NORTH DAKOTA PUBLIC SERVICE COMMISSION

NORTHERN DIVIDE ENERGY STORAGE, LLC
NORTHERN DIVIDE ENERGY STORAGE PROJECT
AMENDED APPLICATION FOR A CERTIFICATE OF SITE COMPATIBILITY

CASE NO. PU-24-371
DECEMBER 12, 2025

PREPARED TESTIMONY OF MICHAEL BETTIS

Q1: Please state your name and business address.

A: My name is Michael Bettis, and my business address is 700 Universe Blvd., Juno Beach, Florida, 33408.

Q2: By whom are you employed and in what capacity?

A: I am in the Engineering & Construction department of NextEra Energy Resources, LLC ("NextEra Energy Resources"), the indirect parent company of the Applicant, Northern Divide Energy Storage, LLC (or "Northern Divide Energy Storage"). In this capacity, I am the Battery Energy Storage System (or "BESS") Fire Safety Engineer.

Q3: Please describe your responsibilities at NextEra Energy Resources, and, specifically with respect to the Northern Divide Energy Storage Project (the "Project").

A: I am in the Engineering & Construction department of NextEra Energy Resources, LLC ("NextEra Energy Resources"), the indirect parent company of the Applicant, Northern Divide Energy Storage, LLC (or "Northern Divide Energy Storage"). In this capacity, I am the Battery Energy Storage System (or "BESS") Fire Safety Engineer.

Q4: Please summarize your education and professional background.

A: I hold a Bachelor's degree in Renewable Energy Engineering from the Oregon Institute of Technology. I have experience in energy efficiency and energy management, primarily focused on thermal systems. I then transitioned to a BESS manufacturer (Powin) and advanced into the role of Senior Battery Systems Engineer, responsible for thermal management design, product level compliance, and fire safety system design, including but not limited to National Fire Protection Association ("NFPA") 855, NFPA 68/69, NFPA 72, Underwriters' Laboratories ("UL") 1973, UL9540, and UL9540A. I joined the NextEra Energy Resources BESS fire safety team as a subject matter expert this year.

Q5: What is the purpose of your testimony?

A: The purpose of my testimony is to: (1) provide an overview of the BESS equipment and components to be used at the Project; and (2) describe the design considerations and safety components of the BESS.

Q6: How many energy storage projects do NextEra Energy Resources subsidiaries own and operate in the United States?

A: NextEra Energy Resources subsidiaries currently own and operate over 50 BESS Projects in the United States.

Project Components and Specifications

Q7: Please describe how a battery storage system operates.

A: The Project is designed to enhance grid stability and optimize energy distribution through the strategic storage and release of electrical power. The flow of energy between the grid and the Project is managed dynamically. When the grid has excess energy, such as during periods of low demand, this energy will be stored by the BESS for later distribution. When the grid has capacity for additional energy, the Project will supply energy directly to the grid. This system ensures that energy is efficiently transferred and stored, allowing for flexible energy dispatch during times of high or low demand.

Q8: Please provide an overview of the BESS design for the Project.

A: The BESS is currently designed as a 100 MW, 4-hour battery system. The conceptual layout for the BESS and anticipated storage capacity is based on a storage system capable of a 4-hour discharge at 100 MW, totaling 400 MWh.

Q9: What safety standards were taken into consideration for the design and testing of the BESS?

A: Safety for employees, neighbors, and the public is a top priority for the Project. The Project will ensure that the BESS is designed in compliance with the latest applicable safety codes—including the International Fire Code ("IFC"), NFPA Standard 855, the National Electric Code ("NFPA 70E"), and UL safety standards. Those same standards and codes inform the procurement of BESS equipment and govern the operation of the BESS.

North Dakota has adopted the 2021 IFC. The Project will be designed to the most recent 2024 IFC, which is harmonized with the 2023 NFPA 855 standards for battery

energy storage projects. As a requirement of the IFC and NFPA 855, energy storage system ("ESS") facilities, unless exempted, shall be listed to UL9540, a safety standard for ESSs, covering the design, performance and installation of the systems. As required by UL9540, the batteries shall be tested and listed in accordance with UL 1973, which ensures the battery system is electrically and mechanically safe for integration into energy storage systems. BESS containers are required to be tested following UL 9540A, a test method that evaluates the fire and explosion hazards of an ESS by testing thermal runaway at the cell, module, rack, and container level to prevent a fire from propagating outside of the facility or to adjacent equipment. Power conversion systems ("PCS"), such as inverters, converters, and controllers, shall be listed to UL 1741. The Project will use BESS equipment that has achieved the aforementioned testing and certifications.

Q10: What are the layers of safety system design for this battery storage system?

A: There are four layers of protection built into the Project:

1. As shown on the diagram in Exhibit No. 8, which illustrates the components inside a BESS, physical thermal barriers are installed between the cells within a module to prevent cell to cell fire propagation with additional thermal barriers designed between modules, racks, and at the container level to prevent propagation within the system components.
2. The battery management system ("BMS") monitors cell voltage, temperature, current, ambient conditions, and fire alarm signals of each battery storage container for abnormal conditions.
3. A fire alarm control panel monitors and alarms when smoke or gas is detected for any container.
4. The NextEra Energy Resources Renewable Operations Control Center ("ROCC") monitors the BESS facility 24 hours a day, 7 days a week, 365 days a year for alarms and abnormal conditions.

If an alarm or abnormal condition are detected that indicates an emergency condition, the individual equipment or project can be shut down remotely from the ROCC.

Q11: Please describe the major components that will be constructed for the BESS facility.

A: The BESS will utilize lithium-ion battery technology and will be designed, tested, installed, operated, and maintained in accordance with NFPA 855. The BESS facility will primarily consist of BESS containers, PCS (*i.e.*, inverters), and transformers.

Q12: Please describe the Project's battery modules.

A: As shown on Exhibit No. 8, individual lithium-ion battery cells form the core of the BESS. Battery cells are connected in series and parallel configurations and enclosed within sealed battery modules. Battery modules are stacked and connected to form individual racks monitored by the BMS. Individual racks are then connected to deliver the BESS capacity rating per container.

Q13: Describe the BESS facilities' battery management system and energy management system.

A: BESS containers house the batteries and BMS. The BMS monitors and controls the safe and effective operation of the storage system. The BMS is used in conjunction with the site-wide energy management system ("EMS") to monitor battery voltage, current, temperature, charge, discharge, thermal management, fault diagnosis, fire alarm monitoring, and more. Together, the BMS and the EMS form a multi-level control structure designed to provide controls for the battery containers and PCS up to the point of connection with the collection substation. The BMS and EMS both ensure that the BESS effectively responds to dispatch instructions, as well as provide a secondary safety system designed to safely shut down the BESS in the event of an emergency. As I mentioned, BESS projects are monitored 24 hours a day, 7 days a week, 365 days a year by NextEra Energy Resources' ROCC. Each BESS container will be equipped with a thermal management system to maintain optimal temperature for the batteries.

Q14: Describe the Project's energy storage system cabinets.

A: Every BESS container has a system cabinet that houses the control, communication, protection, and auxiliary equipment needed to operate the battery system, such as the BMS, fire alarm control panel, thermal management system, controllers, breakers, and power distribution components. System cabinets are located in separate compartments or sections

of the enclosure, allowing technicians to access controls, breakers, and communication equipment without being exposed to the battery modules themselves.

Q15: Please describe the Project's PCS.

A: The PCS located in the BESS facility will consist of an inverter, protection equipment, DC and AC circuit breakers, filter equipment, equipment terminals, and a connection cabling system. During battery charging, the PCS converts electric energy from AC to DC when energy is transferred from the grid to the battery. During a battery discharging event, the PCS converts electric energy from DC to AC when energy is transferred from the battery to the grid.

Additionally, a BESS facility will also include a transformer that converts the low-voltage AC side output of the inverter to medium AC voltage, facilitating interconnection and improving overall BESS efficiency. The transformer and associated protection equipment also safeguard the PCS in the event of system electrical faults.

Construction and Safety

Q16. Once the facility is constructed, can you please describe the Project's general site layout?

A: As shown on Exhibit No. 7, the total project boundary is approximately 21 acres including the existing 1-acre substation. The BESS equipment is located inside security fencing. Setbacks for the Project include: approximately 40-feet from the nearest equipment to the BESS yard fencing; and approximately 120-feet from the nearest BESS equipment to the Project boundary. At beginning of the life of the Project, Northern Divide Energy Storage anticipates approximately 99 battery energy storage containers and 33 PCSs will be installed. Additional augmentation equipment will be installed throughout the life of the Project with approximately 30 additional BESS containers and 10 PCSs. The final numbers may change depending on final design and technology changes at the time of augmentation. To maintain the Project's required energy capacity over its operational life, periodic battery augmentation will be planned to offset the gradual capacity reduction in the original battery systems.

Q17: Please explain what you mean by the term augmentation.

A: Battery systems are initially sized to meet the full nameplate energy requirement from the start of operations, accounting for auxiliary loads and other energy losses. However, as batteries naturally degrade over time, new battery containers will be integrated within the existing footprint to uphold the contracted energy levels, which is called "augmentation." The nameplate capacity will not be increased by augmentation but will remain the same. The facility's design accounts for planned augmentation.

Q18: Please provide an overview of the safety precautions incorporated into the design of the BESS.

A: Every BESS container is equipped with smoke and fire detection, in accordance with NFPA 855 and the IFC. Additionally, the BMS installed in the BESS are powered by auxiliary transformers with a battery backup system to safely shut down and isolate the BESS in the case of grid power loss. The BMS monitors and controls the safe and effective operation of the storage system. Key metrics such as voltage, temperature, current, and state of charge are continuously tracked to optimize the performance of the battery and ensure it operates within the normal range. The BMS monitors the batteries to detect any changes in normal battery behavior and operates as a thermal runaway prevention device, containing automated protocols that will shut down and isolate that portion of the system if any thermal runaway precursors are detected. If an anomaly is identified, an alarm or notice is issued through the BMS. The NextEra Energy Resources ROCC would immediately investigate to determine if further action is warranted, such as isolating or de-energizing the system, deploying field personnel to investigate and repair, or dispatching the local fire department.

Q19: Please explain what is meant by the term thermal runaway.

A: Thermal runaway is a self-sustaining internal chemical reaction within an individual battery cell in which it generates more heat than it can dissipate. The heat that is generated can trigger the same chemical reactions in other battery cells, known as propagation. Additional layers of mitigation, including physical barriers and separation, are in place to prevent propagation in the very rare scenario of a thermal runaway event.

Q20: How is the Project designed to protect against thermal runaway events?

A: The Project will utilize a containerized system that was designed and tested to provide protection from thermal runaway events. The BMS is tested and certified as a thermal runaway prevention device, identifying the precursors to thermal runaway, de-energizing, and isolating the system preemptively. The containerized system includes thermal barriers between battery cells within a module. Then the modules are isolated from other modules in the same rack, and the racks are mounted with physical barriers separating them. Finally, the racks are placed into a container with exterior steel walls. Each of these layers of separation and containment between cells, modules, and racks is designed to prevent the spread of any fire that occurs in one battery cell and significantly reduce the risk of a thermal runaway event propagating.

Q21. Explain what monitoring and maintenance will occur for the Project.

A: The Project will operate 365 days per year and be monitored remotely through a supervisory control and data acquisition ("SCADA") system. As I discussed previously, NextEra Energy Resources' ROCC monitors the readiness of its subsidiaries' energy storage facilities nationwide around the clock. If an issue is detected at a BESS location, the system can be shut down remotely, and a local technician in the Project Area can be deployed to resolve the issue. One major maintenance inspection of the BESS will occur annually. During normal operation and maintenance, Northern Divide Energy Storage anticipates one to two workers will inspect the site approximately one to two times per week. Additionally, on-site maintenance is expected following commissioning, including replacement of inverter power modules and filters, and miscellaneous electrical repairs on an as-needed basis. Inspection scheduling and monitoring will be supported by the control center's SCADA system, which tracks system performance and flags any irregularities for prompt on-site evaluation.

Q22: Will Northern Divide Energy Storage have emergency plans for incidents at the BESS site?

A: Yes. Northern Divide Energy Storage will create an emergency response plan ("ERP") and share this plan with local first responders, the site personnel assigned to manage emergencies, and local emergency managers for Burke County to help them respond to an

event, should one occur at the site. A draft ERP is included in the Amended Application, as Appendix F to Exhibit No. 1. The ERP will be finalized after construction is complete but prior to commissioning, as completion of the ERP requires the as-built site dimensions and features. Prior to commencing operations, Northern Divide Energy Storage will invite local first responders to the site for training on the emergency response plan and to familiarize them with the layout of the facility and relevant personnel. Northern Divide Energy Storage will provide refresher training at the request of the local fire department or anytime there is an alteration to the procedures in the emergency response plan. Any necessary notification to the public, or means thereof, would typically be handled by the responding fire department.

Q23: In designing the Project, has Northern Divide Energy Storage considered weather conditions experienced in North Dakota?

A: Yes, NextEra Energy Resources subsidiaries' BESS facilities, including Northern Divide Energy Storage, are designed for temperatures between -40 to 50 degrees Celsius (-40 to 122 degrees Fahrenheit). The Project takes into consideration lightning, high winds, and severe storms that occur in North Dakota. The design includes incorporating short circuit protection and ground protection for any lightning strikes or water infiltration.

Q24: What site-specific security measures will the Project implement?

A: Security measures will be taken during the construction and operation of the Project, including temporary and permanent safety fencing, warning signs, and locks on equipment. The safety of the operations and maintenance staff, neighbors, and the public is the highest priority.

Q25: Based on your experience, are there comments or questions you find the public commonly have regarding BESS?

A: Yes, during permitting proceedings, it is not uncommon for: the public to pose questions regarding health risks associated with BESS; concerns around fires; and safety precautions taken when designing the BESS.

Q26: What is your response to comments about the potential health risks associated with the BESS?

A: Battery cells are completely sealed and do not leak or produce any emissions. In the very rare scenario of a thermal runaway event, continuous monitoring and post-event testing of incidents at other companies' BESS facilities have revealed no air, soil, ground water or surface water contamination. Moreover, a recent report prepared for the American Clean Power Association ("ACP") by Fire & Risk Alliance, LLC ("FRA"), a very well-known and respected fire protection engineering firm, assessed historical BESS fires over a 12-year period, and concluded that battery storage systems pose low environmental and health risks, stating: "In none of the reviewed cases of environmental sampling related to the BESS fire events were contaminant concentrations found that would pose a public health concern or necessitate further remediation." A copy of this report is provided as Exhibit No. 10.

Q27: What is your response to concerns about the risk of potential fires?

A: To protect the health and safety of the community, the BESS is designed and rigorously tested to significantly reduce the risk of fires. Additionally, the Project will maintain an Emergency Response Plan and continue to coordinate with local emergency responders to prioritize the safety of the community and the responders. According to the Electrical Power Research Institute, deployment of BESS has increased from about 3 GW to over 48 GW from 2018 to 2023. In that same time, the failure rate per deployed GWh of BESS has decreased by approximately 97%.

Q28: In your opinion, has the Project been sited and designed to minimize adverse impacts?

A: Yes.

Q29: Does this conclude your direct testimony?

A: Yes, it does.