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 HUGHES AND HYDE COUNTIES, SOUTH DAKOTA, FOR NORTH BEND WIND PROJECT

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PRE-FILED DIRECT TESTIMONY OF MANUELA ELIZONDO, TETRA TECH,
ON BEHALF OF ENGIE NORTH AMERICA, INC.

June 11, 2021

TABLE OF CONTENTS

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

A. My name is Manuela Elizondo and I am a Project Manager with Tetra Tech, Inc. My office location is 350 Indiana Street, Suite 500, Golden, Colorado.

Q. Briefly describe your educational background.

A. I have a Bachelor of Arts in Environmental Studies and a Bachelor of Arts in Geography from Villanova University in Radnor, Pennsylvania.

Q. Briefly describe your professional experience.

A. I have approximately 6 years of environmental consulting experience, largely related to supporting environmental permitting and compliance activities throughout the energy and transportation sectors. I have been involved in various aspects of project work, including wetland delineations and wetland permitting, siting and routing, agency consultations, impact analyses, mitigation planning, land use permitting, public outreach, and state and federal level environmental review documents and permitting of energy projects. Over the last 4 years this work has consisted largely of renewable energy projects in the Midwest.

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 purpose is to support several sections of the application including:

Section 7- Effect on Physical Environment

Section 8-Effect on Hydrology

Section 10-Effect on Aquatic Ecosystems

Section 11.4-Visual Resources

Section 13-Water Quality

Section 14-Air Quality

Q. Please describe the physical environment of the proposed project area.

A. The Project Area lies within the Coteau du Missouri division of the Great Plains Province. The Coteau du Missouri is a north-south trending, 25 to 80-mile-wide highland extending through South Dakota occupying a belt of territory between the Missouri River Trench and James River Lowland physiographic divisions (Speck 1988; Helgerson and Duchossois 1987). The James River Lowland division, located east of the Project Area, is approximately 500 feet lower in elevation than the Coteau du Missouri. The Project Area is in south-western Hyde County and east-central Hughes County traversing portions of the Ree Hills. The Ree Hills have the highest elevation in Hyde County with an elevation of 2,190 feet above mean sea level located east of the Project Area. Hughes County highest elevation of 2,055 feet above mean sea level is located southwest of the Project Area. Figure 4a (Appendix A) shows the topographic relief within the Project Area ranges from approximately 1,800 to 2,145 feet above mean sea level, which represents a variation of approximately 345 feet (U.S. Geological Survey [USGS] 7.5-minute topographic quadrangles Chapelle Lake, Chapelle Lake NW, Chapelle Lake SE, Chapelle Lake SW and De Grey NE; USGS 2021a).

Q. What is the underlying geology of the region?

A. The surficial geology of Hyde and Hughes counties consists of late Wisconsin age glacial deposits, which form a mantle up to 500 feet thick over the Pierre shale bedrock and consist primarily of till and outwash. In the Project Area, these surficial deposits generally range

from 50 feet in thickness up to 150 feet in thickness (Helgerson and Duchossois 1987).

Q. Is there significant risk of seismic activity or subsidence in the area?

A. The risk of seismic activity in the Project Area is extremely low to negligible. The potential for subsidence within the Project Area is negligible.

Q. Are there expected impacts on local geological conditions?

A. The geologic conditions within the Project Area are appropriate for the construction of the Project and will result in negligible impacts on geologic resources. Excavation, bearing and groundwater conditions are anticipated to be conducive to construction and operation of the Project facilities.

Q. What about farmland in the area?

A. Approximately 50 percent of the Project Area is classified as not prime farmland and approximately 3 percent of the Project Area is classified as prime farmland (Table 7-2; Figure 5b in Appendix A). Approximately 16 percent of the Project Area is classified as farmland of statewide importance. The remaining land within the Project Area is considered prime farmland if irrigated (31 percent).

Q. Are there expected impacts to soils?

A. Construction activities such as clearing, grading, trench excavation and backfilling, as well as the movement of construction equipment within the construction workspace, may result in impacts to soil resources. Potential impacts on soil resources include soil erosion, soil compaction, reduction of soil fertility and changes to other soil characteristics. Clearing removes protective cover and exposes soil to the effects of wind and precipitation, which may increase the potential for soil erosion and movement of sediments into sensitive environmental areas. Grading and equipment traffic may compact soil, reducing porosity and percolation rates, which could

result in increased runoff potential. Contamination from release of fuels, lubricants and coolants from construction equipment could also impact soils. The majority of these impacts are temporary and related to construction activities; however, there will be permanent impacts associated with aboveground facilities.

Table 7-2 provides a summary of farmland types affected by the Project. Land impacted by the installation of these facilities will be converted to impervious surfaces, thereby resulting in long-term operational impacts altering the soil composition at these locations.

Q. What Mitigation Measures will be used for Soil Resources?

A. Wind facilities are predominantly designed with turbines situated at higher elevations to minimize obstructions to wind. The current layout sites access roads away from steep slopes to the degree possible. The underground collector lines also avoid crossing steep ravines. Geotechnical soil borings will be conducted at wind turbine foundation locations prior to construction to determine the soil suitability to support turbine foundations. This information will help dictate final design parameters of the turbine and structure foundations.

Q. What permits are required for construction due to impacts on soils?

A. Construction of the Project will require coverage under the South Dakota Department of Environment and Natural Resources (SDDENR) General Permit for Storm Water Discharges Associated with Construction Activities. To maintain compliance with provisions of this General Permit, North Bend Wind will prepare a Stormwater Pollution Prevention Plan (SWPPP) to identify potential sources of stormwater pollution from the Project Area and specify best management practices (BMPs) to control erosion and sedimentation and minimize negative impacts caused by stormwater discharges from the Project. The SWPPP will be prepared prior to construction of the Project. The SWPPP will be implemented from the initiation of construction

and used through site restoration efforts. Once construction has been completed, North Bend Wind will backfill graded and excavated areas with the stored native material and return surface conditions to pre-construction conditions. During Project operation, stormwater volume, stormwater flow and erosion and sediment impact to surface water and groundwater resources are not anticipated to change from pre-construction conditions.

Q. Have you considered impacts on groundwater resources?

A. Construction of the Project is not anticipated to have long-term impacts on groundwater resources. As discussed, disturbances associated with Project construction activities are primarily limited to the upper 3 to 6 feet with excavations for turbine foundations reaching up to 10 feet, which are above the water table of most of the aquifers in the Project Area. Construction activities such as trenching and backfilling and dewatering that encounter shallow surficial aquifers may result in negligible to minor short-term and very localized fluctuations in groundwater levels depending on the proximity and connectivity of groundwater and extent of the excavated area. Once the construction activity has been completed, the groundwater levels typically recover quickly.

Q. Are there mitigation techniques to be found in construction decisions?

A. Turbines and the MET tower will be constructed on higher elevation portions of the Project Area to maximize the wind resource and as such, generally avoid direct impacts to wetlands and waterbodies, which tend to be in lower topographic positions. Prior to construction, North Bend Wind will conduct wetland and waterbody delineations within the Project Area according to the USACE Wetlands Delineation Manual, Great Plains Regional Supplement (Environmental Laboratory 1987). Access roads, collector systems, the interconnection switching station, and the collection substation will be designed to avoid or minimize impacts to

wetland and waterway features whenever feasible. Temporary impacts associated with crane paths will also be minimized. Installation of underground utilities is expected to avoid impacts by boring under water features as necessary and will minimize impacts to wetlands and waterbodies or where possible make them coincident with other impacts (e.g., crane paths). Where crossings of streams and drainageways cannot be avoided by access roads, appropriately designed crossings (i.e., culverts, low-water crossings) will be constructed to maintain existing drainage. Temporary impacts may also result from construction matting to access certain locations.

Q. What about impacts to surface waters and wetlands?

A. Temporary and long-term operational impacts to surface waters and wetlands are discussed in Sections 8.2.2.1 through 8.2.2.4. Construction activities in the vicinity of these waterbodies and wetlands may temporarily increase sedimentation due to erosion and from changes in runoff patterns and water volumes due to increased impervious surfaces. This could temporarily degrade the water quality of aquatic habitat supporting these species. Impacts are anticipated to be short term and localized. As described in Section 8.2.3, for surface water and wetlands, BMPs will be designed and utilized to control sedimentation and erosion during the construction phase of the Project.

Q. Please discuss the visual impacts of the project.

A. As previously discussed, North Bend Wind has collocated linear Project features such as access roads and collector and communication systems with existing disturbances where possible. This is consistent with the South Dakota Bat Working Group's and South Dakota Department of Game, Fish and Parks (SDGFP's, Undated) Siting Guidelines for Wind Power Projects in South Dakota for reducing impacts to visual resources. Similarly, operation of the

Project will not introduce new visual components into the Project vicinity. The Project vicinity already includes wind turbines from the South Dakota Wind Energy Center and the Triple H Wind Project, as well as existing electrical transmission lines.

The magnitude of visual impacts associated with the Project will depend on several factors, including:

Distance of the proposed Project facilities from viewers;

Duration of views (highway travelers vs. permanent residents);

Weather and lighting conditions;

The presence and arrangements of lights on the turbines and other structures; and

Viewer attitudes toward renewable energy and wind power.

To minimize visual impacts of the Project, North Bend Wind has incorporated setback requirements and commitments into the design of the Project (Table 12-1). In accordance with Federal Aviation Administration (FAA) regulations, the towers will be painted to reduce potential glare and minimize visual impact.

Q. Are any impacts to surface or groundwater anticipated? If so, please describe them.

A. Groundwater and surface water resources are discussed in Section 8.0. As discussed, the excavation and exposure of soils during the construction and decommissioning of wind turbines, access roads, underground collector lines and other Project facilities may temporarily cause sediment runoff during rain events. This sediment may temporarily increase the total suspended solids loading in receiving waters. However, erosion control BMPs will keep sediments on site that might otherwise increase sediment loading in receiving waters.

Construction of the Project will require coverage under the General Permit for Storm Water Discharges Associated with Construction Activities issued by the SDDENR. A condition

of this permit is the development and implementation of a SWPPP. The SWPPP will be developed during civil engineering design of the Project and will prescribe BMPs to control erosion and sedimentation. The BMPs may include silt fence, wattles, erosion control blankets, temporary stormwater sedimentation ponds, revegetation and/or other features and methods designed to control stormwater runoff and mitigate erosion and sedimentation. The BMPs will be implemented to reduce the potential for impacts to drainage ways and streams by sediment runoff. Because erosion and sediment control will be in place for construction, operation and decommissioning of the Project, impacts to water quality are not expected to be significant.

The potential for fuel spills during construction and operation will be mitigated by secondary containment of any on-site fuel storage that will be inspected regularly, with containment being remediated promptly in accordance with the Project's Spill Prevention, Control and Countermeasures Plan (SPCC) Plan. Fuel handling activities and spill remediation will also adhere to the procedures outlined in the Project's SPCC Plan.

Q. What impacts from construction are anticipated to air quality in the area?

A. As found in Section 14, temporary construction impacts include fugitive dust emissions and short-term emissions from diesel trucks and construction equipment. Temporary impacts will result if a batch plant is required. Any air quality effects resulting from construction will be short term and limited to the time of construction activities and will not result in North American Ambient Air Quality Standards (NAAQS) exceedances for particulate matter or significantly contribute to greenhouse gas emissions.

Dated this 11th day of June, 2021.

/s/

Manuela Elizondo, Project Manager – Tetra Tech