

OFFICIAL  
EXHIBITS

FILED  
September 15, 2023  
INDIANA UTILITY  
REGULATORY COMMISSION

STATE OF INDIANA

INDIANA UTILITY REGULATORY COMMISSION

VERIFIED PETITION OF INDIANAPOLIS POWER & )  
LIGHT COMPANY D/B/A AES INDIANA ("AES )  
INDIANA") AND AES PIKE COUNTY ENERGY )  
STORAGE, LLC FOR (1) APPROVAL OF A STAND- )  
ALONE BATTERY ENERGY STORAGE SYSTEM )  
PROJECT AT PETERSBURG STATION ("PIKE COUNTY )  
PROJECT"), INCLUDING A JOINT VENTURE )  
STRUCTURE BETWEEN AN AES INDIANA )  
SUBSIDIARY AND ONE OR MORE TAX EQUITY )  
PARTNERS AND A CAPACITY AGREEMENT AND )  
CONTRACT FOR DIFFERENCES BETWEEN AES )  
INDIANA AND THE AES SUBSIDIARY PROJECT )  
COMPANY THAT HOLDS THE PIKE COUNTY )  
PROJECT, AS A CLEAN ENERGY PROJECT AND )  
ASSOCIATED TIMELY COST RECOVERY UNDER IND. )  
CODE § 8-1-8.8-11; (2) APPROVAL OF ACCOUNTING )  
AND RATEMAKING FOR THE PIKE COUNTY )  
PROJECT, INCLUDING AN ALTERNATIVE )  
REGULATORY PLAN UNDER IND. CODE § 8-1-2.5-6 TO )  
FACILITATE AES INDIANA'S INVESTMENT IN THE )  
PROJECT THROUGH A JOINT VENTURE; (3) )  
ISSUANCE OF AN ORDER PURSUANT TO IND. CODE § )  
8-1-2.5-5 DECLINING TO EXERCISE JURISDICTION )  
OVER THE JOINT VENTURE, INCLUDING THE )  
PROJECT COMPANY, AS A PUBLIC UTILITY AND )  
DECLINING TO EXERCISE JURISDICTION UNDER TO )  
IND. CODE § 8-1-8.5-2; AND (4) TO THE EXTENT )  
NECESSARY, ISSUANCE OF A CERTIFICATE OF )  
PUBLIC CONVENIENCE AND NECESSITY PURSUANT )  
TO IND. CODE § 8-1-8.5-2 FOR THE DEVELOPMENT OF )  
THE PIKE COUNTY PROJECT BY A WHOLLY OWNED )  
AES INDIANA SUBSIDIARY )

IURC  
PUBLIC'S  
EXHIBIT NO. 3  
DATE 10-18-23 REPORTER AT

CAUSE NO. 45920

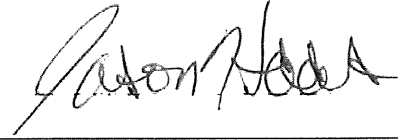
INDIANA OFFICE OF UTILITY CONSUMER COUNSELOR

PUBLIC'S EXHIBIT NO. 3

REDACTED TESTIMONY OF OUCC WITNESS ROOPALI SANKA

SEPTEMBER 15, 2023

Respectfully submitted,

A handwritten signature in black ink, appearing to read "T. Jason Haas". The signature is fluid and cursive, with a large initial "T" and "H".

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T. Jason Haas  
Deputy Consumer Counselor  
Attorney No. 34983-29

**TESTIMONY OF OUCC WITNESS ROOPALI SANKA**  
**INDIANAPOLIS POWER & LIGHT COMPANY D/B/A AES INDIANA AND AES**  
**PIKE COUNTY ENERGY STORAGE, LLC**

**I. INTRODUCTION**

1   **Q:**    Please state your name and business address.

2   A:    My name is Roopali Sanka, and my business address is 115 West Washington  
3       Street, Suite 1500 South, Indianapolis, Indiana 46204.

4   **Q:**    By whom are you employed and in what capacity?

5   A:    I am employed as a Utility Analyst in the Indiana Office of Utility Consumer  
6       Counselor's ("OUCC") Electric Division. A summary of my educational  
7       background and experience is included in Appendix A attached to my testimony.

8   **Q:**    What is the purpose of your testimony?

9   A:    My testimony addresses Indianapolis Power & Light Company d/b/a AES Indiana's  
10       ("Petitioner") request for Indiana Utility Regulatory Commission ("Commission")  
11       approval of the development and operation of a battery energy storage system  
12       ("BESS") ("Pike County Energy Storage Project," "Pike County BESS Project" or  
13       "Pike Project"). Specifically, my testimony addresses the operation of the battery  
14       system and the Engineering, Procurement, and Construction ("EPC") agreement  
15       for the Pike Project's development. If the Commission approves Petitioner's  
16       request, I recommend that it require a decommissioning plan for the proposed

1 facility, proper insurance to protect ratepayers and nearby landowners, regular  
2 safety training, and a specific capacity level.

3 **Q: Please describe the review and analysis you conducted to prepare your**  
4 **testimony.**

5 A: I reviewed AES Indiana's verified petition, direct testimony, exhibits, and  
6 attachments relative to my testimony. I also reviewed AES Indiana's responses to  
7 data requests and participated in two tech-to-tech calls between AES Indiana and  
8 the OUCC on Wednesday, August 23, 2023, and Thursday, August 31, 2023.

9 **Q: To the extent you do not address a specific item in your testimony, should it be**  
10 **construed to mean you agree with AES Indiana's proposal?**

11 A: No. The exclusion from my testimony of any topics, issues, or items AES proposes  
12 does not indicate my approval of those topics, issues, or items. Rather, the scope of  
13 my testimony is limited to the specific items addressed herein.

## **II. BATTERY ENERGY STORAGE SYSTEM**

14 **Q: Please explain what a BESS is.**

15 A: A BESS is a technology that stores electrical energy, taken directly or indirectly  
16 from other electric generating facilities, for later use. Batteries can play an  
17 important role in modern energy management by addressing some of the challenges  
18 associated with renewable energy sources such as solar and wind power, which are  
19 intermittent. Generation from these facilities is not always aligned with electricity  
20 demand. Batteries can act as a buffer between energy supply and demand, providing  
21 flexibility to the grid by storing energy and releasing it when demand is high, or  
22 supply is low. A BESS can respond quickly to fluctuations in demand or supply,  
23 helping to stabilize the grid and improve its overall reliability. A BESS can provide

1 services like peak shaving, frequency regulation, and grid balancing.<sup>1</sup> AES  
2 Indiana's Pike County Energy Storage Project proposal in this Cause seeks to  
3 develop this resource to meet an identified need for capacity. Doing so supports the  
4 ability of the system to reliably supply its customers' demand and energy  
5 requirements.

6 **Q: How does a battery charge and discharge energy?**

7 A: Batteries charge and discharge energy through a process of chemical reactions  
8 within their energy storage cells. During charging, electricity from an external  
9 source, such as the grid or renewable sources like solar or wind, is converted into  
10 chemical energy and stored in the battery cells. When electricity is needed, the  
11 stored chemical energy is converted back into electrical energy and discharged to  
12 the grid or the intended load. This bidirectional flow of energy is controlled by  
13 power electronics and sophisticated battery management systems, allowing the  
14 BESS to respond to grid demands and provide services like grid stabilization, peak  
15 shaving, and backup power when needed.<sup>2</sup>

16 **Q: How many charge and discharge cycles can the battery have before significant**  
17 **capacity degradation occurs?**

18 A: The battery's depth of discharge ("DoD") is 80%. Depth of discharge is used to  
19 describe the extent to which a battery has been discharged relative to its maximum  
20 capacity. It represents the amount of energy that has been taken out of the battery

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<sup>1</sup> K.C. Divya, Jacob Østergaard, "Battery energy storage technology for power systems—An overview," Electric Power Systems Research, Volume 79, Issue 4, 2009, ISSN 0378-7796, <https://doi.org/10.1016/j.epsr.2008.09.017>.

<sup>2</sup> Grid-scale battery storage - National Renewable Energy Laboratory (NREL). (2019, September). <https://www.nrel.gov/docs/fy19osti/74426.pdf>

1 compared to its total energy storage capacity. It's recommended to keep the DoD  
2 between 20-80% for optimal performance and longevity.<sup>3</sup> AES Indiana designed its  
3 system to be able to undergo one charge/discharge cycle per day.<sup>4</sup> A higher depth  
4 of discharge typically leads to a more significant change of active particles during  
5 cycling which can potentially lead to issues such as stress, cracking, and cell  
6 degradation.<sup>5</sup>

7 **Q: Does the BESS have black start capabilities?**

8 A: Yes. Batteries cannot perform a black start on their own. Black starting is the  
9 process of restoring power to a completely dead or "black" electrical grid or power  
10 system. Batteries are not designed for this purpose because they themselves require  
11 a source of power to recharge. A battery can theoretically black start if certain  
12 conditions are met which may be implausible: Sufficient battery capacity, suitable  
13 state of charge, grid conditions, control systems, backup systems.

14 **Q: What is battery augmentation?**

15 A: Battery augmentation refers to the process of improving or enhancing the  
16 performance and capacity of an existing battery or energy storage system. This can  
17 be achieved through various methods and technologies to extend the lifespan,  
18 increase energy storage capacity, or enhance overall battery efficiency. Battery  
19 augmentation is often pursued to make existing batteries more competitive,  
20 sustainable, or adaptable to changing energy needs, and to address degradation of

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<sup>3</sup> Luisa F. Cabeza, Introduction to the Section on Thermodynamics of Energy Storage, Encyclopedia of Energy Storage, Elsevier, 2022, Pages 1-4,  
<https://www.sciencedirect.com/science/article/abs/pii/B9780128197233001578>

<sup>4</sup> Attachment RS-2, AES Indiana Response to OUCC DR 2-14.

<sup>5</sup> Attachment RS-2, AES Indiana Response to OUCC DR 2-13.

1 battery performance over time. To account for battery degradation, AES Indiana  
2 designed the Pike Project, including augmentation events, to maintain 200 MW of  
3 capacity at 80% depth of discharge.

4 **Q: What do you recommend regarding battery augmentation?**

5 A: To ensure that ratepayers are receiving the greatest benefits throughout the life of  
6 the BESS, the OUCC recommends guaranteed battery augmentation to maintain  
7 capacity at a minimum of 190 MW x 4 hours for the 20-year term of the contract  
8 for differences ("CfD") to maintain reliability and resilience. Additionally, AES  
9 Indiana should provide progress reports to the Commission and the OUCC  
10 regarding this project and its battery augmentation updates on a regular basis.  
11 Battery energy storage systems are a relatively new technology. They have gained  
12 prominence due to technological advancements, the need for renewable energy  
13 integration, grid modernization efforts, and a growing market. They are still being  
14 actively researched for their potential for grid integration, addressing challenges  
15 like scalability and grid compatibility to maximize their benefits for a reliable and  
16 sustainable energy grid.

17 **Q: How will the capacity accreditation for battery energy storage systems evolve**  
18 **in response to anticipated growth of BESS and changing grid dynamics in the**  
19 **coming years?**

20 A: The As discussed by OUCC Witness John Hanks, the Midcontinent Independent  
21 System Operator ("MISO") is considering changes to the capacity accreditation  
22 process as more BESS installations come into the market. These changes may  
23 reflect the evolving energy landscape, market dynamics, and the need to efficiently  
24 integrate this and other battery storage systems into the grid. Some potential

1 changes that can occur are revised capacity requirements. As more BESS' are added  
2 to the grid, MISO may review and adjust its capacity requirements to account for  
3 the increased contribution of these resources. Additionally, the resource adequacy  
4 assessment may differ as MISO refines resource adequacy to consider the unique  
5 characteristics of a BESS, such as response time and discharge duration, when  
6 determining accredited capacity value. This could include technical specifications  
7 and safety standards. MISO may consider flexibility requirements that allow BESS  
8 owners to adjust their capacity commitments based on market conditions, demand  
9 forecasts, and other factors. This can optimize the utilization of BESS assets.  
10 Interest in MISO's generator interconnection queue suggests that there will be a  
11 substantial increase in the installed capacity of storage and hybrid (mainly  
12 combining solar and batteries) resources, potentially reaching several gigawatts  
13 within the next five years. As the adoption of these technologies continues to grow,  
14 forecasting processes may need to account for factors related to charging and  
15 discharging for market participants who own storage or hybrid assets. In the end,  
16 MISO's markets will need to evolve to fully incorporate the capabilities, expenses,  
17 and constraints of these newer energy resources.<sup>6</sup>

### **III. DECOMMISSIONING**

18 **Q: Does the BESS have a decommissioning plan?**

19 **A:** No. Since the BESS will be constructed on land owned by AES Indiana, the joint  
20 venture will not be entering into a decommissioning agreement with any county,

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<sup>6</sup> MISO, "Markets of the Future", November 2021, found at:  
<https://cdn.misoenergy.org/MISO%20Markets%20of%20the%20Future604872.pdf>



1 township, or municipality, according to Petitioner's response to OUCC discovery.<sup>7</sup>

2 Before the joint venture is approved, AES Indiana customers and landowners near  
3 the project site need assurances as to how Petitioner will address any cleanup  
4 requirements in the case of an emergency or at the end of the project's life.

5 **Q: Is risk of fire at the BESS a concern?**

6 A: Yes. High internal temperatures can lead to a fire within the BESS that can quickly  
7 spread to multiple battery cells within the system.<sup>8</sup> Concern about fire in battery  
8 storage systems prompted the Indiana Legislature to pass House Enrolled Act  
9 ("HEA") 1173 (2023), which requires any BESS to comply with the National Fire  
10 Protection Association's standards for energy storage systems and submit an  
11 emergency response plan to the local fire department. AES Indiana expects to  
12 deliver information in compliance with the requirements of HEA 1173 by Q4 of  
13 2023.<sup>9</sup> To further address this concern, the OUCC recommends AES Indiana  
14 conduct BESS safety and fire training not only in the construction phase, as  
15 proposed by AES Indiana,<sup>10</sup> but also annually with the local fire department and  
16 Pike County Emergency Management for the term of the CfD. In addition, proper  
17 insurance coverage must be in place for the protection of the utility, its customers  
18 who will pay for the project, and those who own property near the project site.  
19 Petitioner should demonstrate that it has obtained necessary insurance for the life

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<sup>7</sup> Attachment RS-1, AES Indiana Response to OUCC DR 1-12.

<sup>8</sup> "Energy Storage Systems Safety Fact Sheet," National Fire Protection Association, found at: [www.nfpa.org/~media/Files/Code%20or%20topic%20fact%20sheets/ESSFactSheet.pdf](http://www.nfpa.org/~media/Files/Code%20or%20topic%20fact%20sheets/ESSFactSheet.pdf).

<sup>9</sup> Attachment RS-1, AES Indiana Response to OUCC DR 1-14.

<sup>10</sup> Attachment RS-1, AES Indiana Response to OUCC DR 1-14.

1 of the CfD that will pay for the replacement of the battery to its initial capacity and  
2 clean-up in the event of a thermal accident.

3 **Q: Who will be responsible for decommissioning the BESS or cleaning up the site**  
4 **in case of a fire or other emergency?**

5 A: Based off the discussion between OUCC and AES Indiana Technical Staff on  
6 August 31, 2023, for the life of the joint venture, financial responsibility for closure  
7 and cleanup of the BESS will be divided between AES Indiana and the Tax Equity  
8 Partner ("TEP") according to the percentage of ownership that will be agreed to in  
9 the final CfD.<sup>11</sup> Based on discussions with AES Indiana in our tech to tech call on  
10 August 31, 2023, if the TEP sells its portion of the BESS to AES Indiana, then AES  
11 Indiana, and by extension its ratepayers, will take on all financial responsibility for  
12 decommissioning of the BESS.<sup>12</sup> Given the CfD is still in draft form and a TEP has  
13 not been chosen, the final agreement on decommissioning and cleanup costs may  
14 change.

15 **Q: Does the lack of a decommissioning plan expose ratepayers to unnecessary**  
16 **risk?**

17 A: Yes. Without a decommissioning plan in place and/or final language laying out how  
18 cleanup and closure costs will be addressed by the joint venture, the BESS could  
19 become a major environmental liability in case of a disaster or final  
20 decommissioning of the BESS for the period when the Pike Project is owned by the  
21 joint venture and before it is put into rate base. Without a plan in place, financial

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<sup>11</sup> Technical Meeting between AES Indiana and OUCC, August 31, 2023.

<sup>12</sup> Technical Meeting between AES Indiana and OUCC, August 31, 2023.

1 liability for cleanup will not be properly addressed until after AES Indiana has fully  
2 acquired the BESS and placed it in rate base.

3 **Q: What is your recommendation regarding decommissioning?**

4 A: The final CfD should include a decommissioning plan with supporting financial  
5 instruments and calculate a portion of the salvage value in depreciation. This  
6 ensures proper environmental and financial planning in case of disaster or closure  
7 of the BESS before AES Indiana assumes full ownership. Without a  
8 decommissioning plan in place by the joint venture there will be a gap in proper  
9 environmental and financial planning for closure and cleanup of the BESS between  
10 the beginning of operation and the point when AES Indiana has fully acquired the  
11 BESS and placed it in rate base.

#### **IV. ENGINEERING, PROCUREMENT, AND CONSTRUCTION CONTRACT**

12 **Q: Please provide a summary of the terms present in the EPC contract.**

13 A: In accordance with the EPC agreement, the contractor will oversee all activities  
14 related to EPC for the Pike Project. This will be done in accordance with a  
15 predefined scope of work and minimum specifications. The contractor will also  
16 establish the required contracts for equipment supply and construction, ensuring  
17 they align with these specifications and, in some cases, predetermined contractual  
18 templates. AES Indiana's payment for construction expenses will be made as  
19 construction progresses and reaches specified milestones under the EPC agreement.  
20 The contractor will pay liquidated damages for [REDACTED]

21 [REDACTED]. The EPC

1 contract permits phased commissioning by block to effectively handle schedule-  
2 related risks.<sup>13</sup>

## V. RECOMMENDATIONS

3 Q: **How would you summarize the risks, benefits, and costs of a BESS?**

4  
5 A: A BESS is highly efficient, but it does lose some of the energy used to charge it.  
6 Degradation occurs but regular augmentation can reduce those concerns. Proper  
7 enclosure design and temperature monitoring can greatly reduce the probability of  
8 a thermal event and adding training and first responder awareness will limit safety  
9 risks. A well-managed BESS can be low-risk. But as OUCC witnesses Brittany  
10 Baker and John Hanks state, it is a significant added cost to the energy injected to  
11 the grid for four hours a day. However, without this energy, the reliability benefits  
12 of dispatchable capacity would be unavailable. These risks are somewhat offset by  
13 reliability benefits that are critically needed by Indiana's growing intermittent,  
14 inverter based renewable generation resources. The engineering challenge is to  
15 design, operate and maintain a BESS that provides adequate reliability at an  
16 affordable cost. This is achieved in this stand-alone application provided the  
17 OUCC's recommendations are met.

18 Q: **What are your recommendations to the Commission.**

19 A: Battery storage will play an important role in improving grid reliability and  
20 resilience. Given the newness of this proposal, however, the OUCC recommends  
21 the Commission include a number of consumer safeguards in its order. The OUCC

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<sup>13</sup> AES Indiana Confidential Attachment GAC-1, EPC at Section 5.1

1 recommends augmentation be required to maintain capacity at a minimum of 190  
2 MW x 4 hours for the term of the contract for differences ("CfD") and reported on  
3 a periodic basis. The OUCC also recommends the final CfD include language  
4 holding the TEP responsible for a portion of the final decommissioning costs and  
5 cleanup costs equal to the share of ownership in the BESS held by the TEP, in case  
6 of emergency. Also, the TEP's portion of the decommissioning costs should be  
7 deducted from the final agreed sale price if AES Indiana acquires the TEP interest  
8 in the project. To address the safety risk of the BESS, the OUCC recommends AES  
9 Indiana conduct a BESS safety and fire training annually , in addition to the initial  
10 training, for the term of the CfD. Finally, the OUCC recommends evidence of  
11 insurance be required that will pay for the replacement of the battery to its initial  
12 capacity and clean-up for the life of the CfD in the event of a thermal accident.

13 **Q: Does this conclude your testimony?**

14 **A:** Yes.

**APPENDIX TO TESTIMONY OF**

**OUCW WITNESS ROOPALI SANKA**

1   **Q:   Please describe your educational background and experience.**

2   A:   I hold a bachelor's degree in Energy Engineering from Indiana University Purdue  
3       University of Indianapolis. In August 2022, I began my employment with the  
4       OUCW as a Utility Analyst II in the electric division and work on demand side  
5       management ("DSM"); evaluation, measurement, & verification ("EM&V");  
6       certificates of public convenience and necessity ("CPCN"). Additionally, I attended  
7       Scott Hempling's 'Fundamentals of Utility Law' course in the first quarter of 2023,  
8       and I attended the 2022 Indiana Energy Conference in October 2022, which focused  
9       on the current and future challenges facing the energy market.

10   **Q:   Have you previously testified before the Indiana Utility Regulatory**  
11       **Commission?**

12   A:   Yes.

Indianapolis Power & Light Company  
d/b/a AES Indiana  
Cause No. 45920  
AES Indiana Responses to OUCC DR Set 1

**Data Request OUCC DR 1 - Q12**

Does the BESS project have a decommissioning agreement with the local county, township, or municipal authority? If so, please provide the agreement. If not, please explain.

**Objection:**

**Response:**

The BESS project does not have a decommissioning agreement with the local county, township, or municipal authority, because such agreement is not required. The BESS project is located on land owned by and leased from AES Indiana.

**Data Request OUCC DR 1 - Q14**

Does the project have an emergency plan in place with the local fire department in case of fire at the battery project?

- a. What is the Fire Department's name and Emergency Medical provider's name for the location of the BESS?
- b. Are the Fire Departments and Emergency Medical Providers in the foregoing question trained to respond to accidents, fires or other safety events related to utility scale battery energy storage systems? If not, when will that training occur and who will perform the training?

**Objection:**

**Response:**

The project will comply with House Enrolled Act ("HEA") 1173, issued in May 2023. This regulation provides that a person may not: (1) construct a new utility scale battery energy storage system (BESS); or (2) expand the capacity of an existing BESS by more than 10% of the system's original capacity; without the prior approval of the department of homeland security (department). The systems that are subject to the regulation must comply with the National Fire Protection Association's standard concerning stationary energy storage systems (NFPA 855). HEA 1173 requires the operator of a BESS to: (1) provide a copy of the operator's emergency response plan for the BESS; and (2) offer training to enable effective response to a fire or contaminant discharge at the BESS; to the fire department responsible for providing fire protection services in the area in which the BESS is located.

The project expects to deliver information to the department Q4 2023. The department will be the entity in charge of reviewing and approving the permitting application and the emergency plan.

- a. Petersburg Fire Department located in the address: 624 E Illinois Street, Petersburg, IN 47567. The closest emergency medical center is: Deaconess Medical Clinic, 1004 E Illinois Street, Petersburg, IN. The closest hospital is: Daviess Community Hospital. 10.3 miles away. 1314 E Walnut Street Washington, IN 47501.
- b. Training will be provided. Under the EPC Contract (on Exhibit D1, the Contractor will be responsible to provide with all required actions (including training). This training is expected to be provided during the construction stage and before starting commissioning activities (Q2-2024).



**Data Request OUCC DR 2 - 13**

What is the minimum discharging rate the battery can handle?

- a. How does the performance change at different rates of charge and discharge?
- b. How is the battery system cooled and how is temperature regulation maintained during operation?
- c. What is the battery's depth of discharge?

**Objection:**

**Response:**

- a. Higher Depth of Discharge generally results in a larger volume change of active particles during cycling, which may result in stress, cracking and cell degradation. The final performance and degradation will be a combination of the amount of cycles and the depth of discharge for each year. As an indicative view, Figure 1 in OUCC DR 2-13, Confidential Attachment 1 provides a view on the expected amount of cycles for a CATL battery as a result of the depth of discharge for a project.
- b. Battery degradation is a function of battery temperature and Performance Guarantee. In general batteries use a mix of Ethylene Glycol/Water 50/20% as coolant. Temperature must average below 18°C to avoid warranty penalties. If battery cell temperatures exceed 56°C, the Cube's internal battery management system ("BMS") will curtail dispatch. Therefore, cooling system must maintain battery cell temperatures below 56°C.

The cooling and heating system comprises one chiller + one HVAC unit (LD cube) or two chiller and two HVAC units (SD cube). Functions performed are: - Control temperature inside the Cube: HVAC unit(s) - Control air humidity inside the Cube: HVAC unit(s) - cooling and heating to the battery strings: Chiller unit(s) Note on Chiller functionality and embedded protection: The chiller units have rated cooling capacity of 7.5 kW for water at 15°C against external ambient temperature of 35°C. This cooling capacity is increased for higher water temperatures and decreased for higher external ambient temperatures. All operational curves are accounted for in Fluence's Thermal Model.

- c. As modelled in the PVRR Analysis, the average depth of discharge is 80%.

**Data Request OUCC DR 2 - 14**

How many charge and discharge cycles can the battery endure before significant capacity degradation occurs?

**Objection:**

AES Indiana objects to the Request on the grounds and to the extent it is vague and ambiguous, particularly with respect to the phrase "significant." AES Indiana objects to the Request on the grounds and to the extent the Request solicits information that is confidential, proprietary, competitively sensitive and/or trade secret. Subject to and without waiver of the foregoing objections, AES Indiana provides the following response with the confidential information provided pursuant to the nondisclosure agreement between the parties.

**Response:**

It depends on how the system is operated. AES Indiana's system is designed to undergo one charge/discharge cycle per day. Based on this assumption, please see OUCC DR 2-5, Confidential Attachment 2 for degradation levels of the BESS if no augmentation events occurred.

**Data Request OUCC DR 2 - 16**

How does AES Indiana plan on adapting and accounting for the capacity accreditation for battery energy storage systems in the future as more BESS come online?

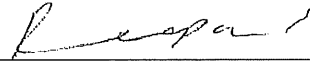
**Objection:**

**Response:**

AES Indiana will continue to monitor MISO capacity accreditation plans and methodological changes to BESS and other resources through direct engagement with MISO and MISO's working groups. At this time, MISO has not indicated changes that would cause a significant decrease to the accreditation for BESS.

**AFFIRMATION**

I affirm, under the penalties for perjury, that the foregoing representations are true.



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Roopali Sanka  
Utility Analyst  
Indiana Office of Utility Consumer Counselor

Cause No. 45920  
AES Indiana

September 15, 2023  

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Date

**CERTIFICATE OF SERVICE**

This is to certify that a copy of the *Indiana Office of Utility Consumer Counselor's Redacted Testimony Filing of Roopal Sanka* has been served upon the following counsel of record in the captioned proceeding by electronic service on September 15, 2023.

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T. Jason Haas  
Deputy Consumer Counselor

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