



**Ashtabula III Wind Energy Center
Barnes County, North Dakota**

Design Data Report

Project Overview

- 68.8 MW Ashtabula III Wind Energy Center
- Up to 43 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	9-18 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	11.5 m/s
Approximate Maximum Wind Gust Allowed During Operation	30 m/s (3 sec gust)
Maximum Wind	> 56 m/s (3 sec gust)
Modular Tower System	3 conical 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	Three (3) collection circuits of 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	5 Ac
Main Transformer Rating	241.5/34.5 kV, 45/60/75 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	Minnkota Power Cooperative