PREFILED DIRECT TESTIMONY OF
JEREMY SPAETH
ON BEHALF OF TIMBERMILL WIND, LLC

NCUC DOCKET NO. EMP-118, SUB 1

INTRODUCTION

Q. PLEASE STATE YOUR NAME, TITLE AND BUSINESS ADDRESS.

A. My name is Jeremy Spaeth. I am a Civil Engineer for Apex Clean Energy, Inc. My business address is 310 4th St. NE, Suite 300, Charlottesville, VA 22902.

Q. PLEASE DESCRIBE YOUR EDUCATION AND PROFESSIONAL EXPERIENCE.

A. I received my Bachelor of Science degree in Civil Engineering from the University of Wisconsin – Milwaukee. I have worked professionally as a civil engineer for over 10 years and have been a licensed Professional Engineer for the past 5 years. Prior to joining Apex Clean Energy, Inc., I worked for an engineering consulting firm as well as for Strata Solar where I was a project engineer assisting the development and construction of solar facilities across North Carolina and the southeastern United States.

Q. PLEASE SUMMARIZE YOUR CURRENT EMPLOYMENT RESPONSIBILITIES.

A. I provide subject matter expertise on the design and civil engineering matters for both wind and solar projects in Apex Clean Energy Holdings, LLC's ("Apex") portfolio. I assist in the layout and design of wind energy facilities, as well as manage consultants performing services related to geotechnical investigation and design, surveying, and civil engineering. This includes civil engineering activities for the Timbermill Wind, LLC ("Timbermill") facility (the "Facility").

Q. HAVE YOU PREVIOUSLY TESTIFIED BEFORE THIS COMMISSION?

A. No.

Q. WHAT IS THE PURPOSE OF YOUR TESTIMONY?

A. The purpose of my testimony is to support the Application for Certificate of Public Convenience and Necessity to construct a merchant plant (the "CPCN Application") and the Application for Certificate of Environmental Compatibility and Public Convenience and Necessity (the "CECPCN Application") to construct an approximately 6 mile 230kV transmission line (the "Timbermill Line") to interconnect the Facility to the existing 230kV Winfall-Mackeys transmission line (the "Winfall Line") owned by Virginia Electric and Power Company, d/b/a Dominion Energy North Carolina ("DENC").

Q. WERE YOU INVOLVED IN PREPARING TIMBERMILL'S CPCN AND CECPCN APPLICATIONS IN THE ABOVE-REFERENCED DOCKETS?

A. Yes.

Q. PLEASE BRIEFLY DESCRIBE THE FACILITY COMPONENTS.

A. The Facility will consist of up to 45 4.2MW Vestas V150 turbines, or a turbine model with a substantially similar profile. The Vestas V150 turbines have a hub height of 345 feet and a maximum tip height of 591 feet. The turbine foundations are typically circular and approximately 60 to 80 feet in diameter and approximately 6 to 12 feet in depth. The foundation consists of poured-in-place concrete with steel rebar for reinforcement. All foundations will be designed and stamped by a structural engineer. An independent quality control testing firm will be on site during construction to test the concrete and soils to ensure they meet design requirements. Final site layout will be determined based on additional geotechnical and environmental studies and meteorological data.

A medium voltage (34.5kV) underground collection line will connect each turbine as a circuit and run back to the Collector Substation, which is located near the center of the Facility. The underground collection lines will be buried at a minimum of 42 inches

deep. At the Collector Substation, which will be owned by Timbermill, the voltage will be stepped up to 230kV. The Timbermill Line will connect the Collector Substation to the Interconnection Switching Station owned by DENC. The testimony of my engineering colleague, Emmanuel Wemakoy, provides additional detail on the Collector Substation, Timbermill Line, and Interconnection Switching Station.

Existing access roads will be utilized as much as possible throughout the Project Area, and will be improved as needed to support deliveries to the turbine locations. New, approximately 16-foot gravel access roads to each turbine location will be built off of the existing roads. Cranes required to construct the turbine sections will be "walked" from one turbine to the next.

Q. WHAT ENGINEERING CONSIDERATIONS WERE TAKEN INTO ACCOUNT DURING THE DESIGN OF THE FACILITY?

A. The proposed Facility layout, included in the CPCN Application as CPCN Application Addendum 5, takes into consideration setbacks required by the Conditional Use Permit issued by Chowan County, as well as Timbermill's internal setbacks from property lines, habitable buildings, and other features.

Timbermill has delineated all wetlands and streams within the proposed area of disturbance and is currently working with the United States Army Corps of Engineers to receive a jurisdictional determination with respect to the delineated waters of the United States and the State of North Carolina in the Project Area. Timbermill will permit any wetland and stream impacts from the Facility. A significant portion of the Project Area is managed timber with well-built access roads to serve the active timber operations. Timbermill will utilize these existing roads for equipment deliveries and operations, and will make improvements to the roads where necessary. New access roads will be built for the Collector Substation and where turbines are not readily located off existing roads. Collection lines will be underground and to the greatest extent possible will avoid

disturbance of any jurisdictional ditches. Turbine foundations will be designed to all state and national building codes, and specifically for extreme weather events such as hurricanes and other high-wind events.

Q. WHAT RULES AND REGULATIONS GOVERN THE DESIGN AND CONSTRUCTION OF THE FACILITY?

A. The Facility design is regulated by the North Carolina Building Code, the National Electric Code, and applicable federal, state and local permits obtained for the Facility. All engineering drawings will be stamped by a professional engineer licensed in North Carolina and construction material testing will be performed throughout construction to ensure materials meet the engineering requirements.

Q. WHO WILL BE RESPONSIBLE FOR CONSTRUCTING THE FACILITY?

A. Timbermill will contract with a proven and experienced Engineering, Procurement, and Construction ("EPC") firm to oversee the construction of the Facility. DENC will construct the Interconnection Switching Station.

Q. PLEASE DESCRIBE THE DECOMMISSIONING PROCESS FOR THE FACILITY.

A. Decommissioning includes the removal of all turbines, the Collector Substation, the Timbermill Line, and all other ancillary equipment above ground. The collection lines, turbine foundations, and underground ancillary equipment will be removed to a depth of three feet. New access roads will be removed unless landowners approve the roads remaining in place. After the Facility components described above are removed, the Project Area will be returned to conditions substantially similar to preconstruction and will be re-seeded. The decommissioning process will take approximately three months.

Q. CAN YOU SPEAK TO THE AREA'S SUITABILITY FOR CONSTRUCTION OF A WIND ENERGY FACILITY?

A. The Project Area has good access, with close accessibility from US-17 which has connectivity to I-95 via US-64. That, and close proximity to the coast and various coastal ports, provide routes to transport Facility components to the Project Area.

The topography in the Project Area is limited, which eases all aspects of the construction process and reduces the amount of grading required. As mentioned above, the Project Area is a mixture of a timber plantation and farming; therefore, the land has been improved over many years to provide adequate drainage and site access. The current land uses of the participating properties help the suitability of the land for the construction of a wind energy facility. In addition, the current land uses will be able to co-exist once the Facility is operational.

Q. WILL THE FACILITY CONFORM TO ALL APPLICABLE FEDERAL, STATE AND LOCAL LAWS AND REGULATIONS?

A. Yes. All construction, operations and maintenance will be conducted in accordance with applicable laws and regulations.

Q. DOES THIS CONCLUDE YOUR TESTIMONY?

A. Yes.