS SYSTEM?

A Yes. Duke states the following at page 34 of its 2021 Duke Energy Indiana Integrated Resource Plan:

> **Stockpiles of coal are maintained at each station to guard against short-term supply disruptions.** (emphasis added)

Duke further states on that same page:

> **By entering into longer term commitments with suppliers, Duke Energy Indiana further protects itself from risk of insufficient coal availability while also giving suppliers the needed financial stability to allow them to make capital investments in the mines and hire the labor force.** (emphasis added)

Duke states at pages 34-35:

> The current Duke Energy Indiana supply portfolio includes eight spot coal supply agreements for delivery over the balance of 2021 and the first quarter of 2022. Spot coal purchases are used to 1) take advantage of changing market conditions that may lead to low-price incremental tonnage or limit exposure to rising market prices, 2) test new coal suppliers, and 3) **supplement coal supplies during periods of increase demand for generation or during contract delivery disruptions.**
>
> Under both term and spot contracts, the Company buys coal at the mine. **Thus, the contracts do not restrict the Company's ability to move the coal to the various Duke Energy Indiana coal-fired generating stations as necessary to meet generation requirements. This arrangement allows for greater flexibility in meeting fluctuations in generating demand and any supply or transportation disruptions.** (emphasis added.)

Q HAS DUKE INDICATED HOW MUCH OF ITS TOTAL ENERGY IS GENERATION THAT BURNS OR GASIFIES COAL?

A Yes. According to the 2021 Duke Energy Indiana Integrated Resource Plan at page 33, over 84% of Duke's total energy is generated from burning or gasifying coal.

Q DOES PRUDENT OPERATION OF DUKE'S COAL UNITS INCLUDE ENSURING THAT THOSE UNITS HAVE ADEQUATE COAL INVENTORY TO PROVIDE SERVICE TO RATEPAYERS?

A Yes. Duke is responsible for not only contracting adequate coal supply to provide the fuel for reliable generation, but also for contracting adequate transportation to move the coal from the source to its generation sites. Because such a large majority of Duke's generation fleet is coal-fired, if Duke is unable to procure adequate transportation, it must rely more heavily on other options that are more expensive and risk reducing the reliability of service.

Q WHAT DUKE COAL PLANTS HAVE BEEN AFFECTED BY REDUCED COAL INVENTORIES?

A Both Gibson Units 1-5 and Cayuga Units 1-2 have been affected.

Q WHEN DID THE COMPANY BECOME AWARE THAT ITS COAL INVENTORY CONSTRAINTS COULD CAUSE OPERATIONAL ISSUES AT ITS COAL PLANTS?

A According to the Company's response to IG DR 2.1,[2] the Company determined its coal inventory constraints at Gibson and Cayuga in August 2021 and October 2021,

[2]Provided in Attachment MPG-1.

respectively, could impact the operation of its system. A year has passed, and this problem persists.

Q HAS THE COMPANY INDICATED HOW LONG IT EXPECTS COAL DELIVERIES TO BE IMPACTED AT ITS COAL PLANTS?

A According to the Company's response to IG DR 1.15,[3] Duke's fuel forecast model reflects the continued use of a supply offer adjustment during the forecasted October 2022 through December 2022 periods included in the current Fuel Adjustment Clause ("FAC"). Duke maintains in that response that absent the use of a supply offer adjustment, coal consumption would likely exceed the amount of coal that can be physically delivered to its plants. Accordingly, coal inventory constraints will continue to impact the cost of fuel in this and future FACs.

Q ARE THE COSTS OF THE COAL PLANTS AFFECTED BY REDUCED COAL DELIVERIES RECOVERED IN BASE RATES FROM RATEPAYERS?

A Yes. The costs of both the Gibson and Cayuga generating units whose generation has been reduced in order to conserve coal inventory are recovered from ratepayers in base rates. However, Duke's customers are not able to receive the full benefit of those units because they are not called upon to operate as often due to the price adjustment.

Q IS DUKE OPERATING ITS COAL UNITS IN LINE WITH HOW THEY WERE ENVISIONED TO OPERATE IN THE IRP?

A No. Given Duke's heavy reliance on coal, its problems with the coal supply delivery chain present significant risks both in terms of reliability and cost. Moreover, the lack of

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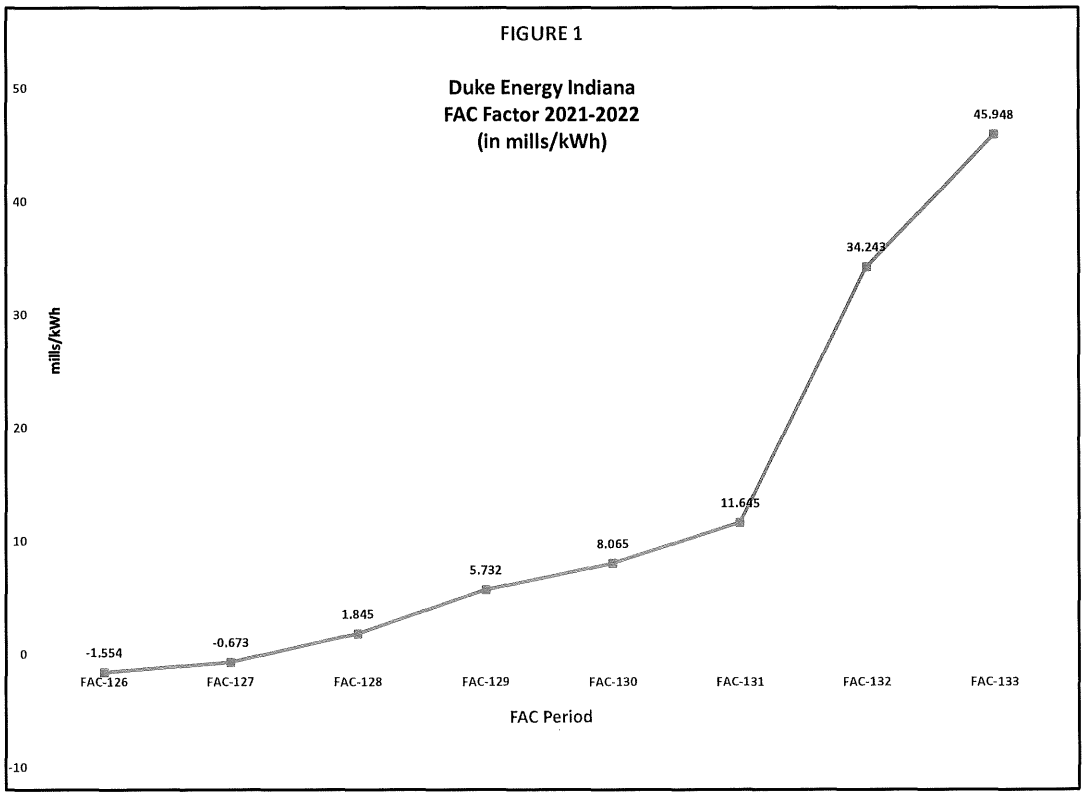
[3]Provided in Attachment MPG-1.

access to coal inventory means that Duke's coal-fired generation assets cannot be used as a hedge against high purchased power costs.

Q IS IT FAIR FOR RATEPAYERS TO PAY FOR INCREASED PURCHASED POWER EXPENSE WHILE PAYING FOR COAL PLANTS IN BASE RATES THAT ARE OPERATING AT REDUCED LEVELS DUE TO LOW COAL INVENTORIES?

A No. Ratepayers are paying for these units in base rates, yet not getting the full benefits for the units they are paying for, while at the same time paying a very high FAC charge. For example, Duke's FAC 132 factor represented a massive increase of 22.598 mills per kWh from the fuel factor of 11.645 mills per kWh approved in FAC 131, a 194% increase. The Company has requested a fuel factor of 45.948 mills per kWh in this case, an increase of 295% over the FAC 131 factor. As shown in Figure 1 below, Duke's FAC charge has increased dramatically since the beginning of 2022.

FIGURE 1



Q HAS DUKE DEMONSTRATED IT HAS MADE REASONABLE EFFORTS TO PROVIDE FUEL AT THE LOWEST POSSIBLE PRICE?

A No. As a utility that relies almost exclusively on coal for generation, Duke has an obligation to maintain coal inventories so that the units it operates can run for the benefit of its customers. The need for the use of a supply offer adjustment to maintain sufficient levels of coal, which ultimately results in Duke making expensive power purchases, demonstrates imprudent management decisions of its coal inventory and coal supply agreements.

Q ARE THERE OTHER FACTS EVIDENCING THAT DUKE'S MANAGEMENT OF ITS FUEL COSTS HAVE BEEN IMPRUDENT?

A Yes. As explained above, Duke recognized that its ability to receive adequate coal deliveries to its coal units was constrained as early as August and October of 2021. In light of this information, the Company should have executed hedge agreements to mitigate increases in its Fuel Adjustment Clause via purchases of natural gas hedges and/or MISO energy purchases, that would be used in lieu of operation of its coal units.

As shown in Table 1 below, natural gas prices that were available in the forward market in August through October of 2021 ranged from around $3.70 up to a little more than $5.00. The actual spot prices that were realized were considerably higher than the forward price contracts available for hedging purposes during the period August through October of 2021. The ability to hedge these natural gas prices lower than the actual spot market prices available during the FAC period likely would also translate into MISO energy purchases, because there is typically a correlation between forward gas prices and forward MISO energy prices.

The ongoing nature of the hedging issue is further discussed in Part IV below.

TABLE 1

Henry Hub Prices ($/MMBtu)

Delivery Date	Forward Prices (8/1/21 - 10/31/21) Min	Average	Max	Spot
11/1/2021	3.830	4.001	4.370	5.099
12/1/2021	3.844	4.513	5.841	3.788
1/1/2022	3.909	4.910	6.312	4.296
2/1/2022	4.019	5.050	6.432	4.748
3/1/2022	4.081	5.126	6.522	4.854
4/1/2022	4.005	5.030	6.407	6.526
5/1/2022	3.759	4.709	5.996	8.065
6/1/2022	3.255	3.732	4.256	7.794
7/1/2022	3.188	3.621	4.119	7.195
8/1/2022	3.218	3.652	4.148	8.778
9/1/2022	3.253	3.689	4.182	N/A
10/1/2022	3.263	3.695	4.184	N/A
11/1/2022	3.251	3.679	4.164	N/A
12/1/2022	3.272	3.706	4.195	N/A

Source: S&P MI, downloaded 9/1/22

II. COAL SUPPLY AGREEMENTS

Q DOES DUKE HAVE FIRM CONTRACTS FOR DELIVERY OF COAL?

A Yes. Duke stated in its response to IG DRs 2.4 and 2.6[4] that it has firm contracts for delivery of coal, but that none of its carriers are in breach of its agreements.

Q IF DUKE'S TRANSPORTATION AGREEMENTS ARE FIRM, WHY CAN DUKE NOT GET ADEQUATE COAL TO ITS FACILITIES?

A Some of Duke's coal contracts have contract minimums that are required to be transported. If the carriers are not in breach for failing to deliver adequate amounts of

[4] Provided in Attachment MPG-1.

coal, then it would suggest that the contract minimums that were negotiated by Duke were too low to sufficiently maintain Duke's coal inventories at an adequate level.

Q HAVE ANY OF THESE CONTRACTS BEEN RENEWED SINCE AUGUST, 2021?

A Yes, several of the contracts were extended in December of 2021 or January of 2022, but it does not appear changes were made to increase the amount of firm delivery.

III. EDWARDSPORT FUEL CHOICE

Q WHAT CONCERNS DO YOU HAVE WITH DUKE'S OPERATION OF EDWARDSPORT?

A Duke has not demonstrated that it adequately evaluated continuing to run Edwardsport on natural gas instead of coal.

Q PLEASE EXPLAIN.

A Edwardsport can run on either natural gas or coal. For a period of time, Duke ran Edwardsport partially on natural gas and diverted to Duke's other coal generating facilities some of the coal that would otherwise serve Edwardsport. However, based on Duke's response to IG DR 1.23,[5] Duke ceased doing so as of March 21, 2022.

Q WHAT HAS DUKE SAID ABOUT THIS DECISION?

A In discovery, Duke indicated that it did not pursue the option of running Edwardsport solely on natural gas because this option "was not viewed as economic, mainly due to the higher cost of natural gas as compared to coal." IG DR 1.11; see also IG DR 1.12.[6]

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[5] Provided in Attachment MPG-1.
[6] Provided in Attachment MPG-1.

It is not clear whether the same logic applied to running Edwardsport partially on natural gas, but the Company has since ceased operating Edwardsport partially on natural gas as well.

Q PLEASE RESPOND.

A First, Duke has failed to support this position with any substance. In discovery, Duke was asked about the effect of continuing to operate Edwardsport on natural gas and diverting Edwardsport coal to Duke's other coal generating facilities. Duke indicated that it was unable to determine the costs of such an option. IG DR 2.17.[7] Duke has also indicated in discovery that it cannot determine the cost of operating Edwardsport partially on natural gas. See Duke's response to IG DR 1.23.[8]

Moreover, multiple factors need to be considered in evaluating the option of running Edwardsport on natural gas longer term. For example, Duke is offering its other coal units into the MISO market using an adjustment to its supply offers that increases the cost of coal in order to reduce the frequency when Duke's coal generating units will be called upon by MISO to run. Duke has indicated that the purpose of this adjustment is to preserve its coal supply. See Duke's response to IG DR 1.15(a).[9] The effect of this adjustment is to increase Duke's reliance on market purchases. However, if Edwardsport were not using coal, then Duke could reduce its reliance on the coal supply offer adjustment.

Duke has not evaluated the cost associated with the supply offer adjustment. See Duke's response to IG DRs 1.14(a), 1.15(a), and 2.12.[10] However, because lack

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[7] Provided in Attachment MPG-1.
[8] Provided in Attachment MPG-1.
[9] Provided in Attachment MPG-1.
[10] Provided in Attachment MPG-1.

of coal is driving the need for the adjustment, the effect of this cost is relevant to evaluating the economics of running Edwardsport on natural gas.

Furthermore, other benefits of running on natural gas should be considered as well, such as the fact that operating on natural gas can enable Edwardsport to respond more quickly to changes in market prices. When operating on natural gas is uneconomic, Edwardsport can more quickly be shut down. In contrast, when Edwardsport is run on coal, it is offered as a must-run unit—even during period of time when operating on coal is uneconomic.

Duke's answers to discovery do not demonstrate that the Company has adequately evaluated these issues.

IV. HEDGING PLAN

Q WHAT IS THE PURPOSE OF A UTILITY HEDGING PLAN?

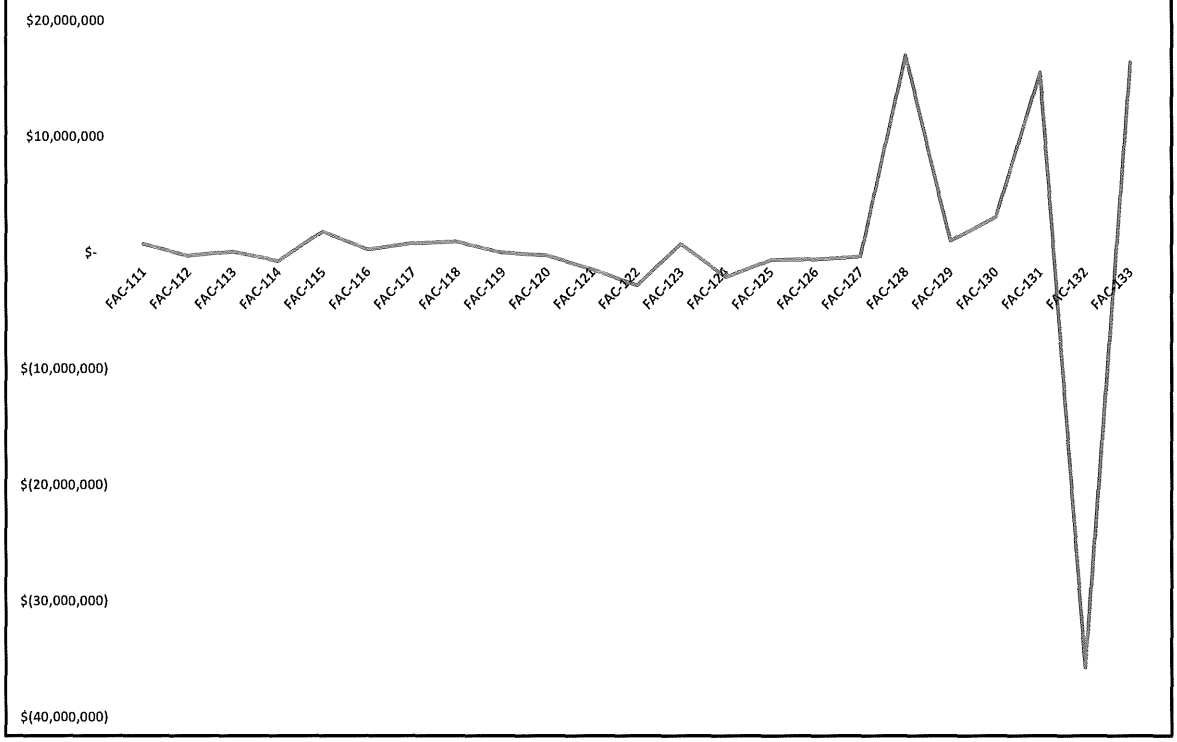
A Utilities make physical and financial hedges of power and fuel in order to reduce price volatility to customers.

Q HAS DUKE'S HEDGING PLAN REDUCED VOLATILITY.

A No. As shown in Figure 2 below, Duke's hedging plan has resulted in increased volatility starting in FAC 128.

FIGURE 2

Duke Energy Indiana
FAC Total Hedge Charge/Credit



Q HAS DUKE MADE ANY CHANGES TO ITS HEDGING PLAN TO ADDRESS THIS INCREASED VOLATILITY?

A No. Duke, in his FAC 132 rebuttal testimony and his FAC 133 direct testimony, Duke Witness Chen has stated that Duke is open to reviewing whether changes should be made to Duke's hedging program, but no changes have been made.

Q WHY SHOULD DUKE MAKE ANY CHANGES TO ITS HEDGING STRATEGY?

A Historically, Duke has had an abundance of coal at its plants, and for many years, Duke instituted a coal decrement to help reduce its coal inventory. Today, however, due to low coal inventories and the constraints on replenishing those inventories, Duke can no longer utilize its coal generation as a hedge against price spikes in natural gas and

purchased power. Duke's supply offer adjustment further exacerbates the loss of coal as a hedge. Duke has also been reluctant to utilize the dual fuel capability of Edwardsport, and when it does, it only utilizes spot gas purchases. Given all these factors, it does not appear that Duke's hedging plan, as currently designed, adequately addresses volatility given the constraints that Duke must manage.

Q SHOULD DUKE HAVE MODIFIED ITS HEDGING PLAN WHEN IT BECAME AWARE OF THE CONSTRAINT ON COAL DELIVERIES?

A Yes. At the outset in August 2021, when Duke became aware that coal supply constraints could impact its ability to utilize its steam generation, Duke should have revised its hedging plan to account for the supply constraint, which it estimated would last through 2022. At that time, Duke should have considered longer term hedges for natural gas and purchase power, which would have been more cost effective and reduced price volatility to customers.

V. FAC IMPACTS

Q HAS THE COMPANY ESTIMATED THE IMPACT ON THE FAC OF OPERATING ITS COALS UNIT AT REDUCED LEVELS IN ORDER TO CONSERVE COAL INVENTORY?

A No. The Company was asked this in discovery, specifically in IG DR 2.12,[11] but the Company has not calculated the impact on ratepayers.

[11] Provided in Attachment MPG-1.

Q HAVE YOU ESTIMATED THE IMPACT ON RATEPAYERS OF DUKE'S RELIANCE ON MORE EXPENSIVE PURCHASED POWER?

A Yes. Duke's purchased power reliance increased fuel expense by an estimated $128.8 million. I would recommend that this amount be disallowed from recovery in this FAC.

This adjustment assumes that 80% of Duke's total energy is supplied with coal-fired generation. This level is consistent with the level of energy expected to be supplied by coal and assumed in the IRP. Table 2 below summarizes the basis for the adjustment.

TABLE 2

FAC 133 - Adjusted Fuel Cost

	MWH	$/MWh	FAC Cost
Actual Scenario	7,483,596	56.52	$ 422,958,373
Adjustments			
Steam Generation	2,270,944	28.71	$ 65,200,328
Purchased Power	(2,270,944)	85.44	(194,023,000)
Total	-		$ (128,822,672)
Increased Coal Generation Scenario	7,483,596	39.30	$ 294,135,701

Source: FAC 133, Attachment A, Schedule 1.

VI. CONCLUSION

Q WHAT IS YOUR RECOMMENDATION?

A Simply allowing Duke to pass high purchase costs on to customers through the FAC does not send an appropriate signal to management regarding the efforts it needs to take to effectively manage its fuel supply. Duke has failed to demonstrate that it has

acted prudently. I recommend a disallowance of $128.8 million in fuel costs as a result of reduced operation of the Cayuga and Gibson units arising from coal inventory issues.

In addition, due to the ongoing nature of the coal inventory issue, I recommend that a subdocket be created to further investigate not only address the supply offer adjustment, but issues related to Duke's coal supply agreements, Duke's decisions on fuel choice at Edwardsport, and Duke's hedging plan.

In particular, a subdocket is needed to address Duke's efforts to contract adequate coal delivery. As long as Duke's coal supply issues persist, Duke will continue to apply the supply offer adjustment to reduce the dispatch of the units in order to preserve existing coal inventories, making this an ongoing issue.

A subdocket is also needed to evaluate modification of Duke's hedging plan, which is ultimately subject to Commission review and approval. One issue to address is the burning of natural gas at Edwardsport in order to divert coal supplies to Cayuga and Gibson once it became aware of its coal inventory challenges.

Q DOES THIS CONCLUDE YOUR TESTIMONY?

A Yes.

Qualifications of Michael P. Gorman

Q PLEASE STATE YOUR NAME AND BUSINESS ADDRESS.

A Michael P. Gorman. My business address is 16690 Swingley Ridge Road, Suite 140, Chesterfield, MO 63017.

Q PLEASE STATE YOUR OCCUPATION.

A I am a consultant in the field of public utility regulation and a Managing Principal with the firm of Brubaker & Associates, Inc. ("BAI"), energy, economic and regulatory consultants.

Q PLEASE SUMMARIZE YOUR EDUCATIONAL BACKGROUND AND WORK EXPERIENCE.

A In 1983 I received a Bachelor of Science Degree in Electrical Engineering from Southern Illinois University, and in 1986, I received a Master's Degree in Business Administration with a concentration in Finance from the University of Illinois at Springfield. I have also completed several graduate level economics courses.

In August of 1983, I accepted an analyst position with the Illinois Commerce Commission ("ICC"). In this position, I performed a variety of analyses for both formal and informal investigations before the ICC, including: marginal cost of energy, central dispatch, avoided cost of energy, annual system production costs, and working capital. In October of 1986, I was promoted to the position of Senior Analyst. In this position, I assumed the additional responsibilities of technical leader on projects, and my areas of responsibility were expanded to include utility financial modeling and financial analyses.

In 1987, I was promoted to Director of the Financial Analysis Department. In this position, I was responsible for all financial analyses conducted by the Staff. Among other things, I conducted analyses and sponsored testimony before the ICC on rate of return, financial integrity, financial modeling and related issues. I also supervised the development of all Staff analyses and testimony on these same issues. In addition, I supervised the Staff's review and recommendations to the Commission concerning utility plans to issue debt and equity securities.

In August of 1989, I accepted a position with Merrill-Lynch as a financial consultant. After receiving all required securities licenses, I worked with individual investors and small businesses in evaluating and selecting investments suitable to their requirements.

In September of 1990, I accepted a position with Drazen-Brubaker & Associates, Inc. ("DBA"). In April 1995, the firm of Brubaker & Associates, Inc. was formed. It includes most of the former DBA principals and Staff. Since 1990, I have performed various analyses and sponsored testimony on cost of capital, cost/benefits of utility mergers and acquisitions, utility reorganizations, level of operating expenses and rate base, cost of service studies, and analyses relating to industrial jobs and economic development. I also participated in a study used to revise the financial policy for the municipal utility in Kansas City, Kansas.

At BAI, I also have extensive experience working with large energy users to distribute and critically evaluate responses to requests for proposals ("RFPs") for electric, steam, and gas energy supply from competitive energy suppliers. These analyses include the evaluation of gas supply and delivery charges, cogeneration and/or combined cycle unit feasibility studies, and the evaluation of third-party asset/supply management agreements. I have participated in rate cases on rate

design and class cost of service for electric, natural gas, water and wastewater utilities. I have also analyzed commodity pricing indices and forward pricing methods for third party supply agreements, and have also conducted regional electric market price forecasts.

In addition to our main office in St. Louis, the firm also has branch offices in Corpus Christi, Texas; Detroit, Michigan; Louisville, Kentucky and Phoenix, Arizona.

Q HAVE YOU EVER TESTIFIED BEFORE A REGULATORY BODY?

A Yes. I have sponsored testimony on cost of capital, revenue requirements, cost of service and other issues before the Federal Energy Regulatory Commission and numerous state regulatory commissions including: Alaska, Arkansas, Arizona, California, Colorado, Delaware, the District of Columbia, Florida, Georgia, Idaho, Illinois, Indiana, Iowa, Kansas, Kentucky, Louisiana, Maryland, Massachusetts, Michigan, Minnesota, Mississippi, Missouri, Montana, Nevada, New Hampshire, New Jersey, New Mexico, New York, North Carolina, North Dakota, Ohio, Oklahoma, Oregon, South Carolina, South Dakota, Tennessee, Texas, Utah, Vermont, Virginia, Washington, West Virginia, Wisconsin, Wyoming, and before the provincial regulatory boards in Alberta, Nova Scotia, and Quebec, Canada. I have also sponsored testimony before the Board of Public Utilities in Kansas City, Kansas; presented rate setting position reports to the regulatory board of the municipal utility in Austin, Texas, and Salt River Project, Arizona, on behalf of industrial customers; and negotiated rate disputes for industrial customers of the Municipal Electric Authority of Georgia in the LaGrange, Georgia district.

Q PLEASE DESCRIBE ANY PROFESSIONAL REGISTRATIONS OR ORGANIZATIONS TO WHICH YOU BELONG.

A I earned the designation of Chartered Financial Analyst ("CFA") from the CFA Institute. The CFA charter was awarded after successfully completing three examinations which covered the subject areas of financial accounting, economics, fixed income and equity valuation and professional and ethical conduct. I am a member of the CFA Institute's Financial Analyst Society.

445076

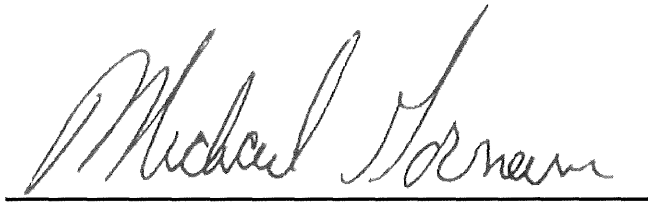
STATE OF INDIANA

INDIANA UTILITY REGULATORY COMMISSION

APPLICATION OF DUKE ENERGY INDIANA, LLC FOR APPROVAL OF A CHANGE IN ITS FUEL COST ADJUSTMENT FOR ELECTRIC SERVICE AND FOR APPROVAL OF A CHANGE IN ITS FUEL COST ADJUSTMENT FOR HIGH PRESSURE STEAM SERVICE, IN ACCORDANCE WITH INDIANA CODE §8-1-2-42, INDIANA CODE §8-1-2-42.3, AND VARIOUS ORDERS OF THE INDIANA UTILITY REGULATORY COMMISSION	**CAUSE NO. 38707 FAC-133**

Verification

I, Michael P. Gorman, a Managing Principal of Brubaker & Associates, Inc., affirm under penalties of perjury that the foregoing representations are true and correct to the best of my knowledge, information and belief.



Michael P. Gorman

September 1, 2022

Cause No. 38707 FAC-133
Duke Energy Indiana, LLC's Responses to Data Requests Supporting the Verified Direct Testimony and Attachments of Duke Industrial Group Witness Michael P. Gorman

Duke's Industrial Group
IURC Cause No. 38707 FAC 133
Data Request Set No. 1
Received: July 29, 2022

IG 1.5

Request:

Please identify all of the main drivers of the higher costs of the fuel factor in this cause.

Objection:

Duke Energy Indiana objects to this request as overly broad and vague, particularly the reference to "all of the main drivers" without additional explanation or definition.

Response:

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

The higher fuel factor in FAC 133 primarily resulted from - higher forecasted costs for both fuel and purchased power, as well as a higher reconciliation amount, both of which are driven by increases in natural gas prices and challenges in the coal supply delivery chain that have significantly impacted Duke Energy Indiana's ability to obtain delivery of its contracted coal supply.

As discussed in Mr. Phipps' testimony (adopted by Mr. Shultz), in 2021 through mid 2022, Duke Energy Indiana experienced increased delivery delays created by rail transportation labor and resource shortages. These delays have been compounded by the misalignment in timing between the availability of mined coal caused by mine production labor constraints and availability of rail resources.

In response to the coal supply issues, Duke Energy Indiana implemented an adjustment to its supply offers to MISO, as discussed in Mr. Daniel's testimony, with the intent of ensuring adequate station inventory to reliably serve customers. As a result of the drivers above, at times, Duke Energy Indiana's coal and natural gas generating units have been dispatched less often, which has contributed to an increase in purchased power.

Witness: Shawn Shultz, J. Bradley Daniel, Suzanne Sieferman

Duke's Industrial Group
IURC Cause No. 38707 FAC 133
Data Request Set No. 1
Received: July 29, 2022

IG 1.11

Request:

Did Duke consider running Edwardsport solely on natural gas and diverting all coal deliveries to Cayuga and Gibson? Please explain why or why not.

Objection:

To the extent the request seeks information beyond the scope of this FAC period, Duke Energy Indiana objects to this request as the information sought is neither relevant nor admissible.

Response:

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

Assuming the request seeks information pertaining to the FAC period, Duke Energy Indiana did not pursue operation of Edwardsport solely on natural gas as this option was not viewed as economic, mainly due to the higher cost of natural gas as compared to coal. Further, even if running Edwardsport solely on natural gas was viewed as economic, doing so would not result in any shipping adjustment benefit to Gibson.

Witness: J. Bradley Daniel

Duke's Industrial Group
IURC Cause No. 38707 FAC 133
Data Request Set No. 1
Received: July 29, 2022

IG 1.12

Request:

Did Duke consider obtaining a longer term natural gas contract to run Edwardsport solely on natural gas to allow coal deliveries to be diverted to Cayuga and Gibson? Please explain why or why not.

Objection:

To the extent the request seeks information beyond the scope of this FAC period, Duke Energy Indiana objects to this request as the information sought is neither relevant nor admissible.

Response:

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

Assuming the request seeks information pertaining to the FAC period, for the reasons discussed in response to IG 1.11, Duke Energy Indiana did not consider obtaining a longer term natural gas contract to run Edwardsport solely on natural gas during the time period.

Witness: Brad Daniel

Duke's Industrial Group
IURC Cause No. 38707 FAC 133
Data Request Set No. 1
Received: July 29, 2022

IG 1.13

Request:

With respect to IG DRs 1-11 and 1-12, are those scenarios considered as part of Duke's hedging strategy? Please explain why or why not.

Response:

For the reasons discussed in response to IG DRs 1-11 and 1-12, Edwardsport has operated on coal as the primary resource since March 21, 2022 (as discussed in Mr. Daniel's testimony). Its occasional use of natural gas, such as during gasifier maintenance, is not considered as part of Duke's hedging strategy due to difficulty in forecasting volume and timing of its gas usage.

Witness: Wenbin (Michael) Chen

Duke's Industrial Group
IURC Cause No. 38707 FAC 133
Data Request Set No. 1
Received: July 29, 2022

IG 1.14

Request:

With respect to the under-recovery shown in the filing, please provide and quantify the amount associated with:

a. The adjustment to supply offers discussed by Mr. Daniel.
b. The cost of purchased power.
c. The amount of power purchased.
d. Hedging.
e. Issues associated with coal inventory.

Objection:

Duke Energy Indiana objects to this request to the extent some portions of the request seek 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:

a. In response to coal supply and transportation constraints, Duke Energy Indiana implemented an adjustment to its supply offers to MISO, as discussed in Mr. Daniel's testimony, in order to ensure adequate station inventory to reliably serve customers. The adjustment process for offering steam units to MISO is intended to economically maximize the value of the generation at these stations without allowing coal piles to drop below a minimum level during this time.

   Duke Energy Indiana 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, LMP, and behavior of other market participants would have been during this time absent Duke Energy Indiana's use of a supply offer adjustment.

b. Actual purchased power costs for March 2022 through May 2022 exceeded the forecasted amount by approximately $167.3 million. Using a basic price/quantity variance calculation, this amount is comprised of an approximate $104.1 million increase resulting from higher volumes of purchased power and approximately $63.1 million resulting from a higher cost per MWh of purchased power.

c. The actual quantity of power purchased for March 2022 through May 2022 exceeded the forecasted amount by 1.969 million MWh.

d. The actual to forecast variance for hedging activity for March 2022 through May 2022 was approximately $16.0 million favorable. Duke Energy Indiana does not attempt to forecast actual hedging results for a given period but does include the current value of any forward hedging positions entered into for the forecasted months in its calculation of the average fuel cost for the period

e. See response to (a) above.

Witnesses: Shawn Shultz/J. Bradley Daniel/Suzanne Sieferman (sub-parts a & e);
Scott Burnside/Suzanne Sieferman (sub-parts b & c);
Michael (Wenbin) Chen (sub-part d)

Duke's Industrial Group
IURC Cause No. 38707 FAC 133
Data Request Set No. 1
Received: July 29, 2022

IG 1.15

Request:

With respect to the projected increase in fuel expense for this FAC, please provide and quantify the amount associated with:

a. The adjustment to supply offers discussed by Mr. Daniel.
b. The cost of purchased power.
c. The amount of power purchased.
d. Hedging.
e. Issues associated with coal inventory.

Objection:

Duke Energy Indiana objects to this request to the extent some portions of the request seek 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

a. As discussed in Mr. Daniel's direct testimony in this proceeding, Duke Energy Indiana is currently utilizing a supply offer adjustment which was designed with the intent of ensuring adequate station inventory to reliably serve its customers. Duke Energy Indiana's fuel forecast model reflects the continued use of a supply offer adjustment during the forecasted October 2022 through December 2022 periods included in the current FAC proceeding. The supply offer adjustment in the fuel forecast model functions to address Duke Energy Indiana's coal delivery constraints by balancing the need to maintain adequate coal supplies to meet periods of peak demand while also allowing for increased coal generation in periods of high power prices. Absent use of a supply offer adjustment in Duke Energy Indiana's fuel forecast model, coal consumption would likely exceed the amount of coal that can be physically delivered. Duke Energy Indiana is unable to determine the specific cost associated with the use of the supply offer adjustment in the fuel forecast.
b. See Attachment A, Schedule 1, Line No. 18 of the Verified Application in this proceeding for the cost of purchased power.
c. See Attachment A, Schedule 1, Line No. 7 of the Verified Application in this proceeding for the amount of purchased power.

d. See Attachment A, Schedule 1, Line No. 17 of the Verified Application in this proceeding for the hedging position. The monthly amounts reflect the value of forward hedges as of when the forecast was developed.
e. See response to sub-part (a).

Witness: Suzanne Sieferman, Shawn Shultz, J. Bradley Daniel

Duke's Industrial Group
IURC Cause No. 38707 FAC 133
Data Request Set No. 1
Received: July 29, 2022

IG 1.23

Request:

Please provide the cost included in this FAC filing attributable to coal inventory and supply chain constraints.

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. Duke Energy Indiana also objects to this request as impossible to answer as drafted without speculation.

Response:

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

In response to coal supply and transportation constraints, Duke Energy Indiana implemented an adjustment to its supply offers to MISO, as discussed in Mr. Daniel's testimony, in order to ensure adequate station inventory to reliably serve customers. The adjustment process for offering steam units to MISO is intended to economically maximize the value of the generation at these stations without allowing coal piles to drop below a minimum level during this time. In addition, Duke Energy Indiana operated Edwardsport partially on natural gas through March 21, 2022, in order to adjust delivery of coal from Edwardsport to Cayuga Generating Station and increase Cayuga's coal inventory.

Duke Energy Indiana 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, LMP, and behavior of other market participants would have been during this time absent Duke Energy Indiana's use of a supply offer adjustment. It is similarly difficult to determine the exact cost associated with Edwardsport's operations on natural gas. Utilizing the diverse mode of operation at Edwardsport allowed Duke Energy Indiana to allocate coal deliveries to Cayuga station, which resulted in more coal generation at Cayuga than the station would have otherwise been able to achieve. For the same reasons discussed above, Duke Energy Indiana is unable to determine the exact cost associated with the operating Edwardsport partially on natural gas.

Witness: Shawn Shultz, J. Bradley Daniel, Suzanne Sieferman

Duke's Industrial Group
IURC Cause No. 38707 FAC 133
Data Request Set No. 1
Received: July 29, 2022

IG 1.25

Request:

If coal inventory was adequate, would Duke's coal-fired generation be a hedge against high purchased power costs? Please explain.

Objection:

Duke Energy Indiana objects to this request as it calls for speculation. To the extent the request seeks information beyond the scope of this FAC period, Duke Energy Indiana objects to this request as the information sought is neither relevant nor admissible.

Response:

Subject to and without waiving or limiting its objections, Duke Energy Indiana responds as follows: Assuming the request seeks information pertaining to the FAC period, since Duke Energy Indiana's coal cost was relatively low, if coal inventory was adequate and power prices were high, Duke's coal-fired generation units would likely have run more.

Witness: Wenbin (Michael) Chen / J. Bradley Daniel

Duke's Industrial Group
IURC Cause No. 38707 FAC 133
Data Request Set No. 2
Received: August 12, 2022

IG 2.1

Request:

Please identify the specific date on which Duke discovered the 2021 coal supply constraint was an issue that could impact the operation of its system.

Response:

During August and October 2021, the Company determined it's coal inventory constraints at Gibson and Cayuga respectively could impact the operation of its system.

Witness: Shawn Shultz / J. Brad Daniel

Duke's Industrial Group
IURC Cause No. 38707 FAC 133
Data Request Set No. 2
Received: August 12, 2022

IG 2.4

Request:

Does Duke have firm transportation agreements that provide for the delivery of coal to its facilities? If not, why not?

Response:

Yes, Duke does have firm transportation agreements that provide delivery of coal to its facilities.

Witness: Shawn Shultz

Duke's Industrial Group
IURC Cause No. 38707 FAC 133
Data Request Set No. 2
Received: August 12, 2022

IG 2.6

Request:

Did any of the entities listed in Duke's response to IG DR 2-5 fail to provide delivery of coal in accord with existing agreements? Please explain and document.

Response:

No entities listed in Duke Energy Indiana's response to IG 2.5 failed to provide delivery of coal in accordance with existing agreements.

Witness: Shawn Shultz

Duke's Industrial Group
IURC Cause No. 38707 FAC 133
Data Request Set No. 2
Received: August 12, 2022

IG 2.12

Request:

Please provide the calculated cost for this FAC if coal supply were not a constraint.

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. Duke Energy Indiana further objects to this request as it calls for speculation.

Response:

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

In response to coal supply and transportation constraints, Duke Energy Indiana implemented an adjustment to its supply offers to MISO, as discussed in Mr. Daniel's testimony, in order to ensure adequate station inventory to reliably serve customers. The adjustment process for offering steam units to MISO is intended to economically maximize the value of the generation at these stations without allowing coal piles to drop below a minimum level during this time.

Duke Energy Indiana 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, LMP, and behavior of other market participants would have been during this time absent Duke Energy Indiana's use of a supply offer adjustment.

Witness: Shawn Shultz / J. Bradley Daniel / Suzanne Sieferman

Duke's Industrial Group
IURC Cause No. 38707 FAC 133
Data Request Set No. 2
Received: August 12, 2022

IG 2.15

Request:

Please provide the quantities of coal delivered to Edwardsport in 2020, 2021, and 2022.

Objection:

Duke Energy Indiana objects to this request as neither relevant nor admissible as it seeks information outside of the FAC 133 time period.

Response:

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

Edwardsport	
2022	Delivered Coal
March	173,929
April	127,415
May	150,513

Witness: Shawn D. Shultz

Duke's Industrial Group
IURC Cause No. 38707 FAC 133
Data Request Set No. 2
Received: August 12, 2022

IG 2.16

Request:

In Duke's response to IG DR 1.11, Duke states that running Edwardsport on natural gas "would not result in any shipping adjustment benefit to Gibson [regarding coal]."

Please state whether operation on natural gas would allow coal deliveries that otherwise would have gone to Edwardsport would go to Cayuga. In addition, please explain why Gibson would not have a "shipping adjustment benefit" if Edwardsport were run solely on natural gas.

Objection:

To the extent the request seeks information beyond the scope of this FAC period, Duke Energy Indiana objects to this request as the information sought is neither relevant nor admissible.

Response:

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

Utilizing the strategy discussed in Duke Energy Indiana's response to IG 1.11, the Company was able to increase the time between loadings at the mine source for Edwardsport from one-and-a-half days to three days, increasing the loading openings at the mine source and allowing more Cayuga trains to be loaded and shipped during this period.

During this period, Gibson would not have "shipping adjustment benefits" if Edwardsport was run solely on natural gas because the shipping route was already maximized with both constrained railroad personnel and locomotives.

Witness: Shawn Shultz

Duke's Industrial Group
IURC Cause No. 38707 FAC 133
Data Request Set No. 2
Received: August 12, 2022

IG 2.17

Request:

Please provide the calculated cost for this FAC if Edwardsport were run solely on natural gas and coal shipments that were made to Edwardsport were diverted to Cayuga or Gibson.

Objection:

Duke Energy Indiana objects to this request to the extent it seeks an analysis or calculation associated with a hypothetical situation that has not 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 what the costs would have been in this FAC if Edwardsport were run solely on natural gas during the reconciliation period and coal shipments were diverted to other stations. Running Edwardsport solely on natural gas would have changed the supply offers to MISO for the station and the Company cannot determine how MISO would have dispatched the unit. The requested calculation would require a host of assumptions, including what resulting unit commitment, LMP, and behavior of other market participants would have been during this time absent Duke Energy Indiana's altered supply offer adjustments for Edwardsport. In addition, there are operational considerations that would affect the resulting generation at Edwardsport, Cayuga and Gibson, including the availability of operating permits to allow for running Edwardsport solely on natural gas for extended periods of time and available transportation means to deliver the coal meant for Edwardsport to another coal burning station.

Witnesses: Shawn Shultz / J. Bradley Daniel / Suzanne Sieferman

Duke's Industrial Group
IURC Cause No. 38707 FAC 133
Data Request Set No.
Received: August 19, 2022

IG 3.1

Request:

Please provide the following information:

a. Please identify the MWh projected for the forecast period that is included in this FAC for the times Edwardsport IGCC was generating electricity using natural gas.

b. Please identify the MWh for the reconciliation period that is included in this FAC for the times Edwardsport IGCC was generating electricity using natural gas.

Response:

a. The Mwhs projected for generation on coal vs. natural gas for the forecast period of October 2022 through December 2022 are as follows:

Fuel Source	October 2022	November 2022	December 2022
Coal	244,000	318,000	354,000
Natural Gas	137,000	92,000	85,000
Total	381,000	410,000	439,000

b. The actual Mwhs for generation on coal vs. natural gas for the reconciliation period of March 2022 through May 2022 are as follows:

Fuel Source	March 2022	April 2022	May 2022
Coal	192,068	176,493	260,020
Natural Gas	151,709	49,200	110,559
Total	343,777	225,693	370,579

Witness: Suzanne Sieferman

Duke's Industrial Group
IURC Cause No. 38707 FAC 133
Data Request Set No. 3
Received: August 19, 2022

IG 3.6

Request:

Please provide the following information:

a. Please identify the cost of IGCC power for the forecast period if Edwardsport were run solely on natural gas.

b. Please identify the cost of IGCC power for the reconciliation period if Edwardsport were run solely on natural gas.

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. Duke Energy Indiana also objects to this request as impossible to answer as drafted without speculation.

Response:

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

a. Duke Energy Indiana's forecast for this proceeding was not developed with an assumption that Edwardsport would be run solely on natural gas during the forecast period, therefore the requested cost information is not available.

b. Duke Energy Indiana is unable to determine the specific costs that would have been incurred during the March 2022 through May 2022 reconciliation period had Edwardsport been run solely on natural gas. During this period, the Company operated Edwardsport partially on natural gas, in order to adjust delivery of coal from this station to Cayuga to increase Cayuga's coal inventory. This resulted in more coal generation at Cayuga than the station would have otherwise been able to achieve.

Witness: Shawn Shultz, J. Bradley Daniel, Suzanne Sieferman