STATE OF INDIANA

INDIANA UTILITY REGULATORY COMMISSION

VERIFIED PETITION OF INDIANAPOLIS POWER & LIGHT COMPANY D/B/A AES INDIANA ("AES INDIANA") FOR (1) ISSUANCE OF CERTIFICATE OF PUBLIC CONVENIENCE AND NECESSITY TO REPOWER PETERSBURG GENERATING UNITS 3 & 4 TO OPERATE ON NATURAL GAS ("PETERSBURG REPOWERING PROJECT"); (2) APPROVAL OF PETERSBURG REPOWERING PROJECT AS A CLEAN ENERGY PROJECT; AND (3) ASSOCIATED ACCOUNTING AND RATEMAKING, INCLUDING RECOVERY OF PROJECT COSTS, PROJECT DEVELOPMENT COSTS, FGD DEWATERING AND RELATED COSTS, THE REMAINING NET BOOK VALUE OF PETERSBURG UNITS 3 AND 4 RETIRED ASSETS, AND CERTAIN MATERIALS AND SUPPLIES INVENTORY.	)	**CAUSE NO.** 46022

PETITIONER'S SUBMISSION OF DIRECT TESTIMONY OF
JOHN BIGALBAL

Indianapolis Power & Light Company d/b/a AES Indiana ("AES Indiana" or "Petitioner"), by counsel, hereby submits the direct testimony and attachments of John Bigalbal.

Respectfully submitted,

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CERTIFICATE OF SERVICE

The undersigned hereby certifies that a copy of the foregoing was served this 11th day of March, 2024, by email transmission, hand delivery or United States Mail, first class, postage prepaid to:

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ATTORNEYS FOR PETITIONER

VERIFIED DIRECT TESTIMONY

OF

JOHN BIGALBAL

ON BEHALF OF

INDIANAPOLIS POWER & LIGHT COMPANY

D/B/A AES INDIANA

SPONSORING AES INDIANA CONFIDENTIAL ATTACHMENTS JB-1C AND JB-2C

VERIFIED DIRECT TESTIMONY OF JOHN BIGALBAL
ON BEHALF OF AES INDIANA

1. INTRODUCTION

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

A1. My name is John Bigalbal. I am employed by AES US Services, LLC, ("AES Services", also "Service Company"), which is the service company that serves Indianapolis Power & Light Company d/b/a AES Indiana ("AES Indiana", "IPL", or "the Company"). The Service Company is located at One Monument Circle, Indianapolis, Indiana 46204.

Q2. What is your position with AES Indiana?

A2. I am the Chief Operating Officer Generation, US Utilities.

Q3. On whose behalf are you submitting this direct testimony?

A3. I am submitting this testimony on behalf of AES Indiana.

Q4. Please describe your duties as Chief Operating Officer.

A4. As Chief Operating Officer, I manage the US conventional generation fleet that includes coal and natural gas steam, combined cycle gas turbine and simple cycle generation plants with a combined net capacity of approximately 3,000 megawatts. I also manage AES Indiana's renewable energy portfolio.

Q5. Please summarize your educational and professional qualifications.

A5. I graduated from Thames Valley State Technical College with a degree in Electrical Engineering. I have also completed an Executive Leadership Program at Georgetown University's McDonough School of Business.

Q6. What is your previous work experience?

A6. I started my career in 1987 with Connecticut Light and Power and worked in Operations and Engineering. I left the utility in 1991 to perform the startup and commissioning of Exeter Energy, a 30-megawatt tire-fired generation plant. In 1992, I started working for AES at the AES Thames cogeneration plant. I have been with AES for 31 years. During my time with AES, I have worked in Instrumentation and Controls, Engineering, Environmental, Safety, Business Development, Commercial, and Construction. I have been in several leadership roles including the management of a large merchant coal-fired generation plant and a fleet of six merchant coal-fired generation plants, business development, fuel, and logistics as well as this current role.

Q7. Have you previously testified before the Indiana Utility Regulatory Commission ("Commission")?

A7. Yes. I filed testimony in AES Indiana's Cause No. 38703 FAC 133 through FAC 135 and FAC 133 S1. I also filed testimony in AES Indiana's basic rates case, Cause No. 45911.

Q8. What is the purpose of your testimony in this proceeding?

A8. My testimony supports the Company's request for Commission's approval of the proposed repowering[1] of Petersburg Units 3 and 4 to operate using natural gas as their fuel ("Petersburg Repowering Project" or "Project"). I provide an overview of the Project and address the following additional subjects:

1. The Project is a reasonable and necessary Clean Energy Project.

[1] For the purposes of my testimony, I use the terms "repower" and "convert" interchangeably.

2. The Project is in the public interest and a certificate of public convenience and necessity should be granted for the Project.

3. The Project is consistent with the Company's 2022 Integrated Resource Plan ("IRP") Preferred Resource Portfolio as updated by AES Indiana witness Miller in this Cause.

4. The Best Estimate of the Project cost is reasonable and results from the competitively bid Engineering, Procurement, and Construction ("EPC") Agreement for the Project.

5. The Company's proposal to remove, treat, and dispose of flue gas desulfurization ("FGD") water in the Petersburg Units 3 and 4 FGDs and complete the area cleanup is reasonable and prudent.

6. The Company prudently maintains an inventory of materials and supplies to support the operation of the currently coal-fired Petersburg Generating Station. Some of this inventory will no longer be needed upon the repowering of Petersburg Units 3 and 4.

7. The Project timeline and Company's plans to manage the construction of the proposed Project are reasonable.

8. The Commission should determine that the Project expenditures that AES Indiana incurs prior to receiving a Commission order are reasonable and were prudently incurred to secure the repowering option in accordance with the IRP. These expenditures were necessary to bring the Project to the Commission for review and

the Commission should approve such expenditures for recovery if the Commission does not approve the Company's proposed repowering Project.

9. A timely Commission decision is necessary to mitigate Project cancellation fees and other costs that would be incurred if the Project is not approved and if approved, allow the Project to be built and commercially operable to allow the resource to be accredited as a capacity resource by the Winter 2026-2027 MISO Planning Season.

10. The proposed Project and associated requests for relief are consistent with Indiana energy policy and reasonably consider each of "Five Pillars" of electric utility service enumerated in House Enrolled Act ("HEA") 1007, effective July 1, 2023, and codified at Ind. Code § 8-1-2-0.6, namely: Reliability, Affordability; Resiliency, Stability; and Environmental Sustainability.

Q9. Are you sponsoring any attachments?

A9. I am sponsoring the following attachment(s):

<u>AES Indiana Confidential Attachment JB-1C</u>	EPC Agreement between AES Indiana and The Babcock & Wilcox Company
<u>AES Indiana Confidential Attachment JB-2C</u>	Gas Lateral Facilities Construction Agreement between AES Indiana and Midwestern Gas Transmission Company

Q10. Were these attachments prepared or assembled by you or under your direction and supervision?

A10. Yes.

Q11. Did you submit any workpapers?

A11. Yes. I have submitted the following workpapers:

- AES Indiana Witness JB Workpaper 1, which supports the estimate of the materials and supplies that are used to support Petersburg Generating Station's operation on coal that will no longer be needed following the completion of the Petersburg Repowering Project.
- AES Indiana Witness JB Confidential Workpaper 2, which supports the estimate of FGD dewatering and related costs following the repowering of Units 3 and 4.

2. AES INDIANA's PROVISION OF SERVICE TO CUSTOMERS

Q12. Please describe AES Indiana's service area and customer base.

A12. AES Indiana provides retail electric utility service to more than 523,000 retail customers located principally in and near the economically important State capital – the City of Indianapolis, Indiana, and in portions of the following Indiana counties: Boone, Hamilton, Hancock, Hendricks, Johnson, Marion, Morgan, Owen, Putnam and Shelby Counties.

Q13. How does AES Indiana meet its customers' need for electricity?

A13. AES Indiana meets its customers' need for electricity through a combination of: (a) existing generation; (b) wholesale market purchases; (c) wind energy produced by the Company as well as procured under a power purchase agreement ("PPA"); (d) load management and distributed generation (solar resources); and (e) conservation, including demand-side management and energy efficiency. The resource mix has evolved over time as plants retire due to age, environmental regulations, technological change, economic conditions, and as customer interests and peak demand change over time.

AES Indiana's existing portfolio of generating assets provides the bulk of the supply necessary to meet customer demands. As discussed by AES Indiana witness Miller, like other utilities, AES Indiana uses an integrated resource planning process to determine the optimal mix of supply or demand resources to provide electricity to our customers. As also discussed by AES Indiana witness Miller (Q/As 13, 14, and 53), the Company used a scorecard to evaluate candidate portfolios in its 2022 IRP process that was developed to quantify each portfolio's consistency with the Five Pillars of Utility Electric Service. The Company used this approach to ensure that its Preferred Resource Portfolio and Short Term Action Plan produces a portfolio that considers all Five Pillars of Utility Electric Service.

The IRP is affected by many factors, such as environmental regulations, the economy, the economics of projects and technologies, and fuel supply. The evaluation of scenarios and sensitivities in the IRP permits AES Indiana management to exercise judgment in selecting options consistent with reasonable least cost planning to serve our customers. These matters are further discussed by AES Indiana witness Miller.

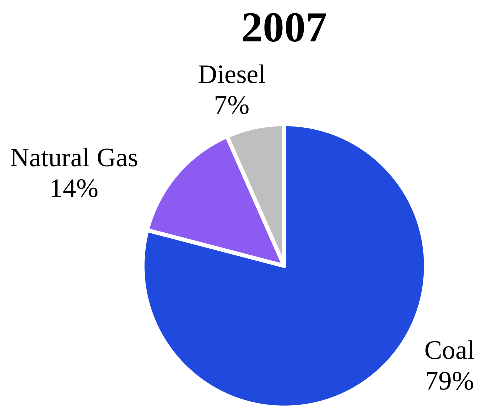
Q14. Please provide an overview of AES Indiana's existing generating units and other sources of supply.

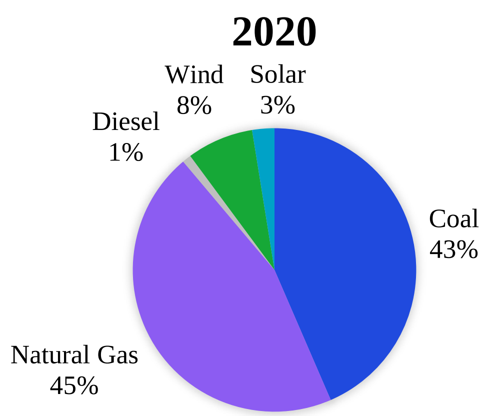
A14. As discussed in the 2022 and 2019 IRPs, AES Indiana's resource portfolio has changed dramatically over the last several years. Coal made up 79% of the AES Indiana fleet in 2007, but by 2018, coal made up 43% of the nameplate capacity.[2] Through the resource planning process, AES Indiana has sought to find a reasonable least cost solution to meet the needs of its customers. As presented by AES Indiana witness Miller, the Company's 2022 IRP Preferred Resource Portfolio and Short Term Action Plan demonstrates that exiting coal-fired generation through the completion of the Petersburg Repowering Project

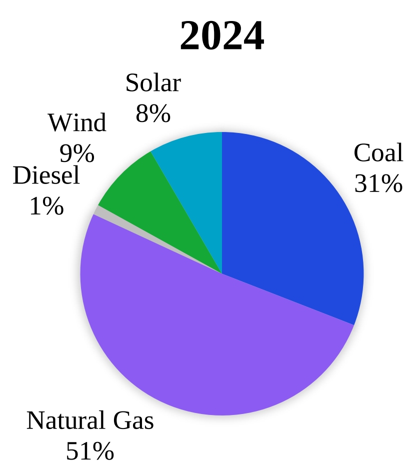
[2] See AES Indiana's 2019 IRP Volume 1 at p. 58.

is an integral part of the Company's plan to maintaining a generation portfolio that is consistent with the Five Pillars of Utility Electric Service. I further describe the benefits associated with the Petersburg Repowering Project below in Sections 4, 10, and 13. Figure 1 identifies the Company's generation portfolio by resource type in 2007, 2020, and 2024 following the completion of Hardy Hills Solar Project.

Figure 1. AES Indiana's Resource Mix







The Company-owned generation capacity is located at the following primary sites: (a) Petersburg Station (Petersburg, IN); (b) Harding Street and Georgetown Stations (Indianapolis, IN); (c) Eagle Valley Station (Martinsville, IN); (d) Hardy Hills Solar Project (Clinton County, IN); and (e) Hoosier Wind Project (Benton County, IN). The Company has recently acquired the Hoosier Wind Project, which is approximately 100 MW of installed capacity ("ICAP") wind-powered facility located in Benton County, Indiana that was recently approved by the Commission.[3] The Company also has approximately 200 MW of additional wind generation (ICAP) secured under a long-term PPA approved by the Commission. AES Indiana has PPAs with approximately 96 MW of solar energy from solar facilities located throughout its service territory pursuant to its Rate REP.[4] AES Indiana also uses demand-side management to meet the need for electricity within its service area. All these resources are discussed in AES Indiana's most recent IRP, a copy of which is included as an attachment to AES Indiana witness Miller's testimony. The Company is also in the process of developing the Petersburg Energy Center, which is a 250 MW solar facility paired with a 180 MWh battery energy storage system ("BESS") located in Pike County, Indiana, and the Pike County Energy Storage Project, which is a 200MW/4-hour standalone BESS located in Pike County, Indiana.

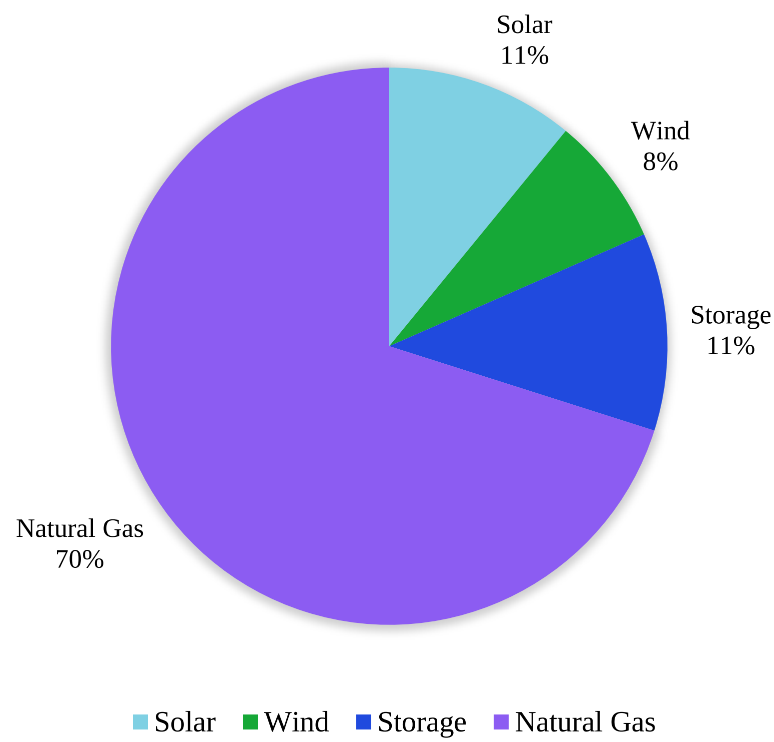
Q15. Please discuss the Company's anticipated resource mix upon implementation of the 2022 IRP Short Term Action Plan as updated by AES Indiana witness Miller in this Cause.

[3] See the Commission's Order in Cause No. 45931. See also AES Indiana's 2022 IRP, Volume I at 63.

[4] AES Indiana's 2022 IRP, Volume I at 63.

A15. Upon implementation of the Short Term Action Plan based on the updated 2022 IRP analysis, the Company's anticipated resource mix in 2026-2027 is shown in Figure 2.

Figure 2: AES Indiana's IRP Short Term Action Projected Resource Mix (2026-2027)[5]



The transition reflected in the 2022 IRP Short Term Action Plan as updated in this Cause preserves flexibility and optionality. It also optimizes the customer position in varying economic and regulatory scenarios while eliminating the significant risks associated with future coal-related environmental compliance costs.

[5] The resource mix identified in Figure 2 includes 200 MW of BESS resources that were identified in the updated IRP analysis to fill AES Indiana's additional capacity needs. See AES Indiana witness Miller's direct testimony at Q/A 25 for more details.

3. OVERVIEW OF PETERSBURG REPOWERING PROJECT AND RELIEF SOUGHT

Q16. Please summarize the relief sought in this proceeding.

A16. The Company requests the Commission to approve the Project, including the associated agreements, as a reasonable and necessary Clean Energy Project and issue a Certificate of Public Convenience and Necessity ("CPCN") for the Petersburg Repowering Project. As discussed by witnesses Rogers and Donlon the Company also requests the Commission approval of related accounting and ratemaking treatment.

Q17. Please identify the Project that is the subject of the Petition.

A17. The Petersburg Repowering Project will repower Petersburg Units 3 and 4 to fire natural gas instead of coal. The Project will be designed to maintain the current steam capacity and conditions of each boiler. The repowering includes constructing a natural gas lateral pipeline, approximately one mile in length, with associated valves and metering that will connect to Midwestern Gas Transmission Company's interstate pipeline. A natural gas conditioning and pressure reducing station will connect the lateral to the plant and supply natural gas at the necessary pressure and condition. The conversion also includes the change in firing systems by removing the existing coal burners and oil igniters and installing natural gas burners and ignition systems along with reconfigured burner management systems. The coal delivery piping will be removed as necessary for the installation of new natural gas piping to deliver natural gas to the burners. A flue gas recirculation system with two fans will be installed to help control steam temperatures and nitrogen oxide emissions on Unit 4. To minimize the cost of the conversion project, Unit 3 will not have flue gas recirculation and NOx will be controlled with the existing Selective Catalytic Reduction ("SCR") system. Surface area will be added to the superheater and reheater circuits to increase heat transfer and help control steam temperatures. The final superheater and final reheater pressure part replacements were scheduled in the five-year period following the Project, therefore, replacement during the repower is logical and should improve reliability. The coal handling equipment and by-products dewatering will be retired in place. The bottom ash handling system under the furnace bottom will be repurposed, as required for the gas conversion, and the remaining bottom ash system for both boilers and submerged flight conveyors will be retired in place. The FGD and Mercury and Air Toxics Standards (“MATS”) systems will be removed from service and retired in place with portions of each system being removed to allow access for new ductwork. The Electrostatic Precipitator on Unit 4 will be removed from service and completely dismantled due to its condition and new ductwork will be installed from the air preheater outlet to the induced draft fan inlet. Unit 3’s Electrostatic Precipitator will be retired in place allowing the existing structure to function as flue gas ductwork to minimize costs and construction complexity. New ductwork for the flue gas recirculation system (Unit 4) and for the boilers exhaust will be installed. The existing chimneys will be used.

Q18. When will the repowering occur?

A18. The repowering of Petersburg Units 3 and 4 will be staggered to allow one unit to continue to serve customers while the other undergoes an outage to complete the repowering. The plan is to perform the conversion on Unit 3 first with Unit 4 following once the startup and commissioning of Unit 3 has been completed. Unit 3’s repowering outage is expected to start in February 2026 and be completed in May 2026. Once completed, it will take approximately one month for startup, commissioning and testing to reach Commercial Operations Date (“COD”) in June. Unit 4’s outage would start in June 2026 and be completed in October 2026. Similarly, Unit 4 will take an additional month for startup, commissioning, and testing and should reach COD in December 2026. The outage schedules and scope of work were optimized to reduce or avoid the cost of capacity purchases during the winter periods. The Units are expected to be operational approximately two weeks after their outage completion and startup and commissioning has been completed. Final Completion of the Project is expected in the first quarter of 2027. Final Completion will occur approximately two months after Unit 4's outage completion to perform reliability tests, address "punch list" items, and to complete "as-built" drawings. The Units will also be operational during the two months leading up to Final Completion while the reliability tests are being performed. Limited Notice to Proceed ("LNTP") for engineering only will be issued in March of 2024. Notice to Proceed ("NTP") will need to be issued on October 1, 2024, to ensure long lead time items can be ordered, manufactured, and received in time to meet the construction start of February 2026. Engineering, procurement, planning and scheduling will be ongoing up to the start of Unit 3's outage. Therefore, the total time from LNTP to Final Completion is expected to be about 35 months.

Q19. Is the Project a "Clean Energy Project" as that term is defined in Ind. Code Ch. 8-1-8.8?

A19. Yes. A "Clean Energy Project" as defined in the statute includes projects to construct or repower a facility described in Ind. Code § 8-1-37-4.[6] Ind. Code § 8-1-37-4 defines "Clean Energy Resources" to include sources used in connection with the production of electricity

[6] Ind. Code § 8-1-8.8-2(5).

that is generated from natural gas at a facility constructed or repowered in Indiana after July 1, 2011 that displaces electricity generation from an existing coal fired generation facility.[7] This makes the Project a resource the Clean Energy Project statute was designed to encourage.

Q20. Is AES Indiana an eligible business under Chapter 8.8?

A20. Yes. AES Indiana is an energy utility. AES Indiana is proposing to undertake a Clean Energy Project – namely repowering an existing coal fired generation facility to operate using natural gas. Therefore, the Company is eligible for relief under Chapter 8.8.

4. OVERVIEW OF IRP AND PROJECT BENEFICIAL ATTRIBUTES

Q21. How does the Project fit with AES Indiana's 2022 IRP Preferred Resource Portfolio and Short Term Action Plan?

A21. As discussed by AES Indiana witness Miller (Q/As 13, 15), AES Indiana's 2022 IRP identified a Preferred Resource Portfolio and Short Term Action Plan, both of which include the conversion of Petersburg Units 3 and 4 to operate using natural gas.

Q22. Please describe the process by which AES Indiana confirmed the affordability of the Project.

A22. AES Indiana witness Miller (Q/A 26) presents the updated Present Value Revenue Requirement ("PVRR") of the Preferred Resource Portfolio using updated commodity prices and Project costs. The result of this analysis demonstrates the Project is estimated to save customers $281 million over the 20-year planning period versus the alternatives. As further discussed by AES Indiana witness Miller (Q/A 29), neither of these analyses, the

[7] Ind. Code § 8-1-37-4(a)(21).

2022 IRP and the updated analysis, includes the additional cost of reliability upgrades as identified in Quanta's Reliability Analysis that would be necessary to maintain system reliability, stability, and resilience. With current technology, battery energy storage systems, grid-forming inverters, and synchronous condensers would need to be installed if Petersburg Units 3 and 4 were replaced with 100% inverter-based resources to maintain reliability of the system. The estimated cost differential between repowering Petersburg Units 3 and 4 and replacing Petersburg Units 3 and 4 with 100% inverter-based resources is approximately $929 million.[8] As discussed by AES Indiana witness Miller (Q/A 29), if these costs were included in the PVRR analysis, it would make the Petersburg Conversion Strategy more cost effective compared to replacing these units with inverter-based resources.

Q23. AES Indiana witness Miller shows the Preferred Resource Portfolio (i.e., Petersburg Conversion IRP strategy) has a favorable PVRR compared to the other IRP strategies. What other beneficial attributes does the Project have?

A23. The repowering of Petersburg Units 3 and 4 has environmental sustainability attributes. Natural gas has very low sulfur, particulate and nitrogen levels, which makes it a low emission fuel relative to coal. As shown in AES Indiana witness Collier's testimony (Q/A 11), the Project will significantly reduce the emission rates of SO_2, NO_x, particulate matter, and mercury. It will also reduce carbon dioxide emission rates by approximately 43%. The Project will eliminate all production of residuals of combustion that coal has. Also, by

[8] See AES Indiana witness Miller's direct testimony at Q/A 29, Figure 10.

eliminating the need for flue gas desulfurization, the requirements for water use will be significantly reduced.

Petersburg Units 3 and 4 have been in service since 1977 and 1986, respectively, and the Units have proven to be reliable and resilient to the ambient conditions and customer needs. Large rotating steam turbine-generators provide frequency and voltage support to the grid, which in turn provides stability as load conditions change and disturbances occur. The conversion of Units 3 and 4 will maintain these attributes into the future.

As discussed above, conversion of Units 3 and 4 can be performed in a relatively short period of time and at relatively low cost. As discussed by AES Indiana witness Miller (Q/A 19), the natural gas conversion of the Units provides excellent support for intermittent renewable resources because the Units provide the firm capacity that is required for a reliable and stable grid.

The last attribute, and surely not the least, is the social and economic impact to the community of Petersburg and Pike County. The Petersburg facility is the largest taxpayer in the community[9] and provides many direct[10] and indirect jobs. Conversion of the facility will maintain a beneficial level of taxes and employment opportunities for the community.

5. AES INDIANA PETERSBURG REPOWERING PROJECT REQUEST FOR PROPOSALS ("RFP") AND PROJECT DEVELOPMENT

Q24. Did AES Indiana perform a competitive solicitation to select the bidders for the Project?

[9] http://treasurer.pike.in.datapitstop.us/cgi.exe?CALL_PROGRAM=C009TOPTAXPAYERS.

[10] https://www.hoosierdata.in.gov/major_employers.asp?areaID=125.

A24. Yes. Our Project team worked with Sargent & Lundy, an engineering consulting firm, on the Petersburg Repowering RFP ("Repowering RFP"), which included development of technical specifications, data forms, fuel specifications, scope of work, performance guarantees, and testing requirements. The team reviewed and evaluated all submittals, including project schedules and performance guarantees from the bidders. Sargent & Lundy also participated in the technical discussions and negotiations with the Repowering RFP bidders to ensure impartiality.

Q25. Explain the process that AES Indiana followed to evaluate Repowering RFP submissions for the Project.

A25. The Repowering RFP was issued in March of 2023 and was divided into two Packages. Package 1 was for the design and material for the boiler conversion and Package 2 was for the design and material for balance of plant, construction, and testing. Responses were submitted in June of 2023 for Package 1 and July of 2023 for Package 2. Three proposals were received.

This competitive RFP process produced a project cost that was greater than the estimate used in AES Indiana's 2022 IRP. The cost difference is attributable to inflation, the addition of pressure parts, approximately $[redacted], and owner's contingency of [redacted] or [redacted] that were not a part of the original estimate. As described by AES Indiana witness Miller (Q/As 26-28), the Company's updated IRP analysis reflects the updated Best Estimate of the Project and remains the least cost option to provide electric service to customers.

Q26. Explain the process that AES Indiana followed to select the contractor for the Project.

A26. AES Indiana performed due diligence, which included technical reviews and site visits of facilities that underwent similar coal to gas conversions performed by the bidders. Technical and commercial contract negotiations were conducted with all three bidders. All bidders met AES Indiana's technical specifications and had successful experience of coal to natural gas conversions. The EPC award ultimately went to the bidder with the best negotiated commercial terms and price.

Q27. Has AES Indiana executed an EPC Agreement?

A27. Yes, AES Indiana has executed an EPC Agreement with The Babcock & Wilcox Company ("Contractor") for all civil, mechanical, electrical, and commissioning work related to the Project, other than, the work related to the natural gas lateral pipeline, which will be performed by Midwestern Gas Transmission Company.

Q28. Please briefly summarize the terms of the EPC Agreement.

A28. Under the EPC Agreement, the Contractor will manage the engineering, procurement, retiring or dismantling of existing equipment as required for the fuel conversion, and construction for the Project on a turn-key basis subject to an agreed scope of work and technical specifications. The Contractor will design and supply the equipment and material as required for conversion of the Units from coal to gas. The Contractor will ensure that all equipment and material conforms with the scope of work and technical specifications. AES Indiana will pay the Contractor at predetermined times specified in the EPC Agreement for meeting expected progress milestones under the EPC Agreement. The Contractor will pay liquidated damages for delays in achieving certain completion milestones. The Contractor will also be subject to liquidated damages or make-right provisions for shortfalls in the performance guarantees.

Q29. Did AES Indiana assess the Project's ability to reach commercial operation?

A29. Yes. This Project is being self-developed by AES Indiana as the current owner of the two units being converted. As discussed by witness Collier's testimony at Q/A 13, AES Indiana has submitted the application for its air permit and will assess other environmental permitting needs and develop and submit corresponding applications to ensure that all environmental permits will be obtained in a timely manner. The Contractor that was selected in the EPC RFP process for turn-key engineering, procurement and construction services has demonstrated with previous projects that they are capable of successfully executing and completing this Project. The EPC Agreement (discussed below) provides AES Indiana oversight to mitigate the risk that the Project will not reach commercial operation on time.

Q30. Please briefly describe Contractor and their experience with coal to gas conversions.

A30. The Babcock & Wilcox Company ("B&W") has been in the steam generation business for over 155 years. B&W is a trusted, global provider of advanced steam generation and environmental technologies, aftermarket parts, construction, maintenance, and field services for power generation and industrial applications. B&W has completed about 50 coal to gas conversions in the United States. The EPC Agreement is included with my testimony as <u>AES Indiana Confidential Attachment JB-1C</u>.

Q31. Please discuss Contractor's creditworthiness.

A31. The Contractor's financial ability to complete construction of the Project was assessed resulting in no material risk. [redacted][12]

Q32. Did AES Indiana assess the Project's ability to reach commercial operation?

A32. Yes. As mentioned above, this Project is being self-developed by AES Indiana as the current owner of the two units being converted. The Contractor was selected in the Repowering RFP process for engineering, procurement, and construction services and has demonstrated with previous projects that they are capable of successfully executing and completing this Project. The March 2024 issuance of LNTP with corresponding initial payment to start engineering and the scheduled NTP of October 1, 2024 should minimize impacts that may be caused by delays in the supply chain. The EPC Agreement provides AES Indiana oversight to mitigate the risk that the Project will not reach commercial operation on time.

Q33. What is the current status of the Project's development?

A33. Technical specifications have been finalized and initial thermal design has been completed. AES Indiana has executed the EPC Agreement. LNTP is scheduled to be issued in March of 2024 to start the engineering and design work to develop the construction plans of the Petersburg Repowering Project. Natural gas transportation has been arranged and the

[11] See AES Indiana Confidential Attachment JB-1C, EPC Agreement at Section 14.1.

[12] See AES Indiana Confidential Attachment JB-1C, EPC Agreement at Section 14.2.

engineering and permitting for the natural gas lateral is underway. As discussed by witness Collier's testimony at Q/A 13, AES Indiana has submitted the application for its air permit and will assess other environmental permitting needs and develop and submit corresponding applications to ensure that all environmental permits will be obtained in a timely manner.

Q34. What is the status of the Project's environmental permitting requirements?

A34. As discussed by AES Indiana witness Collier (Section 3), AES Indiana submitted an air permit application to the Indiana Department of Environmental Management ("IDEM") in March 2023 for the modification and operation of Units 3 and 4 on natural gas and the air permit that is currently pending IDEM approval. AES Indiana is currently evaluating engineering information to assess all environmental permitting requirements and will continue to work diligently to ensure that permits will be obtained in a timely manner.

Q35. Please provide an overview of Midwestern Gas Transmission Company's construction of the natural gas lateral pipeline.

A35. It is customary for a gas transmission company to provide the connection and metering for a lateral that ties into their pipeline. AES Indiana and Midwestern Gas Transmission Company have negotiated a Facilities Construction Agreement. Under the agreement, Midwestern Gas Transmission will provide the engineering, permitting, material, and construction of the natural gas lateral that will provide gas to the Petersburg plant from Midwestern's interstate pipeline that runs through the plant's property.

Q36. Are there any gas agreements in place?

A36. Yes. AES Indiana witness Cooper (Q/A 15) discusses the purchase agreement of firm capacity on Midwestern Gas Transmission Company's interstate pipeline.

Q37. Are there any MISO agreements or approvals necessary?

A37. As discussed by AES Indiana witness Cooper (Q/A 14), the Project does not need any additional agreements with MISO because Units 3 and 4 already have interconnection agreements, the repowering will use the existing generators, and the repowering will be considered to have a *de minimis* impact to the transmission system.

Q38. Are any FERC filings and approvals required for the Project?

A38. No.

6. <u>BEST ESTIMATE OF PETERSBURG REPOWERING PROJECT</u>

Q39. What is the Company's Best Estimate for the cost of the Petersburg Repowering Project?

A39. The Best Estimate for the Project cost is identified by component in Table 1.

Table 1: Petersburg Repowering Project Best Estimate[13]

Item	**Cost in Millions**
EPC Cost	[redacted]
Owner's Costs	[redacted]
Gas Lateral	[redacted]
Contingency	[redacted]
Total	$293.2

[13] Best estimate excludes AFUDC. See AES Indiana witness Rogers's Direct Testimony (Q/As 19 and 21) for a discussion of AFUDC for the Project.

Q40. How was the EPC cost estimate developed?

A40. The EPC cost for the Project was determined through the competitive EPC RFP and subsequent negotiations with the Contractor. The EPC cost is taken from the EPC Agreement.[14] The EPC Agreement is based on lump sum turnkey basis, which means that it is a fixed price for the agreed scope of work that includes engineering, procurement of equipment and material, dismantling of equipment that is no longer needed and must be removed for the conversion, construction, and commissioning. The Contractor guarantees the Units will meet certain milestones and performance on emissions, capacity and steam parameters.[15]

Q41. What are Owner's costs?

A41. Owner's costs are items that the Contractor is not responsible for and are excluded from the EPC Agreement. Therefore, the Owner is responsible for these items and costs. Owner's costs include, the staffing required to manage and administer the EPC Agreement and other associated Project contracts, professional services (e.g., owner's engineer, legal, and consultants), taxes, insurance, permitting fees, safety measures, and start-up costs. The expected Owner's Costs for the Petersburg Repowering Project are identified below in Table 2.

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[14] See AES Indiana Confidential Attachment JB-1C, EPC Agreement at Section 5. The Best Estimate EPC cost is net of the demolition costs reflected in the EPC Agreement.

[15] See AES Indiana Confidential Attachment JB-1C, EPC Agreement at Section 8.

Table 2: Owner's Costs Estimate

Item	**Cost in Millions**
Preliminary Study	[redacted]
Contract Engineering and Construction Services	[redacted]
Owner's Direct Cost (Management team and staff)	[redacted]
Other Owner's Costs (Pre-outage testing, field office expenses, preparation work, independent testing, legal expenses, and safety costs)	[redacted]
Total	[redacted]

Q42. Please describe the gas lateral component of the Best Estimate of the Project cost.

A42. The gas lateral component of the Best Estimate of the Project was taken from the draft Facilities Construction Agreement between AES Indiana and Midwestern Gas Transmission Company described above in Q/As 35-36 [redacted]. A copy of the negotiated draft contract is included as <u>AES Indiana Confidential Attachment JB-2C</u>. Execution of the Facilities Construction Agreement will take place if Commission approval is received.

Q43. Please describe the contingency component of the Best Estimate of the Project cost.

A43. Contingency is used to plan for unanticipated costs largely beyond the Company's control that might arise during the development and construction of the Project. The Best Estimate includes a contingency of [redacted]. A contingency of [redacted] on a project of this size and complexity as well as recent supply chain challenges is reasonable.

Q44. Does AES Indiana expect to make additional investment in the Project beyond the Best Estimate of the investment discussed above?

A44. AES Indiana does not anticipate a need for additional investment beyond the Best Estimate of the investment discussed above. However, situations such as force majeure, unforeseeable conditions at the site, and changes in law, excused events, or AES Indianainitiated change orders, could result in a need for additional investment. The costs of any such additional investment in excess of the contingency included in the Best Estimate would be presented by AES Indiana to the Commission for review and approval prior to recovery through rates.

Q45. In your opinion, is the estimated cost of the Project reasonable?

A45. Yes. The Project Best Estimate is the result of the recent competitive EPC RFP process and direct negotiation with the bidders. Bidders to the EPC RFP were motivated to submit competitive bids to be considered for review and negotiation of an agreement ("make it to the next round"). Therefore, the result of the EPC RFP process should yield current market conditions and provide a reasonable and reliable cost basis for the Project.

Q46. What contractual protections are included in the EPC Agreement to limit the possibility of project cost increases?

A46. The EPC Agreement has several protections that directly address the possibility of Project cost increases. First, a detailed technical specification that defined the technical specifications and scope of work was provided to all bidders and the negotiated technical specifications are a part of the EPC Agreement.[16] Additionally, the EPC Agreement includes protections in the form of liquidated damages that address costs related to schedule delays. Liquidated damages will be assessed for COD and substantial completion for both Units. Also, the EPC Agreement includes remedies in the form of liquidated damages or make right for failure to meet performance guarantees.[17] Lastly, there will be [redacted]

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[16] See AES Indiana Confidential Attachment JB-1C, EPC Agreement at Section 1.1.

[17] See AES Indiana Confidential Attachment JB-1C, EPC Agreement at Appendix A.

[redacted].[18]

7. FGD DEWATERING AND RELATED COSTS

Q47. Please discuss the FGD dewatering and related costs associated with the Project.

A47. The FGD dewatering and related costs represent the cost necessary to remove FGD water from Petersburg Generating Station and clean residual FGD tanks and stormwater areas following the repowering of Units 3 and 4. AES Indiana witness Collier (Section 4) describes the FGD system at Petersburg Generating Station, explains why AES Indiana may not discharge FGD water, and explains why the FGD water must be removed from Petersburg Generating Station.

The total estimate to truck and dispose of the FGD water and clean the FGD tanks and storm water areas is [redacted] million.[19] As stated by AES Indiana witness Collier (Q/A 16), the Company would have to complete these activities even if Petersburg Units 3 and 4 were to be retired now or any point in the future because any such additional costs are associated with the retirement of the FGD – not the repowering of Units 3 and 4. Accordingly, these costs are not included in the Best Estimate or PVRR analysis[20] of the Project. AES Indiana witness Rogers presents AES Indiana's accounting and ratemaking for these costs.[21]

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[18] See AES Indiana Confidential Attachment JB-1C, EPC Agreement at Section 9.1.

[19] See AES Indiana Confidential Workpaper Witness JB 2 for further detail.

[20] See AES Indiana witness Miller's direct testimony at Q/A 24.

[21] See AES Indiana witness Rogers's direct testimony at Section 4.

8. MATERIALS AND SUPPLIES INVENTORY

Q48. Please describe the materials and supplies inventory that will no longer be needed due to the repowering of Petersburg Units 3 and 4.

A48. The operation of Petersburg Units 3 and 4 on coal requires AES Indiana to maintain a level of materials and supplies in inventory. An inventory of spare parts is necessary and prudent to be able to make timely repairs for the reliable and continuous operation of the plant. Some of the materials and supplies that are currently in AES Indiana's inventory will no longer be needed when Petersburg Units 3 and 4 are converted to operate on natural gas. Examples of materials and supplies that will no longer be needed include parts and equipment (e.g., motors, rotors, valves, tanks, and seals) used in coal handling and pulverizing equipment and SO_2 emission control equipment. The importance of Petersburg Units 3 and 4 to the ongoing operation of AES Indiana's system renders it particularly appropriate for the Company to maintain this inventory while the unit is operated on coal. AES Indiana estimates to have a $20 million balance net of salvage value of existing materials and supplies inventory that will no longer be needed upon the repowering of Petersburg Units 3 and 4. The Company will sell or scrap these materials and supplies to the extent commercially practicable after the Petersburg Repowering Project is completed. A list of these materials and supplies is included in AES Indiana Witness JB Workpaper 1. While the amount identified in AES Indiana Witness JB Workpaper 1 totals $23.3 million, AES Indiana expects this amount will reduce to $20 million net of salvage through the completion of routine maintenance by the time the Company completes the Petersburg Repowering Project.

The Company would have an inventory of materials and supplies to maintain this coal-specific equipment and other assets whether Petersburg Units 3 and 4 were to be retired or repowered now or at any point in the future. Accordingly, these costs are not included in the Best Estimate or PVRR analysis[22] of the Project. AES Indiana witness Rogers presents AES Indiana's request to reflect the recovery of these costs in rates.[23]

9. PROJECT TIMELINE AND MANAGEMENT

Q49. How will AES Indiana manage the development and construction of the Project?

A49. As discussed above, the EPC Agreement establishes well-defined expectations of the performance by the Contractor. AES Indiana will utilize a dedicated project management team to complete the Petersburg Repowering Project, which will include a project director and engineering, project controls, construction management, safety, and operations/training personnel. This team will provide site supervision, contract management and administration, and ensure that safety and technical specifications are in compliance with the EPC Agreement and support timely delivery of the Project.

Q50. Please describe the expected Project timeline.

A50. LNTP is expected to be issued in March of 2024 to allow the Contractor to start engineering and design. The LNTP will be followed by NTP on October 1, 2024 to release the Contractor to proceed with the complete scope of the EPC Agreement. The engineering and procurement phase will take about 15.5 months for detailed design, manufacturing and delivery of equipment and material to the site. The Contractor will mobilize to the site

[22] See AES Indiana witness Miller's direct testimony at Q/A 24.

[23] See AES Indiana witness Rogers's direct testimony at Section 5.

during the third quarter of 2025 to execute pre-outage work. The Unit 3 outage for conversion will commence in February 2026 and will take about four months to complete then another month for startup, commissioning and testing and should reach its COD in June 2026. The Unit 4 outage will commence after COD of Unit 3, which should be by the end of June 2026. It will also take about five months to achieve Unit 4 COD, which is expected to occur in December 2026. The last and final phase comprise of reliability tests of both Units and is expected to be completed in the first quarter of 2027.

10. PUBLIC CONVENIENCE AND NECESSITY

Q51. In your opinion does or will the public convenience and necessity require the construction of the proposed Project?

A51. Yes. The Petersburg Repowering Project is reasonable and necessary. The Petersburg Repowering Project provides AES Indiana customers with numerous benefits. More specifically, the Project represents the reasonable least cost option from the updated PVRR analysis as discussed by AES Indiana witness Miller. The Project results in significant environmental benefits relative to the current use of coal as discussed by AES Indiana witnesses Collier (Section 2) and Miller (Q/As 18, 30-32, 52, 53). The Project supports reliability, resiliency, and stability by utilizing an existing dispatchable energy resource. The Project avoids $929 million, in present value, of reliability upgrades as identified in Quanta's Reliability Analysis that would be necessary over the 20-year period if Petersburg Units 3 and 4 are replaced with inverter-based resources.[24] Additionally, the Petersburg Conversion saves $281 million over the 20-year period, in present value, compared to

[24] AES Indiana witness Miller's direct testimony at Q/A 29, Figure 10.

keeping the units on coal.[25] The Project is consistent with the 2022 IRP Short Term Action Plan as updated in this Cause by AES Indiana witness Miller. Continuing to operate Petersburg Units 3 and 4 in Pike County, Indiana will benefit AES Indiana's customers, the local community, and the state of Indiana. Maintaining facilities in Indiana supports Indiana jobs and provides local taxes to support local communities. Therefore, the Project is reasonable and necessary, and the public interest and convenience will be served by the Project and associated relief being approved as proposed by AES Indiana.

11. PRUDENCE OF COSTS INCURRED PRIOR TO RECEIVING COMMISSION APPROVAL

Q52. Will AES Indiana incur Project costs prior to receiving an Order from the Commission in this Cause?

A52. Yes. Table 3 below sets forth estimated Project costs for the fourth quarter of 2024. These costs include the initial engineering study to estimate the cost of the conversion to use as an input in the IRP economic modeling, contract engineering and construction services (e.g., permitting services, technical and performance evaluations, and construction engineering), and the internal labor of the dedicated Project team. The Company will also incur other owner's costs, including costs related to pre-outage testing, field office expenses, preparation work, independent testing, legal expenses, and safety costs. Additionally, these costs include the cancellation fee that will be incurred under the EPC Agreement if the Project is not approved.

[25] *Id.* at Q/A 26.

Table 3: Estimated Costs Incurred Prior to Commission Order

Item	October (millions)	November (millions)	December (millions)
EPC Agreement Cancellation Fee	[redacted]	[redacted]	[redacted]
Preliminary Study	[redacted]	[redacted]	[redacted]
Contract Engineering and Construction Services	[redacted]	[redacted]	[redacted]
Internal Labor Expense	[redacted]	[redacted]	[redacted]
Other Owner's Costs	[redacted]	[redacted]	[redacted]
Total EPC Cancellation and Owner's Costs	$21.3	$25.8	$28.9

The Company has worked to minimize these costs through negotiations with the Contractor. The Company negotiated a cancellation fee to allow Contractor to begin ordering long lead time items and begin engineering and design work while ensuring the Company pays a fixed amount in the event the Project is not approved. These costs were necessarily incurred to develop the Project to the extent that allows the Commission to assess the reasonableness of the Project, define the project scope to the point that the Best Estimate can be determined and fixed price contracts can be awarded, and allow construction to begin within a reasonable time following Commission approval of the Project. AES Indiana witness Rogers (Q/As 34-35) describes the accounting and ratemaking treatment AES Indiana requests to recover these prudently incurred costs in the event the Commission does not approve the Company's requests regarding the Petersburg Repowering Project in this Cause.

12. IMPORTANCE OF TIMELY COMMISSION DECISION

Q53. Is a timely decision important?

A53. Yes. The Company asks the Commission to issue a decision no later than October 30, 2024 to mitigate the EPC Agreement cancellation fee that escalates with passage of time. As identified in Table 4, if the EPC Agreement was cancelled in December of 2024, the cancellation fee would be [redacted] million versus [redacted] million. Additionally, a timely decision is reasonable and necessary to allow the Project to be built and commercially operable to allow the resource to receive MISO accreditation as a capacity resource for the Winter 2026-2027 MISO Planning Season.

13. IND. CODE § 8-1-2-0.6 AND GAO 2023-04

Q54. Are you familiar with Ind. Code § 8-1-2-0.6?

A54. Yes. In HEA 1007 (2023), codified Ind. Code § 8-1-2-0.6, the Indiana General Assembly declares that it is the continuing policy of the state that decisions concerning Indiana's electric generation resource mix, energy infrastructure, and electric service ratemaking constructs must consider each of five attributes of electric utility service enumerated in the statute, namely: reliability, affordability, resiliency, stability, and environmental sustainability. These attributes or "Pillars" as they are referenced in the Commission's GAO 2023-04 stem from the Five Pillars of utility service recommended by the Indiana 21st Century Energy Policy Development Task Force. AES Indiana understands the importance of each Pillar.

Q55. Did the Company consider the Five Pillars in the development of the Project?

A55. Yes. The Company reasonably considered the Five Pillars in the development of the Company's IRP and in the development of the Project presented in this docket. AES Indiana witness Miller shows the proposed Project reasonably considers and is consistent with the Five Pillars.

I would add that AES Indiana's 2022 IRP identified converting Petersburg Units 3 and 4 to operate using natural gas in the Preferred Resource Portfolio and Short Term Action Plan. The Company's proposal in this case seeks to develop this resource to maintain reliability, customer affordability, resiliency, stability, and improve environmental sustainability. Converting Petersburg Units 3 and 4 to natural gas supports the ability of the system to reliably supply the firm capacity and energy requirements of our customers. The ability to use the existing infrastructure at the Petersburg Generating Station, including using Midwestern Gas Transmission's pipeline, which runs across the Generating Station's property, to provide natural gas to the converted units reduces the cost and risk of development and construction of a new facility and accessing an interstate natural gas pipeline that is not onsite.

The IRP modeling process and the competitive bidding process are designed to identify the reasonable least cost solution for our customers and are consistent with the affordability Pillar. As discussed above, the Company has taken steps to safeguard costs in the negotiation of the EPC Agreement. As discussed by Company witnesses Rogers and Donlon, the Company's accounting and ratemaking proposals are also reasonably designed to address affordability of service. As discussed by AES Indiana witness Miller (Q/As 13, 16, 26-27), resiliency and stability were considered in the IRP, and the proposed Petersburg Repowering Project supports both considerations based on its attributes as a dispatchable resource.

As discussed above, the Project qualifies as a Clean Energy Project as defined in Ind. Code § 8-1-8.8-2. As described by AES Indiana witness Miller (Q/As 18, 30-32, 35), AES Indiana's updated IRP analysis estimates that the candidate portfolio that converts

Petersburg Units 3 and 4 to natural gas is expected to reduce carbon intensity by 70% in 2030 compared to 2018 levels and provides the lowest 20-year AES Indiana generation portfolio emission of the portfolios evaluated in AES Indiana’s 2022 IRP for SO2, NOx, water use, and coal combustion products. As discussed by AES Indiana witness Collier (Section 1), the Petersburg Repowering Project significantly reduces Petersburg Units 3 and 4 emissions compared to continuing to operate the Units using coal. The development of the Project is consistent with the environmental sustainability Pillar.

Q56. Please describe Table 4 below.

A56. Table 4 below provides the location in the Company’s filing of testimony specifically addressed to the Five Pillars. The balance of the Company’s filing corroborates the identified discussion. This index is provided in accordance with the Commission’s GAO 2023-04 to facilitate the Commission’s consideration of the Five Pillars.

Table 4: Five Pillars Index

Topic	Witness(es)
Five Pillars	Bigalbal – Sections 2, 4, and 13; Q/As 26 and 52 Miller – IRP consideration of Five Pillars – Q/As 13-14, 36, 53, 54
Reliability	Bigalbal – Q/As 17, 51, and 55 Miller – Q/As 14, 16, 31-33, 40, 51-52, and 53 Cooper – Q/A 15
Affordability	Bigalbal – Q/As 22, 51, and 55 Miller – Q/As 14, 17, 21-23, 26-29, 31-32, and 53 Cooper – Q/A 17 Rogers – Section 8
Resiliency	Miller – Q/As 14, 16, 31-33, 40, 51-52, and 53
Stability	Miller – Q/As 14, 16, 31-33, 40, 51-52, and 53
Environmental Sustainability	Bigalbal – Q/As 23 and 53 Miller – Q/As 14-15, 18, 30-32, 34-36, and 53 Collier – Section 2

14. CONCLUSION

Q57. What is your conclusion and recommendation to the Commission?

A57. It is the Company's reasonable judgment that the Petersburg Repowering Project is a reasonable, least cost choice for AES Indiana to continue to reliably serve its customers. I recommend the Commission approve AES Indiana's development of the Project as a Clean Energy Project, issue a CPCN so that the Company may proceed with the Project, and approve the associated accounting and ratemaking relief sought by the Company in this proceeding.

Q58. Does that conclude your prepared verified direct testimony?

A58. Yes.

VERIFICATION

I, John Bigalbal, Chief Operating Officer Generation, US Utilities, affirm under penalties for perjury that the foregoing representations are true to the best of my knowledge, information, and belief.

Dated March 11, 2024

John R. Bigalbal

John R. Bigalbal

AES Indiana Confidential Attachment JB-1

Engineering, Procurement and Construction Agreement

(Confidential – Not Reproduced Herein)

AES Indiana Confidential Attachment JB-2

Gas Lateral Facilities Construction Agreement

(Confidential – Not Reproduced Herein)