
Appendix B
Design Data Report



**Oliver III Wind Energy Center
Morton County, North Dakota**

Design Data Report

Project Overview

- 48 MW Oliver III Wind Energy Center
- Up to 30 wind turbines
- Wind turbine generator model based on use of General Electric 1.6 MW series
- PSC to receive final layout prior to construction

Wind Turbine Generator

General Electric 1.6 MW Series Technical Data	
Model Type	1.6xle
Rotor Diameter	82.5 m
Swept Area	5,346 m ²
Rotorspeed	16.8 rpm
Blade Material	Fiberglass and epoxy or polyester resin
Pitch System	Independent blade pitch control
Approximate Minimum Wind Speed Necessary for Operation	3.5 m/s
Approximate Wind Speed Necessary To Achieve Rated Electrical Output	14.5 m/s
Approximate Maximum Wind Gust Allowed During Operation	25 m/s
Maximum Wind Speed	> 45 m/s
Modular Tower System	2 conical & 2 cylindrical sections
Obstruction Marking and Lighting	Turbine and tower finish color RAL 7035 (light grey). Aviation lighting as required by FAA Determination
Foundations	Spread footing
Generator Type	Doubly-fed asynchronous Generator with slip rings
Rated Power	1,600 kW
Generator Rated Voltage	690 V

Balance of Plant Facilities

Wind Farm Power Collector System	
Construction Type	Four (4) circuits of primarily underground direct-buried cable
Collector System Voltage	34.5 kV
Step-up Transformer at Tower Base	34.5 kV/690 V
Collection System Design Standards	National Electric Safety Code (NESC) / NextEra Energy Resources
Substation	
Approximate Substation Area	10 Ac
Main Transformer Rating	230/34.5 kV, 60 MVA
Major Equipment	One main transformer, 230 kV motor operated air break switch, two (2) 230 kV gas-insulated breakers, 230 kV manual air break switch, 34.5 kV open-air breaker arrangement with control house, telemetry and metering to interconnecting utility
Substation Design Standards	NESPC/NextEra Energy Resources, Telemetry and metering in accordance with Interconnecting Utility requirements
Interconnecting Utility	Square Butte Electric Co-Op