BEFORE THE PUBLIC UTILITIES COMMISSION
OF THE STATE OF SOUTH DAKOTA

IN THE MATTER OF THE APPLICATION BY
WESTERN MINNESOTA MUNICIPAL POWER AGENCY AND MISSOURI RIVER ENERGY SERVICES FOR A FACILITY PERMIT FOR AN ENERGY CONVERSION FACILITY AND ASSOCIATED FACILITIES INCLUDING AN ELECTRIC TRANSMISSION LINE IN DEUEL COUNTY, SOUTH DAKOTA

SD PUC DOCKET EL25-028

PRE-FILED DIRECT TESTIMONY OF JACOB POLING
ON BEHALF OF WESTERN MINNESOTA MUNICIPAL POWER AGENCY
AND MISSOURI RIVER ENERGY SERVICES

December 18, 2025

I. INTRODUCTION AND QUALIFICATIONS

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

A. My name is Jacob Poling and my employer is Stantec Consulting Services, Inc (Stantec). My business address is One Carlson Parkway North, Suite 100, Plymouth, Minnesota 55447.

Q. On whose behalf are you providing this testimony?

A. I am providing this testimony on behalf of Western Minnesota Municipal Power Agency ("WMMPA") and Missouri River Energy Services ("MRES") (collectively, "Applicants") in support of their Facility Permit Application ("Application") to the South Dakota Public Utilities Commission.

Q. Briefly describe your educational and professional background.

A. I hold a Bachelor of Arts degree in Acoustics from Columbia College Chicago. I am Board Certified by the Institute of Noise Control Engineering and have 15 years of experience in community noise assessments to support the permitting of renewable energy, power generation, industrial, transportation, and infrastructure projects. My experience includes noise measurement surveys and acoustical testing, predictive acoustical modeling, and design of noise mitigation measures. My resume is attached as **Exhibit A**.

Q. Are you familiar with the Toronto Power Plant Project ("Project")?

A. Yes, the Project includes an energy conversion facility and associated facilities being developed by WMMPA, through its agent MRES. The Project is located within Deuel County, South Dakota, approximately 2 miles north of Toronto, South Dakota. The transmission line component of the Project extends from the power plant site to the existing Astoria 345-kV substation owned by Otter Tail Power Company ("OTP Substation").

Q. What is your role with respect to the Project?

A. I am the acoustic engineer responsible for the noise study that was completed for the Project. The baseline sound monitoring, noise modeling, and associated reports for the Project were completed under my direction.

II. PURPOSE OF TESTIMONY

Q. What is the purpose of your Direct Testimony?

A. The purpose of my testimony is to provide an overview of the Toronto Power Plant Baseline Sound Monitoring and Modeling Report conducted by the Applicants and submitted as Appendix E to the Application.

Q. What exhibits are attached to your Direct Testimony?

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

- Exhibit A: Jacob Poling Resume.

Q. Please identify which sections of the Application you are sponsoring for the record.

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

- Appendix E: Toronto Power Plant Baseline Sound Monitoring and Modeling Report

III. TORONTO POWER PLANT BASELINE SOUND MONITORING AND MODELING REPORT OVERVIEW

Q. Please provide a general overview of the methods used to conduct the Toronto Power Plant Baseline Sound Monitoring Report.

A. To establish existing ambient sound levels, continuous unattended sound measurements were completed at five locations over a 16-day period and 30-minute attended sound measurements were taken at a sixth location on three days. The sound monitoring sites were selected to represent sound levels at residences near the Project and also capture the contributions of noise generated by wind turbines and the Astoria Station power plant. The measurement equipment was calibrated in the field before and after measurements. Weather data was collected at one sound monitoring location for 9 days and publicly available weather data was reviewed for the remainder of the measurement period. The sound measurement data was then filtered to exclude periods with high wind speeds. Last, the filtered sound measurement dataset was processed to calculate average sound levels during daytime, nighttime, and 24-hour periods and also evaluate measured sound levels at various wind speeds. Sound measurement data presented in the report included A-weighted (dBA) and C-weighted (dBC) sound levels.

Q. What were the results of the Baseline Sound Monitoring Report?

A. The study results showed that the existing average hourly background (L90) sound levels at residences nearest to the Project were 36 dBA and 52 dBC. The study also found that background sound levels in the area were heavily influenced by wind speed, with sound levels at all measurement sites increasing with wind speed. Because sound levels were measured during both calm and high wind conditions and wind turbines generate higher sound levels in high wind conditions, the sound measurements that were collected represent a range of existing ambient sound conditions in the area.

Q. Please provide a summary of all inputs and assumptions used to conduct the Toronto Power Plant Noise Modeling Report.

A. Modeling of future noise generated by the Project was completed using the CadnaA environmental noise modeling software and calculation methods from the international standard ISO 9613-2. Noise model inputs included locations of the Project buildings, noise sources, and noise source heights based on the site layout drawings and equipment selection; topographic data from the U.S. Geological Survey National Elevation Dataset; manufacturer sound power level data for equipment including combustion turbines (package, exhaust stack exit, exhaust ducting, air intake, package air inlet, package air exhaust), radiators, water cooled chillers, ventilation fans, power transformers, and gas valves; acoustical characteristics of the turbine hall walls, roof, equipment doors, and interior surfaces; acoustical characteristics of the chiller buildings walls, roof, interior surfaces, and acoustical louvers. Noise mitigation measures expected to be required for the Project were included in the noise model, including exhaust gas silencers, ventilation inlet and exhaust silencers, exhaust gas duct lagging, acoustic louvers, and sound transmission specifications for the roof and wall constructions for the engine hall and chiller building. Modeling assumptions were selected to conservatively estimate noise generated by the Project. These assumptions include all equipment operating simultaneously at full load; ground absorption factors of G=0.0 for the proposed Project site to reflect acoustically hard or reflective ground and G=0.5 to simulate the relatively absorptive ground, such as grass and agricultural fields, surrounding the Project area; receptors at a height of 15 feet above ground to estimate sound levels at the upper level of two-story houses; no sound attenuation from foliage to simulate a worst-case condition when leaves have fallen off trees; and meteorological conditions that are conducive to sound propagation to simulate a moderate temperature inversion or condition where residences are downwind of the facility. Residences within one mile of the Project were identified as “receptor locations” in the noise model and sound levels were estimated at these locations.

Q. Please explain how the noise modeling incorporates the existing wind turbines and existing Astoria Station power plant operating at their maximum sound levels to consider the maximum simultaneous sound levels of the Project and existing facilities.

A. The noise modeling results did not directly account for noise generated by the existing wind turbines or power plant; modeling of these sources is not feasible without detailed sound power level information for the wind turbine generators and power plant noise sources. However, the baseline sound survey was completed with the intent of measuring sound levels to capture the contributions of existing wind turbines and the Astoria Station power plant. The power plant was observed to be operational during at least a portion of the sound survey by the Stantec field team and it is expected it was also operational during

other periods because it is a base load plant. Measured sound levels during high wind conditions when wind turbines would be generating higher sound levels were also identified in the sound monitoring report. In response to Staff's First Set of Data Requests to the Applicants, an additional cumulative noise analysis was completed to identify existing measured sound levels during high wind periods and estimate the expected cumulative sound level with the Project operating. The cumulative noise analysis results showed that at most receptors the increase in noise above existing background during these periods is expected to be a few decibels or less.

Q. What were the results of the Noise Modeling Report?

A. The results of the nose modeling report found that with inclusion of noise mitigation measures noise generated by the Project is expected to meet the Deuel County noise limit of 45 dBA and the Project noise design goal of 65 dBC at nearby residences.

IV. CONCLUSION

Q. Does this conclude your Direct Testimony?

A. Yes.

Dated this 18th day of December, 2025.

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JACOB POLING