BEFORE THE PUBLIC UTILITES COMMISSION
OF THE STATE OF SOUTH DAKOTA

IN THE MATTER OF THE APPLICATION OF
CROWNED RIDGGE ENERGY STORAGE, LLC FOR A FACILITIES PERMIT TO CONSTRUCT A 120-MEGAWATT BATTERY ENERGY STORAGE SYSTEM FACILITY

Docket No. EL26-

DIRECT TESTIMONY AND EXHIBIT

OF LAURIE MORRILL

May 14, 2026

I. INTRODUCTION AND QUALIFICATIONS

Q. PLEASE STATE YOUR NAME AND BUSINESS ADDRESS.

A. My name is Laurie Morrill. My business address is 3 Mill & Main Place, Suite 250, Maynard, MA 01754.

Q. BY WHOM ARE YOU EMPLOYED AND IN WHAT CAPACITY?

A. I am employed at Epsilon Associates, Inc. ("Epsilon"). I am a Lead Scientist in the company's acoustics group.

Q. PLEASE DESCRIBE YOUR BACKGROUND AND QUALIFICATIONS.

A. I received a Bachelor of Arts in Physics from Reed College and a Master of Environmental Studies from the University of Melbourne. I have over 13 years of experience in specialized acoustical analysis for energy projects, including solar and wind farms, battery energy storage systems, as well as biogas facilities, and natural gas and liquified natural gas infrastructure across the United States. My work includes evaluating potential community impacts, ensuring compliance with local, state, and federal noise regulations, supporting permitting processes, developing and executing comprehensive sound level measurement programs, constructing complex predictive sound models, and designing mitigation measures to meet regulatory standards. In addition to conducting and/or managing the impact assessments, I have served as a subject matter expert presenting results of acoustical analyses at public meetings and to county and township boards. Additional details regarding my education, background and experience are contained in my curriculum vita which is attached as Exhibit A.

Q. HAS THIS TESTIMONY BEEN PREPARED BY YOU OR UNDER YOUR DIRECT SUPERVISION?

A. Yes.

Q. HAVE YOU TESTIFIED BEFORE THE SOUTH DAKOTA PUBLIC UTILITIES COMMISSION?

A. No

Q. PLEASE DESCRIBE THE PURPOSE OF THE TESTIMONY.

A. The purpose of my testimony is to provide additional context and support regarding the information set forth in the Sound Level Analysis Report ("Sound Report") contained in Exhibit B to my testimony.

II. SOUND MODELING RESULTS

Q. PLEASE DESCRIBE THE SOUND STUDY THAT WAS CONDUCTED FOR THE PROJECT.

A. A conservative prediction of operational sound levels associated with the proposed Project was made using CadnaA sound propagation modeling software developed by DataKustik GmbH, which is a commonly used tool in the acoustics industry for sound level prediction. This software incorporates the international standard ISO 9613-2 for sound propagation (Acoustics - Attenuation of sound during propagation outdoors - Part 2: Engineering

method for the prediction of sound pressure levels outdoors). The details of this study are documented in the Sound Report.

The model included sound sources associated with the proposed battery energy storage system (BESS) facility. Cumulative impacts were considered by including other energy facilities in the area, including sound sources associated with the existing Crowned Ridge Wind and Crowned Ridge Wind II projects and the more distant Dakota Range wind project.

Reference sound level data of the inverters and battery storage containers for the proposed BESS were provided by NEER. Data for the wind farm sources were taken from previous sound level study reports and equipment manufacturer data sheets. Epsilon estimated the broadband and octave-band sound power levels of the substation transformers using the MVA rating provided and engineering techniques in the Electric Power Plant Environmental Noise Guide.

The Project design includes a 20-foot-tall sound wall that runs along the north and west sides of the BESS area fence line. The sound wall will be approximately 860 feet long and will mitigate Project sound level north and west of the facility.

Several modeling assumptions inherent in the ISO 9613-2 calculation methodology, or selected as conditional inputs by Epsilon, were implemented in the CadnaA software to ensure conservative results (i.e., higher sound levels). These include the following:

- Assuming all sound sources were operating simultaneously and at maximum level,
- All wind turbine sources were modeled with a ground attenuation factor of 0, corresponding to a completely reflective ground surface, and no additional

uncertainty. These parameters are consistent with the industry standard for modeling wind energy projects.

- The BESS sources were modeled with the ground attenuation factor set to 0 for the BESS and substation areas, and 0.5 for all other terrain, corresponding to a mix of reflective and absorptive ground surfaces. An additional 2 dB was added to each source to account for uncertainty in the calculation methodology.
- In accordance with the per ISO 96132 standard, the model includes favorable conditions for sound propagation, corresponding to a moderate, well-developed ground-based temperature inversion, as might occur on a calm, clear night, or equivalently downwind propagation.
- Meteorological conditions assumed in the model (T=10°C/RH=70%) were selected to minimize atmospheric attenuation in the 500 Hz and 1 kHz octave bands where the human ear is most sensitive.

For these reasons, the sound model results provide a conservative prediction of sound levels associated with the Project.

Q. PLEASE SUMMARIZE THE FINDINGS OF THE SOUND REPORT?

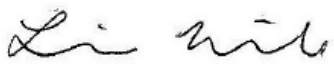
A. Based on the conservative nature of the sound modeling, the results indicated that the broadband cumulative sound pressure levels due to the Project and the three wind energy projects in the area are not anticipated to exceed 45 dBA at all non-participating occupied structures or 50 dBA at all participating occupied structures. For this analysis, sound levels were evaluated at 11 noise-sensitive receptors within 1.6 miles of the proposed BESS facility. Therefore, modeling indicates that the Project will meet the regulatory sound level

limits agreed upon by the Codington County Commission and the Project team at all residential receptors in the sound study area.

Q. DOES THIS CONCLUDE YOUR TESTIMONY?

A. Yes, it does.

Dated this 14th day of May, 2026.



Laurie Morrill