

FILED
April 16, 2024
INDIANA UTILITY
REGULATORY COMMISSION

STATE OF INDIANA

INDIANA UTILITY REGULATORY COMMISSION

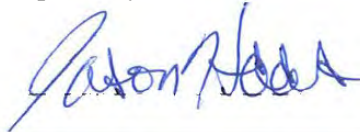
VERIFIED PETITION OF NORTHERN INDIANA PUBLIC)
SERVICE COMPANY LLC FOR (1) ISSUANCE OF A)
CERTIFICATE OF PUBLIC CONVENIENCE AND)
NECESSITY ("CPCN") PURSUANT TO IND. CODE CH. 81-)
8.5 TO CONSTRUCT AN APPROXIMATELY 400)
MEGAWATT NATURAL GAS COMBUSTION TURBINE)
("CT") PEAKING PLANT ("CT PROJECT"); (2) APPROVAL)
OF THE CT PROJECT AS A CLEAN ENERGY PROJECT)
AND AUTHORIZATION FOR FINANCIAL INCENTIVES)
INCLUDING TIMELY COST RECOVERY THROUGH)
CONSTRUCTION WORK IN PROGRESS RATEMAKING)
UNDER IND. CODE CH. 8-1-8.8; (3) AUTHORITY TO)
RECOVER COSTS INCURRED IN CONNECTION WITH)
THE CT PROJECT; (4) APPROVAL OF THE BEST)
ESTIMATE OF COSTS OF CONSTRUCTION ASSOCIATED)
WITH THE CT PROJECT; (5) AUTHORITY TO)
IMPLEMENT A GENERATION COST TRACKER)
MECHANISM ("GCT MECHANISM"); (6) APPROVAL OF)
CHANGES TO NIPSCO'S ELECTRIC SERVICE TARIFF)
RELATING TO THE PROPOSED GCT MECHANISM; (7))
APPROVAL OF SPECIFIC RATEMAKING AND)
ACCOUNTING TREATMENT FOR THE CT PROJECT;)
AND (8) ONGOING REVIEW OF THE CT PROJECT, ALL)
PURSUANT TO IND. CODE CH. 8-1-8.5 AND 8-1-8.8, AND)
IND. CODE §§ 8-1-2-0.6 AND 8-1-2-23.)

CAUSE NO. 45947

INDIANA OFFICE OF UTILITY CONSUMER COUNSELOR
PUBLIC'S EXHIBIT NO. 3
REDACTED TESTIMONY OF
OUCC WITNESS ROOPALI SANKA

April 16, 2024

Respectfully submitted,



T. Jason Haas
Deputy Consumer Counselor
Attorney No. 34983-29

**TESTIMONY OF OUCC WITNESS ROOPALI SANKA
CAUSE NO. 45947
NORTHERN INDIANA PUBLIC SERVICE COMPANY LLC.**

NOTE – CONFIDENTIAL INFORMATION IS SHOWN IN [REDACTED]

I. INTRODUCTION

1 **Q: Please state your name and business address.**

2 A: My name is Roopali Sanka, and my business address is 115 West Washington
3 Street, Suite 1500 South, Indianapolis, Indiana 46204.

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

5 A: I am employed as a Utility Analyst in the Indiana Office of Utility Consumer
6 Counselor's ("OUCC") Electric Division. A summary of my educational
7 background and experience is included in Appendix A attached to my testimony.

8 **Q: What is the purpose of your testimony?**

9 A: My testimony explains why Northern Indiana Public Service Company LLC's
10 ("NIPSCO" or "Petitioner") Request for Proposal ("RFP") process is biased toward
11 aeroderivative turbines and unreasonably excluded potentially less costly
12 alternatives through its RFP process. Ultimately, I recommend the Indiana Utility
13 Regulatory Commission ("Commission") deny NIPSCO's Certificate of Public
14 Convenience and Necessity ("CPCN") as filed. Should the Commission choose to
15 approve a portion of, or modified form of NIPSCO's proposed CPCN, I recommend

1 eliminating the use of aeroderivative technology and reducing its proposed natural
2 gas combustion turbine ("CT") peaking plant's ("CT Project") best estimate.

3 **Q: Please describe the review and analysis you conducted to prepare your**
4 **testimony.**

5 A: I reviewed NIPSCO's verified petition, direct testimony, and attachments relative
6 to my testimony. In addition, I reviewed NIPSCO's responses to the OUCC's and
7 other parties' data requests. I also reviewed the petition, testimony, and the final
8 order in Cause No. 45564 relating to new generation construction costs. Finally, I
9 reviewed parts of the Energy Information Administration's ("EIA") *Annual Energy*
10 *Outlook 2023*.

11 **Q: To the extent you do not address a specific item in your testimony, should it be**
12 **construed to mean you agree with NIPSCO's proposal?**

13 A: No. The exclusion from my testimony of any adjustments, issues, or amounts
14 NIPSCO proposes does not indicate my approval of those adjustments, issues, or
15 amounts. Rather, the scope of my testimony is limited to the specific items
16 addressed herein.

II. CT PROJECT OVERVIEW

17 **Q: Please provide a brief overview of NIPSCO's proposed CT Project.**

18 A: NIPSCO proposes to construct an approximately 400-megawatt ("MW") natural
19 gas CT peaking plant in a simple cycle configuration on available property at the
20 R.M. Schahfer Generation Station site. The CT Project is projected to have a low-
21 capacity factor,¹ but is designed to provide fast start and fast ramping capability.
22 Petitioner's witness Greg Baacke states NIPSCO is targeting an F Class combustion

¹ Petitioner's Exhibit No. 6, Direct Testimony of Andrew S. Campbell, p. 20, lines 3-5.

1 turbine² for the larger industrial frame turbine along “with three smaller
2 aeroderivative or similarly sized industrial frame units (dependent on the results of
3 the CT original equipment manufacturer (“OEM”) bid event).”³ NIPSCO’s CT
4 Project’s best estimate is \$641,223,000 (excluding financing costs) and consists of
5 \$557,585,000 direct costs and \$83,638,000 indirect costs.⁴

III. CT PROJECT TECHNOLOGY AND DESIGN

6 **Q: Please explain the main differences between aeroderivative and industrial**
7 **frame turbines.**

8 A: Petitioner’s witness Steven Warren describes the main differences between an
9 industrial frame and aeroderivative turbine.⁵ Mr. Warren explains that
10 aeroderivative gas turbines are designed for the airline industry, and are generally
11 smaller and lighter weight, while industrial frame turbines are heavier, more
12 durable, and less complicated than aeroderivative turbines.⁶ Industrial frame
13 turbines are less specialized and require less frequent maintenance.⁷

14 **Q: Please describe the three CT configurations evaluated by S&L.**

15 A: The S&L engineering study evaluated three simple cycle configurations. Two gas
16 turbine technologies were evaluated in three different proposed configurations. The

² Petitioner’s Exhibit No. 5, Direct Testimony of Greg Baacke, p. 4, lines 13-14.

³ Baacke Direct, p. 3, lines 14-17.

⁴ Baacke Direct, Attachment 5-A.

⁵ Petitioner’s Exhibit No. 4, Direct Testimony of Steven Warren, p. 9, l. 7 to p. 10, l. 10.

⁶ Warren Direct, p. 9, lines 12-18.

⁷ Baacke Direct, p.5, lines 2-5.

1 gas turbines selected for this study are GE models 7FA.04 (industrial frame) and
2 LM6000 PF+ (aeroderivative).⁸

3 1. Two GE 7FA.04 Industrial Frame Combustion Turbines

4 2. Six GE LM6000 Aeroderivative Gas Turbines

5 3. One GE 7FA.04 (Industrial frame) and Three GE LM6000s (aeroderivative) Gas
6 Turbines

7 [REDACTED]⁹ S&L

8 provided the initial engineering study, which included a decision matrix comparing
9 the different configurations.¹⁰

10 Table 1 below compares the above gas turbine configurations meeting the project
11 criteria, estimated performance, estimated inside the fence capital costs, estimated
12 O&M costs, and other general attributes. All data are taken from S&L's engineering
13 study.¹¹

⁸ Warren Direct, p. 11, lines 12-16.

⁹ Warren Direct, Attachment 4-A, p. 4-5.

¹⁰ Warren Direct, p. 12, line 1.

¹¹ Warren Direct, Attachment 4-A, p. 9-2.

Table 1

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1 The startup time difference between the all-industrial frame configuration and any
2 configuration containing aeroderivative is ██████████¹² Configurations
3 featuring the aeroderivative turbines have capital costs/kW ██████████
4 than the all-industrial frame configuration. Fixed O&M is ██████████
5 higher.

6 **Q: Please discuss the technical characteristics of NIPSCO's proposed CT Project.**

7 A: The industrial frame turbine selected for the initial engineering study (7F.04) is a
8 60 Hz General Electric ("GE") frame combustion turbine with 98.6% reliability.

9 The 7FA.05 class turbine has a ramp rate of 40 MW/min and a net output of 236.6

¹² Warren Direct, Attachment 4-A: p. 2-3.

1 MW. The 7F.05 turbine can produce 200 MW within 10 minutes and can reach a
2 full load in under 11 minutes.¹³

3 The aeroderivative turbine (LM6000) is a 60 Hz GE CT with a reliability of 99%
4 that can achieve a 59 MW net output. The LM6000 PF+ is an advanced model of
5 the LM6000 which has a start time of 5 minutes and has the capability to achieve
6 the upper end range of the output with a ramp rate of 30 MW/min and a net output
7 of about 54 MW.¹⁴

8 In terms of the starting time between the LM6000PF+ aeroderivative unit and the
9 7FA.05 industrial frame, there is a [REDACTED] difference with the aeroderivative
10 having a [REDACTED]-minute starting time and the industrial frame having a [REDACTED]-minute starting
11 time.¹⁵

12 **Q: Does the OUCC agree with NIPSCO's proposed CT configuration?**

13 A: No. The OUCC does not agree with NIPSCO's preferred configuration containing
14 one industrial frame and three aeroderivative turbines. Although NIPSCO claimed
15 it evaluated multiple technologies for the CT Project during the engineering study
16 phase, The decision matrix in Appendix 19 of the Simple Cycle Gas Turbine
17 Engineering Study conducted by S&L shows NIPSCO failed to evaluate the
18 configuration with one large industrial frame and smaller industrial frame, similarly
19 sized to the aeroderivative turbines, in the decision matrix of the engineering
20 study.¹⁶ Additionally, NIPSCO developed the matrix only using [REDACTED]

¹³ <https://www.gevernova.com/gas-power/products/gas-turbines/7f>.

¹⁴ <https://www.gevernova.com/gas-power/products/gas-turbines/lm6000>.

¹⁵ Attachment RS-1: NIPSCO's Response to OUCC Request 2-008, Confidential Attachment A.

¹⁶ Warren Direct Attachment 4-A, Appendix 19.

1 [REDACTED] as the basis.¹⁷ NIPSCO was selective in the
2 configurations it evaluated. Although NIPSCO has not finalized a CT
3 manufacturer,¹⁸ the decision matrix failed to consider and evaluate other potential
4 OEMs.

5 **Q: Does NIPSCO justify why its preferred configuration is worth the cost to**
6 **ratepayers?**

7 A: No. Although NIPSCO has provided and identified the differences between the bids
8 and technology, it has not quantified the benefits of its preferred configuration.
9 There's no justification of the value of those differences to demonstrate they are
10 worth those extra costs.

11 **Q: Did NIPSCO provide a cost-benefit analysis to justify the CT Project**
12 **configuration of the combination of the aeroderivative and industrial frame**
13 **turbines?**

14 A: No. Through discovery, the OUCC requested a cost-benefit analysis to properly
15 justify the necessity of an aeroderivative versus solely industrial frames. However,
16 NIPSCO did not quantify the benefits or perform a cost-benefit analysis for the
17 difference in starting time/ramp rate between the industrial frame and the
18 aeroderivative.¹⁹ NIPSCO did not provide the requested information, supporting
19 documentation, or supporting analysis to justify the large cost difference between
20 the two different configurations. Additionally, NIPSCO did not provide a class 3
21 estimate for its alternative configuration containing one large sized industrial frame
22 with three smaller sized industrial frames or for any other configuration in the

¹⁷ Warren Direct, Attachment 4-A, p. 11-1.

¹⁸ Attachment RS-2: NIPSCO's Response to CAC Data Request 4-003.

¹⁹ Attachment RS-2: NIPSCO's Response to OUCC Data Request 8-010.

1 engineering study other than its preferred configuration.²⁰ NIPSCO only provided
2 a class 4 estimate of other configurations and did not update its engineering study
3 following a one-year delay in its in-service date.²¹ NIPSCO has not quantified the
4 financial impact of faster ramping aeroderivative units. Even though Petitioner
5 asserts "NIPSCO chose the preferred configuration to maximize benefits to
6 NIPSCO and its customers,"²² it never quantified the benefits to NIPSCO or
7 ratepayers.

8 **Q: Did NIPSCO provide any specific justification for the aeroderivative units?**

9 A: No. Although Mr. Warren states "they provide an advantage over industrial frame
10 machines in regard to starts and the impact of starts on maintenance cycles, as well
11 as the time to start a unit,"²³ NIPSCO has not justified the need for aeroderivatives.
12 NIPSCO has not shown a cost-benefit analysis or quantified that the benefits of
13 these operational characteristics justify the CT Project cost. Beyond NIPSCO's
14 desire for "quick start" and "fast ramp" units, NIPSCO has not provided any other
15 analysis or support for selecting aeroderivative units in its configuration which
16 industrial frames can also address. Regarding the performance criteria done in the
17 S&L engineering study, the weighted rankings of the configuration consisting
18 solely of industrial frames were close in score in terms of the ramp rate and fast
19 start capability. While other metrics were analyzed in the decision matrix, the
20 metrics directly tied to costs for the configuration solely consisting of industrial

²⁰ Warren Direct, Attachment 4-A, Appendix 20.

²¹ Attachment RS-2, NIPSCO's Response to OUCC DR 8-009.

²² Baacke Direct, p. 6, lines 5-6.

²³ Warren Direct, p. 10, lines 8-10.

1 frame units held a higher ranking in comparison with NIPSCO's preferred
2 configuration further supporting that the high costs are not justified.²⁴ There is no
3 evidence indicating that NIPSCO was obligated to fulfill criteria that exclusively
4 necessitated the use of aeroderivative units.

IV. CT PROJECT COST ESTIMATE

5 **Q: Please briefly discuss your evaluation of NIPSCO's cost estimate for its**
6 **proposed CT Project.**

7 **A:** The cost of one LM6000 PF+ aeroderivative from the bid that contains NIPSCO's
8 preferred configuration ([REDACTED]) is [REDACTED] each for a total of [REDACTED].

9 The cost of a single GE 7F.05 industrial frame is [REDACTED].²⁵ Although the cost
10 of an aeroderivative is less in comparison to an industrial frame, a single
11 aeroderivative can only produce a net output of about 53-59 MW while a single
12 industrial frame has a net output of about 235-240 MW. To fulfill the NIPSCO CT
13 required capacity, multiple aeroderivatives are needed in a configuration that
14 contains aeroderivative units. The total cost of a configuration containing
15 aeroderivative units increases even more once the O&M costs and initial capital
16 costs are accounted for in comparison to that of an all-industrial frame
17 configuration. Despite the potential advantages in operational performance offered
18 by aeroderivative units, such as quicker start-up times, the accrued costs associated
19 with their acquisition, operation, and maintenance outweigh the benefits. This
20 suggests that, from a cost-effectiveness perspective, the operational characteristics

²⁴ Warren Direct, Attachment 4-A, Appendix 19.

²⁵ Attachment RS-3: NIPSCO's Response to CAC Request 1-004, Confidential Attachment A: [REDACTED]

1 of aeroderivative units do not justify the higher overall expenditure when compared
2 to a configuration comprised of only industrial frame turbines.

3 The estimated life of NIPSCO's CT Peaker Plant is 30 years,²⁶ which aligns with
4 the plant life of base load plant. Base load plants come at a lower initial cost and
5 have lower operations and maintenance ("O&M") costs compared to a peaker plant
6 containing aeroderivative units, making them more financially viable. Therefore,
7 in the context of a 30-year lifespan, the cost-effectiveness of using a configured
8 base load plant outweighs the benefits of using a configuration containing
9 aeroderivative technology for peaker plants.

V. RECOMMENDATIONS

10 **Q: Please summarize your recommendations in this Cause.**

11 A: I recommend the Commission deny NIPSCO's proposed CPCN as filed.
12 Aeroderivative turbines are a much more expensive option than industrial frame
13 turbines, and NIPSCO has not provided specific justification for why the more
14 expensive aeroderivative option is needed. Petitioner's customers, who will pay
15 hundreds of millions of dollars for this project if approved, would have also
16 benefited from a full evaluation of all viable options in this proceeding.

17 **Q: Does this conclude your testimony?**

18 A: Yes.

²⁶ Petitioner's Exhibit No. 8, Direct Testimony of Kevin J. Blissmer, Attachment 8-S-A.

APPENDIX TO TESTIMONY OF
OUCW WITNESS ROOPALI SANKA

1 **Q: Please describe your educational background and experience.**

2 A: I hold a bachelor's degree in Energy Engineering from Indiana University Purdue
3 University of Indianapolis. In August 2022, I began my employment with the
4 OUCW as a Utility Analyst II in the electric division. I work on demand side
5 management ("DSM"); DSM evaluation, measurement, & verification; and
6 certificates of public convenience and necessity. Additionally, I attended Scott
7 Hempling's 'Fundamentals of Utility Law' course in the first quarter of 2023. I also
8 attended the 2022 Indiana Energy Conference in October 2022, which focused on
9 the current and future challenges facing the energy market.

10 **Q: Have you previously testified before the Indiana Utility Regulatory**
11 **Commission?**

12 A: Yes.

“Excluded from public access per A.R. 9(G).”

**CONFIDENTIAL
OUCC ATTACHMENT RS-1
CAUSE NO. 45947**

Cause No. 45947
Northern Indiana Public Service Company LLC's
Objections and Responses to
Citizens Action Coalition of Indiana, Inc.'s Fourth Set of Data Requests

<u>CAC Request 4-003:</u>
Has NIPSCO chosen an winning bidder for the turbine equipment? If so, who? And has an LNTP been issued to that bidder?
<u>Objections:</u>
<u>Response:</u>
No, NIPSCO has not selected a winning bidder for the turbine equipment.

Cause No. 45947
Northern Indiana Public Service Company LLC's
Objections and Responses to
Indiana Office of Utility Consumer Counselor's Eighth Set of Data Requests

OUCR Request 8-010:

Please provide a cost-benefit analysis along with all the data, analysis, and explanation of the 6-minute difference in ramp time between the aeroderivative and the industrial frame turbines.

Objections:

NIPSCO objects to the Request on the grounds and to the extent it seeks a calculation, analysis, or compilation that NIPSCO has not performed and which NIPSCO objects to performing.

Response:

A cost-benefit analysis was not completed for the difference in starting time/ramp rate between the aeroderivative and the industrial frame turbines. As shown in Appendix 19 of Confidential Attachment 4-A sponsored by NIPSCO Witness Warren, NIPSCO and S&L developed a decision matrix to select the equipment configuration. This evaluation included performance criteria to align with the Flexible Resource Analysis (Confidential Attachment 7-D sponsored by NIPSCO Witness Augustine), operational factors, costs, environmental, and schedule. NIPSCO chose the preferred configuration to maximize benefits to NIPSCO and its customers.

Cause No. 45947
Northern Indiana Public Service Company LLC's
Objections and Responses to
Indiana Office of Utility Consumer Counselor's Eighth Set of Data Requests

<u>OUC Request 8-009:</u>
Has NIPSCO updated their simple cycle gas turbine engineering study performed by Sargent & Lundy since April 17th, 2023? a. If yes, please provide the updated engineering study.
<u>Objections:</u>
<u>Response:</u>
No. NIPSCO has not completed an updated engineering study.

“Excluded from public access per A.R. 9(G).”

**CONFIDENTIAL
OUCC ATTACHMENT RS-3
CAUSE NO. 45947**

AFFIRMATION

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



Roopali Sanka
Utility Analyst II
Indiana Office of Utility Consumer Counsel
Cause No. 45947
NIPSCO, LLC

Date: April 16, 2024

CERTIFICATE OF SERVICE

This is to certify that a copy of the foregoing *Indiana Office of Utility Consumer Counselor Public's Exhibit No. 3 Redacted Testimony of OUCC Witness Roopali Sanka* has been served upon the following counsel of record in the captioned proceeding by electronic service on April 16, 2024.

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