

Cause No. 45403

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VERIFIED DIRECT TESTIMONY OF ROBERT LEE

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

2 A1. My name is Robert Lee. I am a Vice President of CRA International d/b/a Charles  
3 River Associates, Inc. ("CRA"). My business address is 200 Clarendon Street,  
4 Boston, Massachusetts 02116.

5 **Q2. On whose behalf are you submitting this direct testimony?**

6 A2. I am submitting this testimony on behalf of Northern Indiana Public Service  
7 Company LLC ("NIPSCO").

8 **Q3. Please briefly describe your educational and business experience.**

9 A3. I received a Master of Science in Industrial Administration from Carnegie Mellon  
10 University in Pittsburgh, Pennsylvania and a BA in Mathematics from Boston  
11 College in Chestnut Hill, Massachusetts. After graduate school, I held senior staff  
12 positions with Putnam, Hayes and Bartlett and the PA Consulting Group. I joined  
13 CRA's energy practice in 2001 and became a Vice President with the firm in 2013.  
14 During my tenure in consulting, I have focused on power industry restructuring,  
15 generating asset valuation and the economics of environmental policy. In 2008, I

1 joined CRA's Auctions and Competitive Bidding Practice where I have focused  
2 primarily on default service procurements and related issues facing market  
3 participants in deregulated wholesale and retail electricity markets. In association  
4 with that work, CRA executes request of proposal processes ("RFPs") designed to  
5 help our utility clients meet their capacity needs.

6 **Q4. Please describe CRA and the work you perform in more detail.**

7 A4. CRA is an economics and management consulting firm, founded in 1964, and  
8 headquartered in Boston, Massachusetts. CRA has worked on behalf of a wide  
9 range of stakeholders in the design, management and execution of structured sales  
10 and procurement processes conducted both through formal auctions and RFPs.  
11 CRA clients in these engagements have included regulated utilities, government  
12 agencies, state and federal regulators, as well as cooperatives and private  
13 corporations. CRA has directly managed or monitored structured processes that  
14 have resulted in over \$25 Billion worth of transactions in the United States and  
15 abroad. CRA has worked with a broad set of utilities on resource planning and  
16 capacity strategy decisions. In addition, CRA has extensive experience in  
17 managing default service procurement processes for utilities in the Midwest and  
18 mid-Atlantic United States and currently manages the default service  
19 procurement processes for FirstEnergy's Ohio Utilities, FirstEnergy's

1 Pennsylvania Utilities, Duke Energy Ohio, Duquesne Light Company and The  
2 Dayton Power & Light Company ("DP&L"). All such procurements have been  
3 reviewed and approved by the respective utility commissions or other regulatory  
4 bodies with oversight over the processes. CRA advises energy sector clients on  
5 asset valuation for the purposes of acquisition and divestiture, and senior  
6 members of CRA's team have testified as experts on sales and procurement  
7 process design before regulatory agencies and in civil litigation.

8 **Q5. Have you previously testified before this or any other regulatory commission?**

9 A5. Yes. I previously provided testimony before the Indiana Utility Regulatory  
10 Commission in NIPSCO's request for a certificate of public convenience and  
11 necessity ("CPCN") to purchase and acquire (indirectly through a joint venture  
12 structure) a (1) 102 megawatt ("MW") wind farm (Rosewater Project) in Cause No.  
13 45194, and (2) 302 MW wind farm (Crossroads Project) in Cause No. 45310;  
14 NIPSCO's request for approval and associated cost recovery of a wind purchased  
15 power agreement ("PPA") with (1) Jordan Creek Wind Farm LLC in Cause No.  
16 45195, and (2) Roaming Bison Wind Farm LLC in Cause No. 45196. I have testified  
17 before the Public Utility Commission of Ohio on behalf of Duke Energy Ohio and  
18 DP&L related to the design and administration of procurement auctions to secure  
19 suppliers for their default service needs. In 2017, I testified before the Public

1 Service Commission of West Virginia on behalf of FirstEnergy's Monongahela  
2 Power Company ("Mon Power"). That testimony related to an RFP conducted in  
3 support of their anticipated capacity needs. I have submitted testimony before the  
4 Federal Energy Regulatory Commission ("FERC") on affiliate transaction issues  
5 associated with RFPs conducted for NIPSCO (Rosewater), Mon Power and DTE  
6 Energy. I submitted testimony to FERC quantifying the reactive power tariff for  
7 generating assets owned by DP&L and AES Ohio Generation. In addition, I have  
8 testified on competitive bidding in the insurance industry in civil litigation. My  
9 curriculum vitae is attached as Attachment 3-A.

10 **Q6. What is the purpose of your direct testimony in this proceeding?**

11 A6. The purpose of my direct testimony is to explain the analysis NIPSCO used to  
12 evaluate its various options for solar and solar plus storage energy and why the  
13 (1) Solar Energy Purchase Agreement between NIPSCO and Brickyard Solar, LLC  
14 ("Brickyard") dated June 30, 2020 ("Brickyard PPA"), and (2) Solar Generation and  
15 Energy Storage Energy Purchase Agreement between NIPSCO and Greensboro  
16 Solar Center, LLC ("Greensboro") dated June 30, 2020 ("Greensboro PPA"),  
17 collectively referred to as the "Solar PPAs," are an economic choice for helping  
18 meet NIPSCO's retail electric load.

1 **Q7. Are you sponsoring any attachments to your direct testimony?**

2 A7. Yes. In addition to my curriculum vitae attached as Attachment 3-A, I am  
3 sponsoring Attachment 3-B, which is an October 1, 2019 news release issued by  
4 NIPSCO announcing its intent to explore potential options to meet the future  
5 needs of its residential, commercial and industrial electric customers, Confidential  
6 Attachment 3-C, which is the opinion letter provided from CRA to NIPSCO  
7 following the RFPs, and Confidential Attachment 3-D, which is a detailed table of  
8 how each proposal was evaluated and scored. All of these attachments were  
9 prepared by me or under my direction and supervision.

10 **Q8. What were the key findings outlined in Confidential Attachment 3-C?**

11 A8. Through the Opinion Letter and its attachments, CRA recommended certain assets  
12 as potential projects to advance to a definitive agreement phase. The assets  
13 recommended for advancement were selected based on the preferred portfolio in  
14 NIPSCO's Integrated Resource Plan ("IRP") submitted October 31, 2018 (the "2018  
15 IRP") and the three separate requests for proposals, one for wind resources, one  
16 for solar resources and one for thermal/other capacity resources ("Phase II RFPs")  
17 scoring criteria developed in advance of the RFP process.

18 **Q9. What does Confidential Attachment 3-D show?**

1 A9. Confidential Attachment 3-D provides the detailed scoring results for each project  
2 bid into the RFP. Consistent with the Phase II RFPs process rules, each project was  
3 evaluated based on development risk, reliability, asset-specific risk, and the  
4 estimated levelized cost of energy ("LCOE") per megawatt hour ("MWh").

5 **Q10. Please provide an overview of NIPSCO's 2018 IRP and the 2018 RFP.**

6 A10. In 2016, NIPSCO conducted an IRP process that identified a potential capacity  
7 shortfall at or around 2023.<sup>1</sup> The 2016 IRP included tentative conclusions as to  
8 future resource options. In 2018, NIPSCO updated the 2016 IRP to ensure that  
9 resource planning reflected the most current outlook for key market drivers. In  
10 2018, NIPSCO conducted an all-source request for proposal ("All-Source RFP")  
11 and, through that 2018 All-Source RFP, secured a portion of the capacity required  
12 to meet the needs of the resource requirement identified in the 2018 IRP.

13 **Q11. When did you first become involved in NIPSCO's IRP process?**

14 A11. My involvement with NIPSCO began in February 2018 after the 2018 IRP process  
15 had been initiated. While others at CRA became involved with NIPSCO to  
16 support the 2018 IRP update, during the first quarter of 2018, NIPSCO retained

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<sup>1</sup> <https://www.nipsco.com/economic-development/current-news/current-news-display/2017/01/24/nipsco-plans-for-energy-needs-of-tomorrow>.

1 CRA to assist in the design, administration and bid evaluation of the All-Source  
2 RFP, and CRA continued this assistance for the Phase II RFPs. The Phase II RFPs  
3 were intended to secure the remainder of NIPSCO's capacity needs. My role with  
4 NIPSCO was to help design and administer both the All-Source RFP and Phase II  
5 RFPs processes.

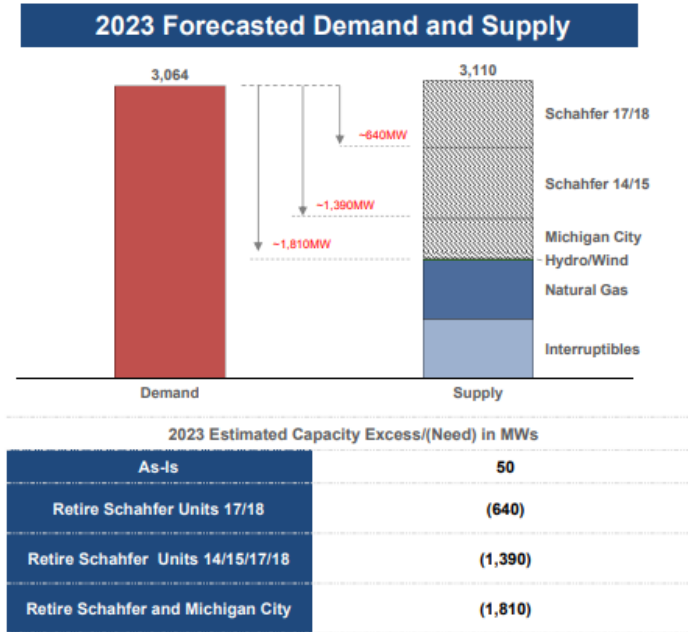
6 **Q12. Please discuss the IRP process conclusions and NIPSCO's Preferred Plan.**

7 A12. The 2018 IRP considered a range of options around the potential retirement of  
8 existing NIPSCO fossil generation facilities and developed an optimal portfolio of  
9 assets based on detailed scenario and risk analysis and informed by  
10 comprehensive market modeling. The magnitude of the 2023 resource need was  
11 directly dependent on the conclusions derived from the 2018 IRP. NIPSCO  
12 Witness Augustine describes key assumptions and conclusions related to the 2018  
13 IRP. Figure 1 illustrates the NIPSCO supply stack versus the resource  
14 requirements for 2023 under a range of potential retirement scenarios for  
15 NIPSCO's R.M. Schahfer Generating Station ("Schahfer") and Michigan City  
16 Generating Station ("Michigan City") based on that IRP analysis.

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Figure 1:

### Retirements Will Create A Need For New Resources



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NIPSCO’s 2018 IRP results indicated that the optimal path forward includes the medium term retirement of Schahfer Units 14, 15, 17 and 18 by 2023 and the retirement of Michigan City Unit 12 by year end 2028.<sup>2</sup>

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Given the retirement analysis conclusions included in the 2018 IRP, NIPSCO’s resource requirements were greater than the ~600 MW (UCAP) initially identified in the 2016 IRP. Figure 2 identifies the composition of the optimal portfolio.

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<sup>2</sup> <https://www.nipSCO.com/about-us/integrated-resource-plan>.

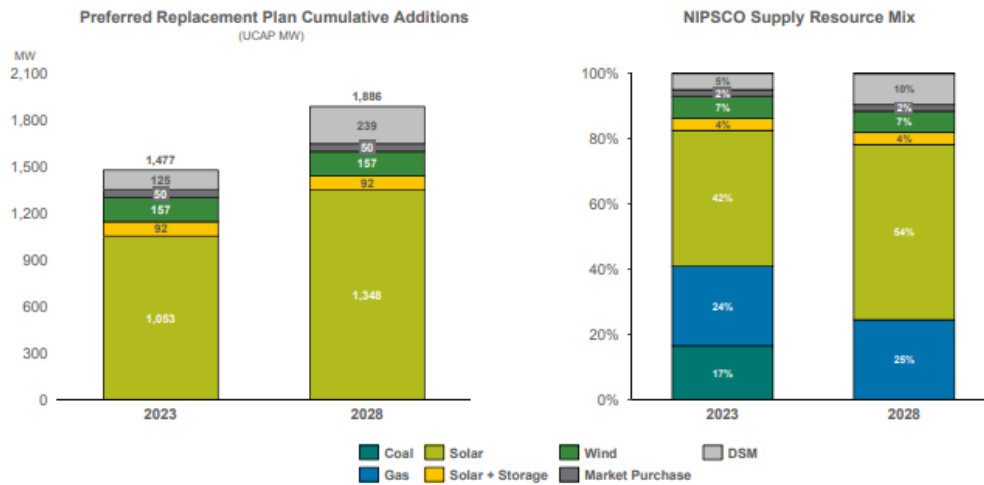


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Figure 2:

## NIPSCO Cumulative Replacement Resource Mix

- By 2023, the IRP preferred plan calls for adding approximately 1,150 MW of solar and solar+ storage, 160 MW of wind, 125 MW of DSM and 50 MW of market purchases to the NIPSCO supply portfolio
- In 2028, an additional 300 MW of solar and 114 MW of DSM resources is expected to be added



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5 **Q13. Describe NIPSCO's objectives for the Phase II RFPs.**

6 A13. Through the Phase II RFPs, NIPSCO sought to identify the discrete capacity  
7 resources best positioned to satisfy the anticipated capacity shortfall consistent  
8 with both the 2018 IRP analysis and each RFP's bid selection criteria. NIPSCO  
9 considered a wide range of asset types, including physical generating assets and  
10 PPAs. Through the process, NIPSCO received bids supported by renewable  
11 facilities, fossil resources and energy storage options. Bids for both standalone  
12 assets and integrated facilities supported by energy storage were submitted.

1 Bidders offered assets under PPA arrangements and offered assets for sale. In  
2 addition, while the 2018 IRP identified an anticipated capacity shortfall starting in  
3 2023, NIPSCO considered bids with transfer dates or PPA start dates in advance  
4 of the identified need in 2023. CRA served as an independent third party  
5 managing the RFP process ("RFP Manager").

6 **Q14. Please describe the timeline for the Phase II RFPs process.**

7 A14. The Phase II RFPs were issued on October 1, 2019 as three separate but concurrent  
8 processes: one for solar, one for wind and one for other resources. CRA conducted  
9 a bidder conference on October 1, 2019. Prospective bidders were required to  
10 provide a Notice of Intent, Bi-lateral Confidentiality Agreement and Pre-  
11 Qualification Application due on October 16, 2019. Final proposals ("Proposals")  
12 were due on November 20, 2019.

13 **Q15. Please provide an overview of the Phase II RFPs design and execution.**

14 A15. Prior to issuing the Phase II RFPs, CRA worked with the NIPSCO team to define  
15 the process objectives and requirements. NIPSCO advised CRA that in order to  
16 ensure adequate, reliable capacity supplies to meet customer needs, they intended  
17 to acquire dispatchable, semi-dispatchable or renewable resources that, at a  
18 minimum, would meet established industry-wide reliability and performance

1 criteria for electric generation facilities and that had physical deliverability into  
2 Midcontinent Independent System Operator, Inc. ("MISO") Local Resource Zone  
3 6 ("LRZ6"). CRA worked with NIPSCO to prepare the RFP documentation, ensure  
4 the product requested was clearly defined, and ensure the evaluation criteria were  
5 clearly specified in the RFP documentation for each of the three RFPs.

6 **Q16. How did CRA and NIPSCO inform interested parties about the Phase II RFPs?**

7 A16. CRA managed the outreach to potential bidders interested in the processes and  
8 worked with NIPSCO to identify existing assets and projects in-development  
9 located within LRZ6. Representatives from potential bidders were contacted via  
10 electronic mail notices and phone calls, informing them of the RFPs and relevant  
11 due dates. Both NIPSCO and CRA participated in a public information session to  
12 inform interested parties about the opportunity. In addition, CRA ran trade press  
13 advertising in Megawatt Daily on September 24, 2019, and NIPSCO published a  
14 press release related to the RFPs on its website on September 30, 2019. Other  
15 industry news sources carried stories on the processes and NIPSCO's capacity  
16 targets coincident with the announcement of the Phase II RFPs.<sup>3</sup>

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<sup>3</sup> <https://www.utilitydive.com/news/nipSCO-to-replace-coal-with-23-gw-of-solar-storage-in-latest-rfp/564427/>.

1 Throughout the RFP processes, CRA maintained a public Information Website that  
2 warehoused all key documents related to the RFPs. Through that Information  
3 Website, interested parties could submit questions and comments related to the  
4 process, the documents or any RFP requirements, and, when appropriate, those  
5 questions and answers were posted to the RFP Information Website to ensure all  
6 bidders had equal access to information. All interested parties were allowed to  
7 submit Proposals in the RFPs. Ultimately, CRA approved all pre-qualification  
8 applications submitted and notified the applicants of their pre-qualification status.

9 **Q17. Did the Phase II RFPs generate substantial interest from bidders?**

10 A17. Yes. NIPSCO received a level of interest across the RFPs consistent with the level  
11 realized in NIPSCO's 2018 All-Source RFP. In 2018, NIPSCO received more bids  
12 in response to its All-Source RFP than any capacity RFP I had participated in to  
13 date. Across the Phase II RFPs, CRA received 96 proposals supported by 93  
14 individual projects from more than 40 bidders across 6 states. I would characterize  
15 all of the Phase II RFPs as highly competitive. Many of the PPA proposals  
16 included fixed or variable pricing arrangements or had options on the start date  
17 and contract term. Several proposals included multiple options for facility  
18 configuration and resource sizes. Figure 3 illustrates the proposals received in  
19 response to the RFPs:

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**Figure 3<sup>4</sup>**

Count of Proposals							
Technology	Other	Solar	Solar + Storage	Storage	Thermal	Wind	Total
Asset Sale		1			4		5
PPA	1	23	8	3	7	3	45
Both		24	15		3	4	46
<b>Total</b>	<b>1</b>	<b>48</b>	<b>23</b>	<b>3</b>	<b>14</b>	<b>7</b>	<b>96</b>
Locations	IN	IN, IL, KY, MO	IN, KY	IN	IN, IL, MI	IN, IL, MN	

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In total, over 18 gigawatts (“GW”) of installed capacity (“ICAP”) was offered into the Phase II RFPs providing a wide range of capacity choices across technologies and deal structures. Figure 4 shows the ICAP for proposals bid into the Phase II RFPs across technology options and deal structure.

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**Figure 4<sup>5</sup>**

Proposal MW (ICAP)							
Technology	Other	Solar	Solar + Storage	Storage	Thermal	Wind	Total
Asset Sale		99			2,725		2,824
PPA	100	1,619	1,593	388	1,389	415	5,504
Both		4,686	3,150		1,543	976	10,355
<b>Total</b>	<b>100</b>	<b>6,404</b>	<b>4,743</b>	<b>388</b>	<b>5,657</b>	<b>1,391</b>	<b>18,683</b>
Locations	IN	IN, IL, KY, MO	IN, KY	IN	IN, IL, MI	IN, IL, MN	

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<sup>4</sup> The “Both” designation in Figure 3 indicates that the bidder offered a single asset as either an asset sale or a PPA at NIPSCO’s discretion.

<sup>5</sup> The “Both” designation in Figure 4 indicates that the bidder offered a single asset as either an asset sale or a PPA at NIPSCO’s discretion. ICAP MWs are estimated using MISO class averages by technology.

1 CRA evaluated the economics and other scoring considerations related to each  
2 Proposal independent of NIPSCO or any NIPSCO affiliates. CRA reserved the  
3 right, in its sole and exclusive discretion, to reject any and all Proposals on the  
4 grounds that such Proposal did not conform to the terms and conditions of the  
5 RFP or on the grounds that the bidder did not comply with the provisions of the  
6 RFP.

7 **Q18. Please describe the Proposal review and evaluation.**

8 A18. After the Proposals were received, CRA, as the RFP Manager:

- 9 1. Reviewed all Proposals and screened the responses to ensure they  
10 conformed with all requirements;
- 11 2. As necessary, conducted follow-up conference calls and/or targeted email  
12 outreach to certain bidders' representatives to clarify asset-specific issues  
13 with the information provided;
- 14 3. Evaluated all conforming Proposals according to the pre-specified criteria  
15 as outlined in Appendix F of each RFP;
- 16 4. Managed bidder communication and outreach; and
- 17 5. Confirmed the winning Proposals and the short list of assets to consider for  
18 advancement to the definitive agreement phase.

19  
20 CRA reviewed all proposals that met pre-determined qualifying criteria set forth  
21 in the RFP documentation and evaluated each based on certain pre-specified  
22 evaluation criteria. For physical generating assets and storage assets offered under  
23 either a PPA or an asset sales structure, the evaluation considered (1) the LCOE

1 per MWh, (2) asset reliability and deliverability, (3) development risk, and (4)  
2 asset-specific benefits and risks.

3 **Q19. Did CRA evaluate the bids independent of NIPSCO?**

4 A19. Yes. NIPSCO was not directly involved in the evaluation of proposals, nor was  
5 NIPSCO aware of bidder identities as part of the process, as explained in the  
6 Frequently Asked Questions ("FAQ") for the RFPs. NIPSCO was provided  
7 general information about the level of interest in the RFPs, the MWs of capacity  
8 offered by asset type and deal structure. CRA also provided NIPSCO indications  
9 of the general level and range of prices received for various asset categories in  
10 order to facilitate communication with stakeholders and others interested in the  
11 NIPSCO process. During the evaluation, NIPSCO was only made generally aware  
12 of CRA's progress and was only involved with bidder-specific issues if those  
13 issues required policy or technical guidance from NIPSCO subject matter experts.

14 **Q20. Did the Phase II RFPs target the full required replacement capacity identified**  
15 **in the 2018 IRP?**

16 A20. No. A portion of the resource needs were sourced through the All-Source RFP.  
17 Through that process, NIPSCO identified approximately 1,100 MW (ICAP) of  
18 wind resources in support of their capacity needs, as further discussed by Witness

1 Campbell.

2 **Q21. What was CRA's recommendation to NIPSCO as a result of the Phase II RFPs?**

3 A21. CRA recommended that NIPSCO advance a set of assets to the definitive  
4 agreement phase of the process. In my opinion, all three RFPs were performed in  
5 a transparent, fair and nondiscriminatory manner, and the processes used to solicit  
6 and evaluate proposals were executed consistent with the processes as defined  
7 and envisioned by NIPSCO and CRA at the outset. Further, no bidder was given  
8 an undue advantage or preference in any of the Phase II RFPs, nor was any  
9 advantage or preference alleged by any participant in the RFPs.

10 **Q22. What was the first step in the two-party negotiations with the developers?**

11 A22. After identifying the assets recommended for advancement to the definitive  
12 agreement phase of the process for NIPSCO, CRA communicated with each  
13 bidder, notifying them of the process status and next steps. At that point, NIPSCO  
14 prioritized certain short-listed projects and initiated commercial negotiations with  
15 the highest priority counterparties.

16 **Q23. Please discuss your recommendation for NIPSCO with regard to the acquisition  
17 of solar power?**

18 A23. CRA identified a set of solar projects for advancement to the definitive agreement



1 phase. The projects were selected consistent with the evaluation criteria that  
2 captured the project economics, project specific risks and benefits associated with  
3 each option. These projects offer NIPSCO customers low cost, renewable energy  
4 and the associated renewable energy credits ("RECs"). They also provide capacity  
5 in support of NIPSCO's needs.

6 **Q24. What are RECs?**

7 A24. RECs are the property rights to the environmental benefits resulting from  
8 generating electricity using renewable energy sources (*e.g.*, wind, solar, biomass,  
9 and geothermal).

10 **Q25. How did NIPSCO evaluate the pricing with and without RECs?**

11 A25. CRA evaluated RECs qualitatively. Certain proposals included the provision that  
12 RECs would accrue to the project developer rather than NIPSCO. These proposals  
13 lost points in the evaluation versus projects where RECs were transferred to  
14 NIPSCO.

15 **Q26. Why did CRA value the RECs qualitatively rather than quantitatively?**

16 A26. The value of renewable energy was incorporated into the 2018 IRP process through  
17 evaluation of portfolio costs, risks, and carbon dioxide emissions. Given the  
18 uncertainty associated with future regulation and the future costs of renewable

1 resources, no explicit REC value was attributed to renewable projects in the 2018  
2 IRP. The IRP's preferred portfolio was predominantly comprised of renewable  
3 resources, even without considering the economic value RECs might provide. The  
4 Phase II RFPs then selected individual projects consistent with the IRP preferred  
5 portfolio. As a result, the Phase II RFPs evaluated wind assets versus other wind  
6 assets and solar projects versus other solar projects. Assuming a similar facility  
7 capacity factor for like assets, assets within the same asset class would generate a  
8 similar number of RECs per MW-year and therefore similar REC  
9 values. However, in cases where RECs accrue to the developer rather than to  
10 NIPSCO, there is a different but highly uncertain value offered by one project  
11 versus another. Because CRA wanted that difference in value reflected in the bid  
12 evaluation, but there was not a specific REC valuation consistent with IRP  
13 modeling, projects that did not include RECs lost points through the Proposal  
14 Specific Risk scoring category. As further discussed by Witness Campbell, both  
15 Solar PPAs include provisions that NIPSCO will own or be entitled to claim all  
16 RECs from the respective projects.

17 **Q27. How did NIPSCO evaluate the contract term to be included in the Solar PPAs?**

18 A27. As part of the evaluation of the economics of each bid received, CRA calculated  
19 the levelized cost per MWh of each bid received. The levelized cost was

1 considered in two ways. First, the levelized cost was considered over the duration  
2 of the bid. This means that for a 15-year PPA, the 15-year LCOE was considered,  
3 while for a 20-year PPA, the 20-year LCOE was considered. Next, the LCOE was  
4 considered for all assets over 30 years. For shorter-term options, the balance of the  
5 30 years was filled in with market purchases at market prices consistent with IRP  
6 modeling. The two-phased LCOE analysis allowed CRA to compare all assets  
7 over a consistent time horizon without missing short-term opportunities that may  
8 offer a good value to customers. This is further discussed by Witness Augustine.

9 **Q28. How did NIPSCO evaluate the fixed versus escalating pricing of the solar**  
10 **Proposals?**

11 A28. The mechanics of the LCOE calculation were identical between fixed and  
12 escalating PPA proposals. In many cases, developers offered a single project  
13 under both fixed and escalating pricing structures at NIPSCO's option. In these  
14 cases, the LCOE was calculated both under fixed and variable pricing structures,  
15 and the option that yielded the best LCOE per MWh was included in the scoring  
16 of the bid.

17 **Q29. Would the fixed versus variable PPA structure affect the facility dispatch?**

18 A29. Each renewable facility's underlying dispatch into the MISO market was assumed

1           to be the same under either a fixed or variable PPA structure. Since wind, solar  
2           and other similar projects have zero or near-zero variable costs, it was assumed  
3           the facilities would dispatch into the market at their maximum level regardless of  
4           the PPA pricing structure.

5   **Q30. Are the proposed Solar PPAs an economic option for meeting NIPSCO's retail**  
6   **electric load?**

7   A30. Yes. The 2018 IRP identified that, based on the current market economics and  
8           outlook, solar power represents an excellent resource option for NIPSCO and its  
9           customers over the expected useful life of a new solar facility. As illustrated in  
10          Confidential Attachment 3-D, of all the solar proposals that were submitted into  
11          the RFP, the Greensboro Project yielded 827 points, the highest overall score based  
12          on the evaluation criteria used for scoring the RFP bids. The Greensboro Project  
13          is a mature development project and comes with limited development or asset  
14          specific risk. The Brickyard Project also scored in the top ten, with 742 points. This  
15          project offers limited development or asset specific risk. Both projects scored  
16          favorably on an economic basis based on the LCOE metric. Of the potential  
17          counterparties for in-development solar resources, NextEra had performed the  
18          most extensive transmission analysis associated with their project and completed  
19          an N-1-1 contingency analysis for both facilities.

1 Q31. Does this conclude your prefiled direct testimony?

2 A31. Yes.

## VERIFICATION

I, Robert Lee, Vice President of Charles River Associates, affirm under penalties of perjury that the foregoing representations are true and correct to the best of my knowledge, information and belief.



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Robert Lee

Dated: July 17, 2020

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**ROBERT J. LEE**  
Vice President

M.S. Industrial Administration,  
Carnegie Mellon University,

B.A. Mathematics,  
Boston College

Mr. Lee is a Vice President in CRA's Auctions & Competitive Bidding Practice. During his consulting career, Mr. Lee has assisted numerous clients to develop structured sales and procurement channels in an array of industries and markets. He has managed structured transactions, acquisitions and divestitures in both traditional and competitive bidding environments. In addition, Mr. Lee has helped clients on a range of valuations and market analyses related to changes in market dynamics and market structure. Prior to joining CRA's Auctions and Competitive Bidding Practice, Mr. Lee was a member of CRA's Energy Practice and he still consults to clients in that area. Mr. Lee began his consulting career in senior staff positions at the PA Consulting Group and at Putnam, Hayes and Bartlett, Inc. At Putnam, Hayes and Bartlett, Mr. Lee was involved in quantifying the stranded costs for several utilities in Ohio, Pennsylvania and West Virginia resulting from proposed changes in market structure. Mr. Lee led modeling teams for clients at Allegheny Power Systems, Dayton Power and Light Company and Cinergy in support of their transition from vertically integrated utilities operating under cost of service regulation to utilities operating in markets with retail choice.

## **AUCTIONS AND COMPETITIVE BIDDING**

### **Electricity**

#### *Northern Indiana Public Service Company.*

- Designed and executed a series of competitive RFP for capacity in MISO LRZ6 on behalf of Northern Indiana Public Service Company. Managed a process designed to be compliance with FERC Edgar Allegheny requirements. Examined options for a structured tax-equity joint venture structure to monetize tax assets associated with renewable ownership. Let several working sessions with FERC staff related to tax-equity financing structures and the implications of renewable ownership for utilities.

#### *Monongahela Power Company.*

- Designed a competitive RFP process for Monongahela Power Company to evaluate options to meet anticipated capacity shortfalls for the West Virginia utility. Designed and managed the bidding process, modeled the anticipated operations of facilities bid into the RFP, selected the winning bidder and supported the acquisition through testimony at FERC and the West Virginia PSC.

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*Duke Energy Ohio, Inc.*

- Designed a competitive bidding process (CBP) to procure wholesale generation for retail Standard Service Offer (SSO) load for Duke Energy Ohio, Inc. covering the period from January 1, 2012 through May 31, 2018. The CBP used a clock auction format. The auction process was subject to approval by the Public Utilities Commission of Ohio (PUCO).
- Designed and managed a request for proposal process (RFP) to identify a supplier for the Percentage of income Payment Plan (PIPP) customer load of Duke Energy Ohio.

*The Dayton Power and Light Company*

- Designed a competitive bidding process (CBP) to procure wholesale generation for retail Standard Service Offer (SSO) load for Dayton Power and Light. The procurements covered the period from January 1, 2014 through May 31, 2017. The CBP used a clock auction format. The auction process and outcome were subject to approval by the Public Utilities Commission of Ohio (PUCO).

*Duquesne Light Company*

- Designed a competitive bidding process (CBP) to procure wholesale generation for retail provider of last resort (POLR VIII) load for the Duquesne Light Company.

*DTE Electric Company*

- Managed DTE Electric Company (DTE)'s 2017 capacity RFP. The RFP was designed to analyze options for combined cycle generating capacity within MISO Zone 7 for the purposes of acquisition.
- Managed DTE Electric Company (DTE)'s 2015 capacity RFP. The RFP was designed to acquire a power plant to help DTE close an identified capacity shortfall. DTE acquired the East China combustion turbine from an affiliate under a process approved by FERC under affiliate transaction guidelines.

*FirstEnergy Corporation*

- Assisted in the design and ongoing execution of a competitive bidding processes to procure wholesale generation and capacity for retail Standard Service Offer (SSO) load of customers of FirstEnergy's Ohio Utilities — Cleveland Electric Illuminating Company, The Toledo Edison Company, and Ohio Edison Company. The auction process and outcome are subject to approval by the Public Utilities Commission of Ohio (PUCO).



- For FirstEnergy Service Company, assisted in designing and conducting a competitive bidding process using a hybrid clock auction and sealed-bid format to procure wholesale generation and capacity for retail Standard Service Offer (SSO) load to be delivered June 2009 through May 2011 to customers of FirstEnergy Ohio Utilities — Cleveland Electric Illuminating Company, The Toledo Edison Company, and Ohio Edison Company. Played a key role on the Auction Manager team including managing the mock auction and the live event. The successful auction procured more than \$6 billion in supplies. The auction process and outcome were subject to approval by the Public Utilities Commission of Ohio (PUCO).
- Designed and managed a request for proposal process (RFP) to identify a supplier for the Percentage of income Payment Plan (PIPP) customer load of FirstEnergy's Ohio Utilities.
- Managed an RFP process for FirstEnergy's Monongahela Power (Mon Power) affiliate in West Virginia. The RFP was designed to acquire a power plant to help Mon Power close an identified capacity and energy shortfall.
- Managed an RFP process for Mon Power to divest a share of the Bath County pumped storage facility.

#### *RWE*

- Auction Manager for RWE's ongoing power supply auction serving major commercial and industrial customers in Europe. Currently working with RWE and the broader CRA auction team on the auction design framework, including all bidding rules, auction parameters, and bidder support documentation and tools. In addition, Mr. Lee helped to develop and test the customized auction software working with software engineering through the design and testing process. The auction process and outcome are subject to approval by the German cartel office (BKartA).

#### *Trans Elect*

- Part of CRA's Auction Manager team on an open season auction process for Trans Elect. The open season auction process used CRA's Auction Management System to successfully sell transmission capacity rights through an open and transparent bidding process. The auction process and outcome were subject to approval by the U.S. Federal Energy Regulatory Commission (FERC).

#### *GE EFS*

- Auction Manager for the Linden VFT open season auction process. With CRA's assistance, GE successfully auctioned incremental transmission capacity from PJM into New York's Zone J. Mr. Lee worked closely with GE and the broader CRA team to design and test the customized AMS auction software and to educate bidders on the auction design parameters as well as the VFT technology. The auction process and outcome were subject to approval by the U.S. Federal Energy Regulatory Commission (FERC).

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## Agriculture

### *Ocean Spray Cranberries*

- Project Manager and Auction Manager for the development of an Internet-based trading platform for Ocean Spray Cranberries. The system, launched in the summer of 2009, represented a major innovation in an industry that lacked price transparency and adequate market signals for investment. Through the online system, Ocean Spray successfully is offering cranberry concentrate to major beverage producers worldwide.

### *Fonterra - GlobalDairyTrade*

- Project Manager and Auction Manager for the development and administration of *globalDairyTrade*, the Internet-based auction sales channel for a major international dairy cooperative. The auction-based system represents a major departure from the industry status quo and served as a mechanism for cost reduction, efficiency improvement, and increased market transparency for the supplier and its customers. Key responsibilities include contributions on the auction design, software development, customer training processes, and client communications.

## ASSET VALUATION AND MARKET STRATEGY

### *Monongahela Power Company*

- Managed the modeling and valuation of fossil power stations within the APS Zone of PJM. Modeling was conducted in support of Mon Power's 2017 RFP for capacity resources.

### *Confidential Client*

- Advised the successful bidder in the acquisition of a gas-fired combined cycle power plant located in a remote region of Pakistan. As part of El Paso's divestiture of its Asian power generating assets, Mr. Lee worked closely with a the buyer to value the portfolio of power sales, fuel supply and O&M contracts supporting the facility. Critical considerations included fuel supply risk, FX risk and the proper assessment of the threat of terrorism associated with the facility.

### *Confidential Client*

- Worked closely with the management of a processed coal producer to identify the product's value versus alternative coal options. Established the breakeven value for the fuel under a range of alternative environmental, coal price and transportation cost scenarios. Helped establish the relevant geographic range under which the fuel could potentially compete and identified attractive utilities for targeted marketing activities. Identified alternative distribution strategies that would help mitigate transportation cost concerns.

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*Hoosier Energy*

- Reviewed the NO<sub>x</sub> SIP Call compliance plan for Hoosier Energy, a Midwestern G&T Cooperative. Worked closely with management to develop a new framework for evaluating environmental compliance options at Hoosier's principal coal-fired power stations. Identified key risk factors impacting the value of the cooperative's planned environmental expenditures, including the risk of domestic CO<sub>2</sub> restrictions. Identified potential cost saving and risk mitigation strategies in association with pending changes in environmental policies. Proposed alternative allowance banking strategies that would reduce financial exposure associated with SIP investments.

*PSEG*

- Worked with management to evaluate the impact of a range of environmental scenarios on PSEG asset values. Mr. Lee modeled an array of 3P and 4P proposals and evaluated the likely response of market participants. The modeling exercise examined the impact of incremental environmental restrictions on regional and national new capacity builds, PCE retrofits and fuel selection. In addition, the CRA team quantified the impact of proposed or pending regulations on regional power market prices and on the prices for tradable emissions credits.

*Triton Coal*

- Advised the management of Triton Coal on antitrust issues associated with their divestiture of the Buckskin and North Rochelle coal mines located in the Wyoming portion of the Powder River Basin. Identified substitute products including coal from alternative producing basins and power generation from alternative fuels. Identified the market for Powder River Basin coal based on transportation access and costs as well as coal quality considerations. Evaluated bidders based on the potential impact of the acquisition on market concentrations. Balanced the bid price for resources versus the likelihood that a potential sale would withstand DOJ scrutiny.

*Foster Wheeler*

- Performed a strategic assessment of the international coal boiler market for Foster Wheeler. Identified key markets for growth in coal-fired power generation over the near, mid and long-term. Considered key issues such as resource availability, environmental policy uncertainties and power demand growth. Worked closely with Foster Wheeler Oy to identify attractive markets for their CFB coal-boiler marketing activities.

*British Petroleum*

- Examined the potential strategic impacts of btu convergence on coal and oil markets. The analysis evaluated the economics of coal-to-liquids, coal-to-gas and underground coal gasification. Identified regional discontinuities on project economics and participated in workshops designed to assess opportunities in the coal space and their impact on markets for oil, coal and power.

*The Dayton Power and Light Company – AES Ohio Generation*

- Quantified the reactive power revenue requirements for the combined fossil fleet of Dayton Power and Light and AES Ohio Generation.

## TESTIMONY AND ADMINISTRATIVE PROCEEDINGS

*FERC, ER19-2775-000 and EC20-8-000*, Testimony in support of Northern Indiana Public Service Company under Sections 205 and 203 of the Federal Power Act related to Affiliate Transactions.

*IURC Case Nos. 45194, 45195 and 45196*. Testimony before the Indiana Utility Regulatory Commission on behalf of Northern Indiana Public Service Company. At issue was NIPSCO's request for the issuance of a certificate of public convenience and necessity related to the development and acquisition or contractual control of three separate wind farms in Indiana.

*PUCO Case No. 17-1263-EL-SSO*. Testimony on behalf of the Duke Energy Ohio (Duke) related to Duke's application for authority to establish a Standard Service Offer pursuant to Section 4928.143, Revised Code, in the form of an Electric Security Plan.

*Public Service Commission of West Virginia Case No. 17-0269-E-PC*. Testimony on behalf of the Monongahela Power Company (Mon Power) in support of Mon Power's petition for approval of a generation resource transaction and related relief.

Monongahela Power Company, Allegheny Energy Supply Company, LLC (AE Supply). *FERC Docket EC17-88-000*. Submitted testimony in support of the proposed transfer of a generating asset from AE Supply to Mon Power.

*PUCO Case No. 16-0395-EL-SSO*. Testimony on behalf of the Dayton Power & Light Company (DP&L) related to DP&L's application for authority to establish a Standard Service Offer pursuant to Section 4928.143, Revised Code, in the form of an Electric Security Plan.

Dayton Power and Light Company, *et al.*, *FERC Docket No. ER16-2569* Testimony in support of Dayton Power and Light Company's reactive power tariff.

AES Ohio Generation, LLC, *Docket No. FERC ER16-2570*; Testimony in support of AES Ohio Generation reactive power tariff.

DTE Electric Company, *et al.*, *Docket No. FERC EC15-138*; in support of DTE's affiliate acquisition of the East China combustion turbine located in East China Township Michigan

*PUCO Case No. 14-841-EL-SSO*. Testimony on behalf of the Duke Energy Ohio, Inc. (Duke) related to Duke's application for authority to establish a Standard Service Offer pursuant to Section 4928.143, Revised Code, in the form of an Electric Security Plan.

*Sixth Judicial Circuit in and for Pinellas County Florida; Case Number 2012-006187-SC*. Testified on the structure and efficacy of a competitive bidding process designed to establish market values for settling automobile insurance claims

*PUCO Case No. 12-426-EL-SSO*. Testimony on behalf of the Dayton Power & Light Company (DP&L) related to DP&L's application for authority to establish a Standard Service Offer pursuant to Section 4928.143, Revised Code, in the form of an Electric Security Plan.

*PUCO Case No. 11-3549-EL-SSO.* Testimony on behalf of the Duke Energy Ohio, Inc. (Duke) related to Duke's application for authority to establish a Standard Service Offer pursuant to Section 4928.143, Revised Code, in the form of an Electric Security Plan.

*PUCO Case No. 10-2586-EL-SSO.* Testimony on behalf of the Duke Energy Ohio, Inc. (Duke) related to Duke's application for approval of a Market Rate Offer to conduct a competitive bidding process for Standard Service Offer electric generation supply.

Developed and presented PSEG and Exelon's joint claim for relief to the Oil Spill Liability Trust Fund, US Department of Homeland Security. Prepared the claim for damages associated with the temporary shut down of the Salem nuclear facility as a result of the November, 2004 Athos I oil spill.

## PRESENTATIONS AND PUBLICATIONS

Brandeis University, Graduate School of International Business, lecturer on coal and environmental markets and energy market dynamics

National Public Radio (NPR), Marketplace, recurrent on air guest discussing coal, environmental markets and environmental policy

"Creating Markets and Structured Sales Channels", presented at the U.S. Apple Association Outlook 2010, Chicago, IL, August 19, 2010

"Not Your Father's Auction", Industry Week, April 2010

"A Better Way to Transact", Beverage Industry: Market Insights, May 2010

"NO<sub>x</sub> Trading: Strategies for Electric Cooperatives"; with Anne Smith; Cooperative Research Network, National Rural Electric Cooperative Association; April 2003

## EDUCATION

**CARNEGIE MELLON UNIVERSITY,**  
Graduate School of Industrial Administration  
MSIA (MBA)

Pittsburgh, PA

**BOSTON COLLEGE**  
College of Arts and Sciences  
BA Mathematics

Chestnut Hill, MA

FOR ADDITIONAL INFORMATION

Tara McElmurry, NIPSCO  
Communications Lead  
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**NIPSCO TO EXPLORE RANGE OF OPTIONS TO MEET FUTURE ELECTRIC NEEDS**

*Request for proposals opened to consider all sources*

**MERRILLVILLE, Ind.** – Northern Indiana Public Service Company (NIPSCO) has announced the opening of its next round of request for proposals (RFP) to consider a combination of potential resources to meet the future electric needs of its customers.

“As we continue to further our Your Energy, Your Future, customer-focused plan, it’s important to consider all energy source options that balance the needs of our customers and communities,” said Violet Sistovaris, NIPSCO president. “This effort is consistent with our goal to focus on providing affordable, reliable energy while maintaining flexibility for future technology and market changes.”

This RFP will satisfy a 2023 capacity need following the release of NIPSCO’s [2018 Integrated Resource Plan](#) where the company announced its plans to retire all of its remaining coal-fired generation by 2028, and replace it with lower-cost, cleaner options. NIPSCO is considering all sources in the RFP process. Dispatchable and semi-dispatchable generation, renewables, demand response resources and contractual arrangements will be considered, as well as emerging technologies such as storage.

Specifically, NIPSCO is requesting proposals in three target areas:

- Wind – Targeting 300 megawatt (MW)\* of installed capacity (ICAP) of wind and wind paired with storage
- Solar – Targeting 2,300 MW\* ICAP of solar and solar paired with storage
- Thermal and other – Targeting economic opportunities for thermal and other capacity resources

CRA International is the independent RFP manager.

NIPSCO’s current energy mix includes generation from natural gas and coal, hydroelectric generation, purchased wind power, customer-owned renewable generation, demand response, energy efficiency and other purchased power.

The RFP will close Nov. 20, 2019 and more information can be found at <http://www.nipsco-rfp.com>.

*\*NIPSCO reserves the right to transact more or less than the referenced ICAP target.*

**About NIPSCO:** Northern Indiana Public Service Company (NIPSCO), with headquarters in Merrillville, Indiana, has proudly served the energy needs of northern Indiana for more than 100 years. As Indiana’s largest natural gas distribution company and the second-largest electric distribution company, NIPSCO serves approximately 820,000 natural gas and 460,000 electric customers across 32 counties. NIPSCO is part of NiSource’s (NYSE: NI) seven regulated utility companies. NiSource is one of the largest fully regulated utility companies in the United States, serving approximately 4 million natural gas and electric customers through its local Columbia Gas and NIPSCO brands. More information about NIPSCO and NiSource is available at [NIPSCO.com](http://NIPSCO.com) and [NiSource.com](http://NiSource.com).

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**Confidential Attachment 3-C (Redacted)**



**Confidential Attachment 3-D (Redacted)**