VERIFIED DIRECT TESTIMONY OF DAVID AUSTIN

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

A1. My name is David Austin. My business address is 801 E. 86th Avenue, Merrillville, Indiana 46410. I am Director of Transmission for Northern Indiana Public Service Company LLC ("NIPSCO").

Q2. Please describe your educational and employment background.

A2. I received a Master of Business Administration degree with honors from the University of Notre Dame. I also received a Bachelor of Science degree in Applied Mathematics from Purdue University. I began my employment with NIPSCO in 2008 in the Transmission Operations Department as a Transmission Resource Engineer, performing system reliability studies. Since that time, I have held positions of increasing responsibility including Transmission System Supervisor in the Transmission Operations Department, Leader of Transmission Operations, Manager of Operations Planning, Director of Monitoring, Control, and Dispatch in Power Delivery. In July, 2021, I accepted my current position of Director of Transmission where I have NIPSCO's Transmission & Distribution Planning,

Transmission Operations Planning, System Protection Engineering, NERC Compliance, Compliance Oversight, and other supporting groups reporting to me.

Q3. What are your responsibilities as Director of Transmission?

A3. As Director of Transmission, I am responsible for system reliability and development of NIPSCO's electric transmission and distribution system. I oversee the groups who handle operational planning, perform the long term and short-term planning functions for the electric transmission and distribution system, provide oversight to NIPSCO's compliance with the North American Electric Reliability Corporation ("NERC") Reliability Standards, and the administration of NIPSCO's wholesale transmission contracts.

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

A4. Yes. I recently submitted testimony before the Commission in NIPSCO's Regional Transmission Organization tracker proceeding currently pending in Cause No. 44156-RTO-24.

Q5. What is the purpose of your direct testimony in this Cause?

A5. The purpose of my direct testimony is to support NIPSCO's request for a certificate of public convenience and necessity ("CPCN") to construct a natural gas combustion turbine ("CT") peaker plant (the "CT Project") on available property at NIPSCO's R.M. Schahfer Generating Station ("Schahfer") site. Specifically, I explain NIPSCO's gas distribution system as it relates to the CT Project, the existing infrastructure and capabilities at the Schahfer site, and the new CT Project's contribution to NIPSCO's system reliability.

Q6. Are you sponsoring any attachments or workpapers to your direct testimony in this Cause?

A6. No.

<u>NIPSCO Gas Distribution System</u>

Q7. Please describe NIPSCO's gas distribution system.

A7. NIPSCO's gas distribution system is a dispersed/multiple city-gate, integrated transmission/distribution and multiple-pressure-based system providing gas service to approximately 859,000 customers. At the end of 2022, NIPSCO had approximately 17,850 miles of distribution lines.

Q8. Does NIPSCO's gas distribution system presently serve Schahfer?

A8. Yes. There are existing gas units at Schahfer (Units 16A and 16B) which are supplied by the NIPSCO gas distribution system. Additionally, Schahfer (Units 17 and 18) utilize natural gas as a starting fuel.

Q9. Will any additional gas facilities need to be installed for the NIPSCO gas distribution system to serve the proposed CT Project?

A9. Yes. Based on the required fuel gas flow to the proposed CT Project, a line tap will be installed on the existing 20" pipeline that enters the Schahfer site and a new approximate 10" gas line running approximately 1,500 linear feet to a new metering and regulation yard which will be installed. Downstream of the new metering and regulation station, the facility will be designed with a natural gas compression station to fuel the gas peaker. The costs of these additional gas facilities are included in the best estimate of the costs of construction presented by NIPSCO Witness Baacke.

[redacted]

[redacted]

[redacted]

Bulk Power System ("BPS") Reliability

Q13. What is the mission of NERC?

A13. NERC's mission is to assure the effective and efficient reduction of risks to the reliability and security of the grid. NERC develops and enforces Reliability Standards, annually assesses seasonal and long-term reliability, monitors the bulk power system through system awareness, and educates, trains, and certifies industry personnel. NERC is subject to the oversight of the Federal Energy Regulatory Commission ("FERC") and its jurisdiction includes users, owners, and operators of the bulk power system, which serves nearly 400 million people.

Q14. Please further discuss NERC's concern with reliability.

A14. NERC publishes standards and reports regarding reliability.[3] One report, written by the Electric Reliability Organization ("ERO"), which is

[3] https://www.nerc.com/pa/Stand/Pages/Default.aspx.

comprised of NERC and six regional entities, was recently published in August of 2023. The report, entitled "2023 ERO Reliability Risk Priorities Report" ("ERO Priorities Report"), presents the results of the Reliability Issues Steering Committee's work to strategically define and prioritize risks to the reliable operation of the BPS and thereby provide recommendations to the Board regarding the approach that NERC, the ERO Enterprise, and industry should take to enhance reliability and manage those risks.[4] For the first time this year, energy policy has been added as a risk profile. The ERO Priorities Report explains:

> Energy Policy, much like "Grid Transformation," has broad implications across the risk profiles as it catalyzes changes and often amplifies their effects. Energy Policy can drive change in [bulk power system] BPS planning and operations in short time periods, affecting reliability and resilience. Consequently, Energy Policy should consider potential impacts on the reliability and resilience of the BPS, and it can create potential risks when it does not. For example, Energy Policy decisions regarding decarbonization and electrification are some of the driving factors of grid transformation.[5]
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> A new risk profile has been created this year on Energy Policy. Given the increased legislation focus and mandates on decarbonization, decentralization, and electrification, the

[4] https://www.nerc.com/comm/RISC/Related%20Files%20DL/RISC_ERO_Priorities_Report_2023_Board_Approved_Aug_17_2023.pdf

[5] *Id.* at 6.

> Energy Policy will drive many rapid changes in the energy sector. There is an undeniable need to increase coordination and collaboration among all policy makers and regulators as well as on the owners and operators of the BPS. The need for this collaboration is highlighted as a risk because there is no single jurisdiction that regulates or owns all policy directives or implications and state, federal, provincial—and private jurisdictions are to be respected. Although there are numerous policy issues to mitigate, there should be a priority focus on three policy areas for reliability purposes: energy adequacy, natural gas and electric industry coordination, and [Distributed Energy Resources] DERs.[6]

Q15. Why does the Reliability Issues Steering Committee consider policy decisions to be a risk to reliability?

A15. Per the ERO Priorities Report:

> The implementation of policy decisions can significantly affect the reliability and resilience of the BPS. Decarbonization, decentralization, and electrification have been active policy areas. Implementation of policies in these areas is accelerating, and, with changes in the resource mix, extreme weather events, and physical and cyber security challenges, reliability implications are emerging. Demonstrated risks, such as energy sufficiency as well as natural gas and electric interdependence, are becoming increasingly critical. Emerging potential risks, such as aggregate DERs, are increasingly concerning.

Q16. Does the ERO Priorities Report provide any recommendations to mitigate risk to the transforming grid?

[6] *Id.* at 8.

A16. Yes. The ERO Priorities Report contains six categories of recommendations: (1) develop and include energy sufficiency approaches in planning and operating the grid; (2) ensure sufficient operating flexibility during resource and grid transformation; (3) further consider the impacts and benefits of DER resources, electrification, energy storage, hybrid resources, and other emerging technologies; (4) plan for large and rapid load growth; (5) expand marketing to and development of the workforce of the future; (6) expect and be open to dramatically new grid operation approaches and platforms.[7]

I would like to specifically note that under category 1, the ERO Priorities Report explains that "[t]raditional resource adequacy approaches that assume the system is adequately planned if there is enough generation capacity during peak load hours have become insufficient given the accelerated changes in resource mix, extreme weather events, and fuel dependencies."[8]

Under category 2, the ERO Priorities Report explains that: "[s]ystem operators and planners should ensure that sufficiently flexible ramping/balancing capacity is available to meet the needs of changing

[7] *Id.* at 27-28.
[8] *Id.* at 27.

patterns of variability and new characteristics of system performance."[9]

Q17. Please discuss some other system reliability NERC publications.

A17. The NERC 2021 Long-Term Reliability Assessment (December 2021) contains several findings and recommendations that also support the need to install fast-starting, quick ramping generation to support the growing portfolio of renewable resources and maintain reliable service.[10] These findings were reaffirmed in the 2022 Long-Term Reliability Assessment issued December 2022 (pp. 17-18) as follows:

> As more solar and wind generation is added, additional flexible resources are needed to offset these resources' variability, such as supporting solar down ramps when the sun goes down and complementing wind pattern changes. This can be accomplished by adding more flexible resources within committed portfolios or by removing system constraints to flexibility.[11]

<u>CT Project's Reliability Contribution to System Reliability</u>

Q18. Will the new CT Project contribute to system reliability?

A18. Yes. As discussed by NIPSCO Witness Augustine, NIPSCO's 2021 IRP and the portfolio analysis that Charles River Associates ("CRA") and NIPSCO

[9] *Id.*
[10] https://www.nerc.com/pa/RAPA/ra/Reliability Assessments DL/NERC_LTRA_2021.pdf.
[11] https://www.nerc.com/pa/RAPA/ra/Reliability%20Assessments%20DL/NERC_LTRA_2022.pdf.

performed in 2023 (the 2023 portfolio analysis) identified the need for a CT peaker(s) as a necessary and important part of the overall capacity and energy composition of NIPSCO's generation transition plan.[12] The proposed CT Project will mitigate risks of a capacity shortfall. The CT Project is valuable as a fast-ramping, fast-start, dispatchable capacity unit in comparison to alternatives.

Q19. Will the proposed CT Project help meet MISO's Resource Adequacy Requirements?

A19. Yes. MISO's Resource Adequacy construct requires that adequate Planning Resources are maintained by a Load Serving Entity ("LSE") to meet MISO's seasonal Planning Reserve Margin Requirement ("PRMR"). An LSE can meet its seasonal PRMR by any of the following ways: (1) self-scheduling of own generation, (2) purchase from a third party and designate in a Fixed Resource Adequacy Plan (FRAP), (3) procuring capacity through MISO's Planning Resource Auction ("PRA"), or (4) paying the Capacity Deficiency Charge (CDC). If adequate capacity were not available in the PRA, based on current MISO rules, a utility would need to pay a penalty in the form of

[12] Integrated Resource Plan submitted November 15, 2021 ("2021 IRP"). The 2021 IRP is sponsored by NIPSCO Witness Augustine as Attachment 7-A). A summary of the key inputs and outputs associated with the 2023 portfolio analysis is sponsored by NIPSCO Witness Augustine as Confidential Attachment 7-C.

Cost of New Entry ("CONE") per season or up to 1.75 times CONE per year.[13]

Q20. Is the MISO PRMR subject to change from year to year?

A20. Yes. As noted in the 2023 MISO-OMS Survey results, MISO's projected PRMR for Summer season, based on committed capacity,[14] is trending upward from 7.9% in planning year 2024/25 to 9.2% in planning year 2028/2029. The PRMR calculation is driven by four factors: (1) external non-firm support, (2) load forecast uncertainty, (3) demand, and (4) generation performance. External non-firm support refers to the diversity of load between MISO and neighboring systems and areas outside of MISO that allow for limited support and transfer of capacity through transmission. An example would be generators in PJM providing capacity to MISO load. A Regional Directional Transfer limit of 1,900 MW was applied in the 2023 OMS-MISO survey to reflect this reality. Load forecast uncertainty exists due to the variability of economics, weather and customer behavior that impact the demand for energy and increases the uncertainty of forecasts.

[13] CONE is determined annually by MISO, which has traditionally been the cost to construct a new natural gas combustion turbine. The 2020-2021 CONE price for MISO Zone LRZ6 (NIPSCO's zone) was set at $89,120 per MW year. The 2023-2024 CONE price for MISO Zone LRZ 6 (NIPSCO's zone) was set at $98,590 per MW year.

[14] Committed Capacity are resources committed to serving MISO load, including resources within MISO utilities' rate base, external resources with firm contracts to MISO load, non-rate base units without announced retirements or commitments to non-MISO load, and new generators with signed interconnection agreements not yet in service.

The greater the load forecast uncertainty, the greater the PRMR. Finally, generation as it is modeled in terms of capacity and firm imports, impacts the PRMR calculation based on the size and outage history of the generators in addition to the changing resource mix and capacity accreditation.

Q21. What is the most recent resource adequacy projection in MISO?

A21. The Organization of MISO States ("OMS") and MISO began an annual survey in 2013 to capture 10-year resource adequacy projections. The survey is used to compare load projections with generation portfolio plans and measure the two against the annual PRMR. The PRMR is the amount of resources MISO requires to meet the NERC standard of one loss of load event in 10 years. The survey is sent to MISO members, has a 97% response rate, and is the primary tool MISO uses for resource adequacy projections. The 2020 OMS-MISO Resource Adequacy Survey demonstrated a potential capacity shortfall beginning as early as 2022.[15] This potential shortfall increases and could be as much as 6,800 MW by 2025. With respect to Zone LRZ6 (NIPSCO's Zone), the survey shows a potential shortfall of 3,400 MW by 2025. The tightening of supply in MISO that is demonstrated in the 2020

[15] https://cdn.misoenergy.org/20220610%20OMS-MISO%20Survey%20Results%20Workshop%20Presentation625148.pdf.

OMS-MISO Resource Adequacy Survey coupled with current market reforms that have been proposed to FERC and/or are being discussed at MISO stakeholder meetings make it unreasonable to assume that capacity and energy will be available in future years and at an economic price without significant additions to capacity in the MISO region.

Q22. Is there a more recent OMS-MISO Resource Adequacy Survey?

A22. Yes. The 2023 OMS-MISO Survey Results (published July 14, 2023) reflect that delayed retirements and capacity additions have resulted in a capacity surplus of 1,500 MW for the 2024/25 planning year.[16] However, demand growth is projected to continue for five years across all four seasons at 0.8 GW or 0.68% per year on average across the MISO footprint and the results show a deterioration of MISO's current capacity surplus above the required capacity level, to a sizeable projected shortfall of 2,100 MW in summer 2025/26. There are a multitude of factors causing this decrease in capacity, such as age of the generation fleet, environmental compliance requirements, increased Resource Adequacy requirements, and competition from new and more efficient generation. This demonstrates

[16] https://cdn.misoenergy.org/20230714%20OMS%20MISO%20Survey%20Results%20Presentations629607.pdf.

that MISO, as a whole, is experiencing the same challenges mentioned in CenterPoint Indiana South's recent CPCN proceeding in Cause No. 45564. The reality is that older, less efficient units are set to retire to comply with environmental compliance deadlines. It is not a coincidence that potential resource deficits start to emerge in 2025/2026 planning year and projects a 9.5 GW gap in committed capacity in planning year 2028/2029. Additionally, the results show a range of potential outcomes based on uncertainty that exists in both the timing of retirements and the nature and timing of replacement capacity.

Q23. How essential is it to have dispatchable generation to meet customer demand and maintain reliability as more renewable intermittent resources come online?

A23. It is extremely important. As set out in Ind. Code § 8-1-2-0.6, reliability, affordability, resiliency, and stability are all important considerations for Indiana's electric generation resource mix. While renewable resources have a role to play in future of generation, it is immensely essential, not only within NIPSCO's service territory, but across the MISO footprint, to maintain dispatchable generation for grid reliability. As stated in the

recently published living report that details MISO's Response to the Reliability Imperative dated January 2023 (p. 13):

> To compliment the expected growth of solar generation, the system's need for controllable upramp capability could triple by 2031 and quadruple by 2041 compared to current levels. As the solar generation capacity grows, so does the challenge of steeper ramping needs for the non-solar generation fleet. At sunset, MISO will increasingly need controllable resources that can rapidly turn on and ramp up their output when generation from solar becomes unavailable. The need for fast-ramping resources is expected to vary by season and be most prominent in the winter months.[17]

MISO acknowledges this through recent market reforms and products that pay a premium for resources that can be called on quickly. These reforms include short-term reserves, raising the Extended Locational Marginal Pricing (ELMP) offer floor, and the Value of Loss Load (VOLL). Also, MISO is in the process of developing a Reliability Based Demand Curve with the goal of improving signaling when more capacity is needed in the market.[18] MISO currently plans to file proposed changes to implement a Reliability-Based Demand Curve in 2023 pending broad stakeholder support. Additionally, due to the vast benefits and popularity of solar development, MISO's Independent Market Monitor ("IMM") notes in its 2022 State of the

[17] https://cdn.misoenergy.org/MISO%20Response%20to%20the%20Reliability%20Imperative504018.pdf.
[18] https://cdn.misoenergy.org/20221130%20RASC%20Item%2007aiii%20IMM%20RBDC%20Presentation627079.pdf.

Market Report for the MISO Electricity Markets dated June 15, 2023 that MISO's current interconnection queue contains approximately 1,400 active projects totaling over 240 GW with greater than 50% being inverter-based solar resources.[19] As such, they noted that the large influx of solar resources coupled with the timing of anticipated fluctuations in output will likely drive significant changes in ramping needs to ensure reliability. In regard to future market needs, the IMM, in its 2022 State of the Market Report for the MISO Electricity Markets (Executive Summary, p. v), reaffirmed that:

> Solar resources are forecasted to grow more rapidly than any other resource type in the next 20 years. This will lead to significant changes in the system's ramping needs. For example, conventional resources will increasingly have to ramp up quickly in the evenings as the sun sets, particularly in the winter season since load peaks in the evening.

Integrating flexible and dispatchable resources that quick start will be paramount as renewable resource penetration increases. Regarding maintaining essential reliability services, NERC, in its 2022 Long-Term Reliability Assessment, states (Executive Summary, p. 7): "[r]etiring conventional generation is being replaced with large amounts of wind and solar; … As replacement resources are interconnected, these new resources

[19] https://www.potomaceconomics.com/wp-content/uploads/2023/06/2022-MISO-SOM_Report_Body-Final.pdf.

should have the capability to support voltage, frequency, and **dispatchability**."[20] (Emphasis added.) NIPSCO Witness Campbell also testifies about similar public statements that have been made by MISO regarding ensuring reliability during this period of significant generation transition.

Q24. Are batteries able to fulfill this role?

A24. Battery storage resources and inverter-based resources ("IBRs") in general certainly have a future role to play in meeting customer demand and maintaining system reliability, but the promising technology is still emerging. The rapid retirement of synchronous generators within the NIPSCO footprint and MISO broadly coupled with increasing levels of IBRs have the potential to create system challenges, including declining system inertia, dispatchability, reduced short-circuit current, and the inability to blackstart predominantly IBRs over prolonged durations. As conventional synchronous generators are retired, the short circuit currents necessary for the proper performance of the system protection devices will dramatically

[20] https://www.nerc.com/pa/RAPA/ra/Reliability%20Assessments%20DL/NERC_LTRA_2022.pdf.

decline. NERC highlights this risk in its 2022 Long-Term Reliability Assessment (Executive Summary, p. 7) and notes:

> … IBRs produce low amounts of fault currents based on control functions. Changing fault current magnitudes and characteristics in parts of the system with high penetrations of IBRs has the potential to invalidate current protection system designs, potentially leading to more protection system misoperation.

IBRs are limited in their short circuit contribution and the phase of their current (real) is not aligned with typical short circuit currents (reactive). As such, IBRs in general and energy storage resources ("ESR") in particular, are not viable wholesale substitutes for synchronous generators. The IMM, in its 2022 State of the Market Report for the MISO Electricity Markets, concurs (p. 22) that:

> Although ESRs can provide tremendous value in managing the fluctuations in intermittent output and maintaining reliability, *ESRs are not fully substitutable for conventional generation*. This is particularly true as the quantities of ESRs rise, which causes the marginal value of ESRs to fall. (Emphasis added.)

These resources do not inherently provide an inertial response which is needed for frequency and voltage control in order to ride through system disturbances. The technological capabilities of inverter-based resources are emerging, and the power industry does not have the depth of practical

experience in black starting systems served mostly by inverter-based resources. Despite some IBRs being equipped with "grid forming" technology, batteries have a finite amount of stored energy before needing to be recharged from the grid. As noted in NIPSCO's 2021 IRP, NIPSCO is connected to MISO and PJM's system for resource dispatch and energy balancing under normal operating conditions.[21] [redacted].[22]

[21] 2021 IRP, Section 9.2.7, page 246.

[22] The Reliability Analysis is Confidential Appendix E to the 2021 IRP. The confidential 2021 IRP is sponsored by NIPSCO Witness Augustine as Confidential Attachment 7-B).

[redacted]. NIPSCO Witness Augustine further discusses the extent to which batteries could be an option.

Q25. What are the key facts discussed in your testimony that the Commission should consider in evaluating whether a certificate of public convenience and necessity should be approved in this proceeding?

A25. The makeup of MISO's electric generation fleet is in the midst of a significant, dynamic transition. Reliability and resource adequacy concerns have been voiced by many important organizations, including NERC, MISO's IMM, OMS, and others. In response to these concerns, NIPSCO is seeking approval of a new gas-fired generation facility that will complement its overall, diverse generation portfolio because NIPSCO's fleet must include resources that can follow load and provide quick-start, fast-ramp, and other reliability attributes. For this reason, and for all the reasons presented in NIPSCO's case-in-chief, the Commission should approve NIPSCO's request in this proceeding.

Q26. Does this conclude your prefiled direct testimony?

A26. Yes.

VERIFICATION

I, David Austin, Director of Transmission 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/ David Austin
David Austin

Date: September 12, 2023