BEFORE THE PUBLIC UTILITIES COMMISSION
OF THE STATE OF SOUTH DAKOTA

IN THE MATTER OF THE APPLICATION BY ENGIE NORTH AMERICA, INC. FOR A PERMIT FOR A WIND ENERGY FACILITY IN HYDE COUNTY, SOUTH DAKOTA, FOR MERIDIAN WIND PROJECT

SD PUC DOCKET EL 20-013

PRE-FILED DIRECT TESTIMONY OF BLAKE CROSBY, OF ENGIE NORTH AMERICA, INC.

April 24, 2020

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Q. Please state your name, employer and business address for the record.

A. Blake Crosby, ENGIE North America Inc., 8181 Arista Place, Suite 100, Broomfield, CO 80021

Q. Briefly describe your educational background.

A. Bachelors Degree in Mechanical Engineering from USMA, West Point, NY. Masters Degree in Civil Engineering from University of Missouri Rolla.

Q. Briefly describe your professional experience.

A. US Army Engineer from 2002 to 2009. Renewable energy and utility construction from 2009 to present. Served in various capacities from estimator through senior project manager.

Q. Have you attached a resume or CV.

A. Yes, my resume is attached.

Q. Have you previously submitted or prepared testimony in this proceeding in South Dakota?

A. No, I have not.

Q. What is the purpose of your direct testimony?

A. My testimony will support the portions of the application which discuss and illustrate the construction and potential decommissioning of the project. Those sections are 4.2, 4.4 through 4.12, 16, 17, 19, and 20.2

Q. What type of foundation will be used?

A. Meridian plans to use a spread foundation design. Foundations for the towers will be approximately 2732 square feet, with a depth of up to 10 feet. Except for approximately 6 inches that will remain aboveground to allow the tower to be appropriately bolted to the foundation, the tower foundation will be underground. A specific foundation design will be chosen based on soil

borings conducted at each turbine location.

The excavated area for the turbine foundations will typically be approximately 69 feet in diameter (34.5 -foot radius, or approximately 4.01 acres for 64 turbines). During construction, a larger area up to 150-foot radius (up to 77 acres for 64 turbines) may be used to lay down the components of the turbines and assemble the rotors and maneuver cranes during turbine assembly.

Q. How will construction impact the roads in the project area?

A. Where practicable, existing public roads, private roads and field paths will be utilized to access Project components. The existing roads may require improvements before, during or following construction. Where necessary, new access roads will be constructed between existing roadways and Project components. The new and improved access roads will be all-weather, gravel surfaced and generally up to approximately 16 feet in width. During construction, some of the access roads will be widened to accommodate movement of the turbine erection crane, with temporary widths of up to 40 feet with the access road in the center.

Separate access may be required for the cranes used to erect the wind turbines. In such cases, temporary crane paths will be constructed between turbine locations. Following completion of construction, the temporary crane paths will be removed and the area will be restored pursuant to the contractual easement obligations. The final access road design will be dependent on geotechnical information obtained during the engineering phase.

Large construction cranes may spend as little as one day at each turbine site before moving on to the next. Cranes are sometimes moved cross-country rather than by using the developed access roads. There are a number of reasons for such cross-country movement including efficiency and economics. Taking a more direct route saves time. Breaking down the

crane is time-consuming. This type of cross-country walking enables the crane to be moved without complete de-rigging and disassembly. We avoid walking cranes on county roads or state highways as that could impede traffic and damage roads. Many crane walk routes are designed around topography. Finally, cranes cannot cross a property that is not under easement. Where cranes are required to travel cross-country, workers will lay down some form of cribbing, bedding or mats where needed to support the weight of the crane without impacting the underlying ground. The cribbing or mats will be removed immediately following passage of the crane, to be re-used elsewhere.

Q. Will the project utilize a laydown area? If so, what can you tell us about that?

A. Meridian will grade a temporary laydown/staging area of up to approximately 13 acres within the Project Area on land under lease. Potential locations for the laydown/staging area have yet to be determined. The laydown/staging area will provide parking for construction personnel, staging area for large equipment deliveries and potentially maintain an on-site temporary concrete batch plant during construction. If a temporary batch plant is determined to be required for the Project, to prepare concrete for foundations onsite, it will be strategically placed to avoid cultural resources and will temporarily impact up to 4 acres of the 13-acre laydown/staging area.

The laydown/staging area will also be used to conduct maintenance on construction equipment and vehicles and to store fuel. On-site fuel storage will have secondary containment and will be inspected regularly, with containment being remediated promptly in accordance with the Project's Spill Prevention, Control and Countermeasures (SPCC) Plan. Fuel handling activities and spill remediation will also adhere to the procedures outlined in the Project's SPCC Plan.

Q. Will you construct an operations and maintenance facility?

A. No, a new O&M facility will not be constructed. The Triple H Wind Project located to the west of Meridian is utilizing a new O&M facility that is currently under construction along Highway 47. This facility will also support the Meridian Wind Project.

Q. What will the project use to connect the towers electrically?

A. The proposed collector system layout based on the proposed turbine configuration is shown on Figure 2a (Appendix A). From the step-up transformers, power will run through an underground system of collection cables, collector buses and feeder breakers, referred to as a collector system, that connects to the Project collection substation. Up to 38.6 miles of underground circuits will be installed by trenching, plowing or, where required, directionally boring the cables underground to avoid sensitive environmental conditions or meet other requirements. Generally, the electrical collector lines will be buried with marking tape and tracer wire to meet the appropriate national electrical code. Meridian will register the appropriate underground facilities with the South Dakota One-Call system.

Q. Will communications systems connect the towers? If so, tell us about them?

A. When installing the collector system, Meridian will also install fiber optic communication systems connecting each of the Project's wind turbines to the Project collection substation and provide for communication among the wind turbines, collection substation, O&M facility and electrical grid as part of SCADA (see Section 4.2.1.1). If underground, the electrical and fiber optic cables will be placed in the same trench wherever possible and will include occasional aboveground junction boxes.

Q. What type of substation will be used by the project?

A. The collection substation will be located generally in the center of the Project Area and

will consist of one substation transformers, circuit breakers, switching devices, auxiliary equipment, a control enclosure containing equipment for proper control, protection, monitoring and communications and associated equipment and facilities. The principal function of the substation is to increase the voltage from the 34.5 kV at the collector system to the voltage of the 345 kV transmission line, which will transport the electricity of the entire Project to the grid via the interconnection switching station. The collection substation will be located within a fenced area. The fence will be designed in accordance with industry standards to provide safety and security.

Up to 5 acres of land will be purchased to facilitate construction and operation of the collection substation. The proposed location for the substation is shown in the figures within the application. As discussed in Section 4.2, Meridian requests that the permit allow Project facilities, including the collection substation, to be modified as needed provided that the new locations are on land leased for the Project, cultural resource impacts are avoided and conditions specified in the Energy Facility Permit.

Q. What land requirements have you identified?

A. Temporary construction and long-term operational land requirements are identified below. Table 6-1 presents impact calculations.

Q. Please briefly describe the construction process.

A. Meridian plans to commence construction within 30 days of receiving all required federal, state and local permits and approvals. Construction is expected to require a period of between 8 to 10 months to complete. Meridian anticipates that the civil construction will begin in early 2021and be completed prior to winter.

Q. Have you identified impacts to the surrounding residents and communities from

construction? If so, please discuss them.

A. During the construction phase, temporary impacts are anticipated on some public roads in the vicinity of the Project Area, however local traffic will continue to have safe access though the area. Roads will be affected by the transportation of equipment to and from the Project. Construction traffic will use the existing county and state roadway system to access the Project and deliver construction materials and personnel. During the construction phase, several types of light, medium and heavy-duty construction vehicles will travel to and from the Project Area, as well as private vehicles used by construction personnel. Meridian estimates that there will be up to approximately 46 large truck trips per day, per foundation and up to 100 small-vehicle (pickups and automobiles) trips per day in the area during peak construction periods. Some roads may also be temporarily expanded along specific routes as necessary to facilitate the movement of equipment.

Construction activities will increase the amount of traffic using local roadways, but such use is not anticipated to result in adverse traffic impacts. Project personnel and contractors will be instructed and required to adhere to speed limits commensurate with road types, traffic volumes, vehicle types and site-specific conditions to ensure safe and efficient traffic flow.

Q. How many workers will you need? Where will they live during construction?

A. The Project is expected to employ approximately 125 temporary construction workers during an estimated 4 month peak construction period to support Project construction. It is likely that general skilled labor is available in the surrounding counties or the state to serve the basic infrastructure and site development needs of the Project. Specialized labor will be required for certain components of Project construction. It is likely that this labor will be imported from other areas of the state or from other states, as the relatively short duration of construction makes

special training of local or regional labor impracticable.

The estimated number of construction jobs by classification and annual employment expenditures during construction are included in Table 17-1; however, the exact number of jobs during the peak of construction may be higher.

Q. Can you speak about decommissioning?

A. Yes. A Decommissioning Plan and estimated cost analysis was prepared for the Project and is included in Appendix L. The estimated net decommissioning costs for the Project are summarized in Appendix A of the Decommissioning Plan. The net decommissioning cost (in 2020 US dollars) is estimated to be $5,545,587 assuming salvage and no resale of Project components. The current cost of decommissioning the Project is estimated to be approximately $86,650 per turbine or $31,856 per MW (based on 2.72 MW turbines) in 2020 dollars. This cost includes a partial offset from the salvage value of the towers, turbine components and electrical equipment. The detailed reclamation cost estimate is provided in Appendix B of the Plan.

Q. How will you coordinate activities with local emergency response?

A. Meridian and its construction team will coordinate with first responders, including but not limited to air ambulance, local sheriff's office(s) and local fire services to develop an emergency management plan during construction and operation of the Project. Meridian will also be in contact with local first responders to offer information about the Project and to answer any questions response teams may have regarding Project plans and details.

Dated this 24th day of April, 2020.

/s/ Blake Crosby

Blake Crosby, ENGIE North America Inc.