VERIFIED DIRECT TESTIMONY

OF

VANESSA BARBARISI

ON BEHALF OF

INDIANAPOLIS POWER & LIGHT COMPANY

D/B/A AES INDIANA

Cause No. 45911

SPONSORING AES INDIANA ATTACHMENTS VB-1 THROUGH VB-2

VERIFIED DIRECT TESTIMONY OF VANESSA BARBARISI

ON BEHALF OF AES INDIANA

1 **1. INTRODUCTION**

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

3 A1. My name is Vanessa Barbarisi. I am employed by AES US Services, LLC ("AES

4 Services", also "Service Company"), which is the service company that serves Indianapolis

5 Power & Light Company d/b/a AES Indiana ("AES Indiana", "IPL", or "the Company").

6 The Service Company is located at One Monument Circle, Indianapolis, Indiana, 46204.

7 **Q2. What is your position with AES US Services, LLC?**

8 A2. I am the Director of Utility Transformation Strategy.

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

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

11 **Q4. Please describe your duties as Director of Utility Transformation Strategy.**

12 A4. As the Director of Utility Transformation Strategy, I support the development and

13 execution of the Customer Strategic Roadmap and the AES Customer Ecosystem ("ACE"

14 or "Project") Project. As the lead for the ACE Project, I operate as the Execution Director.

15 In this role, I manage the global project for AES Indiana, AES Ohio, and AES El Salvador.

16 As the Execution Director for the ACE Project, I work directly with the project team, which

17 consists of functional (business), digital (technical), project management, and reporting

18 leaders from both the US and El Salvador to successfully implement all components of the

1   new system and the business processes that support our digital transformation and enhance

2   our customer service.

3 **Q5.**   **Please summarize your education and professional qualifications.**

4 A5.   I have a bachelor's degree in Distributive Studies from the University of Colorado at

5   Boulder. I also hold a certification from Stanford University on Smart Grid: Sensing, Data

6   Analytics, and Control, as well as an accredited Professional Energy Management (PEM)

7   certificate from Everblue Training Institute.

8 **Q6.**   **Please summarize your prior work experience.**

9 A6.   I have worked in the energy services industry for over 15 years. I began my career in

10   consulting, working with utilities across the United States of America to measure, analyze,

11   and report energy efficiency and demand response savings for regulators. During this time,

12   I also taught accredited courses at Everblue Training Institute for Professional Energy

13   Management in the continental United States and territories on behalf of the Department

14   of Energy (DoE).

15   In recent years, I have worked as a consultant for utility customer experience design,

16   including journey maps, program design, and customer program evaluations. Before AES,

17   I worked at Portland General Electric as a Principal Strategy Integrator developing their

18   strategic roadmaps and working with employees across the business, generation, T&D, and

19   front and back office to understand the company's strategy. Since 2020, I have worked for

20   AES. I began as a Digital Program Manager, moving into the Global Director for Digital

21   Strategy and Project Management Office ("PMO") role until assuming the Director, Utility

22   Transformation Strategy role in February 2022.

1		Through these experiences, I have developed an understanding of customer interests,
2		strategic planning, and key utility business processes. Leveraging this experience, I oversee
3		the implementation and deployment of the ACE Project, which allows AES to meet
4		customer interests and needs reliably and sustainably.
5	**Q7.**	**Have you testified previously before the Indiana Utility Regulatory Commission**
6		**("Commission") or any other regulatory agency?**
7	A7.	No.
8	**Q8.**	**What is the purpose of your testimony in this proceeding?**
9	A8.	The purpose of my testimony is to support the ACE Project, which the Company is
10		presenting as a "Major Project" that will become used and useful in November of this year.
11		In this testimony, I describe the ACE Project, the current systems in operation today that
12		are being replaced, the procurement process for the new, integrated system, and the value
13		it will provide to customers and the Company. I will demonstrate how the investment is
14		prudent and beneficial to customers. The rollout of the ACE Project will support customer
15		outcomes based on feedback the Company has received.
16	**Q9.**	**Are you sponsoring or co-sponsoring any financial exhibits or attachments?**
17	A9.	Yes. I sponsor or co-sponsor the following attachments:

- 18   •   <u>AES Indiana Attachment VB-1</u> – Initial Progress Report

- 19   •   <u>AES Indiana Attachment VB-2</u> – ACE Project Definitions

- 20   •   <u>AES Indiana Financial Exhibit AESI-RB, Schedule RB3</u> – Pro Forma Adjustment
- 21   to Include Addition of ACE Project

1   •   <u>AES Indiana Financial Exhibit AESI-OPER, Schedule OM18</u> – Pro Forma

2   Adjustment to Operations and Maintenance Expenses for the ACE Project For the

3   Twelve Months Ended December 31, 2022.

4   **Q10.**   **Did you submit any workpapers?**

5   A10.   Yes, workpapers are provided in an electronic format supporting the financial exhibits I

6   sponsor.

7   **Q11.**   **Were these exhibits, attachments, workpapers, or portions thereof that you are**

8   **sponsoring or co-sponsoring prepared or assembled by you or under your direction**

9   **and supervision?**

10   A11.   Yes.

11   **2.   <u>ACE PROJECT OVERVIEW</u>**

12   **Q12.**   **Please describe the ACE Project.**

13   A12.   The ACE Project creates a comprehensive customer information and data/operations

14   management system. As shown below in Figure 1, the ACE Project is comprised of four

15   integrated components: customer information system ("CIS"), meter data management

16   ("MDM"), field services management ("FSM"), and customer service management

17   ("CSM").

1 **Figure 1: Four Integrated Components of the ACE Project**

2

3   The four integrated components of the ACE Project provide foundational capabilities by

4   operating together in shared technology. These integrations are paired with strategic

5   partners and vendors, such as Kubra, Uplight, and Landis+Gyr. Integration with new and

6   existing vendors is critical for maintaining a continuous customer experience and providing

7   new opportunities to meet customer objectives. The Company will also be able to

8   continually improve these capabilities alongside Smart Grid initiatives, making capturing

9   and sharing information securely easier.

10   I will further describe each of the integrated core components below.

11 **Q13.   Please further describe the CIS component of the ACE Project.**

12 A13.   The CIS is state-of-the-art technology that serves as our core data system for customer and

13   billing information. The CIS will bring together key customer data, such as billing,

14   location, rates, and Company information, such as finance and accounting. The CIS is

15   central to all component systems as a core source for functions such as meter reading, meter

16   data management, meter read scheduling, customer service, and integration to customer

17   service management. It serves as the repository for meter data to match with corresponding

1   rates, creating accurate customer billing and payment reception. By centralizing

2   information and creating easy integrations to other digital tools, the CIS will provide a

3   holistic view of the customer to the Company and is foundational to creating a better

4   customer experience.

5   **Q14.   Please describe the MDM component of the ACE Project.**

6   A14.   The MDM system will support the data feeds coming from our advanced metering

7   infrastructure ("AMI") and advanced meter reading ("AMR") meters collected by the head-

8   end-system and getting interval reads every 15 minutes and will include validation,

9   estimation, and editing ("VEE") capabilities for reading, billing, and charging. The

10   functionality and full integration of MDM to CIS supports efficiency, accuracy, and

11   improvements to the current data capture for high volumes of data coming from AMI

12   technology.

13   **Q15.   Please describe the FSM component of the ACE Project.**

14   A15.   The FSM system is used for field service management and work order scheduling services,

15   supporting our field crews in accessing the data and tools needed to operate seamlessly in

16   the field. This system will work with the work management processes and graphical work

17   design in operating an advanced distribution system. These tools will also create accuracy in

18   device location to help field crews quickly find, fix, or install hardware for the customer.

19   This will provide an easier and quicker way to process a customer request. The FSM system

20   is integrated with CIS, which creates a clear workflow and continuity of customer

21   information to be responsive to customer needs and interests and efficiently dispatches

22   from metering services and other operations teams.

1	**Q16.**	**Please describe the CSM component of the ACE Project.**
2	A16.	The CSM is the system that our customer service representatives ("CSR") – front and back
3		office – will use to access the data and information needed to support our customer billing,
4		inquiries, and customer correspondence. The new CSM will provide a higher level of
5		flexibility and richness of data and ultimately allow us to perform transactions faster than
6		is possible today. The new CSM technology will consolidate disparate systems currently
7		used by CSRs as they work to address customer questions, including billing questions and
8		start, stop, or transfer service requests. Ultimately, the CSM component will build a holistic
9		360-degree view of the customer for the CSR, from the history of outages and billing to
10		forecasted billing and energy efficiency recommendations, and support customer interests
11		in new technology such as distributed energy resources ("DER") and electric vehicles.

12   **3. <u>CURRENT SYSTEMS AND THE NEED TO MODERNIZE</u>**

13	**Q17.**	**Does the Company have existing customer information, meter data management,**
14		**field service management and customer service systems?**
15	A17.	Yes. The Company has these four systems; however, the current systems are not integrated
16		to the extent of the new solution, and they have limitations based on the age of the systems.
17		I will further describe the current systems below.

18	**Q18.**	**Please describe the Company's existing customer information, meter data**
19		**management, field service management, and customer service management systems.**
20	A18.	Today's customer information system was developed in 1997 and uses an antiquated
21		technology stack, meaning the functionality provided does not meet today's changing
22		technology, provide flexibility for integration of additional systems, and cannot be updated

1   as quickly as newer systems. Additionally, because not all of our current systems can talk

2   to each other, we do not have a full 360-degree view of the customer. Cross-application

3   communications, including CIS to work management information systems, are

4   increasingly challenging to maintain due to the complexity of the different systems coming

5   together built on different technology types and of varying ages.

6   The Company's current customer service system uses mainframe technology which uses

7   90% green screen or an interface that does not provide user flexibility when navigating

8   through multiple screens to complete a transaction or fulfill a request. Due to the

9   complexity of coding and development within this system, it can take longer to develop

10   new rates.

11   Additionally, the existing CIS is an on-premises ("on-prem") solution, meaning data is held

12   on locally maintained servers. While on-prem solutions were common in the early 2000s,

13   technology shifted during the 2010s; moving to cloud-based solutions, which were

14   determined to be secure and nimbler for building digital customer solutions. This shift

15   further accelerated in the late 2010s, validating the security and functionality needed for

16   customers and companies alike.

17   The meter data management system was implemented in 2010. This system currently

18   supports validation, editing, and estimating functionality. Due to the complexity of

19   integrating with the current customer system, it does not execute additional capabilities

20   such as matching to rate categories or billing determinants.

21   Similarly, today's field service management system was implemented in 1998 and operates

22   outside the customer information system. This creates inefficiencies in managing work

23   order dispatching and coordination of work orders.

1   The customer service solution is currently based in a system not hosted by SAP and

2   therefore unable to meet the desired integration profile and capabilities required by the

3   Company. By upgrading to SAP, the solution more easily integrates with the total system

4   to make data sharing across functionality more seamless. For example, customer service

5   representatives will have fewer windows and systems to navigate when addressing

6   customer inquiries. Less navigation through systems will allow CSRs to resolve customer

7   interests quickly and directly.

8   Finally, AES Indiana personnel built and largely maintained the existing legacy systems.

9   Due to the increasing age of technology, it is becoming more difficult to find qualified

10   personnel capable of using and maintaining this technology. For instance, when a change

11   to the system needs to be made, it must be done in-house, tested, and deployed internally,

12   carefully balancing resource availability and other business priorities. Conversely, the new

13   CIS is built by a vendor and used by over 1,600 utilities. The Company can take advantage

14   of the vendor's subject matter expertise and may reasonably expect the prompt deployment

15   of system updates and upgrades on a regular cadence. The vendor also has a more current

16   coding system that makes finding skilled workers to support new developments or updates

17   easier.

18 **Q19.   Why did the Company decide to replace the existing systems?**

19 A19.   The current systems have reached the end of useful life. While leading class at the time,

20   these systems were originally designed as independent systems. As discussed earlier in my

21   testimony, this technology has become outdated, challenging to change, and unable to keep

22   up with customer expectations. By updating mainframe systems to the newer SAP

23   HANA/ABAP code-based technology, the Company will be able to continue to attract

1   talented team members to support and enable digital transformation. This transformation

2   will drive higher customer engagement, enable self-service, create a holistic view of the

3   customer, and allow the Company to address customer interests more quickly and

4   efficiently.

5   Now and in the future, the Company needs adaptable technology to use and maintain as

6   part of a greater ecosystem that interfaces with the core systems of record that support the

7   customer and the business. For example, when the Company began installing AMI, the

8   volume of data increased significantly. The new technology for metering has outpaced

9   today's CIS technology, and the volume of data cannot be managed within the current

10   system. These impacts lead to daily processes taking longer and acquiring people to support

11   manual work and processing is becoming more challenging.

12   In Table 1, I summarize all of the information in the current systems that will be

13   consolidated through the ACE Project:

14   **Table 1: Systems Consolidated Through the ACE Project**

AES Indiana Current Systems	ACE Project
HATS - CAS	SAP CSM S/4HANA
Email	SAP CSM (BPEMs)
Experian (Residential)	SAP CSM (Integrated)
Salesforce CRM	SAP CSM S/4HANA
HODS CAS	SAP ISU
MDM	SAP EDM
CAD	SAP MRS & SAP Asset Manager

15

16   These systems are defined in attachment <u>AES Indiana Attachment VB-2</u>.

4. ACE PROJECT PROCUREMENT

Q20. **Please provide an overview of the ACE Project procurement.**

A20. The Company began reviewing core business requirements, legacy systems, and potential technology solutions in 2019. In 2020, a request for proposal ("RFP") was issued by AES Corporation for a technology solution that would meet the needs of the utilities and a system integrator ("SI") to implement the solution. Using an enterprise focus to address the needs of all three of AES utilities was more economical for each company than if each of the three utilities had implemented this work independently. The final selection was made by the end of 2020.

The technical solution and SI were selected from technology vendors via a three-round process. Each technology vendor presented their proposal and a SI to ensure an unbiased approach that matched the business case. During the first round, the technical solution was evaluated independently of the SI, leaving selected vendors to be evaluated in a second round along with its SI.

The SI selection was the Project's critical component during the second evaluation round. The SI supports the Project by designing and building the integrated systems to create the outcomes from the determined requirements. The SI represents over 50% of the capital project costs, which includes the professional services to implement and integrate software licenses, hardware, and third-party vendors to deliver the final solution requested by AES as part of the business requirements presented in the RFP. The SI finalists were evaluated on key competencies, including knowledge of the selected system, the experience of the team proposed, and the ability to meet the Company objectives.

1   The core system procurement was awarded to SAP, a leading enterprise resource planning

2   software vendor and leader in CIS for the energy industry. The system integration work

3   was awarded to Accenture, a global business management consulting firm specializing in

4   SAP system integrations. The work commenced in April 2021.

5   **5.**   **ACE PROJECT TIMELINE AND BENEFITS**

6   **Q21.**   **Please provide an overview of the Project work once the vendor and SI were selected.**

7   A21.   After selection of the vendor and SI, the project team collaborated on the best

8   implementation approach to ensure outlined requirements were met, customer objectives

9   achieved, and a smooth go-live for customers. This approach consists of key Project phases

10   for application readiness including, blueprinting (laying out what needs to be built based

11   on the requirements developed before the RFP) and design, build, and validate ("DBV").

12   From there, the project team tests the coordinated systems through product and operational

13   readiness tests, ultimately leading to the cutover window where the final transition from

14   legacy systems to the new integrated system takes place.

15   In conjunction with the application or system development, the team is also developing

16   business readiness, including training, contingency planning, and implementing 'surge

17   staffing' to create a seamless experience for the customer. 'Surge staffing' allows the

18   Company to bring on additional resources at and after the critical cutover and go live time

19   to support timeliness of customer response while learning the new systems, making a more

20   seamless experience for customers.

21   The timeline below illustrates how this work comes together for the estimated go-live

22   date.

1

Figure 2: ACE Project 2023 Timeline

3
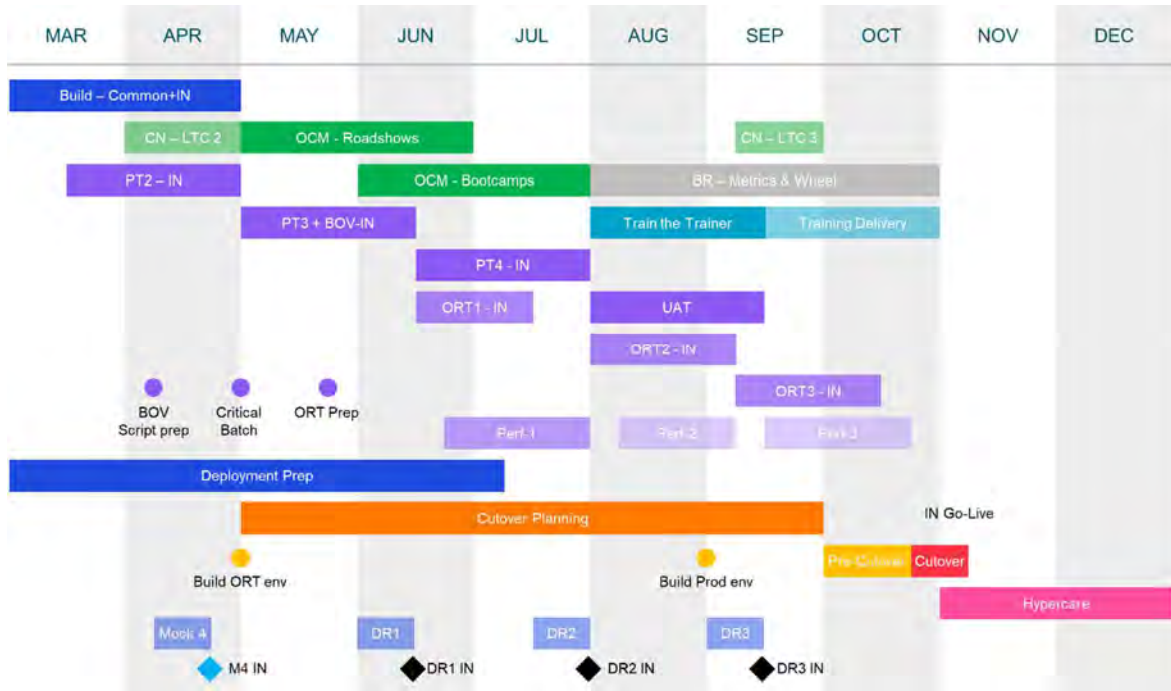
Q22.   When will the ACE Project be in-service?

A22.   The ACE Project is scheduled to go in service and be used and useful in early November

2023 on or about November 6, 2023.

Q23.   You discussed above how the Ace Project improves the Company's operations. Will

the ACE Project provide additional benefits for AES Indiana customers?

A23.   Yes. Customers in Indiana, and around the country, have increasing expectations for digital

interactions and self-service capabilities.[1] To meet these interests and enable digital

capabilities, the Company needs a newer, comprehensive system for easier integration into

new digital channels. By integrating customer information, meter data management, field

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[1] https://hbr.org/sponsored/2022/04/digital-transformation-and-the-customer-experience-challenges-and-opportunities-for-the-financial-services-industry.

1   service management, and customer service management systems, along with maintaining

2   current vendor solutions, the ACE Project provides a foundational core system to advance

3   customer-driven changes and improvements.

4   The development of the core system allows the Company to manage new and evolving data

5   needs, such as the high volume of data from AMI meters. These meters provide new

6   opportunities for customer insights driven by digital analytics and solutions to develop and

7   enhance customer platforms. Beneficial impacts for customers will show up in the speed

8   and efficiency of service, continuity of engagement through digital channels, and support

9   of increased transactions based on customer preferences.

10   Like many other industries today, customers expect information on their channel of choice,

11   whether that is via text, phone call, email, or another notification system.[2] Through the

12   development of these core, integrated systems, the Company will be able to continue to

13   grow and expand by meeting customers in their preferred method.

14 **Q24.   What impacts or changes will customers experience?**

15 A24.   As a part of the digital advancement with the Project, the Company will offer a mobile

16   application where customers can view their bill, make a payment, or engage in other

17   services and offerings.

18   Additional changes include bill layout changes to make the bills easier to read and customer

19   service representatives will be able to address inquiries more efficiently, resulting in an

20   improved customer experience. The Company will also offer new payment options along

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[2] *Id.*

1   with a mobile application to facilitate customer self-service. Table 2 below summarizes the

2   changes and customer benefits.

3   **Table 2: Customer Benefits from the ACE Project**

Category	Customer Benefits	Customer Change
Bill Changes	• Standard invoice in all locations/jurisdictions to support C&I customers operating in multiple locations. • One contract account can have multiple contracts including both metered and lighting services. • Budget billing changes will be noted as part of the bill message, rather than a separate letter. • A clearer understanding of incremental charges on the bill. • New payment channel options.	• Billing format, preferred billing dates, new payment platforms, and timing and frequency of disconnection notifications.
New Data Model	• Time efficiency during customer inquiries due to less screens for CSRs to manage and consistent data structure. • Self-service data access. • Ability to download and upload usage data in other applications like the Department of Energy, Energy Star calculator.	• There will be a new customer view across systems, including premises hierarchy. Historical Technical Master Data will be stored in the system to be related to different customers if needed.
Customer Move Changes	• Smooth transfer service, including company programs. • Time efficiency during requests.	• Improved move-in/move-out process, including easy order date changes, landlord changes, and an automated process managed in CSM.
New Payment Options	• Ability to pay by preferred method. • Control when and how payments are made through channel of choice.	• Google and Apple Payment options. • New mobile application payment solution.
Landlord Management	• For seasonal account management, winter/summer turn on/offs can be automated.	• Improved and automated processes to reduce required communication for requests.

6. ACE PROJECT INVESTMENT

Q25. Please discuss <u>AES Indiana Financial Exhibit AESI-RB, Schedule RB3 – Adjustment</u> <u>to test year-end rate base to include the ACE Project.</u>

A25. This schedule reflects the ACE Project costs proposed to be added to the rate base once the asset is used and useful. The total AES Indiana ACE Project estimate is $94.2 million in capital costs. The ACE Project qualifies as a major project as discussed by Company witness Aliff.

Q26. Please describe the O&M adjustments made in <u>AES Indiana Financial Exhibit AESI-</u> <u>OPER, Schedule OM18.</u>

A26. <u>AES Indiana Financial Exhibit AESI-OPER, Schedule OM18</u> adjusts test year operating results to reflect the ongoing expenses related to the ACE Project. Limited operating expenses were recorded during the test year since the ACE Project was in the implementation phase. Therefore, AES Indiana has forecasted ongoing costs required to support the cloud-based software as a service ("SaaS") solution implemented with the ACE Project. This forecast is based primarily on executed contracts to support the solution based on the aforementioned RFP, including software licensing and other professional services. The adjustment is shown in <u>Indiana Financial Exhibit AESI-OPER, Schedule OM18</u> and reflects the difference between the test year actual costs and the annualized pro forma costs. These operational adjustments are primarily driven by the technological shift from on-premises servers to cloud-based and SaaS solutions. This technological shift benefits customers because the Company will ultimately be able to address customer interests in new digital solutions, speed of delivery, and consolidation of systems into these primary sources.

1   AES Indiana Financial Exhibit AESI-OPER, Schedule OM18 also includes non-recurring

2   contract staffing costs to help ensure a seamless transition and adoption of the solutions.

3   The total estimated non-recurring costs are amortized over a three-year period, which

4   reflects the period of time the rates established in this proceeding are currently estimated

5   to be in effect.[3] These costs are reasonable and necessary to enable the Company to

6   adequately support customers during the learning curve of the new systems and maintain

7   responsiveness to customer interests and requests.

8   **Q27. Please describe the ACE Project costs.**

9   A27. AES Indiana Attachment VB-1 reflects the Company's investment in the ACE Project as

10 of May 31, 2023, and the estimated total investment in the Project. The Company will file

11 monthly investment updates with the Commission and share them with all parties after

12 filing its case-in-chief.

13 **7. SUMMARY AND RECOMMENDATIONS**

14 **Q28. Please summarize your testimony and recommendations.**

15 A28. In conclusion, on behalf of the Company, I recommend the ACE Project be included in the

16 ratemaking in this case. The current legacy systems in place are at the end of their useful

17 life and cannot keep up with business and customer interests. Integrating core systems,

18 namely customer information system, meter data management, field services management,

19 and customer service management through the ACE Project, creates a modern system and

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[3] The amortization period for these costs are consistent with the amortization period for other costs as described in AES Indiana witness Robinson's Direct testimony Q/A 14.

1   provides significant operational and customer benefits, including a 360 degree view of

2   customer data to provide enhanced customer service as well as new payment methods.

3   The ACE Project will be used and useful in early November 2023. This investment and the

4   associated O&M should be reflected in rates in this proceeding.

5   **Q29. Does this conclude your verified pre-filed direct testimony?**

6   A29. Yes.

VERIFICATION

I, Vanessa Barbarisi, Director of Utility Transformation Strategy for AES US Services, LLC affirm under penalties for perjury that the foregoing representations are true to the best of my knowledge, information, and belief.

_____
Vanessa Barbarisi
Dated: June 28, 2023

AES Indiana
Project Cost Update for AES Customer Ecosystem ("ACE") Project
(Thousands of Dollars)

Line No.	Description	Schedule RB-3 Total Projected Project Costs (1) (Col. 1)	Actual Projects Costs As of May 31, 2023 (Col. 2)	Line No.
	Direct Costs			
1	Miscellaneous Intangible Plant (Software System)	$ 89,261	52,156	1
2	AFUDC	4,904	2,140	2
3	Projected and per book totals	$ 94,165	54,296	3

(1) See Schedule AES Indiana Financial Exhibit RB
Schedule RB3, Line 3, Column 1

AES Current System (IN)	Current System Description
HATS (CAS)	The Host Access Transformation Service (HATS) is the enhanced customer-facing portion of the Customer Accounting System (CAS) and contains detailed customer account information, metered usage, billing, and payment information.
Email	Outlook email exchange is used in relation to case management and customer follow-up work.
Experian (Residential)	Third-party vendor websites, used to determine customers' creditworthiness, require appropriate security, maintain customer information accuracy, and prevent identity theft.
Salesforce CRM	The Salesforce Customer Resource Manager records customer interaction for performance metrics and customer requests, records previous Ad Hoc Correspondence, and provides mass communication through multiple channels.
HODS (CAS)	The Host on Demand system is the back-office portion of the Customer Accounting System (CAS) that provides more functionality for back-office agents to resolve advanced billing, metering, and accounting issues.
MDM	The Meter Data Management database stores all service usage history, including monthly usage reads, periodic service readings, register reads, interval reads, and demand reads. This information is used to provide clarification to customers, ensure billing accuracy, and meet regulatory compliance.
CAD	The computer-aided dispatch system manages work orders for field service requests. It records the results of metering and other service work before the orders have been completed in the CAS.
ACE Go Live System	**Future System Description**
SAP CSM S/4HANA	SAP Customer Service Management (CSM) component with S/4 HANA helps manage and process services provided to end-users/ customers. Processes under this module include; • Creating service requests • Managing data for warranties and business partners • Plan and execute requested services • Bill the costs that arise as a result of the services being executed Monitor call processing to keep to deadlines and agreed response times.
SAP CSM (BPEMs)	Business Process Exception Management (BPEM) analyzes and monitors mass activities and online transactions. The BPEM process monitoring helps identify successful and incorrect processes at a glance. Business Process Exception Management lets users centrally analyze and monitor mass activities and dialog transactions.
SAP CSM (Integrated)	This will be embedded in the system instead of a separate window the agent must navigate.
SAP CSM S/4HANA	SAP Customer Service Management (CSM) component with S/4 HANA helps manage and process services provided to end-users/ customers. Processes under this module include; • Creating service requests • Managing data for warranties and business partners, • Plan and execute requested services • Bill the costs that arise as a result of the services being executed Monitor call processing in order to keep to deadlines and agreed response times.

SAP ISU	SAP's Industry Specific Solution for **Utilities** is termed SAP IS-U.
SAP EDM	SAP Energy Data Management (SAP EDM) is an application component within an Industry solution for "Utilities" developed to manage energy-specific data for utility companies. The data can be processed to retrieve real-time interval consumption and analyze pricing and settlements in real-time.
SAP MRS & Asset Manager	SAP Multi-resource Scheduling (MRS) is SAP's planning and scheduling solution for resource management integrated with Service, Plant Maintenance, and Project businesses. SAP Asset Manager is a mobile app to help employees with operational maintenance to create & maintain work orders, notifications, condition monitoring, material consumption, time management, and failure analysis. It is a part of the SAP Intelligent Asset Management (IAM) solution portfolio and integrated with the SAP Plant Maintenance module.