BEFORE THE PUBLIC UTILITIES COMMISSION
OF THE STATE OF SOUTH DAKOTA

IN THE MATTER OF THE APPLICATION OF WILD SPRINGS SOLAR, LLC FOR AN ENERGY FACILITY PERMIT FOR THE WILD SPRINGS SOLAR PROJECT

SD PUC DOCKET EL 20-___

DIRECT TESTIMONY OF CHIP LACASSE
ON BEHALF OF WILD SPRINGS SOLAR, LLC

May 15, 2020

I. INTRODUCTION AND QUALIFICATIONS

Q. Please state your name, employer, and business address.

A. My name is Chip LaCasse. I am the Construction Manager at Geronimo Energy, LLC ("Geronimo"), located at 8400 Normandale Lake Boulevard, Suite 1200, Bloomington, Minnesota.

Q. Briefly describe your educational and professional background and duties.

A. I have a Bachelor of Material Science and Engineering from the University of Minnesota College of Science and Engineering. I started my career in 2001 working in the oil and gas industry as a field engineer, project manager, and operations petrophysicist consultant. I have been with Geronimo since 2016, where I manage the contracting, procurement, engineering, and construction of solar energy projects. I am a licensed Project Management Professional and a member of the Project Management Institute and the American Solar Energy Society. A copy of my curriculum vitae is provided as Exhibit A4-1.

Q. What is your role with respect to the Wild Springs Solar Project (the "Project")?

A. I am managing material and equipment contracting and procurement for the Project and will oversee the Project's construction.

II. PURPOSE OF TESTIMONY

Q. What is the purpose of your Direct Testimony?

A. The purpose of my testimony is to discuss Project construction, operation and maintenance, and decommissioning. Additionally, I will discuss the Project's compliance with Pennington County's sound requirement for solar facilities.

Q. What exhibits are attached to your Direct Testimony?

A. The following exhibit is attached to my Direct Testimony:

- Exhibit A4-1: Curriculum Vitae

Q. Please identify the sections of the Energy Facility Permit Application ("Application") that you are sponsoring.

A. I am sponsoring the following portions of the Application:

- Section 4.5: Project Construction
- Section 4.6: Project Operation and Maintenance
- Section 5.0: Decommissioning of Energy Facilities
- Section 9.5.3: Noise
- Section 11.4: Applicant's Burden of Proof
- Section 12.0: Testimony and Exhibits
- Appendix D: Decommissioning Plan

III. PROJECT CONSTRUCTION

Q. Please discuss the personnel that will be involved in construction of the Project.

A. Wild Springs will hire a qualified construction contractor to oversee construction of the Project and will designate an on-site construction manager to schedule and coordinate the activities of the engineering, procurement, and construction teams. At peak construction, over 150 construction workers would be on site, and personnel would include construction management, safety supervision, quality supervision, civil contractor, foundation and racking installer, fencing contractor, electricians and others. Throughout construction, Wild Springs will also have internal, on-site personnel responsible for ensuring compliance with applicable permitting requirements and commitments.

Q. What is the anticipated construction time schedule?

A. Construction is anticipated to begin as early as the fall of 2021 and would be completed by the end of 2022. Excluding winter months when no construction takes place, construction is anticipated to take up to 12 months.

Q. In addition to the environmental site analysis that has been conducted, what other pre-construction activities will be conducted?

A. Prior to construction, Wild Springs will complete a geotechnical analysis to determine specific soil conditions, which will inform the final design of Project components. Additionally, we will conduct one-call utility locates to confirm the location of any underground facilities.

Q. Please describe the construction process.

A. Construction will begin with site preparation, including removal of vegetation and grading, as needed. Fencing would be installed around the construction site, and laydown yards and access roads would be constructed to prepare the site for facility installation.

Once grading activities are complete, the solar facilities (arrays) will be constructed in blocks, and multiple blocks could be constructed simultaneously. Construction of the arrays will include: pre-positioning and driving piles; mounting the tracking rack system to the piles; pre-positioning panel pallets; mounting panels to the tracking rack system; the completion of electrical connections, terminations, and grounding; and installation of cable management systems.

Once the solar arrays are constructed, electrical cables will be installed to connect the panels to the inverter/transformer skids, where the power is converted from direct current ("DC") to alternating current ("AC") and stepped-up to 34.5 kilovolts ("kV"). As discussed in the Direct Testimony of Michael Morris, these cables may be installed below-ground or a hybrid of above-ground and below-ground. Between the inverter/transformer skids and the Project substation, below-ground collection cables will be installed. Construction of the Project substation will include site preparation and installation of substructures (concrete foundations and embedments) and electrical equipment. Up to three weather stations would also be erected.

Once all facilities have been installed (including the transmission line between the Project substation and the New Underwood Substation), the Project will undergo inspection, testing, and commissioning.

Q. How will the site be reclaimed post-construction?

A. Following construction, areas that will not contain permanent facilities (area under the arrays and the laydown yards that will not be converted into permanent parking for operations) will be stabilized with sediment stabilization and erosion control measures, such as silt fence and biologs, and re-vegetated according to the Vegetation Management Plan provided in Appendix C to the Application. Additional information regarding the Vegetation Management Plan is provided in the Direct Testimony of Melissa Schmit.

IV. PROJECT OPERATIONS AND MAINTENANCE

Q. Please discuss the operations and maintenance personnel that will be required for the Project.

A. Following commissioning and commercial operation, the care, custody, and control of the Project will transfer from the construction team to the operations staff. Operations and maintenance of the Project will require approximately four full-time personnel, consisting of a plant manager and three technicians.

Q. Please describe the responsibilities of the operations and maintenance staff.

A. The operations and maintenance staff will be responsible for ensuring the Project is operating and being maintained in compliance with approved permits, prudent industry practice, and the equipment manufacturer's recommendations. The operations staff will monitor the Project's performance, conduct regular equipment inspections, perform predictive/preventative equipment maintenance

and repairs, and perform general facility housekeeping, including implementing the Vegetation Management Plan and maintaining roads.

Q. How will the Project be monitored between inspections?

A. The Project will use a supervisory control and data acquisition ("SCADA") system, which provides 24/7 monitoring of and communication with the Project. This system will relay alarms and communication errors to the Project's operations and maintenance building.

Q. Is there a back-up monitoring system in the event the on-site system is not available?

A. Yes. Project data will also be transmitted to a third-party secure facility that will monitor the Project's operations and performance.

Q. What steps will the Project take to prepare for a potential emergency situation at the Project site?

A. A site-specific emergency response plan will be prepared for the Project in coordination with local emergency response personnel. The plan will outline steps to take in the event of an emergency, including de-energization of the facility, and will include Project maps and contact information for the operations and maintenance personnel. The plan will be shared with local emergency responders and filed with the Commission.

V. DECOMMISSIONING

Q. What is the expected life of the Project?

A. The Project's expected life is approximately 20 to 30 years from the date of first commercial operation. However, Wild Springs may explore options for continuing operations beyond this timeframe, such as retrofitting facilities with upgraded technology.

Q. Are there any decommissioning requirements applicable to the Project?

A. Yes. Pennington County's Zoning Ordinance includes decommissioning requirements for solar facilities. Those requirements include beginning decommissioning within eight months and completing decommissioning within eighteen months after the Project reaches the end of its useful life, unless otherwise approved by the Pennington County Planning Commission. Additionally, all Project-related equipment, foundations, and ancillary equipment must be removed to a depth of forty-two inches below grade, and other facilities must be removed unless the landowner requests in writing that they remain in place. Following removal, the site must, to the extent possible, be reclaimed to the original topography and topsoil quality. The Project will also be required to execute agreements, as needed, regarding County road use and repair during decommissioning activities. Additional information regarding decommissioning requirements are provided in Section 5.0 of the Application.

Q. What will the Project do with facilities removed from the site?

A. It is anticipated that many of the facility components removed during decommissioning will be able to be reused or recycled. For example, functioning solar panels, inverters, and transformers can be reused at another facility; if not functioning, the components can be recycled, as can racking, steel pier foundations, conduit, and electrical boxes. Recycling of solar panels and equipment is rapidly evolving and can be handled through a combination of sources such as certain manufacturers, PVCycle (an international program that some silicon manufacturers participate in), or waste management companies. More than 90 percent of the semiconductor material and glass can be reused in new modules and products.

Q. Has Wild Springs prepared a decommissioning plan for the Project?

A. Yes, a Decommissioning Plan for the Project was prepared by Westwood Engineering and is provided in Appendix D of the Application. For further

discussion of the plan and decommissioning financial assurance, please see the Direct Testimony of Melissa Schmit.

VI. COMPLIANCE WITH PENNINGTON COUNTY NOISE STANDARD

Q. What components of a solar project emit sound?

A. The main sources of sound from the Project during operation will be from the inverter/transformer skids, which include the inverter and air conditioner housed in each, and to a lesser extent from the main power transformer at the Project substation and rotation of the tracking system.

Q. Are there any noise standards applicable to the Project's operations?

A. Yes. For utility scale solar facilities, Pennington County has a noise limit of 55 A-weighted decibels ("dBA") at the closest parcel line.

Q. Does the Project meet the Pennington County noise standard?

A. Yes. The table below shows the inverter, tracker, and main power transformer equipment currently being considered for the Project, as well as the distance away from the equipment at which the sound level is 55 dBA, as provided by the technology manufacturers.

Inverter and Tracker – Distance to 55 dBA		
Facility Type	**Equipment Model**	**Distance to 55 dBA**
Inverter	Sungrow SG3150U-MV	52 feet
	TMEIC Solar Ware Ninja PVU-L0920GR	33 feet
	SMA Sunny Central SC-4200-UP	143 feet
Tracker	NexTracker Horizon	< 5 feet
	Soltec SF7	10 feet
Transformer	Main Power Transformer	23 feet

As shown in the table, the maximum distance to 55 dBA for an inverter is 143 feet for the SMA Sunny Central inverter. The Project has been designed with a minimum distance between an inverter and any parcel line, including those within the Project boundary, of 150 feet. Similarly, the maximum distance to

reach 55 dBA for a tracker is 10 feet for the Soltec tracker, and the Project has been designed with a minimum distance of 30 feet between a tracker and any parcel line. The maximum distance to reach 55 dBA for the main power transformer is 23 feet, and the Project has been designed with a minimum distance of 59 feet to any parcel line.

Q. Have you analyzed the anticipated sound levels at nearby residences?

A. The closest residence is approximately 147 feet east of the northwestern portion of the Land Control Area along Garret Road. The closest array tracker to the property line of the parcel on which the residence is located is 35 feet, and the closest inverter to the same property line is 274 feet. Thus, the total distance from the residence to a tracker is 182 feet and from the residence to an inverter is 582 feet. The closest residence to the Project substation is 2,567 feet.

Generally speaking, sound reduces approximately 6 dBA with doubling of distance. At 50 feet from the inverter (which has a sound output greater than the tracker or main power transformer), the sound level is 60 dBA. Based on a logarithmic equation commonly used for calculating sound levels at varying distances[1], the Project's sound output level at the closest residence is anticipated to be 38.6 dBA. Since the equation does not account for sound attenuating factors other than distance, the calculation is conservative, so actual sound levels are anticipated to be even less. Since other residences in the area are even further away from an inverter, the sound at those residences would be even lower than calculated for the closest residence.

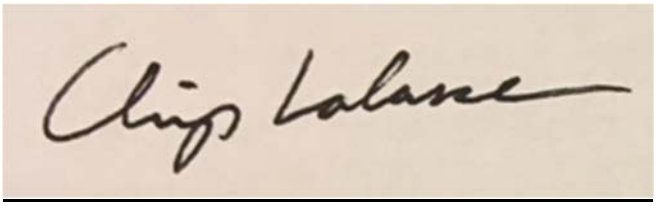
[1] Harris, C.M. 1991. *Handbook of Acoustical Measurements and Noise Control*, 3rd Edition. 1991. McGraw-Hill. 1024 pp.

VII. CONCLUSION

Q. Does this conclude your Direct Testimony?

A. Yes.

Dated this 15th day of May, 2020.



Chip LaCasse

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