STATE OF INDIANA

INDIANA UTILITY REGULATORY COMMISSION

PETITION OF DUKE ENERGY INDIANA, LLC SEEKING APPROVAL TO REFLECT COSTS INCURRED FOR THE EDWARDSPORT INTEGRATED GASIFICATION COMBINED CYCLE GENERATING FACILITY PROPERTY, INCLUDING POST-IN-SERVICE ONGOING CAPITAL EXPENDITURES, IN ITS RATES AND TO REFLECT APPLICABLE RELATED COSTS AND CREDITS, INCLUDING OPERATING EXPENSES, DEPRECIATION, TAX CREDITS, RECONCILIATION, AND CERTAIN 2016 SETTLEMENT AGREEMENT PROVISIONS, THROUGH ITS STANDARD CONTRACT RIDER NO. 61 PURSUANT TO INDIANA CODE §§ 8-1-8.8-11 AND -12	**CAUSE NO. 43114 IGCC-17**

SUBMISSION OF PUBLIC TESTIMONY ON THE SETTLEMENT

Citizens Action Coalition of Indiana, Inc. ("CAC"), respectfully submits the public, redacted Testimony on the Settlement and associated Attachment of David A. Schlissel (CAC Exhibit 2) in the above referenced Cause to the Indiana Utility Regulatory Commission. The unredacted pages of Testimony and Attachments which contain information Duke deems confidential are being filed simultaneously, under seal, per the Commission's August 6, 2018 docket entry.

Respectfully submitted,

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The undersigned counsel hereby certifies that a copy of the foregoing document was served via electronic mail, this 16th day of October, 2018:

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SETTLEMENT TESTIMONY OF DAVID A. SCHLISSEL
ON BEHALF OF
CITIZENS ACTION COALITION OF INDIANA, INC.

OCTOBER 16, 2018

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INTRODUCTION

Q. Please state your name and business address.

A. My name is David A. Schlissel. I am the President of Schlissel Technical Consulting, Inc., 45 Horace Road, Belmont, MA 02478.

Q. On whose behalf are you testifying?

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

Q. Have you previously filed testimony in this proceeding?

A. Yes. I filed my Direct Testimony on July 31, 2018.

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

A. I have been requested by CAC to assess the proposed settlement between Duke Energy Indiana ("Duke" or the "Company"), the Indiana Office of Utility Consumer Counselor ("OUCC"), the Duke Industrial Group, and Nucor Steel-Indiana (collectively, "Settling Parties").

SUMMARY OF CONCLUSIONS AND RECOMMENDATIONS

Q. Please summarize your principal conclusions.

A. My principal conclusions are as follows:

1. Although it is a small step in the right direction, the proposed settlement would represent, at most, a very minor reduction in the Edwardsport-related rates paid by Duke's retail customers in Indiana. As I concluded in my Direct Testimony, Edwardsport has been a catastrophe for its customers, and it would remain a catastrophe notwithstanding the proposed settlement.

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2. Despite Company witness Gurganus' claims to the contrary, Edwardsport's operating performance was not strong during the period of January 1 through December 31, 2017.

3. Edwardsport's operating performance also has not been "strong" during the first nine months of 2018. In particular,

a. The 47 percent capacity factor achieved by Edwardsport on syngas in the first nine months of 2018, and the 73 percent capacity factor achieved on all fuels, have been significantly below the 82 percent average capacity factor projected for Edwardsport by Duke.

b. When operating on syngas, the plant consumed 27 percent of its gross generation to serve "parasitic loads," i.e., plant generation that was used to run onsite equipment and thus was not available to be sent into the grid. This was much higher than the parasitic loads of typical baseload coal and natural gas combined cycle plants.

c. Edwardsport's gasification systems continued to operate inconsistently and unreliably. For example, the availability of Edwardsport's gasifiers declined substantially from 78 percent in 2017 to 64 percent in the first nine months of 2018.

d. The plant's overall operating performance has remained inconsistent in 2018, never achieving its 618 MW full power net capacity rating at any time in the first seven months of the year.

e. The plant experienced a 12.9 percent equivalent forced outage rate (EFOR) during the first nine months of 2018, which was more than twice the EFOR of the industry comparison group that Duke itself identified.

4. There are a number of factors that show that Edwardsport's operating performance, especially on syngas, should not be expected to improve significantly in the foreseeable future.

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a. The plant continues to lose a significant portion of its potential generation due to gasifier equipment problems, leading to its extremely poor 41 percent capacity factor on syngas during its first 64 months of operations, far below the average capacity factor on syngas for this period projected by Duke when it was seeking approval from the IURC to build the plant.

b. Edwardsport's gasification system equipment continues to operate inconsistently and unreliably, achieving only a 58 percent availability during the plant's first 64 months of operations.

c. The plant continues to have extremely high parasitic loads and high equivalent forced outage rates.

d. The plant's heat rate continues to be extremely high.

e. The Company plans to continue to conduct both spring and fall maintenance outages in coming years, maintaining a pattern of expensive frequent outages to address essential repairs.

f. The plant continues to have a seasonal derate in the summer months of June through September.

g. The Company is still unable to offer into the MISO markets the plant's maximum output of 618 MW during the non-summer months, and 595 MW during the summer months.

5. Edwardsport remains very expensive to operate and maintain, and will continue to be that way despite the proposed settlement, with total operating and maintenance ("O&M") costs that averaged $49.15 per MWh during the first nine months of 2018. These costs do not reflect the retail share of any fixed costs associated with the plant's construction costs or the retail share of capitalized maintenance expenditures. This is far more expensive than buying power in the wholesale MISO markets.

6. It is not reasonable to expect that the plant will produce a net economic benefit for ratepayers at any time in the foreseeable future.

a. The cost of operating and maintaining Edwardsport, without considering any capitalized expenditures, can be expected to remain significantly above both average monthly peak and off-peak energy market prices for at least the next ten years, although

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there may be some individual hours when it will be less expensive to generate power at the plant.

b. The all-in cost of Edwardsport, including Rider 61 revenues and fuel costs, averaged $140.84 per MWh for Duke's ratepayers between June 2013 and September 2018, which were the plant's first 64 months after its in-service declaration. Consequently, ratepayers have paid $2.113 billion for only 15 million MWh from the plant.

c. This $2.113 billion paid by ratepayers between June 2013 and September 2018 does not include the $397 million in Rider 61 costs that ratepayers paid for Edwardsport before the plant was declared to be in-service. Including those costs would increase the average cost for ratepayers to $167.35 per MWh.

d. During just the 64 months between June 2013 and September 2018, Duke's ratepayers paid $1.63 billion more for power from Edwardsport than they would have paid for the same amounts of energy and capacity from the MISO markets. Including the $397 million in Rider 61 costs that ratepayers paid before the plant was declared in-service would drive this net economic loss up to over $2 billion.

7. As a result, building and operating Edwardsport has been an economic catastrophe for DEI's ratepayers. And Edwardsport will continue to be a catastrophe for ratepayers under the proposed settlement and will remain that way until the IURC takes strong and effective actions to protect them.

8. Design and technological improvements are driving down the costs of wind and solar resources. As more of these renewable resources are added to the MISO grid, they will make continued operation of Edwardsport even less economically viable as (a) energy market prices can be expected to remain low, if not decline over time, and (b) generation from Edwardsport will be displaced due to the availability of lower cost wind and solar energy.

9. Without both trains of its gasification plant operating as intended in tandem with both of its combustion turbines and its steam turbine to produce electricity economically dispatched by MISO at a net capacity

factor averaging 82% or more when operating on syngas, Edwardsport still as a whole cannot be considered "used and useful" as an Integrated Gasification Combined Cycle power plant to the extent projected in its CPCN proceedings.

Q. Please summarize your recommendations.

A. The cost caps in the proposed settlement agreement are a very small step but a step in the right direction. However, any operational improvement over the past few years still has not begun to address that Edwardsport has been and continues to be an economic catastrophe for Duke's customers. I believe it is time for the IURC to take much stronger actions to protect ratepayers against the plant's grossly excessive costs and to rebalance ratepayer risks and rewards from the plant. Therefore, I continue to recommend that the IURC:

1. "[M]odify or revoke the certificate" for the Plant as the Commission should find that continued "implementation of the [clean coal] technology will not serve the public convenience and necessity" per IC § 8-1-8.7-5, an option afforded to the Commission by the legislature to protect ratepayers in situations just like this; or

2. Require Duke to file a general rate case to determine how much of the investment in Edwardsport is actually fully "used and useful"; or

3. Initiate a special proceeding to consider options that would ensure that the fully embedded cost of the electricity from Edwardsport is comparable to the cost of alternative sources such as the MISO markets and/or other generating facilities on the Company's system;

and

4. "[R]emove any incentive approved in the order if the commission finds that the project no longer complies with the provisions of the order concerning the incentive" per IC § 8-1-8.8-15 insofar as Duke is still

receiving favorable Rider 61 treatment with a historically high rate of return despite the clear failures of Duke to reach the milestones and performance promised when Rider 61 treatment and incentives were awarded; and

5. Until the IURC modifies or revokes the CPCN, issues an order in a special proceeding, or completes a general rate case review of whether Edwardsport is actually "used and useful" as recommended above, the IURC should limit the Company's recovery of non-fuel O&M expenditures at Edwardsport to $6.74 per MWh. This represents the average non-fuel O&M expenditures at the five Duke Energy natural gas combined cycle ("NGCC") units presented in Figure 9 in my Direct Testimony (CAC Exhibit 1), and Duke Energy Indiana's own Gibson and Cayuga baseload coal-fired plants for the years 2014-2017. At the same time, the IURC should restrict the Company's ability to recover through rates capitalized Edwardsport maintenance expenditures in 2018 and 2019 to the same limit it approved in IGCC-15 for 2017, i.e. the lesser of $16,900,000 or actual expenditures.

Q. Have you seen any evidence that Edwardsport's performance during the first nine months of 2018 was strong in any way or even close to what was projected by Duke and relied upon by the Commission in approving the plant's CPCN?

A. No.

Q. Do you continue to believe that it is appropriate to consider a power plant's overall performance over a longer period because it offers a better base for

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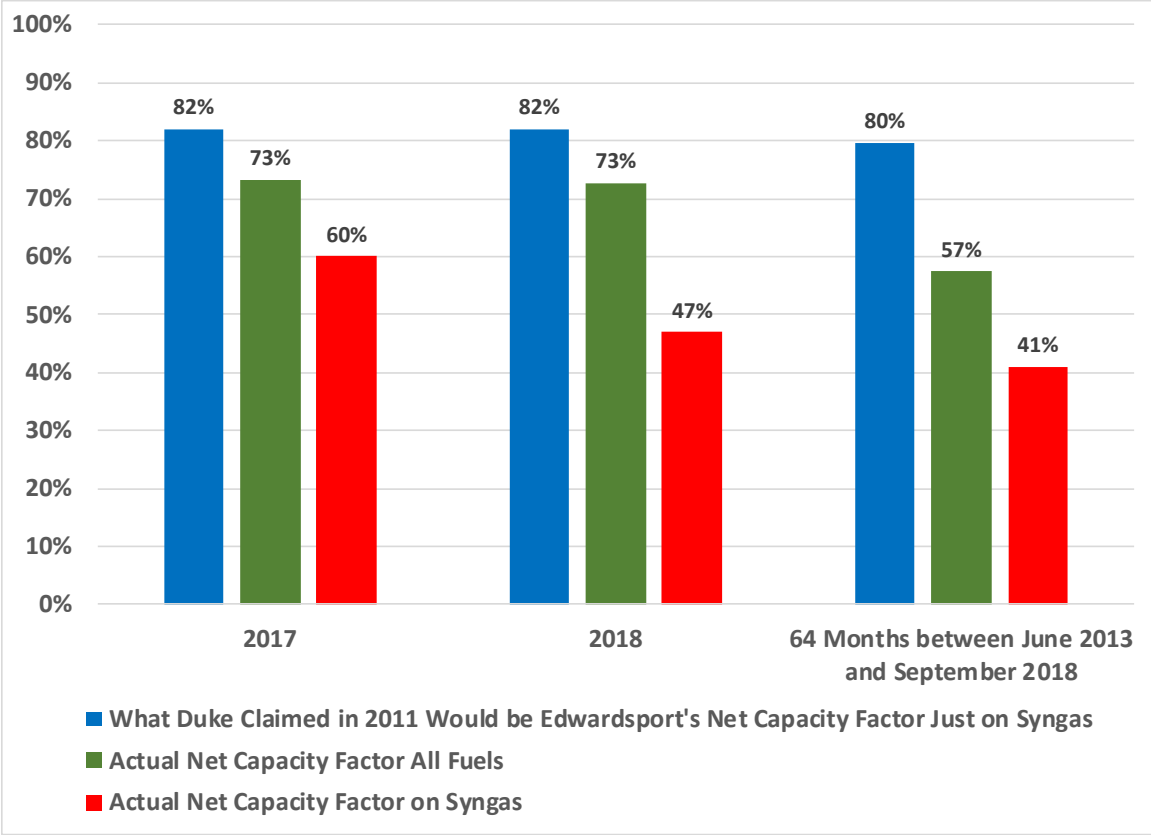
(1) assessing how strongly or poorly the plant has operated and (2) evaluating how well the unit can be expected to operate in coming years?[1]

A. Yes.

Q. What was Edwardsport's cumulative capacity factor in the 64 months between the start of operations in June 2013 and the end of September 2018?

A. Figure 1, below, shows that Edwardsport's capacity factors in 2017, the first nine months of 2018, and during the entire 64-month period since the plant was declared to be in operation in June 2013 have been significantly lower than Duke projected during earlier sub-dockets in Cause 43114.

Figure 1: Edwardsport's Calendar Year and Cumulative Net Capacity Factors



[1] IURC Cause No. 43114 IGCC 17, CAC Exhibit 1 at page 9, lines 1-20.

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Clearly, Edwardsport's net capacity factors have been, and continue to be, significantly lower than Duke projected they would be when it was seeking, and obtaining, IURC approval to build the plant.

Q. Why is Edwardsport's net capacity factor important?

A. Net capacity factor is the most important measure of a plant's operating performance because it reflects how much energy (that is, how many MWh) the power plant actually generates to serve customers during a particular period of time. A plant's capacity factor is a function of how much time and at what power levels it operates, and its relative operating and maintenance cost compared to the cost of other plants on the grid.

Generation is what is important to Duke's ratepayers. As Duke witness Hager explained in her March 2011 testimony in IGCC-4S1:

> [T]he IGCC Project is projected to be the first Duke Energy Indiana plant dispatched to meet customers' energy needs because of its projected low fuel costs. Thus, from the day it is operational, it will be displacing less efficient and less environmentally friendly units, serving to reduce operating costs and thereby benefitting customers.[2]

Q. Please explain why the net generation from Edwardsport into the grid is so important to Duke's ratepayers.

A. Duke's ratepayers are being forced to pay very high fixed costs for Edwardsport because of the plant's expensive construction cost and fixed operating costs. Duke's ratepayers are only able to offset even a portion of these very high fixed costs if the plant consistently generates large quantities of low cost energy (MWh) to displace higher cost power that would otherwise be generated at other Duke

[2] IURC Cause No. 43114 IGCC 4S1, Supplemental Testimony of Duke Witness Hager, Duke Exhibit TT, March 10, 2011, page 3, lines 6-10, available here: https://iurc.portal.in.gov/_entity/sharepointdocumentlocation/a4005c95-9184-e611-8124-1458d04ea8b8/bb9c6bba-fd52-45ad-8e64-a444aef13c39?file=dclack_hager_testimony_3_10_20114-37-28pm.pdf.

plants or purchased from the MISO energy market. For this reason, Duke's ratepayers are vitally interested in how much energy the plant actually generates and puts onto the grid.

Q. Why has Edwardsport's overall operating performance been so poor?

A. There are a number of significant reasons for the plant's poor overall operating performance including the inconsistent and unreliable operation of its gasification system equipment and the fact that the gasification process consumes such a large fraction of the total power generated by the plant due to what are called "parasitic loads." Also, the plant has had a very high equivalent forced outage rate ("EFOR"). EFOR measures how much of the time the plant is fully or partially required to reduce power as the result of unplanned equipment problems.

Q. Your Direct Testimony described how Edwardsport did not operate at a consistently high-power level in 2017. Has it consistently operated at a high-power level so far in 2018?

A. No. As shown in Figure 2, below, the plant's net power level has remained inconsistent through the first seven months of 2018, and it never achieved its 618 MW full power net capacity rating during this seven-month period. It achieved above 600 MW (at [redacted] MW) for just a single hour.

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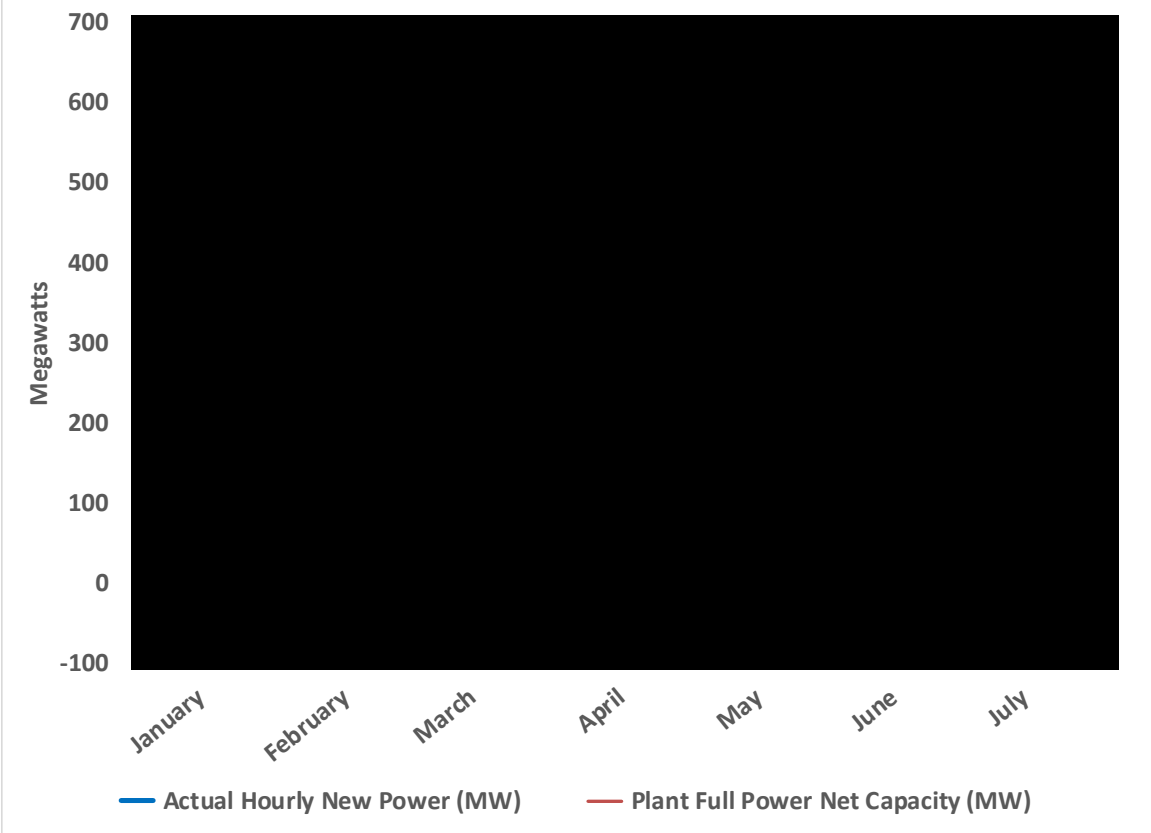
Figure 2: Edwardsport's Actual Hourly Net Power Generation in the First Seven Months of 2018 vs. Projected Full Power Net Capacity Rating [CONFIDENTIAL]



Q. Did Duke consistently offer Edwardsport into the MISO Day Ahead ("DA") and/or Real Time ("RT") markets at its full power capacity of 618 MW?

A. No. [redacted][3] [redacted]

[redacted]

[redacted]

[3] Data from Confidential Attachment CAC 4.2-A (included in my workpapers as JI Exhibit 2-C, Confidential Workpaper 1).

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[redacted][4]

Q. Was Edwardsport offered for economic dispatch at any time in this seven-month period?

A. [redacted]

Q. What is the significance of the high parasitic loads that you mentioned earlier?

A. Running the equipment for the gasification portion of Edwardsport consumes a lot of power. A plant's *gross* output is the total amount of power that it generates. Its *net* output is the amount of power that it actually sends out into the electric grid, i.e. net output is what matters to ratepayers. The difference between the plant's gross and net power is its "parasitic" load which represents the amount of power that is needed to operate onsite auxiliary equipment.

Q. Don't all fossil power plants need to use some of the power they generate to operate on-site auxiliary equipment?

A. Yes, they do. However, as shown in Figure 3 below, Edwardsport's parasitic loads when operating on syngas are much higher than those for typical baseload coal and natural gas-fired combined cycle units.

[4] Id.

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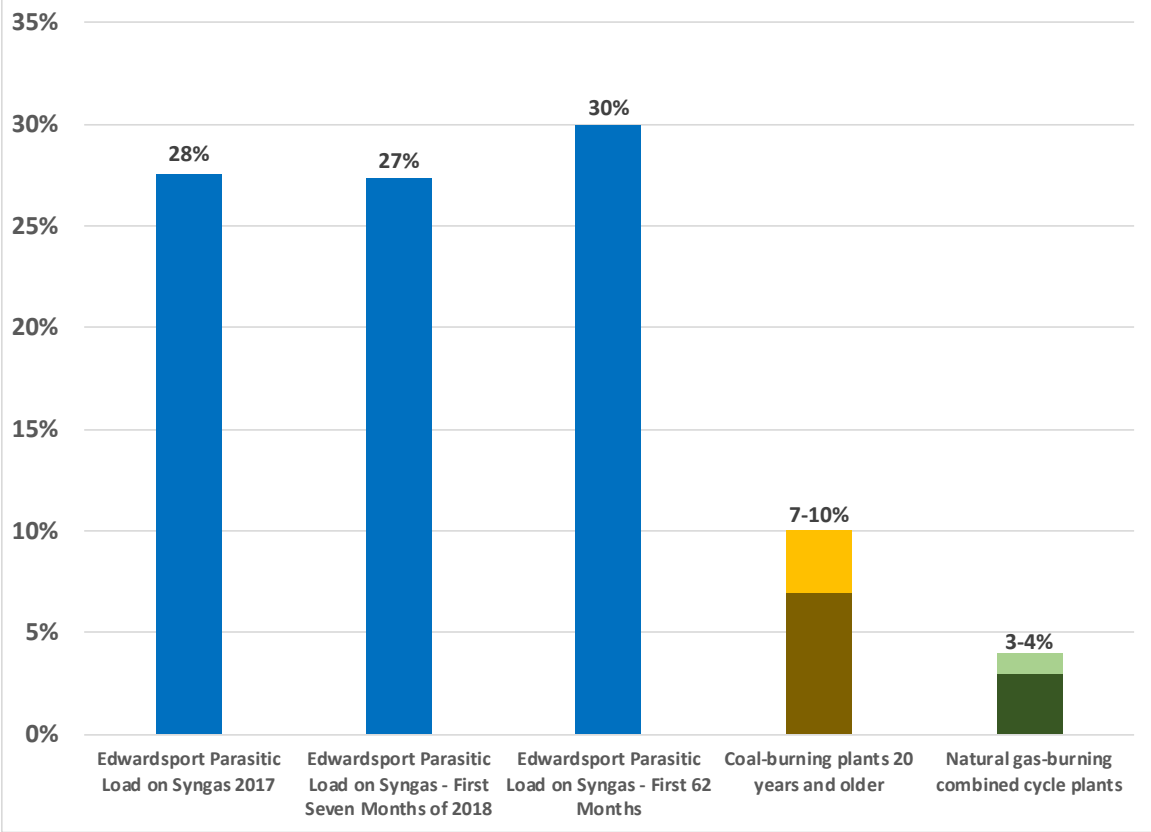
Figure 3: Edwardsport v. Typical Fossil Fuel Power Plant Parasitic Loads[5]



Thus, for the entire 62-month period, June 2013 through July 2018, Edwardsport's parasitic load when operating on syngas was 30 percent of its gross generation. The plant's parasitic load was 28 percent in 2017 and 27 percent in the first seven months of 2018.

[5] The sources for Figure 3 are the Edwardsport data from EIA Form 923 for the years 2013-2018 and the DEI Monthly Compliance Reports to the Lt. Governor and IURC in Cause Nos. 43114 & 43114-S1 from June 2013 through July 2018. The Compliance Report for July 2018 is the most recent available.

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Q. Figure 3 shows Edwardsport's parasitic loads on syngas. What are the plant's parasitic loads on all fuels?

A. Edwardsport's all fuels parasitic loads were 26 percent in 2017 and 24 percent in 2018, still higher but a bit lower than when only considering its parasitic loads on syngas.

Q. Why are Edwardsport's very high parasitic loads important?

A. These extremely high parasitic loads hurt Duke's ratepayers in several ways. First, the plant had to be built larger to produce the same net MW of power. This increased its total construction cost and the Rider 61 revenues its ratepayers must pay. Second, the plant has had to burn substantially more fuel in order to both operate the gasification system equipment and sell its net output into the grid. Both of these ways have meant, and will continue to mean, that ratepayers must pay more for the electricity generated at Edwardsport than from other sources available to Duke to serve them.

Q. In your Direct Testimony you discussed Edwardsport's very high heat rate.[6] Do you have any reason to expect that its heat rate has been any lower in 2018?

A. No.

Q. Edwardsport achieved an average gasifier availability of 78.34 percent in 2017. Has the plant achieved the same level of performance from its gasifiers so far in 2018?

[6] IURC Cause No. 43114 IGCC 17, CAC Exhibit 1, page 15, line 3, to page 16, line 1.

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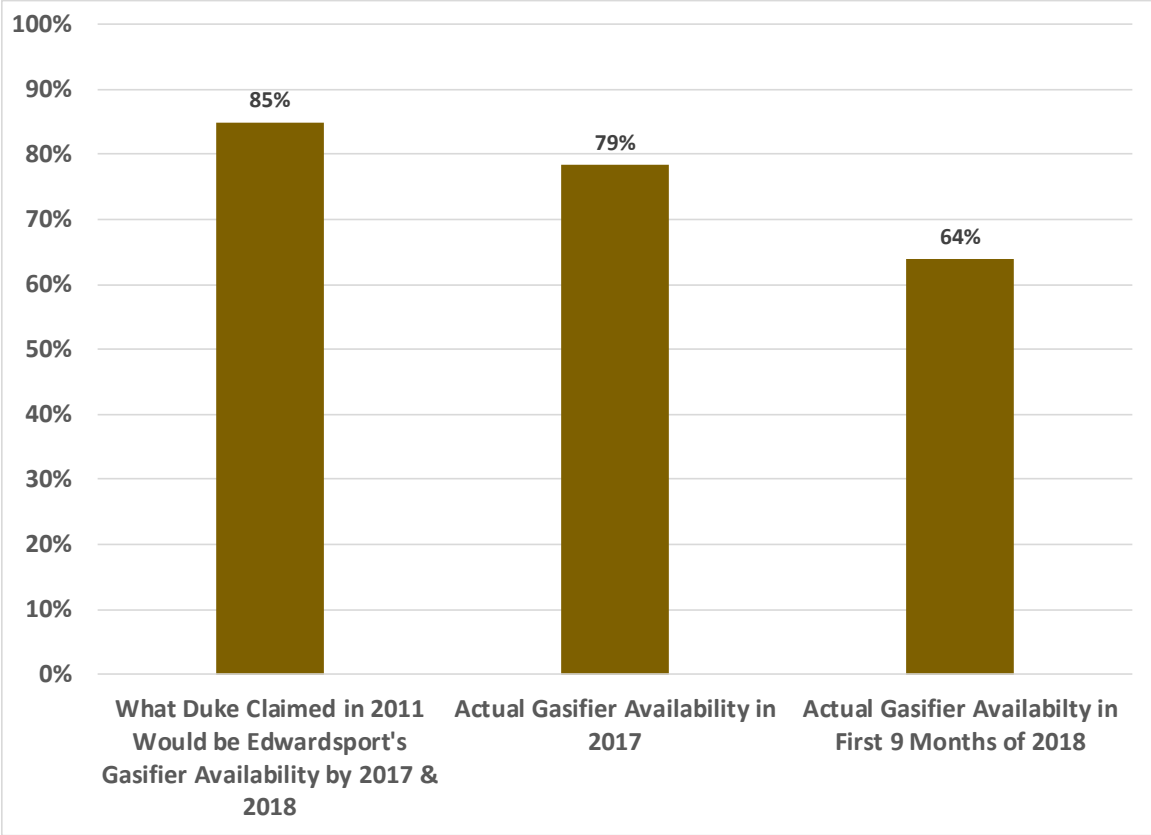
A. No. Edwardsport achieved only an average 64 percent gasifier availability during the first nine months of 2018, as shown in Figure 4, below. This was significantly lower than the nearly 79 percent gasifier availability in 2017.

Figure 4: Edwardsport Annual and Cumulative Gasifier Availability[7]



Q. In how many months has Edwardsport's gasifier availability actually reached or exceeded the performance that Duke predicted back in IGCC-4S1?

A. As shown in Figure 5, below, Edwardsport's monthly availability only achieved the levels predicted by Duke in 18 (or less than 30 percent) of the 64 months from June 2013 to September 2018.

[7] The sources for Figure 4 are (1) Petitioner's Revised Exhibit 1-C (CTG) and (2) Petitioner's Response to Data Request CAC 5.3 (included as Attachment DAS-1).

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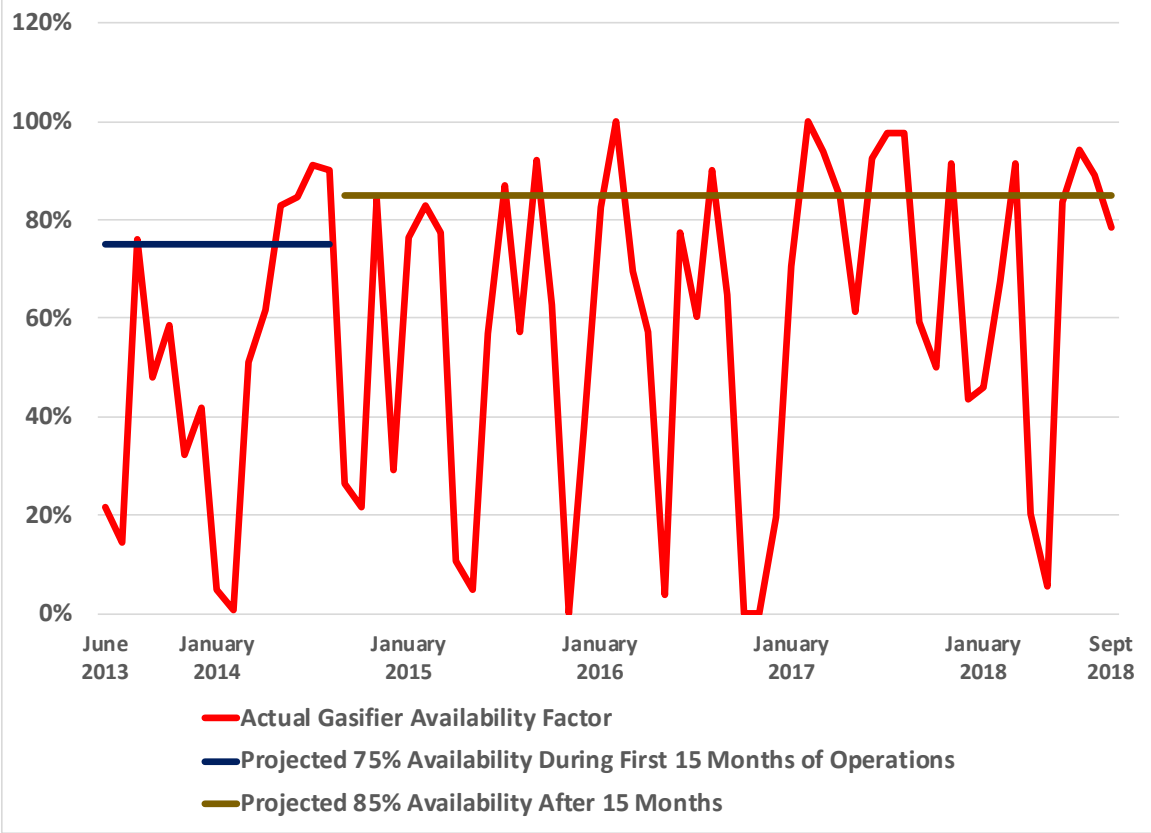
Figure 5: Edwardsport's Monthly Gasifier Availability from June 2013 through September 2018[8]



Q. It is reasonable to expect that the plant would have achieved the forecasted level of gasifier availability in every month?

A. No. However, its average gasifier availability for the entire 64-month period, and the fact it achieved Duke's forecasted levels of performance in less than 30 percent of the individual months, illustrate how inconsistent and unreliable the plant's gasification systems have been.

Q. What has been the overall availability of Edwardsport's gasifiers since the plant was declared to be in-service in June 2013?

[8] Id.

A. Edwardsport's gasifier availability has only been 58 percent since the plant was declared to be in-service in June 2013.

Q. Is availability the best measure to evaluate a generating facility's operating performance?

A. No. As I explained in my Direct Testimony, a power plant's availability only measures the number of hours it is able to provide electricity to the grid, at any power level, during a certain period (e.g., monthly or yearly), divided by the total number of hours in that period.[9] It does not reflect the level of generation *actually* provided by the plant during that period.

For example, when calculating the availability factor, an hour in which a large generating facility like Edwardsport is able to provide just one MW of power is considered the same as an hour in which the facility is able to operate at full power, which for Edwardsport is 618 MW. As one OUCC attorney put it in a past Edwardsport hearing, although my Stairmaster is available 100% of the time, it is not actually getting used. Most importantly, availability has nothing to say about the economics of a particular plant.

Q. Has Duke quantified the number of MWh of output that were lost in 2017 and 2018 due to gasification system equipment problems?

[9] IURC Cause No. 43114 IGCC 17, CAC Exhibit 1, page 21, line 1, to page 23, line 3.

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A. Yes. Duke identified the MWh of lost output due to gasified system equipment problems in its reports to the Generating Availability Data System ("GADS") of the North American Electric Reliability Corporation ("NERC"). For example, Duke reported that Edwardsport had lost the equivalent of [redacted] MWhs of output in 2017 due to "other gasification equipment problems."[10] Duke has similarly reported that Edwardsport lost another [redacted] MWh of output in the first seven months of 2018 also due to "other gasification equipment problems."[11]

Q. Is there any other commonly accepted measure by which the IURC should evaluate Edwardsport's operating performance?

A. Yes. Another commonly accepted measure for evaluating a power plant's operating performance is its Equivalent Forced Outage Rate ("EFOR"). EFOR is a measure of the probability that a unit will not be available due to both (1) forced outages when the entire plant is forced out of service and (2) deratings of the plant below its rated full power net capacity (that is, where the plant is available to generate but only can produce a lower power output due to unplanned equipment problems or technical issues).

Q. What has been Edwardsport's EFOR during the first nine months of 2018?

A. Edwardsport's EFOR for the first nine months of 2018 was 12.9 percent. This was slightly lower than its 13.5 percent EFOR during calendar year 2017. The plant's EFOR for the entire 64-month period of June 2013 through September 2018 was 18.7 percent. All of these measures were much worse than that of the average EFOR of the relevant industry comparison group that Duke itself identified.[12]

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[10] Duke Confidential Attachment CAC 3.1-B (included in JI Exhibit 2-C as Attachment DAS-2-C).
[11] Duke Confidential Attachment CAC 4.1-A (included in JI Exhibit 2-C as Attachment DAS-3-C).
[12] IURC Cause No. 43114 IGCC 17, CAC Exhibit 1, page 23, line 16, to page 24, line 9.

Q. Should the IURC expect Edwardsport's operating performance to improve significantly in coming years over what it has achieved to-date?

A. No. There are a number of factors that suggest that Edwardsport's operating performance, especially on syngas, should not be expected to improve significantly in the foreseeable future:

1. The plant continues to lose a significant portion of its potential generation due to gasifier equipment problems, leading to its extremely poor 41 percent capacity factor on syngas during its first 64 months of operations. The plant's capacity factor on both syngas and natural gas also has been significantly below what Duke forecasted during the CPCN proceedings.
2. Edwardsport's gasification systems continue to operate inconsistently and unreliably.
3. The plant continues to have extremely high parasitic loads and high equivalent forced outage rates.
4. The plant continues to have extremely high heat rates.
5. The Company's plans to continue to conduct both spring and fall maintenance outages in coming years.
6. The plant is seasonally derated to 595 MW in the summer months of June through September.
7. The Company has not been able to offer into the plant into MISO markets at its 618 MW full power net capacity during the non-summer months, or at its 595 MW derated capacity during the summer months.

EDWARDSPORT'S IMPACT ON DUKE ENERGY INDIANA'S RATEPAYERS

Q. What is your understanding of the claimed benefits in the proposed settlement?

A. As I understand it, there are four claimed benefits:

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1. The retail portion of Edwardsport's non-fuel O&M will be capped at $97.6 million in 2018 and $96 million in 2019 but with later O&M costs deferred to the Company's next retail base rates case, the timing of which is not defined with certainty.

2. The Company's recovery of ongoing capital costs will be deferred to its next retail base rates case.

3. The value of the Company's regulatory asset containing deferred operating expenses would be reduced by $10 million per year for three years, for a total of $30 million.

4. There would be $1.7 million (or more) of shareholder funding for low income assistance and clean energy-related projects/programs.

Q. Your Direct Testimony found that it is very expensive to generate electricity at Edwardsport. Will it continue to be very expensive to generate power at Edwardsport under the proposed settlement?

A. Yes. Assuming that the Company's budgeted non-fuel O&M cost of $97.6 million for the entire year of 2018 has been proportionate year-to-date, Edwardsport's total O&M averaged $49.15 per MWh in the first nine months of this year. This was far higher than the average cost of buying the same energy at the MISO Indiana Hub.

Q. Does this $49.15 per MWh cost reflect the retail share of capital costs incurred during construction of the plant prior to it being declared in-service in June 2013?

A. No, it does not reflect the approximately $2.46 billion in retail share of the capital costs or the approximately $400 million in Rider 61 revenues paid by ratepayers prior to Edwardsport being declared in-service in June 2013. Consequently, the total cost of producing power at Edwardsport during the first nine months of this year was substantially higher than the even the $49.15 per MWh figure.

Q. Does the $49.15 per MWh total O&M cost reflect the retail share of capital maintenance expenditures incurred since the plant was declared in service in June 2013?

A. No. The $49.15 per MWh average cost of producing power at Edwardsport during the first nine months of 2018 also does not reflect the approximately $90 million in retail share of post-in-service capitalized maintenance expenditures presented at Petitioner's Exhibit 2-B (DLD), page 7 of 10. Consequently, the total cost of producing power at Edwardsport is substantially higher than even this cost would suggest.

Q. Given Edwardsport's very high O&M expenses, is it reasonable to expect that, with the proposed settlement, the plant will begin to produce a net economic benefit for ratepayers at any time in the foreseeable future?

A. No. As I noted in my Direct Testimony, Duke justified the higher cost of building Edwardsport by claiming that the day it became operational it would benefit ratepayers by displacing less efficient and less environmentally friendly units, thereby serving to reduce operating costs. This clearly has not been true so far, as the cost of producing power at Edwardsport has been significantly higher than the cost of purchasing power in the competitive wholesale MISO markets -- and it is extremely unlikely that producing power at the plant will become less expensive than purchasing that power from the MISO wholesale markets at any time in the foreseeable future. Instead, the cost of producing power at Edwardsport is likely to remain substantially more expensive than energy market prices even if Edwardsport O&M costs do not increase in coming years.

Q. Do the non-fuel O&M caps in the proposed settlement provide any benefit for ratepayers?

A. Yes. They do provide protection against Edwardsport's non-fuel O&M costs rising above the currently budgeted amounts.

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Q. Do you agree that the $30 million reduction in the regulatory asset, spread out over three years, as called for in the settlement represents a net benefit to customers?

A. No. I believe that the $30 million reduction in the regulatory asset, spread out over three years, must be evaluated in the context of other provisions of the settlement. In particular, these other provisions require consideration as well:

1. The non-fuel O&M cap is being increased by approximately $20 million per year in 2018 and 2019 compared to the 2017 cap level of $76 million.

2. There is no cap placed on capital maintenance costs in 2018 or 2019, with the recoverable level of those costs deferred until Duke's next retail base rates case.

3. There is no cap placed on either non-fuel O&M or capital maintenance costs in 2020, even though the non-Duke settling parties are on notice that those costs are likely to be higher than in 2019 due to a "major" outage and related repair and replacement costs being expected during that year.

4. Other factors equal, the 2018, 2019 and 2020 annualized Rider 61 revenue requirements would have been approximately $30 million less than the 2017 revenue requirement due to the new 21.0 percent income tax rate which became effective January 1, 2018, as a result of the Tax Cuts and Jobs Act ("TCJA") enacted in late 2017.

When these other factors are considered, the reduction of the regulatory asset is simply Duke's way of flowing approximately one-third of the TCJA tax rate reduction benefit through to its customers while (a) retaining two-thirds of that benefit to offset increased non-fuel O&M expenses in 2018 and 2019 and (b) deferring to its next base rates case the issue of the recovery of non-fuel O&M expenses in 2020 and capital maintenance costs in 2018, 2019 and 2020 – all of which are expected to be significantly higher than they were in 2017. In this context, the $10 million in annualized regulatory asset write-off is really nothing more than the proverbial "fig leaf" to keep IGCC-17 Step 2 Rider 61 rates approximately 0.5% below their current level for the next two to three years in order to conceal the continuing escalation in Edwardsport operating costs during that deferral period.

Q. How expensive has the all-in cost of Edwardsport been to date for Duke's ratepayers?

A. The all-in cost of Edwardsport, including Rider 61 revenues and fuel costs, has been extremely expensive for Duke's ratepayers. In just the 64 months between June 2013 and December 2017, ratepayers paid $2.113 billion for only the 15 million MWh retail share of the generation from the plant during this period, for an average cost of $140.84 per MWh.

Q. Does this $2.113 billion all-in cost reflect what ratepayers paid through Rider 61 before Edwardsport was declared in-service in June 2013?

A. No. It does not include the $397 million in Rider 61 costs that the ratepayers paid for Edwardsport before the plant was declared to be in-service. Including these costs would increase the average cost for ratepayers to $167.35 per MWh.

Q. How much more expensive has Edwardsport been compared to buying the same power from MISO markets?

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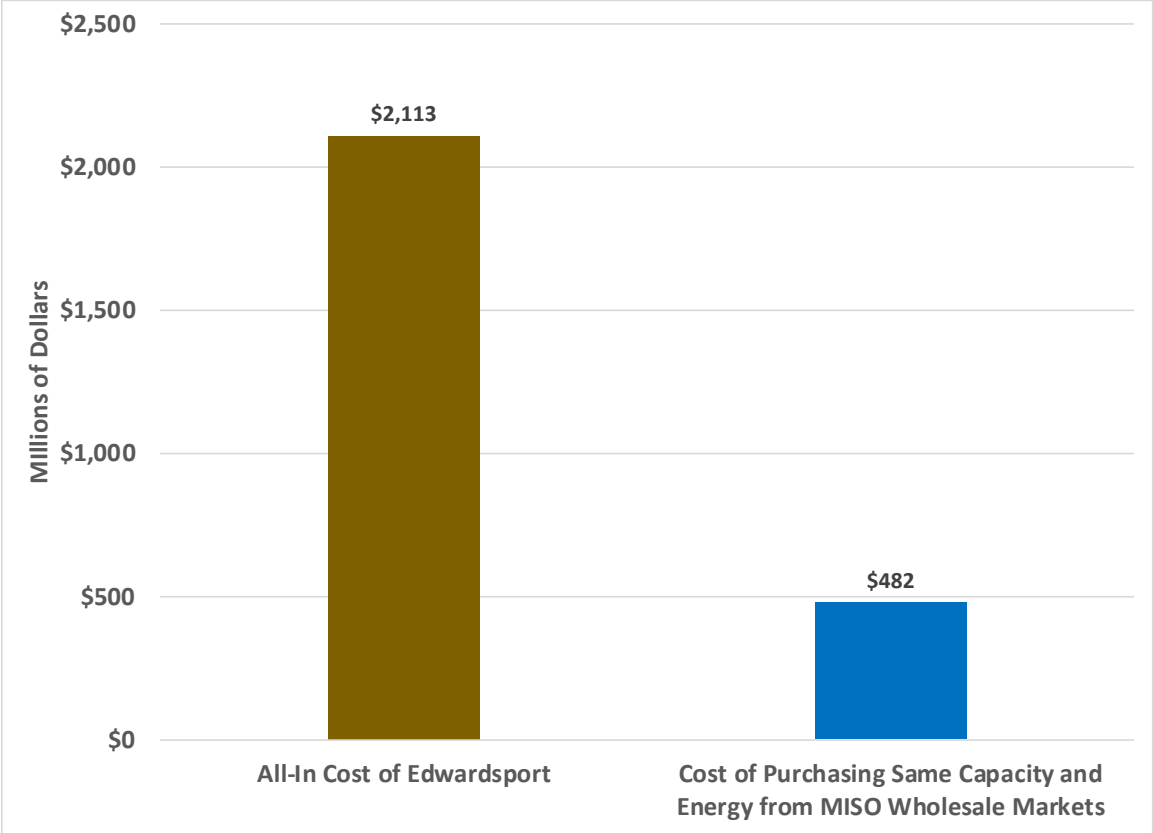
A. There are two ways to answer that question. Figure 6, below, compares the all-in cost paid by Duke's retail customers for Edwardsport from June 2013 through September 2018 to what it would have cost to buy the same amounts of capacity and energy from the MISO markets.

Figure 6: Edwardsport's All-In Cost vs. the Cost of Buying the Same Energy and Capacity from MISO Markets (Total Dollars)



Consequently, through September 2018, Duke's Indiana retail customers paid $1.63 billion more for power from Edwardsport than it would have cost to buy the same capacity and energy from the MISO markets. And this doesn't include the $397.8 million that Duke's customers paid for Edwardsport before the plant was declared in-service in June 2013.

Figure 7 then presents the same comparison on a Dollar per MWh basis.

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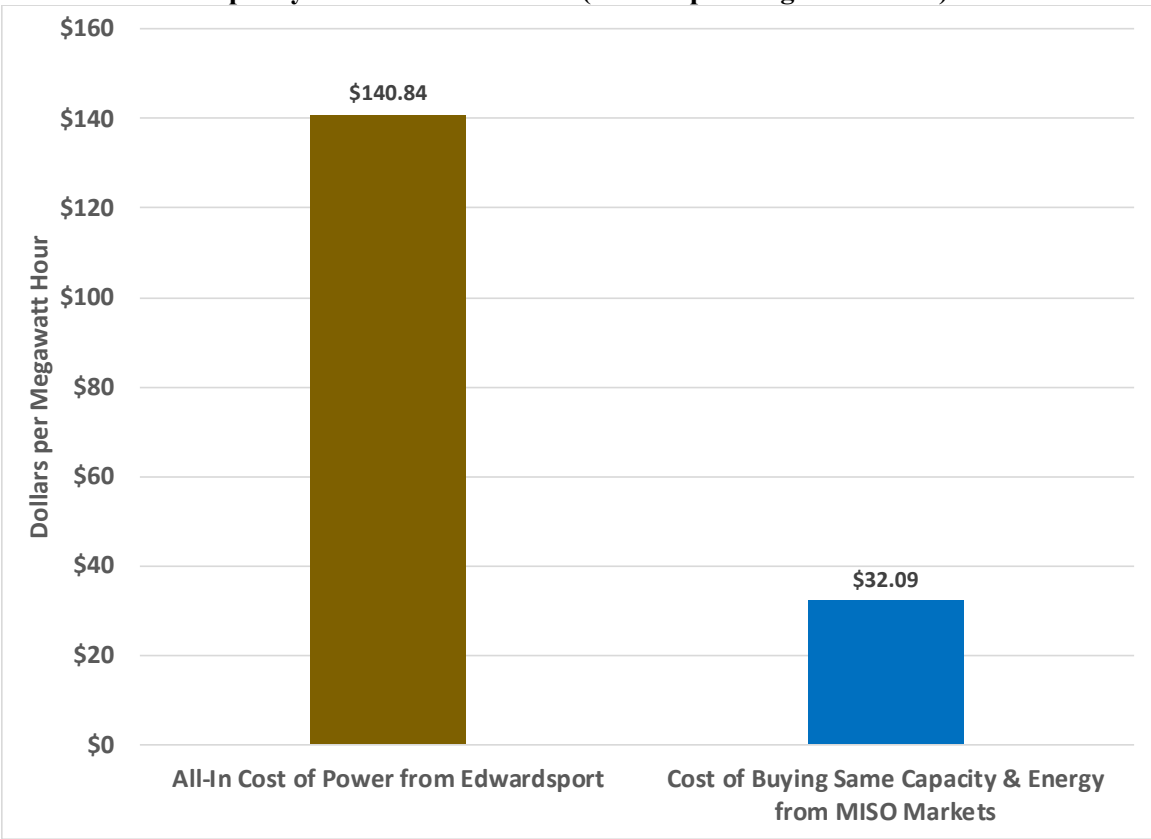
Figure 7: Edwardsport's All-In Cost vs. the Cost of Buying the Same Energy and Capacity from MISO Markets (Dollars per Megawatt Hour)



Q. Does the proposed settlement do anything significant to reduce the impact of Edwardsport on Duke's retail Indiana customers?

A. No. Edwardsport will continue to be an economic catastrophe for Duke's retail Indiana customers until the IURC takes substantially stronger and more effective actions than are contained in the proposed settlement.

Q. Is it reasonable to expect that this situation – without strong, effective regulatory action by the Commission -- will turn around at some point in the future and, consequently, that Edwardsport will produce a net economic benefit for ratepayers?

A. No. Given the disparity in costs shown in Figures 6 and 7, and the expectation that market prices will remain low for the foreseeable future, there is absolutely no hope that Edwardsport will turn around and become an economically beneficial investment for Duke's ratepayers. There also is no hope that Duke's ratepayers ever will recover the $1.63 billion in higher costs they have paid in just the plant's first 64 months of operations.

Q. Are there any other factors that are likely to make the relative economics of Edwardsport even worse for Duke ratepayers in coming years?

A. Yes. Design and technological improvements are driving down the costs of wind and solar resources. As more of these renewable resources are added to the MISO grid, it is likely that they will affect Edwardsport in two ways. First, their lower costs and increasing market shares can be expected to keep market clearing prices at their present levels, if not reduce them, thereby producing an even greater disparity between the average MISO prices and the increasing cost to produce power at Edwardsport. Second, the extremely low operating costs of wind and solar resources will mean that they will be dispatched ahead of fossil-fired units like Edwardsport and, as a result, will likely displace generation that would otherwise be produced at Edwardsport.

Q. Please summarize your recommendations.

A. Approving the cost caps called for in the proposed settlement agreement would be a small, but good, step in the right direction. However, the proposed settlement does not begin to address the scale and scope of the reality confronting the Commission -- that Edwardsport is clearly an economic catastrophe for Duke's customers. Thus, I believe it is time for the IURC to take much stronger actions to protect ratepayers against the plant's grossly excessive costs and to rebalance ratepayer risks and rewards from the plant. Therefore, as I explained in my Direct Testimony, I am recommending that the IURC:

1. "[M]odify or revoke the certificate" for the Plant as the Commission should find that continued "implementation of the [clean coal] technology will not serve the public convenience and necessity" per IC 8-1-8.7-5, an option afforded to the Commission by the legislature to protect ratepayers in situations just like this; or

2. Require DEI to file a rate case to determine how much of the investment in Edwardsport is actually fully "used and useful"; or

3. Initiate a special proceeding to consider options that would ensure that the fully embedded cost of the electricity from Edwardsport is comparable to the cost of alternative sources such as the MISO markets and/or other generating facilities on the Company's system;

And

4. "[R]emove any incentive approved in the order if the commission finds that the project no longer complies with the provisions of the order concerning the incentive" per IC § 8-1-8.8-15 insofar as DEI is still receiving favorable Rider 61 treatment with a historically high rate of return despite the clear failures of DEI to reach the milestones and performance promised when Rider 61 treatment and incentives were awarded; and

5. Until the IURC modifies or revokes the CPCN, issues an order in a special proceeding, or completes a rate case review of whether Edwardsport is actually "used and useful" as recommended above, the IURC should limit the Company's recovery of non-fuel O&M expenditures at Edwardsport to $6.74 per MWh. This represents the per MWh non-fuel O&M expenditures at the five new Duke Energy NGCC units included in Figure 9 of my Direct Testimony (CAC Exhibit 1) averaged with Duke Energy Indiana's own Gibson and Cayuga baseload coal-fired plants for the years 2014-2017. At the same time, the IURC should restrict the capitalized

Edwardsport maintenance expenditures recovered through rates in 2018 and 2019 to the same limit it approved in IGCC-15 for 2017, i.e. the lesser of $16,900,000 or actual expenditures.

Q. Does this complete your testimony?

A. Yes.

VERIFICATION

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

David A. Schlissel

October 16, 2018

ATTACHMENT DAS-1

CAC
IURC Cause No. 43114 IGCC-17
Data Request Set No. 5
Received: October 1, 2018

CAC 5.3

Request:

Please provide the data in Petitioner's Revised Exhibit 1-C (CTG) for the months of August and September 2018.

Objection:

Duke Energy Indiana objects to this Request as not reasonably tailored to lead to admissible evidence in this proceeding. Duke Energy Indiana further objects to this Request as overly broad and unduly burdensome as it seeks information that is outside the scope of this proceeding.

Response:

Subject to and without waiving or limiting its objections and in light of the Commission's docket entry stating that 2018 information is relevant for discovery purposes, Duke Energy Indiana responds as follows:

2018	Net Generation MWH(a)	Net Capacity Factor	Availability Factor	Gasifier(b) Availability Factor	Equivalent Availability Factor	Equivalent Forced Outage Rate
January	363,080	78.97	100.00	45.89	83.80	16.20
February	340,008	81.87	100.00	67.40	85.62	14.38
March	395,881	86.10	100.00	91.64	88.86	10.62
April	197,940	44.48	70.25	20.08	46.61	29.23
May	266,860	58.04	99.15	5.61	59.48	5.38
June	323,412	72.68	100.00	83.57	75.43	14.29
July	399,370	86.86	100.00	94.09	88.28	7.78
August	397,584	86.47	100.00	89.14	88.66	7.11
September	269,420	60.55	100.00	78.45	62.38	10.65

Coal Received and Consumed (tons)

2018	Beginning Inventory	Received	Consumed in Generation	Consumed in Light Off	Ending Inventory
January	275,384.75	111,687.37	91,331.80	635.20	295,105.12
February	295,105.12	104,516.98	114,796.71	469.29	284,356.10
March	284,356.10	138,353.73	177,941.37	241.63	244,526.83
April	244,526.83	92,720.22	39,601.00	0.00	297,646.05
May	297,646.05	57,879.98	8,183.39	329.28	347,013.36
June	347,013.36	139,108.21	134,739.00	483.10	350,899.47
July	350,899.47	139,025.62	182,929.83	72.17	306,923.09
August	306,923.09	162,555.19	178,156.26	276.57	291,045.45
September	291,045.45	115,938.21	108,495.43	799.24	297,688.99
October					
November					
December					
YTD	275,384.75	1,061,786	1,036,175	3,306.48	297,688.99

Natural Gas Purchased and Consumed (dekatherms)

2018	CTs Consumed in Generation	CTs Consumed in Light Off	Consumed in Balance of Plant	Total Consumed by All Sources
January	1,586,108	522	122,572	1,709,201
February	898,957	341	61,245	960,543
March	297,513	565	53,764	351,842
April	1,083,519	743	198,739	1,283,001
May	2,154,728	1,422	111,256	2,267,406
June	561,803	1,316	246,946	810,065
July	165,441	0	206,090	371,531
August	299,887	0	256,223	556,110
September	618,501	0	351,614	970,114
October				
November				
December				
YTD	7,666,456	4,908	1,608,448	9,279,812

Syngas Consumed (dekatherms)

2018	CTs Consumed in Generation	CTs Consumed in Light Off	Total Consumed by All Sources
January	1,321,633	9,348	1,330,981
February	1,703,715	6,909	1,710,624
March	2,574,188	3,517	2,577,705
April	568,862	0	568,862
May	140,775	4,892	145,667
June	2,028,457	7,101	2,035,557
July	2,809,254	1,067	2,810,321
August	2,662,360	3,902	2,666,262
September	1,587,007	11,603	1,598,610
October			
November			
December			
YTD	15,396,250	48,339	15,444,590

Summary of Gasifier Run Time

	G1		G2	
2018	Starts	Run Hours	Starts	Run Hours
January	2	443.25	1	239.67
February	2	464.40	1	441.40
March	1	686.97	1	676.57
April	0	146.92	0	142.23
May	1	73.30	1	10.20
June	3	561.28	1	642.15
July	1	656.02	0	744.00
August	1	678.07	1	648.30
September	2	592.47	3	537.20
October				
November				
December				
Year to Date	13	4,302.67	9	4,081.72

Summary of Power Generated, Power Consumed, Net Power Generated and Run Time by Month

2018	GROSS MWH	AUXILIARY MWH	Net MWH
January	472,621	109,541	363,080
February	446,764	106,756	340,008
March	521,409	125,528	395,881
April	261,565	63,625	197,940
May	317,508	50,648	266,860
June	447,351	123,939	323,412
July	533,016	133,646	399,370
August	531,329	133,745	397,584
September	376,008	106,588	269,420
October			
November			
December			
Year To-Date	3,907,571	954,016	2,953,557

	CT1		CT2		Steam Turbine	
2018	Starts	Run Hours	Starts	Run Hours	Starts	Run Hours
January	2(a)	726.73	0	744.00	0	744.00
February	0	672.00	2(a)	665.13	0	672.00
March	0	744.00	3(a)	717.37	0	744.00
April	2	392.35	2	502.20	1	489.93
May	1	737.70	1	554.78	1	727.62
June	6(a)	630.82	0	720.00	0	720.00
July	0	744.00	0	744.00	0	744.00
August	0	744.00	0	744.00	0	744.00
September	0	409.20	0	720.00	0	720.00
October						
November						
December						
Year To-Date	11	5,800.80	8	6,111.48	2	6305.55

(a)-Includes an attempted start that had no run hours

Power Generation Events and Run Times

CT1		
Close Breaker	**Open Breaker**	**On-Line Time, hours**
1/26/2018 5:28	**2/1/2018 0:00**	
2/1/2018 0:00	3/1/2018 0:00	672.00
3/1/2018 0:00	4/1/2018 0:00	744.00
4/1/2018 0:00	4/11/2018 14:11	254.18
4/12/2018 3:06	4/13/2018 23:07	44.02
4/27/18 1:51	5/1/2018 0:00	94.15
5/1/18 0:00	5/2/2018 4:05	28.08
5/2/2018 10:23	6/1/2018 0:00	709.62
6/1/18 0:00	6/1/2018 23:53	23.88
6/3/2018 8:26	6/4/2018 22:52	38.43
6/7/2018 7:30	7/1/2018 0:00	568.50
7/1/2018 0:00	8/1/2018 0:00	744.00
8/1/2018 0:00	9/1/2018 0:00	744.00
9/1/18 0:00	9/18/2018 1:12	409.20

CT2		
Close Breaker	**Open Breaker**	**On-Line Time, hours**
1/1/2018 0:00	2/1/2018 0:00	744.00
2/1/2018 0:00	2/27/2018 9:15	633.25
2/27/2018 16:07	3/1/2018 0:00	31.88
3/1/2018 0:00	3/17/2018 0:21	384.35
3/17/18 14:33	3/25/2018 13:26	190.88
3/26/2018 1:52	4/1/2018 0:00	142.13
4/1/2018 0:00	4/18/2018 1:42	409.70
4/26/2018 19:47	4/26/2018 21:50	2.05
4/27/2018 3:57	4/30/2018 22:24	90.45
5/8/18 21:13	6/1/2018 0:00	554.78
6/1/18 0:00	7/1/2018 0:00	720.00
7/1/2018 0:00	8/1/2018 0:00	744.00
8/1/2018 0:00	9/1/2018 0:00	744.00
9/1/18 0:00	10/1/2018 0:00	720.00

Steam Turbine		
Close Breaker	**Open Breaker**	**On-Line Time, hours**
1/1/2018 0:00	2/1/2018 0:00	744.00
2/1/2018 0:00	3/1/2018 0:00	672.00
3/1/2018 0:00	4/1/2018 0:00	744.00
4/1/2018 0:00	4/18/2018 1:37	409.62
4/27/2018 15:41	5/1/2018 0:00	80.32
5/1/18 0:00	5/2/2018 4:07	28.12
5/2/18 20:30	6/1/2018 0:00	699.50
6/1/18 0:00	7/1/2018 0:00	720.00
7/1/2018 0:00	8/1/2018 0:00	744.00
8/1/2018 0:00	9/1/2018 0:00	744.00
9/1/18 0:00	10/1/2018 0:00	720.00

ATTACHMENT DAS-2-C

ATTACHMENT DAS-3-C