
VERIFIED DIRECT TESTIMONY OF GREG BAACKE

1 **Q1. Please state your name, business address and title.**

2 A1. My name is Greg Baacke. My business office address is Eastport Tower,
3 3001 Leonard Drive, Valparaiso, Indiana 46383. I am the Senior Director of
4 Major Projects for Northern Indiana Public Service Company LLC
5 ("NIPSCO").

6 **Q2. Please briefly describe your educational and business experience.**

7 A2. I received a Bachelor of Science degree in Electrical Engineering Technology
8 from Purdue University Calumet in 2004. I began my employment with
9 NIPSCO in 2008 as an Engineer. My experience includes project engineer
10 and project manager positions in the Generation Major Projects group prior
11 to my promotion to Manager of Generation Major Projects in 2015. In 2018,
12 I was promoted to Director of Major Projects - Generation. In 2021, my title
13 was changed to Director of Major Projects, Survey & Land when I assumed
14 responsibilities for the Survey & Land team for all NiSource affiliates,
15 including NIPSCO. In July 2023, my title was changed to Senior Director of
16 Major Projects.

1 **Q3. What are your current responsibilities as Senior Director of Major**
2 **Projects?**

3 A3. As Senior Director of Major Projects, I am responsible for the management
4 of capital projects at the NIPSCO generating stations as well as other large
5 capital and asset retirement obligation projects for NIPSCO. These
6 responsibilities typically include cost estimating, cost tracking, scheduling,
7 contractor and vendor management, ensuring safety and quality, managing
8 project risk, and other project execution activities from the initiation of
9 projects through close out. Included in the Major Projects part of my group
10 are managers, project engineers, project managers, and construction
11 managers that execute these projects under my direction. I also continue to
12 oversee the Survey & Land team, which is responsible for land acquisition
13 activities for all NiSource affiliates to support the installation and
14 maintenance of gas and electric distribution and transmission assets. This
15 team consists of a manager, leaders, land agents, and land technicians.

16 **Q4. Have you previously testified before the Indiana Utility Regulatory**
17 **Commission ("Commission") or any other regulatory commission?**

18 A4. Yes. I testified before the Commission in NIPSCO's request for a Certificate
19 of Public Convenience and Necessity ("CPCN") for a federally mandated

1 Environmental Compliance Project in Cause No. 44872. I also testified
2 before the Commission in some of NIPSCO's Federally Mandated Cost
3 Adjustment tracker filings in Cause No. 44340-FMCA-XX (beginning with
4 FMCA-10) and in NIPSCO's Environmental Cost Recovery tracker filings
5 in Cause No. 42150-ECR-XX (beginning with ECR-29).

6 **Q5. What is the purpose of your direct testimony in this proceeding?**

7 A5. The purpose of my direct testimony is to support NIPSCO's request for a
8 CPCN to construct a natural gas combustion turbine ("CT") peaker plant
9 (the "CT Project") on available property at NIPSCO's R.M. Schahfer
10 Generating Station ("Schahfer") site. Specifically, I explain the CT Project,
11 including key specifications and characteristics, the approach to
12 configuration selection, and the contracting strategy for the CT Project. I
13 also provide the project schedule and the best estimate of costs of
14 construction. The CT Project is planned to be approximately 400 megawatts
15 ("MW"), consisting of one larger industrial frame unit with three smaller
16 aeroderivative or similarly sized industrial frame units (dependent on the
17 results of the CT original equipment manufacturer ("OEM") bid event).
18 NIPSCO Witness Warren of Sargent and Lundy ("S&L") further discusses
19 the engineering work performed to provide the cost estimate for the CT

1 Project which is ultimately included in the best estimate of costs of
2 construction that I support.

3 **Q6. Are you sponsoring any attachments to your direct testimony in this**
4 **Cause?**

5 A6. Yes. I am sponsoring Attachment 5-A, Confidential Attachment 5-B, and
6 Attachment 5-C, all of which were prepared by me or under my direction
7 and supervision.

8 **Proposed Plant Specifications and Characteristics**

9 **Q7. Please further explain the planned characteristics of the CT Project.**

10 A7. The CT Project is expected to consist of one larger industrial frame unit with
11 three smaller aeroderivative or similarly sized industrial frame units. The
12 final configuration is dependent on the results of a competitive Request for
13 Proposals ("RFP"). NIPSCO is targeting an F Class combustion turbine for
14 the larger industrial frame turbine, which has been on the market for over
15 30 years and has a proven history of solid, reliable performance. In recent
16 years, General Electric's F Class combustion turbine has been upgraded to
17 its 7FA.05 model with power output and heat rate values at ISO conditions
18 of approximately 239 MWs and 8,871 btu/kWh (LHV) and shorter start
19 times to as little as 11 minutes and ramp rates as high as 50 MWs per

1 minute. Similar performance exists for Siemens Energy's SGT6-5000F
2 combustion turbine. Larger industrial frame units typically have a lower
3 capital cost per kilowatt to install, require fewer machines, and generally
4 have longer intervals between maintenance when compared to
5 aeroderivative turbines.

6 NIPSCO is also including three smaller aeroderivative or similarly sized
7 industrial frame turbines in the CT Project. Aeroderivative turbines are
8 typically more efficient, start faster and more frequently, and fluctuate
9 power generation faster to meet demand when compared to larger
10 industrial frame turbines. These features, along with market import
11 capabilities, allow a utility to install large volumes of renewable energy and
12 still maintain the ability to reliably and efficiently serve a heavy industrial
13 customer base, as well as commercial and residential load, when the
14 intermittent renewable resources are not available for short or prolonged
15 periods of time.

16 **Q8. Did NIPSCO consider other configurations?**

1 A8. Yes. As further discussed by NIPSCO Witness Warren, NIPSCO evaluated
2 multiple technologies for the CT Project during the engineering study
3 phase.

4 **Q9. Please explain why NIPSCO selected the chosen configuration.**

5 A9. NIPSCO chose the preferred configuration to maximize benefits to NIPSCO
6 and its customers. This preferred configuration was needed to conduct an
7 RFP to seek proposals for an engineering, procurement, and construction
8 ("EPC") contract (the "EPC RFP"). As shown in Appendix 19 of the Simple
9 Cycle Gas Turbine Engineering Study, Report No. SL-016874 (the
10 "Engineering Study") (Confidential Attachment 4-A sponsored by NIPSCO
11 Witness Warren), NIPSCO and S&L developed a decision matrix to select
12 the equipment configuration that would be used for purposes of the EPC
13 RFP. This evaluation included performance criteria to align with the
14 Flexible Resource Analysis (Confidential Attachment 7-D sponsored by
15 NIPSCO Witness Augustine), operational factors, costs, environmental, and
16 schedule.

17 **Q10. Are there benefits to constructing the CT Project on the Schahfer site?**

1 A10. Yes. NIPSCO already owns the property at the Schahfer site. Constructing
2 the CT Project on the Schahfer site provides cost savings and advantages
3 for NIPSCO, its customers, and the local economy. Using the existing
4 facilities and a portion of existing equipment will lower NIPSCO's capital
5 investment.

6 The Schahfer site was selected with utility generation access in mind and
7 has a designated entrance road off a main highway. The site environmental
8 permitting will provide for emissions netting due to retiring an existing coal
9 plant with higher emissions than the proposed CT. This opportunity would
10 not be available at a greenfield site.

11 As discussed by NIPSCO Witness Campbell, NIPSCO also holds
12 interconnection rights at the Schahfer site (related to Units 17 and 18 that
13 will be retiring by the end of 2025). The MISO grid interconnection rights
14 can be transferred from existing coal units to the CT for up to three years
15 after retirement. While there is a cost for the MISO interconnect study
16 (approximately \$180,000), there is minimal risk of any MISO transmission
17 upgrade costs. Lastly, the Schahfer site is located within NIPSCO's service
18 territory, so using this site will replace lost property tax base resulting from

1 the retirement of the generating units at Schahfer.

2 **Q11. What existing plant facilities and equipment will be used for**
3 **construction of the CT Project?**

4 A11. NIPSCO worked with S&L to identify existing plant facilities or equipment
5 that could be used with the new CT. NIPSCO anticipates being able to
6 utilize the existing natural gas line that feeds the existing coal- and natural
7 gas-fired units at the Schahfer site. Use of this infrastructure will be
8 incorporated in the design and technical specifications for the CT Project.
9 In addition, NIPSCO anticipates being able to use equipment located within
10 the existing 138 kV and 345 kV substation to distribute energy to and from
11 the electric grid.

12 **Q12. Will the CT Project have access to adequate transmission, water, and gas**
13 **service?**

14 A12. Yes. The Schahfer site has adequate transmission, water, and gas service
15 since generating units are already located at the site. The site contains a 138
16 kV and a 345 kV switchyard that directly connects the Schahfer site to the
17 electric grid. The site has an existing well network currently used to
18 provide domestic water to the Schahfer site. NIPSCO plans to investigate

1 what opportunities may exist to use this infrastructure. The cost for water
2 and gas interconnection is expected to be approximately \$2.4 million in
3 total, while the cost associated with electric interconnection is expected to
4 be approximately \$23.7 million. NIPSCO Witness Campbell describes how
5 the CT Project will be supplied with the necessary firm natural gas capacity.

6 **Q13. What work was included in the estimate for the electric interconnection**
7 **work?**

8 A13. As shown in Section 4.1.4 of the Engineering Study (Confidential
9 Attachment 4-A sponsored by NIPSCO Witness Warren), the scope of work
10 for the electric interconnection includes installation of a
11 substation/switchyard adjacent to the CT Project. A new 345 kV
12 transmission line, approximately 1.2 miles in length, is planned to be
13 installed to connect the new substation/switchyard to the existing 345 kV
14 switchyard located at the Schahfer site. Modifications to the existing 345
15 kV switchyard will also be performed to tie in the new 345 kV transmission
16 line.

17 **Procurement Process and Schedule**

18 **Q14. Did NIPSCO use a competitive process to determine the cost estimate for**
19 **the CT Project?**

1 A14. Yes. NIPSCO employed S&L, an engineering and construction firm with
2 CT experience, to help develop a scope of work to obtain preliminary
3 quotes for major equipment during the engineering study phase to support
4 the cost estimate shown in Appendix 20 of the Engineering Study
5 (Confidential Attachment 4-A sponsored by NIPSCO Witness Warren).
6 S&L then supported NIPSCO by drafting technical specifications for the
7 EPC RFP. The cost estimated by S&L was compared to the costs for gas-
8 fired projects bid into the EPC RFP. After NIPSCO elected to move forward
9 with the self-build option to capture cost savings and other advantages,
10 S&L developed technical specifications to support a competitive bid event
11 for the procurement of turbines for the CT Project that occurred in June 2023
12 (the "turbine equipment RFP"). Bids from this bid event were received on
13 August 7, 2023, and are currently being evaluated. Similar competitive bid
14 events are planned to be completed for other major equipment as well as
15 major construction contracts.

16 **Q15. Did the EPC RFP seek proposals for a full EPC contract?**

17 A15. Yes. The EPC RFP was issued in Fall 2022, seeking bids for projects between
18 370 MW to 450 MW. Technical specifications for the EPC RFP were drafted
19 as a result of the work previously performed in collaboration with S&L

1 during the engineering study phase. Bidders were requested to provide
2 proposals with a combination of industrial frame and aeroderivative
3 combustion turbines meeting specific performance criteria. Performance
4 criteria included desired machine sizing, cold start timing, ramp rates,
5 minimum emission compliant loads, emission limits, remote start and
6 operational capabilities, and other reliability capabilities. Proposals were
7 received from three bidders.

8 **Q16. Please describe the results of the bids received in response to the EPC**
9 **RFP.**

10 A16. One bid did not meet the performance criteria of the technical specifications
11 and provided less than five pages of information. This bid was not
12 evaluated for further consideration. A second bid provided a proposal that
13 consisted of 10 refurbished aeroderivative turbines which did not align
14 with the RFP criteria or the performance criteria of the technical
15 specifications. A third bid aligned with the technical specifications
16 however, the proposal price was \$100 million more than the self-build
17 option costs of construction shown in Attachment 5-A.

18 **Q17. Did NIPSCO perform additional evaluation after receiving the responses**

1 **to the EPC RFP?**

2 A17. Yes. NIPSCO completed an additional evaluation utilizing components of
3 the previously completed self-build estimate along with variations of the
4 proposal that consisted of 10 refurbished aeroderivative units. This
5 evaluation included overall cost (capital and operations and maintenance),
6 hydrogen capabilities (environmental), resource adequacy, operational
7 reliability, flexibility, and optionality, and project execution risk. NIPSCO
8 ultimately chose the self-build option, which is in the best interest of
9 NIPSCO and its customers.

10 **Q18. Please describe the procurement and bid process NIPSCO is using to**
11 **purchase equipment for the CT Project.**

12 A18. NIPSCO plans to utilize a multi-prime contracting strategy for the CT
13 Project. A multi-prime contracting strategy is different from an
14 engineering, procurement, and construction contracting strategy in which
15 a single entity would be utilized to perform all engineering, procurement,
16 construction, and start up and commissioning activities to complete the
17 project. The multi-prime contracting strategy approach utilizes multiple
18 contractors (*i.e.*, engineering, equipment suppliers, construction
19 contractors, etc.) to complete the engineering, procurement, construction,

1 and the start-up and commissioning of the project. With this approach,
2 NIPSCO plans to hold competitive bid events whenever practical for major
3 equipment such as generator step-up transformers, unit auxiliary
4 transformers, generator circuit breakers, switchgear, and other associated
5 auxiliary equipment. When practical, NIPSCO plans to procure smaller
6 equipment and materials through preferred suppliers that were identified
7 through prior strategic sourcing events. Other equipment and materials
8 may be purchased by the construction contractors that will be installing the
9 turbines and associated equipment. This may include equipment and
10 materials such as balance of plant piping, piping insulation, mechanical
11 equipment insulation, plant drains and wastewater systems, cable, cable
12 tray, conduit, and lighting.

13 **Q19. Please describe the construction and bid process NIPSCO is using to**
14 **build the CT Project.**

15 A19. NIPSCO's multi-prime contracting strategy applies to construction on the
16 CT Project as well. NIPSCO plans to develop bid packages to competitively
17 bid the three major scopes of construction in 2024: (1) site preparation/civil
18 construction contract, (2) general works construction contract, and (3) an
19 electrical installation contract. The three contracts awarded would have a

1 defined scope and schedule and the integration of the contractors would be
2 managed by NIPSCO. NIPSCO anticipates using a similar process for other
3 smaller scopes of work needed for the CT Project, such as the electric
4 interconnect, gas interconnect, water interconnect, and site services. Under
5 this planned construction and bid process, NIPSCO will have allowed third
6 parties to submit firm and binding bids for the construction of the CT
7 Project on NIPSCO's behalf that meet all of the technical, commercial and
8 other specifications so as to enable ownership of the CT Project to vest with
9 NIPSCO not later than the date the facility becomes commercially available.

10 **Q20. Is NIPSCO well positioned to oversee construction of the CT Project?**

11 A20. Yes. Although this is the first large gas-fired generation project NIPSCO
12 has overseen in this fashion, NIPSCO has employees with project
13 management skills and prior experience on large capital projects to execute
14 the CT Project and subject matter experts in natural gas CT operation and
15 maintenance, and electronic control systems used to operate generating
16 units.

17 **Q21. Please describe the CT Project schedule.**

1 A21. The in-service date will be driven by the date the CPCN is granted;
2 however, the units are expected to be commercially available by the end of
3 2026.¹ Attachment 5-C shows the current project schedule and reflects the
4 following key drivers: the award of the CT OEM contract and the associated
5 long lead times for the CT equipment and generator step up transformers,
6 environmental permitting, and the MISO Generator Replacement Process.

7 **Q22. Please provide the key schedule activities to complete the CT Project.**

8 A22. A summary by year of the key schedule activities to complete the CT Project
9 is as follows:

- 10 • 2023 – NIPSCO released the turbine equipment RFP in June 2023
11 with bids received in August 2023. Due to the long lead time for
12 turbine equipment, NIPSCO plans to enter into a Limited Notice to
13 Proceed (“LNTP”) with the selected turbine OEM in October or
14 November 2023. During the LNTP period, the turbine OEM will be
15 limited to engineering and planning activities to better position them
16 for the potential full release of the contract if the CPCN for the CT

¹ Based on the procedural schedule requested in NIPSCO's case-in-chief filing for this Cause, an order is expected to be issued on or before May 9, 2024.

1 Project is issued. NIPSCO will work with the turbine OEM to obtain
2 information that supports the start of detailed design, geotechnical
3 investigation, environmental permitting, and the MISO Generator
4 Replacement Process. NIPSCO plans to submit the environmental
5 air permit and the MISO Generator Replacement Process application
6 by the end of 2023.

7 • 2024 – Early in 2024, NIPSCO will work with the turbine OEM to
8 continue engineering and planning activities during the LNTP
9 period and progress detailed design. Progress detailed design will
10 allow for the development of construction packages to be bid later in
11 2024. If the CPCN for the CT Project is issued, NIPSCO plans to fully
12 release the turbine OEM for ordering materials, equipment, and start
13 of fabrication. NIPSCO plans to bid and award the three major
14 construction contracts for the project in 2024 and to begin
15 construction activities later in 2024 with site preparation and the
16 installation of foundations.

17 • 2025 – Construction and long lead time equipment fabrication
18 activities will continue in 2025. Long lead time equipment will begin

1 to be delivered and installed on site. NIPSCO plans to begin gas,
2 electric, and water interconnect construction with portions of the
3 work expected to be complete in 2025.

4 • 2026 – Final material and equipment deliveries are expected to be
5 complete in early 2026, and all construction installation activities will
6 be substantially complete by mid-year to support start up and
7 commissioning and placing the CT Project in-service in Quarter 4 of
8 2026.

9 • 2027 – Completion of any remaining project close out activities.

10 **Best Estimate of Cost of Construction**

11 **Q23. What is the best estimate of the total cost of construction for the CT**
12 **Project?**

13 A23. As shown in Attachment 5-A, the best estimate of the total cost of
14 construction for the CT Project is \$641,223,000, which includes indirect costs
15 but excludes AFUDC. NIPSCO will accrue AFUDC associated with the CT
16 Project costs based upon the amounts at the time such costs or charges are

1 incurred. Based upon estimates of AFUDC at the time of this filing, the total
2 estimated cost, including AFUDC of \$2,468,449, is \$643,691,449.²

3 The cost estimate was developed with the support of S&L as discussed in
4 greater detail by NIPSCO Witness Warren. While the S&L cost estimate
5 provides for the largest components to the best estimate of cost, NIPSCO
6 removed the contingency included by S&L prior to adding other cost items
7 to develop the best estimate of cost of construction for the CT Project. The
8 items added by NIPSCO include owner's costs, contingency, and
9 escalation. NIPSCO used information from prior projects and its expertise
10 to develop the cost items not included in the S&L estimate. The best
11 estimate of cost summary is included in Attachment 5-A and a more
12 detailed estimate of cost summary is included in Confidential Attachment
13 5-B. The current best estimate of cost of construction is an AACE Class 3
14 estimate with an accuracy range of -20% / +30%. This cost estimate will be
15 refined as the project definition progresses and large contracts, such as the
16 CT OEM and construction contracts, are awarded for the CT Project.

² As explained by NIPSCO Witness Blissmer, if NIPSCO's proposed construction work in progress ratemaking is approved, the AFUDC is projected to be fairly minimal, including only the actual AFUDC accrued to date and through October, 2024.

1 **Q24. Is NIPSCO seeking ongoing review of the CT Project pursuant to Ind.**
2 **Code § 8-1-8.5-6?**

3 A24. Yes. Following receipt of an Order approving and issuing NIPSCO a
4 CPCN, NIPSCO will provide periodic updates on the CT Project until it
5 goes in service. NIPSCO is requesting ongoing review of the CT Project,
6 including review of progress reports and any revisions to the cost estimates,
7 as the construction proceeds, and associated ratemaking treatment
8 consistent with such review.

9 **Q25. Does this conclude your prefiled direct testimony?**

10 A25. Yes.

VERIFICATION

I, Greg Baacke, Senior Director of Major Projects for Northern Indiana Public Service Company LLC, affirm under penalties of perjury that the foregoing representations are true and correct to the best of my knowledge, information, and belief.

/s/ Greg Baacke

Greg Baacke

Date: September 12, 2023

NIPSCO Current Cost Estimate	
Project	Total
CT Project	
Inside the Fence	\$358,311,000
Electric Interconnect	\$23,652,000
Gas Interconnect	\$1,197,000
Water Interconnect	\$1,170,000
Owner's Costs	\$34,590,000
Escalation	\$66,208,000
Contingency	\$72,457,000
Directs	\$557,585,000
Indirects	\$83,638,000
Total Direct and Indirect	\$641,223,000

Confidential Attachment 5-B (Redacted)

