BEFORE THE PUBLIC UTILITIES COMMISSION
OF THE STATE OF SOUTH DAKOTA

IN THE MATTER OF THE APPLICATION OF DAKOTA RANGE I, LLC AND DAKOTA RANGE II, LLC FOR AN ENERGY FACILITY PERMIT TO CONSTRUCT A WIND ENERGY FACILITY

SD PUC DOCKET EL-18-003

PREFILED REBUTTAL TESTIMONY OF DANIEL PARDO ON BEHALF OF DAKOTA RANGE I, LLC AND DAKOTA RANGE II, LLC

May 21, 2018

I. INTRODUCTION

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

A. My name is Daniel Pardo, and I work for DNV GL, with a business address of 333 SW 5th Ave, Suite 400, Portland, Oregon 97204. I work at our office location with an address of 4100 rue Molson, suite 100, Montreal, H1Y 3N1, Canada.

Q. Please describe your education and professional experience.

A. I have a Master of Science in Wind Energy from Danmarks Tekniske Universitet and a Bachelors of Engineering in Mechanical Engineering from the Universidad de Los Andes. I have 13 years of practical experience in renewables. In my current position, I provide technical advice on renewable energy projects to developers in topics such as feasibility studies, technology selection, and decommissioning assessments. A copy of my statement of qualifications is attached as **Exhibit 1**.

Q. Please describe your familiarity with the Dakota Range Wind Project ("Project").

A. DNV GL prepared the Decommissioning Cost Analysis provided as Appendix P to the Application.

Q. Did you provide Direct Testimony in this Docket on January 24, 2018?

A. No.

Q. What is the purpose of your Rebuttal Testimony?

A. The purpose of my Rebuttal Testimony is to respond to statements made in the Direct Testimony of Intervenor Kristi Mogen regarding decommissioning costs.

Q. What exhibits are attached to your Rebuttal Testimony?

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

- **Exhibit 1**: Statement of Qualifications

II. RESPONSE TO TESTIMONY OF KRISTI MOGEN

Q. Ms. Mogen indicates concerns regarding the per turbine decommissioning cost estimate for the Project. Could you provide DNV GL's per turbine decommissioning cost estimate identified in the Decommissioning Cost Analysis submitted as Appendix P to the Application, and explain the basis for that estimate?

A. Yes. DNV GL's decommissioning cost analysis for the Project includes the disassembly, removal, and disposal of wind turbines and other associated project infrastructure. The results are presented for two scenarios: one where partial resale of turbine major components happens and another scenario where it does not. For the partial resale scenario, DNV GL estimates the Project can have a positive income of $27,620 per turbine. For the scenario without partial resale, the decommissioning cost is estimated to be $38,900 per turbine.

Q. Could you explain the role of partial resale and salvage value in your per turbine decommissioning cost estimate for the Project?

A. Yes. The study assumes that some of the major components can be sold after they have been decommissioned. The resale value of these components constitutes potential income that would offset the costs of decommissioning. The study also assumes that some material can be sold as scrap and, thus, the salvage value would also offset a portion of the decommissioning costs.

Q. For what point in time is the cost estimate calculated? In other words, when is it assumed that the decommissioning costs for the Project would be incurred relative to when the Project becomes operational?

For the analysis, decommissioning is anticipated to start soon after the end of the Project's operating life (assumed to be 30 years for purposes of this study). However, the costs are calculated in 2017 dollars.

Q. In her testimony, Ms. Mogen references decommissioning costs of $200,000 per turbine, and asserts that DNV GL's decommissioning cost analysis conducted for the Project underestimates the Project's anticipated per turbine decommissioning costs. Do you agree?

A. No. It is unclear what methodology Ms. Mogen used to come to her conclusion that decommissioning costs will be $200,000 per turbine. The DNV GL decommissioning cost analysis thoroughly explains the methodology for its decommissioning cost conclusions. Additionally, the results presented in DNV GL´s cost analysis study use conservative assumptions. Some of these assumptions are: all access roads will be decommissioned, use of a conservative distance from the Project to recycling/salvage facilities, and a width of 16 feet for all access roads. For the partial resale scenario, conservative assumptions have also been made. These assumptions include: only major components that are five years or younger can be sold, and medium-grade materials, such as small motors and medium-gauge cabling, would not be resold. Thus, DNV GL's analysis provides a conservative decommissioning cost estimate based on a specified and appropriate methodology.

III. CONCLUSION

Q. Does this conclude your Rebuttal Testimony?

A. Yes.

Dated this 21st day of May, 2018.

Daniel Pardo

DNV·GL

Daniel Pardo

Senior Project Manager, Engineering

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Summary

Daniel Pardo holds a Master of Science degree in Wind Energy from DTU and has 13 years of practical experience in renewables. He was the Mexico Country Manager in Energy Advisory business for 7 years leading a team of wind and solar specialists who provided support to developers, banks, investors, and lenders for Mexico, Central América, Cuba, and Dominican Republic. He previously worked in the project development team of a renewable energy world leading utility for projects in Europe, Asia, and LATAM.

In his current position with DNV GL, Mr. Pardo is part of the Owner's Engineering team, providing technical advice on renewable energy projects to developers in topics such feasibility studies, LCOE, technology selection, turbine RFQs and RFPs, turbine bid evaluations, technology benchmarking, CAPEX and OPEX estimates, and decommissioning assessments.

Academic qualifications

M.S. Wind Energy, Danmarks Tekniske Universitet, 2004

B.Eng. Mechanical Engineering, Universidad de Los Andes, 2001

Languages	Reading level	Writing level	Speaking level
Spanish	Native	Native	Native
English	Advanced	Advanced	Advanced
French	Beginner	Beginner	Intermediate
Danish	Beginner	Beginner	Intermediate

Career profile

DNV GL – Energy, Advisory Americas (formerly GL Garrad Hassan)

Senior Project Manager, Engineering, 2016-present

- Serves as part of the Owner's Engineering team, providing technical advice on renewable energy projects to project developers in topics such as feasibility studies, LCOE, technology selection, turbine RFQs and RFPs, turbine bid evaluations, technology benchmarking, CAPEX and OPEX estimates, decommissioning assessments.

Mexico Country Manager, 2009-2016

- Lead a team of wind and solar specialists who provided support to developers, banks, investors, and lenders for Mexico, Central América, Cuba, and Dominican Republic.

Iberdrola Renewables

Wind Energy Analyst, 2004-2009

- Responsible for execution, coordination, and delivery of wind energy studies (wind potential and suitability) of onshore wind turbines in approximately 10 European countries for nearly 5000 MW
- Utilized detailed technical knowledge and skills in anemometry, wind flow, computational models, Geographic Information Systems (GIS), and maps

- Participated in the development of methodologies and unification of criteria for technical wind studies with international companies of Iberdrola Renewables

Risø National Laboratory

Research Assistant, Blade Modelling, 2004

- Performed modelling of wind turbine blades by means of finite element analyses: buckling, non-linear models, parametric studies of imperfections, etc.

Publications and presentations

D. Pardo Tovar, Finite Element Analysis of the Cross-section of Wind Turbine Blades; A Comparison between Shell and 2D-Solid Models, Wind Engineering, vol. 29, no. 1 (2005)

I. Antoniou, T. Pedersen, D. Pardo, Site Calibration: Wind speed regression versus wind speed ratio, The Science of making Torque from Wind, DUWind, Delft University of Technology, ISBN 90-76468-10-9 (19-21 April 2004)

I. Antoniou, T. Pedersen, C. Chekuri, D. Pardo, Site Calibration Analysis: Høvsøre Test Site, Risø National Laboratory internal report: Risø-I-2018 (July 2004)