DIRECT TESTIMONY OF JONATHAN A. LANDY ON BEHALF OF DUKE ENERGY INDIANA, LLC CAUSE NO. 45002 BEFORE THE INDIANA UTILITY REGULATORY COMMISSION

I. INTRODUCTION

Q. PLEASE STATE YOUR NAME AND BUSINESS ADDRESS.

A. My name is Jonathan A. Landy and my business address is 400 South Tryon Street, Charlotte, North Carolina 28202.

Q. BY WHOM ARE YOU EMPLOYED AND IN WHAT CAPACITY?

A. I am employed as Business Development Manager by Duke Energy Business Services LLC. Duke Energy Business Services, LLC is a service company affiliate of Duke Energy Indiana, LLC ("Duke Energy Indiana" or "Company"). Duke Energy Indiana, LLC is a wholly-owned, indirect subsidiary of Duke Energy Corporation ("Duke Energy").

Q. PLEASE BRIEFLY DESCRIBE YOUR EDUCATION AND PROFESSIONAL EXPERIENCE.

A. I am a registered Project Management Professional and Six Sigma Black Belt, having received a Bachelor of Science in Industrial and Systems Engineering from Virginia Tech and a Master's Degree in Business Administration from the George Washington University. I began my career at Duke Energy in 2012 as a member of the Commercial Associate Program and have held a variety of responsibilities across Duke Energy in the areas of metering services, fuels and fleet analytics, emerging technology, and renewable operations and development. After supporting customer operations and providing

analytics for production cost models and generation dispatch, my main responsibility included the development of distributed energy projects, including approximately 40MWs of battery energy storage. I accepted my current position as Business Development Manager in 2014.

Q. PLEASE BRIEFLY DESCRIBE YOUR DUTIES AS BUSINESS DEVELOPMENT MANAGER.

A. As Business Development Manager, I am responsible for developing and implementing specific strategies for Duke Energy's regulated utilities, including investments and products related to distributed energy technologies, such as energy storage, combined heat and power, microgrids, solar, wind, and electric vehicles.

Q. WHAT IS THE PURPOSE OF YOUR TESTIMONY IN THIS PROCEEDING?

A. My testimony will present an overview of the Company's proposal to construct (1) an approximately 2 MWac/3 MWdc solar-powered generating facility and an approximately 5 MW/5 MWh battery energy storage facility ("Camp Atterbury Microgrid" or "Microgrid") on land located at the Camp Atterbury Joint Maneuver Training Center ("Camp Atterbury") and leased to Duke Energy Indiana by the State of Indiana, and (2) an approximately 5 MW/5 MWh battery energy storage facility located on land owned by Duke Energy Indiana adjacent to the Company's Nabb Substation ("Nabb Battery"). The Camp Atterbury Microgrid will interconnect to Duke Energy Indiana's 12.47 kV distribution substation located at Camp Atterbury. The Nabb Battery will interconnect to Duke Energy Indiana's 34.5 kV distribution substation located in Nabb, Indiana. I will

explain what Duke Energy Indiana is requesting in this proceeding and the statutory backdrop for approval.

Q. PLEASE DESCRIBE THE RELIEF SOUGHT BY DUKE ENERGY INDIANA IN THIS PROCEEDING.

A. Duke Energy Indiana is requesting that the Indiana Utility Regulatory Commission ("Commission") approve its proposal to construct the Camp Atterbury Microgrid and the Nabb Battery and also requests that the Commission approve its proposed accounting and rate treatment related to constructing, owning, and operating the Camp Atterbury Microgrid and Nabb Battery, as more fully described in the testimony of Ms. Christa L. Graft.

Q. PLEASE PROVIDE AN OVERVIEW OF THE CASE-IN-CHIEF TESTIMONY BEING PRESENTED BY DUKE ENERGY INDIANA IN THIS PROCEEDING.

A. In addition to my testimony, Duke Energy Indiana is also presenting the testimony of Mr. Phillip Brandon Lane and Ms. Christa L. Graft. Mr. Lane will provide testimony regarding the Company's cost estimate and construction schedules for the Camp Atterbury Microgrid and Nabb Battery. Ms. Graft will provide testimony explaining the Company's proposal to include the Camp Atterbury Microgrid and Nabb Battery in the Company's existing Renewable Energy Project Revenue Adjustment (specifically, the Company's Standard Contract Rider No. 73 ("Rider 73")) in order to timely recover the costs of construction and operation and the forecasted rate impacts of doing so. Ms. Graft will also describe other ratemaking impacts of the project.

II. CAMP ATTERBURY MICROGRID

Q. PLEASE DESCRIBE THE PROPOSED CAMP ATTERBURY MICROGRID.

A. The proposed Camp Atterbury Microgrid will be an approximately 2 MWac/3 MWdc solar-powered generating facility and an approximately 5 MW/5 MWh battery energy storage facility on land located at the Camp Atterbury Joint Maneuver Training Center and leased to Duke Energy Indiana by the State of Indiana. Camp Atterbury is located near Edinburgh, Indiana, within the counties of Johnson, Bartholomew and Brown. The base is operated by the Indiana National Guard and supports active duty and reserve component training.

The Camp Atterbury Microgrid consists of the solar facility that will export power to the grid and a fast-responding battery that will serve the Midcontinent Independent System Operator's ("MISO") ancillary services market by likely providing regulating reserves and enabling greater integration of intermittent renewable generation.

Q. HOW WAS THE PROPOSED CAMP ATTERBURY MICROGRID DEVELOPED?

A. The project was initially discussed in 2015 as part of the Department of Defense's Environmental Security Technology Certification Program for environmental and energy technologies but did not move forward at that time. In 2016, Camp Atterbury and Duke Energy Indiana began separate discussions due to the mutual interest in energy security and clean energy technologies. The Camp Atterbury Microgrid will provide system-wide benefits to the grid, as well as enhanced energy security to the base, an important objective of the Indiana National Guard.

Q. HOW WILL THE CAMP ATTERBURY MICROGRID PROVIDE SYSTEM-WIDE BENEFITS TO THE GRID?

A. Fast responding resources, such as the battery energy storage facility proposed at Camp Atterbury, enable the bulk power system to operate more efficiently with increased flexibility. Storage can provide voltage and frequency support more efficiently than a thermal generator, smooth renewable generation, and improve grid reliability. Indiana customers should be able to realize these potential benefits and the valuable experience associated with these projects.

Q. HOW WILL THE CAMP ATTERBURY MICROGRID PROVIDE ENHANCED ENERGY SECURITY TO THE BASE?

A. In return for the twenty-five (25) year lease with the State of Indiana for the land necessary to construct the Camp Atterbury Microgrid near the Camp Atterbury distribution substation, Camp Atterbury can access the microgrid during a catastrophic, regional grid event. During such an event in which the energy produced by the solar array and the battery services cannot be transmitted to the commercial grid, the Camp Atterbury Microgrid can provide backup power to critical customer loads on the base. Camp Atterbury will continue to pay for service through its standard tariff rate whether the assets are grid-tied or in island-mode.

Q. PLEASE DESCRIBE PETITIONER'S EXHIBIT 1-A.

A. Petitioner's Exhibit 1-A is a letter of support from Camp Atterbury for the proposed Camp Atterbury Microgrid.

Q. WILL DUKE ENERGY INDIANA RECEIVE ANY RENEWABLE ENERGY CREDITS OR "RECs" ASSOCIATED WITH THIS PROJECT?

A. Yes. RECs are applicable to renewable energy generation, but not energy storage. Duke Energy Indiana will own the RECs associated with the solar generation portion of the Camp Atterbury Microgrid. The Company will seek to sell the RECs until such time as they are needed for a regulatory requirement. Any net proceeds associated with the sale of those RECs will be credited to customers through Rider 73, as discussed further in the testimony of Ms. Graft.

III. NABB BATTERY

Q. PLEASE DESCRIBE THE PROPOSED NABB BATTERY.

A. The proposed Nabb Battery will be an approximately 5 MW/5 MWh battery energy storage facility located on land owned by Duke Energy Indiana adjacent to the Company's Nabb Substation. The Nabb Battery will interconnect to Duke Energy Indiana's 34.5 kV distribution substation located in Nabb, Indiana, which is located in Clark County in southern Indiana, approximately 25 miles north of Louisville. The Nabb Substation serves approximately 350 Duke Energy Indiana customers via a single 12.47 kV distribution line.

Q. HOW DID DUKE ENERGY INDIANA DECIDE TO PROPOSE THE ENERGY STORAGE FACILITY AT NABB?

A. Duke Energy Indiana commissioned a conceptual design study in 2016 that identified and quantified the potential benefits of energy storage on the Duke Energy Indiana system, identified interconnection points focused on reducing outage duration for radial-fed

towns and critical customers, and prepared a conceptual design for an energy storage system located at a site selected to maximize the potential benefits to customers and the overall grid.

After narrowing to three potential storage locations in Duke Energy Indiana's territory, the Nabb Substation was selected as the location most likely to support distribution system power quality and reliability on a radial feeder, while also able to participate in key bulk power functions that benefit grid operations in Indiana and the MISO market. Duke Energy Indiana believes the Nabb Battery will defer the need for a redundant 34.5 kV feeder, which had been planned to enhance reliability to the community of Nabb. The community of Nabb will be able to use the energy storage facility to provide backup power during an outage event.

IV. BENEFITS OF THE PROJECTS

Q. PLEASE DESCRIBE THE POTENTIAL BENEFITS OF THE PROPOSED ENERGY STORAGE FACILITIES.

A. Energy storage can provide significant value to the bulk power system and distribution grid, including but not limited to, asset deferral, ancillary services, integration of renewables, power quality improvement, and resiliency and reliability to critical loads. As costs continue to decline for battery energy storage facilities, Duke Energy Indiana anticipates batteries could be deployed as a cost-effective solution for meeting critical needs for the grid and its customers. Specifically, Duke Energy Indiana believes that both the Camp Atterbury Microgrid and Nabb Battery projects will enhance reliability and regulate frequency, thereby helping to stabilize the electric grid in an alternative

manner to traditional resources, such as fossil generation. These projects will also allow Duke Energy Indiana and MISO to assess the value energy storage can provide to the electric grid and, ultimately, Duke Energy Indiana customers. Gaining the operational knowledge of how to own and operate battery energy storage facilities is essential to the successful, cost-effective deployment and integration of distributed energy storage in the future.

Q. WILL DUKE ENERGY INDIANA BE COMPENSATED FOR THE PARTICIPATION OF ITS PROPOSED SOLAR GENERATION FACILITY AT CAMP ATTERBURY IN THE MISO MARKET?

A. Yes. Duke Energy Indiana currently anticipates that the Camp Atterbury solar facility will be treated as behind-the meter generation for MISO purposes, like generation from Duke Energy Indiana's five approved solar purchased power agreements. Ms. Graft discusses the associated ratemaking in more detail in her testimony.

Q. WILL DUKE ENERGY INDIANA BE COMPENSATED FOR THE PARTICIPATION OF ITS PROPOSED ENERGY STORAGE SYSTEMS IN THE MISO MARKET?

A. Yes. Duke Energy Indiana anticipates that both the energy storage portion at the Camp Atterbury Microgrid and the Nabb Battery will support MISO with ancillary services, most likely regulation. Revenues realized by Duke Energy Indiana for providing such services to MISO will benefit Duke Energy Indiana customers. The testimony of Ms. Graft discusses the ratemaking for such revenues and any related MISO costs.

The utility is uniquely positioned to control and adjust the function of energy storage in order to optimize its value for the grid and its customers. Duke Energy Indiana is engaged with MISO's Energy Storage Task Force and both projects align with MISO's forward-looking direction.

Q. PLEASE DISCUSS THE LEARNINGS DUKE ENERGY INDIANA WILL OBTAIN THROUGH OWNING AND OPERATING THE CAMP ATTERBURY MICROGRID AND NABB BATTERY.

A. These projects will give Duke Energy Indiana critical insight going forward with regard to energy storage. As technology continues to evolve in the energy space, as assets continue to become more distributed, and as costs continue to decline, quantifying the values and costs of energy storage is important for the Company and its stakeholders. These projects will allow Duke Energy Indiana to confirm certain values to the electrical distribution system, such as asset deferral, resiliency, frequency regulation, integration of renewables, and voltage support. It will also allow Duke Energy Indiana to gain operational knowledge with these types of systems.

Q. DOES DUKE ENERGY INDIANA BELIEVE THERE IS VALUE IN A DIVERSE PORTFOLIO OF GENERATION RESOURCES?

A. Yes. By investing in a diverse generation portfolio, Duke Energy Indiana can respond to customer demand and to provide customers with cost-effective resources that help to insulate against risks in the marketplace.

In addition, our customers are interested in a diverse portfolio of options to serve their energy needs. As part of the Company's IRP process, as well as in other forums,

Duke Energy Indiana receives regular feedback from its customers that they are interested in expanding the renewable generation and distributed energy options available to them.

Q. ARE THERE OTHER CONSIDERATIONS THAT LED DUKE ENERGY INDIANA TO PROPOSE THE CAMP ATTERBURY MICROGRID AND NABB BATTERY?

A. Yes. Duke Energy Indiana provides a service to its customers, and to the extent our customers are interested in more generation from renewable sources, we want to be responsive to that interest. At the same time, we know that our customers are also interested in keeping their rates low. To that end, these projects represent a modest investment in renewable and distributed energy in a way that attempts to balance those interests – the State of Indiana and Duke Energy Indiana customers benefit from solar energy generation and battery energy storage, while the impact on customer rates is kept to a minimum given the relatively small size of the investment.

Additionally, Duke Energy Indiana's customers are expected to benefit from the federal investment tax credit ("ITC"), which currently allows utilities, among others, to claim a 30% credit for investing in certain renewable technologies such as solar and energy storage. Ms. Graft will explain how customers will receive the benefit of the ITC.

V. STATUTORY CONSIDERATIONS

Q. ARE THE CAMP ATTERBURY MICROGRID AND NABB BATTERY "CLEAN ENERGY PROJECTS" UNDER INDIANA LAW?

A. Yes. Indiana Code § 8-1-8.8-2 defines a "clean energy project" as including "projects to develop alternative energy sources, including renewable energy projects." In addition, "solar energy" and "energy storage systems or technologies" are specifically listed as clean energy resources in Indiana Code § 8-1-37-4(a)(1) through Indiana Code § 8-1-37-4(a)(16), thus making both projects "renewable energy resources" under Indiana Code § 8-1-8.8-10.

Further, the Camp Atterbury Microgrid and Nabb Battery promote a "robust and diverse portfolio of energy production or generating capacity, including . . . the use of renewable energy resources . . . if Indiana is to continue to be successful in attracting new businesses and jobs." Indiana Code § 8-1-8.8-1.

Q. IS DUKE ENERGY INDIANA SEEKING A CERTIFICATE OF PUBLIC CONVENIENCE AND NECESSITY FOR THE SOLAR PORTION OF THE CAMP ATTERBURY MICROGRID?

A. No. Under Indiana Code § 8-1-8.5-7, there is an exemption from the certificate of public convenience and necessity requirements for public utilities building clean energy projects under Indiana Code § 8-1-8.8-2 that use specified clean energy resources, such as solar, with a nameplate capacity of 50,000 kW or less. In addition, the public utility must use a contractor subject to certain provisions. As the testimony of Mr. Lane explains, Duke Energy Indiana intends to comply with the statutory provisions governing contractor selection.

Q. IN YOUR OPINION, ARE THE CAMP ATTERBURY MICROGRID AND NABB BATTERY BEING PROPOSED FOR THE COMMISSION'S CONSIDERATION REASONABLE, NECESSARY AND IN THE PUBLIC INTEREST?

A. Yes, they are. Duke Energy Indiana believes that investing in solar energy and energy storage resources is reasonable and appropriate at this time and will benefit both the State of Indiana and Duke Energy Indiana customers. Both the Camp Atterbury Microgrid and Nabb Battery serve to diversify the Company's generation portfolio, provide additional solar generation and new energy storage resources located in Indiana, encourage economic development, and meet our customers' increasing desire to have renewable and distributed energy options available to serve their needs. Duke Energy Indiana respectfully requests that the Commission approve Duke Energy Indiana's proposed Camp Atterbury Microgrid and Nabb Battery and requested rate relief.

VI. CONCLUSION

Q. WAS PETITIONER'S EXHIBIT 1-A PREPARED BY YOU OR AT YOUR DIRECTION?

A. Yes.

Q. DOES THIS CONCLUDE YOUR PREPARED DIRECT TESTIMONY AT THIS TIME?

A. Yes.

VERIFICATION

I hereby verify under the penalties of perjury that the foregoing representations are true to the best of my knowledge, information and belief.

Signed: _____ Dated: 12-14-17

Jonathan A. Landy

DEPARTMENT OF THE ARMY
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22 August 2017

Indiana Utility Regulatory Commission
101 W. Washington Street
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MEMORANDUM FOR: Commission Chair and Members

SUBJECT: Statement of Support – Proposed Photo Voltaic (PV) Facility

Camp Atterbury, the Indiana National Guard, and Duke Energy have worked together on several mutually beneficial projects over the years. Now, as the Commander of Atterbury, I am pleased to express my full support of Duke's most recent proposal - the construction of a solar Photo Voltaic facility, of up to 5 MW of output within our boundaries. We will be making the land available for the solar PV array and battery storage system, the facility, under a lease agreement consistent with provisions of 10 U.S.C., Sec 2667.

Duke's proposed project will increase Atterbury's strategic value to the State and to the Department of Defense (DoD) by enabling the continuation of mission-critical operations in the event of a catastrophic grid outage. As a nationally recognized military training and mobilization complex, we routinely provide a myriad of support to local and State emergency response organizations. Further, our availability during a local or State emergency condition will be optimized with the construction of the proposed solar PV facility. Electricity produced and stored at the solar PV facility is to be routed over existing transmission lines to meet Duke Energy Indiana customer demands. In exchange for using our land, Duke will provide electrical infrastructure upgrades to the local distribution grid; an on-site battery supported energy storage capability; and assistance with the development of a prioritized Installation level critical facility Micro-Grid for use by the Installation during periods of reduced or interrupted power service.

The infrastructure upgrades, the on-site energy storage capability, and the engineering efforts related to the internal Micro-Grid will serve to provide Atterbury with a reliable, resilient, and redundant energy source. The upgrades will include those components necessary to enable Atterbury to access electricity generated by the solar PV array during a regional grid outage; and to sustain mission critical facilities and power loads through the internal Micro-Grid. Successful application of evolving Micro-Grid technology would also help Atterbury meet nationally established energy management and conservation goals.

In closing, we welcome the opportunity to participate with Duke Energy in the proposed solar PV facility and related infrastructure enhancements. The project promises to provide beneficial results for all parties, to include the ever-increasing energy conservation minded community. I hope you will agree the Duke proposed solar project is reasonable, and will effectively serve the public's interest. Please contact me at (812) 526-1103, or email john.silva2.mil@mail.mil for additional information.

JOHN SILVA
COL, EN, INARNG
Commanding