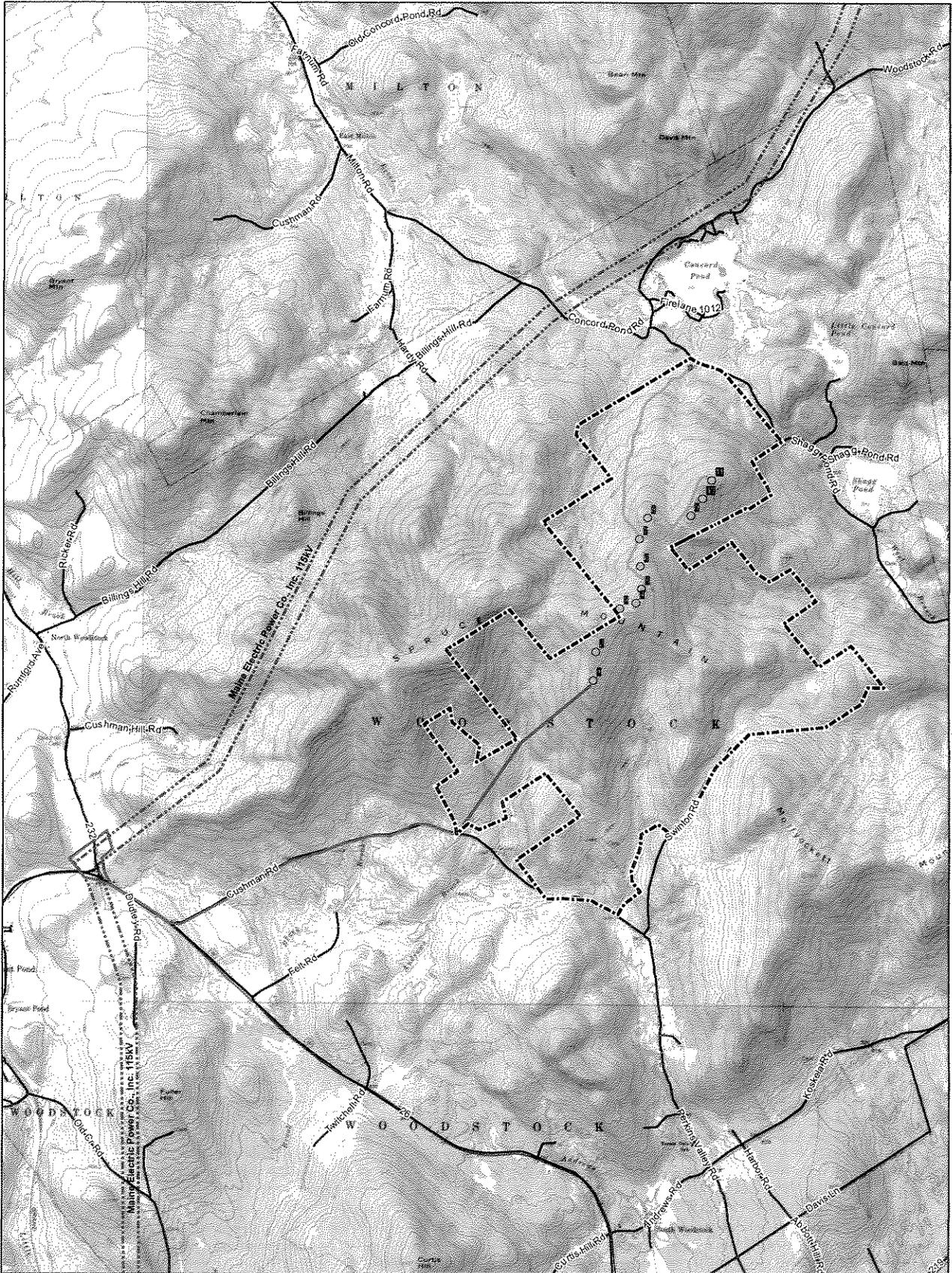


Spruce Mountain Wind Project

- **Location Map (January 2010)**
 - **Project Description**

0096



Legend

- Turbine Location (10-26-09)
- Existing Transmission Line
- O&M Area
- Access Road
- Project Boundary

0 0.25 0.5 1 Miles

Location Map
Spruce Mountain Wind Project
Woodstock, Maine
 NRPA Permit Application
 Mount Zircon USGS Quadrangle
 January 2010



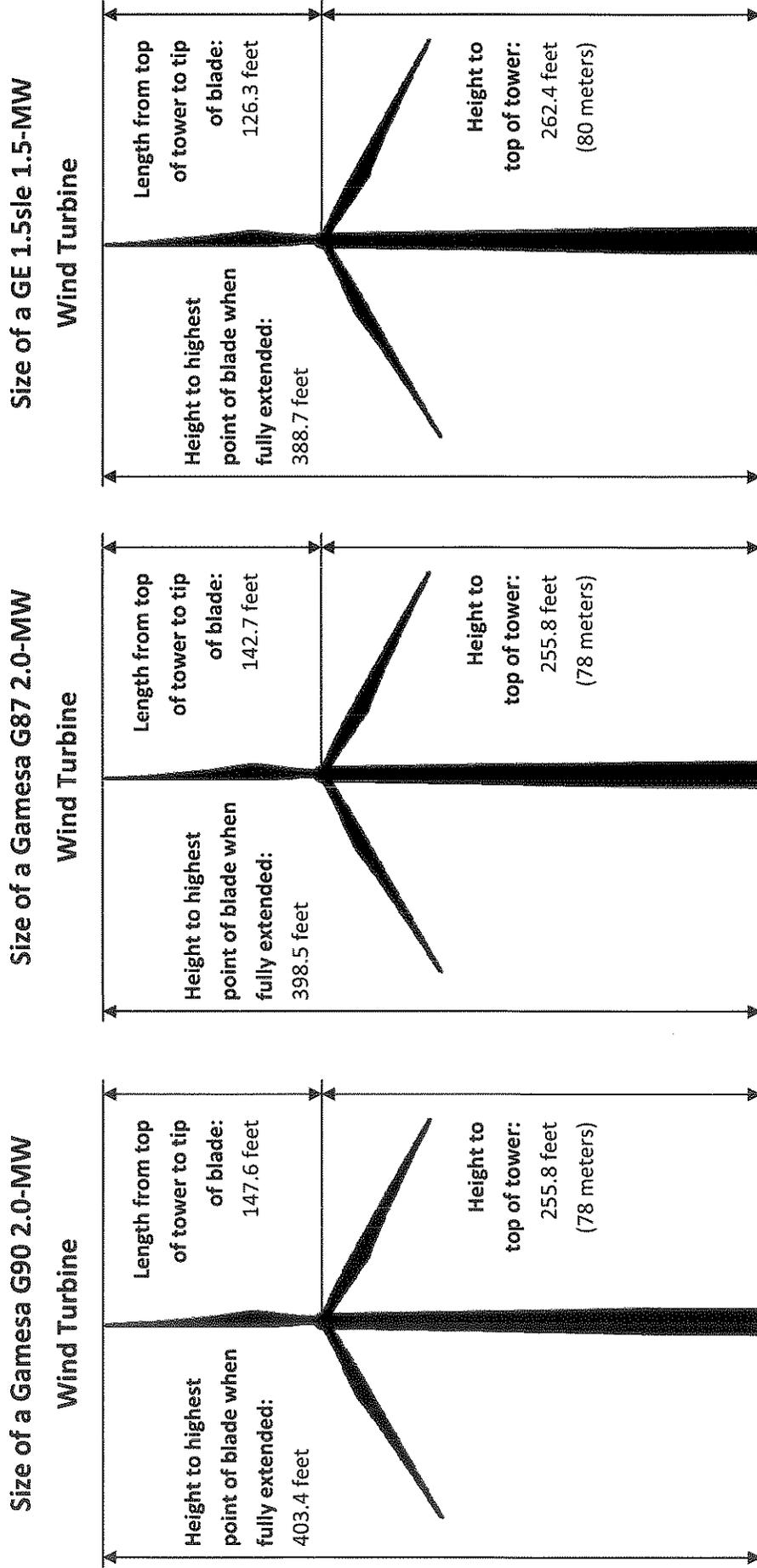
4.0 PROJECT DESCRIPTION

The Spruce Mountain Wind Project (Project) is an approximately 18- to 20-MW wind energy generation project proposed on approximately 2,879 acres of land located in Woodstock, Oxford County, Maine (see Section 3). Spruce Mountain Wind, LLC (SMW) is an affiliate of Patriot Renewables, LLC and shares common ownership. Both companies are owned by Jay M. Cashman, who will own approximately 1,340 acres of the project site in fee, with the rights for the remaining 1,539 acres being secured by lease agreements with landowners.

The Project will include construction of an approximately 7,200-linear-foot access road extending from Shagg Pond Road to the Spruce Mountain ridgeline where up to 11 wind turbines and an electrical collection infrastructure will be installed. The turbine portion of the Project will consist of up to 10 Gamesa (G90 or G87) 2.0-MW turbines or up to 11 General Electric (GE), 1.5-MW turbines. If Gamesa G90 and G87 turbines are used, each turbine tower will be approximately 78 meters tall (approximately 256 feet) from the ground to the center of the hub, with a 90- or 87-meter rotor, resulting in a total height from ground to the tip of a fully extended blade of a maximum 123 meters (approximately 403 feet). Alternatively, if GE 1.5sle turbines are used, each turbine tower will be approximately 80 meters (262 feet) from the ground to the center of the hub, with a 77-meter (253 feet) rotor, resulting in a total height from the ground to the tip of a fully extended blade of 119 meters (389 feet). Figure 4-1 shows the configuration for each wind turbine type. Access to the turbines along the ridgeline will be via an approximately 11,300-linear-foot access road that will connect the turbine foundations. The Project also includes an approximately 1,750-square-foot O&M building located north of the ridge and at the intersection of Shagg Pond Road and the proposed project access road. The O&M building is designed to accommodate up to six employees and will include an approximately 8,000-square-foot parking lot with seven parking spaces. The O&M building will be connected to the turbines through an overhead pole line for both electricity and fiber-optic cabling.

Power from the turbines will be collected in a 34.5-kV underground collector line system buried within the ridgeline access road work limits. The underground electric collector line will transition to an aboveground transmission line in the vicinity of the southernmost turbine (turbine 1) and continue aboveground mounted on wood poles for approximately 6,890 feet, traversing the southwest side of the mountain to Cushman Road. The transmission line will then travel west for approximately 2.8 miles along Cushman Road, Route 26, and Route 232 within the existing Maine Department of Transportation (Maine DOT) right-of-way and tap into the Woodstock Substation. From the substation, power will be converted to 115 kV and enter the regional market through transmission lines owned and operated by the Central Maine Power Company (CMP). The transmission line that will run along Cushman Road, Route 26, and Route 232 will be constructed within the existing Maine DOT right-of-way by CMP. SMW has entered into an Engineering and Procurement Agreement (E&P) with CMP to design the roadside overhead line, which will be addressed in a separate permit application submitted by CMP (see Attachment 4-1).

Figure 4-1: Wind Turbine Dimensions



011 b.

Not to Scale



Current land use in the project area consists of undeveloped forest land and commercial forestry operations in the vicinity of the proposed access road, transmission line, ridgeline, and in the vicinity of the O&M building. The topography in the project area ranges from relatively flat at the lower elevations and in the vicinity of the O&M building to moderate and steep side slopes that climb from approximately 1,000 feet (~300 meters) to 2,300 feet (~700 meters) above sea level. The ridgeline between the northernmost and southernmost proposed turbines ranges in elevation from 2,000 feet to 2,300 feet above sea level.

4.1 Construction Schedule

The schedule for construction of the Project is presented below.

Project Phase	Start Date	End Date
Mobilization and Geotechnical Surveys	May 17, 2010 (Week 1)	May 28, 2010 (Week 2)
Clearing and Grubbing	May 24, 2010 (Week 2)	July 16, 2010 (Week 9)
Road and Site Work	June 21, 2010 (Week 6)	November 5, 2010 (Week 25)
Construction of Turbine Foundations	August 16, 2010 (Week 14)	October 22, 2010 (Week 23)
Turbine Delivery and Site Placement	August 30, 2010 (Week 16)	October 8, 2010 (Week 21)
Turbine Erection	September 20, 2010 (Week 19)	December 24, 2010 (Week 32)
Ridgeline Electric Collection System	September 7, 2010 (Week 17)	November 9, 2010 (Week 26)
Mountainside Transmission Right-of-Way	December 20, 2010 (Week 32)	February 18, 2011 (Week 40)
Testing and Commissioning	January 4, 2011 (Week 34)	February 7, 2011 (Week 39)
Commercial Operations Start	February 21, 2011 (Week 41)	N/A

4.2 Project Purpose and Need

The Project's purpose is to develop a commercially viable energy generation facility that produces electricity that will supply local and regional energy demands, using a fuel (wind) that is clean, renewable, and uses a process that generates no byproducts or pollution.

The need for the Project is evidenced by the following energy policies enacted by Maine lawmakers during the past decade:

- In September 1999, the Maine's Public Utilities Commission (PUC) adopted rules for the state's Renewable Resource Portfolio Requirement, pursuant to the state's 1997 electric-utility restructuring law. The rules require each competitive electricity provider, including standard offer providers, to supply at least 30% of their total retail electric sales in Maine using electricity generated by eligible renewables and certain energy-efficiency resources. To qualify, electricity

must be generated by a facility no greater than 100 MW in capacity that uses fuel cells, tidal power, solar arrays and installations, wind power, geothermal power, hydropower, biomass power or generators fueled by municipal solid waste in conjunction with recycling. Electricity generated by efficient combined heat and power (CHP) facilities and other systems that qualify as "small power production facilities" under the federal Public Utility Regulatory Policies Act of 1978 (PURPA) also are eligible. The PUC has since designated this 30% standard the "Class II" standard.

- In 2001, Maine participated in a greenhouse gas emissions reduction effort as a member of the Conference of New England Governors and Eastern Canadian Premiers (NEG/ECP). The NEG/ECP group adopted a Climate Action Plan that established greenhouse gas reduction goals across all sectors and included a goal of reducing total greenhouse gas emissions to 10 percent below 1990 levels by the year 2020. The NEG/ECP goals were enacted into Maine law in 2004 (38 MRSA §576).
- In June 2006, Maine enacted legislation (Legislative Draft [L.D]. 2041) creating a renewable portfolio goal to increase new renewable-energy capacity by 10% by 2017. Eligible new renewables include those placed into service after September 1, 2005. Unlike the Class I standard, municipal solid waste facilities and CHP systems are not eligible under the new renewables goal, and hydropower facilities must meet all state and federal fish passage requirements. New wind-power installations may exceed 100 MW in capacity.
- Public Law 403 of 2007 converted the 2006 goal into a mandatory standard, which the PUC has since designated the "Class I" standard. The schedule for the Class I standard is as follows:
 - 1% for the period from 1/1/2008 to 12/31/2008
 - 2% for the period from 1/1/2009 to 12/31/2009
 - 3% for the period from 1/1/2010 to 12/31/2010
 - 4% for the period from 1/1/2011 to 12/31/2011
 - 5% for the period from 1/1/2012 to 12/31/2012
 - 6% for the period from 1/1/2013 to 12/31/2013
 - 7% for the period from 1/1/2014 to 12/31/2014
 - 8% for the period from 1/1/2015 to 12/31/2015
 - 9% for the period from 1/1/2016 to 12/31/2016
 - 10% for the period from 1/1/2017 to 12/31/2017, and for each year thereafter

The PUC also approved the use of NEPOOL Generation Information System certificates (which are similar to renewable-energy credits, or RECs) to satisfy the portfolio requirement. Generation Information System certificates are awarded based on the number of kilowatt-hours (kWh) of eligible electricity generated. Generation Information System certificates used to meet the Class I standard may not also be used to satisfy the Class II standard.

- Legislation enacted in June 2007 (Public Law, Chapter 403) authorized the PUC to set an alternative compliance payment (ACP) that utilities may pay instead of satisfying the standard by procuring Generation Information System certificates. The PUC set the ACP base rate for the Class I standard at \$57.12 per megawatt-hour (MWh) in 2007; this rate will be adjusted annually

for inflation beginning in 2008. The current ACP rate (2009) is \$60.92. Revenues from ACPs will be directed to the state's Renewable Resource Fund.

The PUC may review the Class I standard to determine if progress has been sufficient. The PUC may suspend scheduled increases in the Class I standard under certain circumstances. Electric providers that fail to comply with the standard are subject to certain penalties, including license revocation, an optional payment into the Renewable Resource Fund, or other monetary penalties determined by the PUC. However, the PUC may waive penalties if it determines that a utility made good faith efforts but could not reasonably satisfy the standard due to market conditions.

- Legislation enacted in April 2008 (L.D. 2283) established two goals for wind-energy development in Maine: (1) at least 2,000 MW of installed capacity by 2015; and (2) at least 3,000 MW of installed capacity by 2020, of which there is a potential to produce 300 MW from facilities located in coastal waters.

Currently Maine has 104 MW of installed wind energy generation capacity with another 158 MW slated for construction.¹ Even if all of the projects slated for construction (158 MW) and 300 MW of off-shore projects were to come on-line by 2015; a deficit of 1,492 MW would still remain.

The Spruce Mountain Wind Project would contribute up to 20 MW towards a clear need demonstrated by the State of Maine through political and legislative actions for renewable and clean energy alternatives for generation of electricity.

¹ AWEA (American Wind Energy Association). 2009. U.S. Wind Energy Projects - Maine, as of September 30, 2009. Accessed online December 30, 2009 at <http://www.awea.org/projects/Projects.aspx?s=Maine>.