

# 1.0 INTRODUCTION

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## 1.1 Project Summary

The Kibby Wind Power Project is a 132 megawatt (MW) wind energy project located in Franklin County, Maine (Figure 1-1). The project footprint has been optimized for environmental, engineering and wind resource conditions. The current layout reflects 46 turbines (44 turbines will be constructed; two additional turbines are currently presented as alternate locations) located on two general ridgeline areas: a ridge along the southern portion of Kibby Mountain (the A Series) and a wish-bone shaped ridge area along Kibby Range (the B Series). Associated elements of the project include: access to the turbines utilizing the existing roadway network to the greatest extent possible; 34.5 kilovolt (kV) electrical interconnections between the turbines and to a common, newly proposed Kibby Substation; a service building; and a proposed 115 kV electric transmission line that will extend approximately 27.7 miles (44.6 kilometers [km]) from the new Kibby Substation to the Bigelow Substation located in Carabassett Valley near Route 27 and the border of Wyman Township.

Volume I of this application addresses the elements of the project directly associated with the wind turbine project itself, including associated temporary work space requirements and related infrastructure improvements; supporting documentation is provided in Volumes II through IV. Details associated with the 115 kV transmission line are included in Volume V. Note that, of the 27.7 miles (44.6 km) of 115 kV electric transmission line, approximately 9.8 miles (15.8 km) are located within Maine Department of Environmental Protection (DEP) jurisdiction and, therefore, a separate application will be filed with DEP for that portion of the proposed corridor.






The Kibby Wind Power Project has been specifically sited to take advantage of one of the premiere wind resources in New England. The prevailing westerly winds from the plains of Quebec are strong and consistent, and accelerate as they rise across the Boundary Mountains. The site's elevation, topography, and location within a working forest make it uniquely suited to utilize the strong prevailing westerly/northwesterly winds to generate clean, renewable energy for the Maine and New England electrical grid. On average the project will generate approximately 357 million kilowatt-hours (kWh) of electricity every year – enough to power approximately 50,000 Maine homes.

The project will use 3 MW Vestas V90 wind power turbines to generate electricity. Turbine heights will be 260 feet (80 meters [m]) to the top of the hub (where Federal Aviation Administration [FAA] lighting would be located on selected turbines), and an additional 147 feet (45 m) to the tips of the rotor blades. Access for the project has been designed to utilize existing logging roads and currently cleared areas to the maximum extent possible, and siting for additional access has scrutinized elevation, ground conditions and environmental issues to ensure that locations for roadways will result in the least possible resource impacts. Techniques have been identified, in consultation with state agencies, for design and construction of the roads that will minimize erosion potential and ensure that drainage patterns

# Figure 1-1 Kibby Wind Power Project Vicinity

## LEGEND


### Transportation

- Highway 
- Scenic Byway 
- Local Road 
- Logging Road 
- Trail or Four Wheel Drive 




### Recreation

- Appalachian Trail 

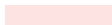
### Park, Preserve, Conservation Lands

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### Proposed Project Locations

- Wind Turbine Locations 
- Proposed Transmission Line Corridor 
- Existing Transmission Line Corridor 

### Other

- Tribal Land 
- US Naval Training Land 



are maintained. The roads will not be paved or gated. The travel surface of roads used to access the ridgelines will be approximately 20 feet (6.1 m). Access between turbines by crawler cranes will require a road travel surface width of 34 feet (10.4 m) for construction, after which only 20 to 25 feet (6.1 to 7.6 m) will be maintained. Detailed site plans are provided in Appendix 1-A.

The Kibby Substation will be located at the base of the ridgelines. The route for the proposed 115 kV transmission line corridor extending from the Kibby Substation to the Bigelow Substation has been selected (with consideration of a range of alternative interconnection points and routes) to minimize potential visibility, natural resource impact, proximity to residences, and the number of landowners. The majority of the property through which the transmission line corridor will be extended is actively managed forest.

The project is being proposed by TransCanada Maine Wind Development Inc. (TransCanada), which is a wholly owned subsidiary of TransCanada Corporation, a leader in the responsible development and reliable operation of North American energy infrastructure. More details regarding TransCanada and its project team are provided in Section 1.5. TransCanada's experience in a wide range of energy projects, including wind power, and commitment to corporate responsibility have resulted in thorough consideration of engineering and environmental issues, as project feasibility was assessed and project details refined. The resulting project is detailed in this application.

The project has been sited and designed to minimize impacts to the full range of environmental and community issues, and each is addressed in this application. Extensive engineering and environmental studies have been completed in order to optimize the location and design of the project. These studies have included use of previously existing available information, as well as the implementation of wetland delineations, vernal pool assessments, soils mapping, and wildlife habitat and species surveys, including extensive consideration of avian and bat issues. In addition, a wide range of other considerations have been addressed, including visual and noise impacts, recreational use, and socioeconomic impacts. Outreach in the local community, and with agency and other stakeholders, has occurred to identify and respond to the range of issues. This application demonstrates, through detailed and significant consideration, that the project has been designed to fit harmoniously into the existing natural environment and that there are no undue adverse effects on existing uses, scenic character, or natural or historic resources in the area.

Key facts regarding the Kibby Wind Power Project are provided in Table 1-1. Project layout features are shown in Figure 1-2 in relation to Land Use Regulation Commission (LURC) zones. Information regarding the proposed 115 kV transmission line corridor is not included on this table; details regarding that particular project element are provided in Volume V.

**Table 1-1: Kibby Wind Power Project Key Facts**

Item	Within Proposed D-PD Zone		Outside Proposed D-PD Zone		Total
	Within Current P-MA Zone	Below 2,700 Foot Elevation	Within Current P-MA Zone	Below 2,700 Foot Elevation	
Number of turbines	34	12	0	0	46 (of which 44 will be constructed)
Turbine capacity	102	36	--	--	138 MW (of which 132 MW will be constructed)
Energy output/year	--	--	--	--	357 million kWh
<i>Average Energy Per turbine</i>	--	--	--	--	8.1 million kWh
<i>Maine household equivalent</i>	--	--	--	--	50,000
Pollution avoided (tons/year)	--	--	--	--	CO <sub>2</sub> : 200,000 SO <sub>2</sub> : 350 NO <sub>x</sub> : 90
Cleared acreage	226.7	60.9	15.3	140.1	443
Wetlands impacted (acres)**	1.0	0.0	0.0	0.6	1.6
Miles of ridgeline	10.9	2.2	0.0	0.0	13.1
Road mileage					
<i>Existing roads improved</i>	0.0	0.1	0.0	18.9	19.0
<i>New roads</i>	12.8	3.1	1.0	0.5	17.4
Collector line (feet)*	906	2,962	0.0	16,792	20,660
Miles to:					
<i>Eustis</i>	--	--	--	--	8.0
<i>Appalachian Trail</i>	--	--	--	--	15.5

\*Note that collector line that is located along ridgeline roadways is not included in the totals.

\*\*Temporary, as well as permanent, wetland impacts are included in these totals.

CO<sub>2</sub> = carbon dioxide

D-PD = Planned Development Subdistrict

NO<sub>x</sub> = nitrogen oxides

P-MA = Protected Mountain Area

SO<sub>2</sub> = sulfur dioxide



## 1.2 Jurisdiction of the Maine Regulatory Agencies

The Kibby Wind Power Project is located predominantly within the regulatory jurisdiction of LURC, although portions of the proposed 115 kV transmission line corridor extend through incorporated townships, which are within DEP jurisdiction. Table 1-2 lists the locations and elements within each agency's jurisdiction, as shown in Figure 1-3.

**Table 1-2: Regulatory Jurisdiction**

<b>Project Element</b>	<b>LURC Jurisdiction</b>	<b>DEP Jurisdiction</b>
Wind turbines, access roads, Kibby Substation, and other ancillary equipment and structures	All in Kibby/Skinner/Chain of Ponds Townships <i>(P-MA zone for higher elevations)</i>	N/A
Proposed 115 kV transmission line	17.84 miles (Kibby, Jim Pond, Coplin Plantation, Wyman)	9.83 miles (Eustis, Carabassett Valley)

As can be seen from Table 1-2, the majority of the project facilities are located within areas of LURC jurisdiction. This application is submitted to LURC for review in support of the proponent's request for rezoning and preliminary plan approval and utility line approval. A separate application will be filed with DEP addressing the resources and impacts within its jurisdiction, which is focused solely on portions of the proposed 115 kV transmission line route.

This application is filed under the Planned Development Subdistrict (D-PD) process. The purpose of the D-PD designation is "to allow for large scale, well planned developments" that may be "separated from existing developed areas." For a D-PD permit application to be approved, LURC's statutes and rules establish certain criteria the project must satisfy. This application will demonstrate that those requirements are met by the proposed project. LURC coordinates with a full range of environmental regulatory agencies in Maine, including DEP, Maine Department of Inland Fisheries and Wildlife (MDIFW), Maine Natural Areas Protection Division (MNAP), Maine Historic Preservation Commission (MHPC), the Maine State Soil Scientist, and Maine Geological Survey.

The LURC D-PD process involves project review under a phased approach. This application specifically meets requirements for the Preliminary Development Plan. The Preliminary Development Plan describes the facilities and impacts of the project and provides LURC with applicable data, maps, analyses, resource evaluations and impact assessments. LURC reviews the Preliminary Development Plan for conformance with the specific statutes, regulations and the LURC Comprehensive Land Use Plan (CLUP); holds a public hearing; and acts to either accept, accept with conditions, or deny the preliminary plan. These application materials represent TransCanada's Preliminary Development Plan for the Kibby Wind Power Project.



While the Preliminary Development Plan does not require final site and engineering design information, TransCanada appreciates that the Commission and members of the public need to be comfortable that the project can be constructed in accordance with the applicable regulatory criteria and, therefore, substantially more detailed information has been included in this application than is strictly required as part of the D-PD preliminary plan approval. Upon approval of the Preliminary Development Plan, the applicant would then prepare its detailed engineering design, drawings, and specifications for the project for approval prior to construction.

Table 1-3, utilizing guidance provided by LURC staff, provides a key to locations in the application where responses to specific LURC requirements are provided.

**Table 1-3: Checklist for Wind Power LURC Permit Applications**

Required Information	Citations and References	Application Section Reference
<b><i>Petition to Rezone</i></b>		
Completed and signed petition form	12 MRSA, 685-A (8-A), Sections 10.08 and 10.09	See application forms.
Application and processing fees	--	Addressed in separate correspondence; fees have been paid.
Notice of Intent to File: list of recipients and newspapers in which notice was published; date(s) of publication	--	See application forms.
Lot size and numbers (map, plan and lot; coordinates)	--	See Section 2.4.1.
Land division history	--	See Section 2.4.1.
Consistency with LURC's CLUP	12 MRSA, 685-A (8-A), Section 10.21,G,8,b(1)	See Section 4.1.
Consistency with the purpose and description of the proposed district	12 MRSA, 685-A (8-A), Section 10.21,G,8,1 & 2	See Section 4.
LURC Land Use Guidance Map showing proposed subdistrict boundaries	Section 10.21,G,8,a(8)	See Exhibit C.
Demonstration of need	12 MRSA, 685-A(8-A)	See Sections 2.1 and 9.2.
<ul style="list-style-type: none"> <li>• Public/economic benefits</li> </ul>	Also 12 MSRA, 685-B(4)	See Sections 2.1 and 9.2.
<ul style="list-style-type: none"> <li>• Public support, including signed letters</li> </ul>	--	To be provided throughout application review.
<ul style="list-style-type: none"> <li>• Support by stakeholders (i.e., the forestry, agriculture, fishing, or natural-resource based recreation industries)</li> </ul>	--	To be provided throughout application review.

Required Information	Citations and References	Application Section Reference
<b><i>Petition to Rezone</i></b>		
<ul style="list-style-type: none"> <li>Impacts on public services including signed letters regarding availability of fire, police and emergency protection, as well as solid waste disposal</li> </ul>	Sections 10.21,G,2 and 8,b(6)	See Exhibit F.
<ul style="list-style-type: none"> <li>Letters from town, plantation or county officials</li> </ul>	--	See Exhibit E.
<ul style="list-style-type: none"> <li>Transmission and interconnection study (including the status of ISO-NE System Impact Study)</li> </ul>	--	See Section 2.2.3 and Appendix 2-H.
<ul style="list-style-type: none"> <li>Consistency with state policy</li> </ul>	--	See Sections 2.1 and 4.
Existing uses on parcels to be rezoned; surrounding uses and resources; proposed zoning standards	--	See Section 2.4.1.4 and 2.4.1.5.
Alternative site assessment	Sections 10.21,G,8,a & b	See Section 2.2 and 4.3.1.3.
<ul style="list-style-type: none"> <li>“Best reasonably available site” discussion; property description; discussion of resource available at the site; proximity to existing infrastructure and other development</li> </ul>	Section 10.21,G,1; and Sections 10.21,G,8,a(2) and b(3)	See Section 4.3.1.3.
<ul style="list-style-type: none"> <li>“Substantially equivalent level of protection” discussion; comparison of proposed activities to uses allowed in the existing subdistrict(s) [also see environmental assessment section below]</li> </ul>	Sections 10.21, G,8,a(7) and b(2)	See Section 4.3.1.2.
Financial capacity: documentation from funding source; relationship of applicant to funding source	12 MRSA, 685-B,4 also Section 10.25,C	See Section 1.5.3.
<ul style="list-style-type: none"> <li>Estimated development costs</li> </ul>	--	See Section 1.5.3.1.
<ul style="list-style-type: none"> <li>Project is realistic, can be financed and completed; sufficient market exists</li> </ul>	Section 10.21,G,8,a(5)	See Sections 1.5.3.2 and 2.1.4.
Technical capacity	12 MRSA, 685-B(4), also Section 10.25,C	See Section 1.5.
Title, right or interest (i.e., deeds, easements, leases, options to lease, development rights)	12 MSRA, 685-A(8-4), Section 10.21,G,8,a(1)	See Exhibit B and Section 1.5.4.
<ul style="list-style-type: none"> <li>Future selling, leasing or subdividing of the project</li> </ul>	Section 10.21,G,8,a(4)	See Section 1.5.5.
<ul style="list-style-type: none"> <li>Certificate of good corporate standing</li> </ul>	--	See Exhibit A.
Review standards for projects adjacent to lakes (if applicable)	Section 10.25,A	N/A

Required Information	Citations and References	Application Section Reference
<b><i>Preliminary Development Plan</i></b>		
Completed and signed development permit form	--	See application forms.
Completed S-2 form	--	See application forms.
Project description: existing conditions and proposed development	12 MRSA, 685-B(4) and Section 10.24; Sections 10.21,G,8,a(9) and (11)	See Section 2.
<ul style="list-style-type: none"> <li>• Site plans with topographic contour lines showing project location and parcel boundaries; turbine and road layout; transmission line routes; all accessory structures and activities; locations of natural features</li> </ul>	--	See Appendix 1-A.
<ul style="list-style-type: none"> <li>• Activities within D-PD Subdistrict and activities outside the D-PD Subdistrict clearly described</li> </ul>	--	See Section 2.4.
<ul style="list-style-type: none"> <li>• Site photographs (may also be in other exhibits)</li> </ul>	--	See Sections 7 and 9.6.
<ul style="list-style-type: none"> <li>• Turbine and foundation plans and dimensions</li> </ul>	--	See Section 2.4.
<ul style="list-style-type: none"> <li>• Road plans; include management of slope hydrology, if applicable</li> </ul>	--	See Section 2.4.
<ul style="list-style-type: none"> <li>• Blasting plans</li> </ul>	--	See Section 2.5 and Section 5.5.5.
<ul style="list-style-type: none"> <li>• Transmission line plans</li> </ul>	--	To be separately provided (see Section 2.4.3.7).
<ul style="list-style-type: none"> <li>• 400 foot setback or alternative</li> </ul>	Section 10.21,G,2 (also see Section 10.26,G,2)	See Section 2.4.1.6.
<ul style="list-style-type: none"> <li>• Other temporary and permanent structures</li> </ul>	--	See Section 2.4.
<ul style="list-style-type: none"> <li>• Plans for traffic circulation, including transport of equipment to site</li> </ul>	12 MRSA, 685-B(4) and Section 10.24; also Section 10.25,D	See Sections 2.4 and 9.7.
<ul style="list-style-type: none"> <li>• Lighting</li> </ul>	Also Section 10.25,F,2	See Sections 2.4.3.1 and 2.4.3.6.
<ul style="list-style-type: none"> <li>• Amount of water needed and source assessment (e.g., concrete for foundations, dust control)</li> </ul>	Also 12 MRSA, 685,B(4)	See Sections 2.4 and 8.3.
<ul style="list-style-type: none"> <li>• Solid waste disposal including stumps</li> </ul>	Section 10.25,H	See Section 9.8.

Required Information	Citations and References	Application Section Reference
<b><i>Preliminary Development Plan</i></b>		
<ul style="list-style-type: none"> <li>Gravel and rock sources; including re-use of materials blasted during road and turbine construction; disposal of excess materials</li> </ul>	--	See Sections 2.4 and 9.8.
<ul style="list-style-type: none"> <li>Post-construction maintenance plan</li> </ul>	--	See Section 2.6.
Project schedule, including phasing	Section 10.21,G,8,a(3) and last paragraph of 'a'	See Section 2.8.
Soils, erosion/sedimentation control and storm water control	--	See Sections 2.4, 5 and 8.5.
<ul style="list-style-type: none"> <li>Soils mapping</li> </ul>	Section 10.21,G,8,a(10); also Section 10.25,G	See Exhibit D.
<ul style="list-style-type: none"> <li>Erosion/sedimentation control plan</li> </ul>	Also Section 10.25,M	See Sections 2.5, 5 and 8.5.
<ul style="list-style-type: none"> <li>Phosphorus impact analysis and control plan</li> </ul>	Also Section 10.25,L	See Section 8.6.
<ul style="list-style-type: none"> <li>Storm water management plan</li> </ul>	Also consistent with DEP storm water rules	See Section 8.6.
<ul style="list-style-type: none"> <li>Plans for on-site engineer and third party inspection</li> </ul>	Also Section 10.25,M,4	See Sections 2.5, 2.6 and 7.9.
Environmental assessment	Sections 10.21,G,8,a(6) and (7)	See Sections 5 through 9.
<ul style="list-style-type: none"> <li>Pre-construction environmental studies: avian and bat monitoring, other wildlife monitoring and assessment, habitat fragmentation, plant and natural communities, state and federally listed species, etc.</li> </ul>	Section 10.25,2,a	See Section 7.
<ul style="list-style-type: none"> <li>Extent of clearing in LURC Protection zones</li> </ul>	Also Section 10.27,B	See Section 1.1.
<ul style="list-style-type: none"> <li>Visual assessment</li> </ul>	Also Section 10.25,E,1	See Section 9.6.
<ul style="list-style-type: none"> <li>Sound assessment</li> </ul>	Also Section 10.25,F,1	See Section 9.3.
<ul style="list-style-type: none"> <li>Wetlands assessment: completed S-3 form; mapped wetlands and streams, including level of completeness; identification of non-wetland seepages and drainage swales</li> </ul>	Also Section 10.25,P	See application forms and Section 8.5.
<ul style="list-style-type: none"> <li>Impacts assessment</li> </ul>		See Sections 5 through 9.
<ul style="list-style-type: none"> <li>Post-construction monitoring and mitigation</li> </ul>		See Section 2.5 and 2.6.
<ul style="list-style-type: none"> <li>Post-construction management plans</li> </ul>		See Section 2.5 and 2.6.

Required Information	Citations and References	Application Section Reference
<i>Preliminary Development Plan</i>		
Decommissioning plans		See Section 2.7.
State or federal agencies consulted prior to submittal, and responses to concerns raised by these agencies not incorporated into other exhibits, including archaeological assessments	Section 10.25,E,2,b	See Sections 3, 5 through 9, and 9.5.
Other local, state or federal permits or licenses required		See Section 1.3.

### 1.3 Other Applicable Regulatory Statutes

Although the LURC review (and DEP review for portions of the 115 kV transmission line) provides a comprehensive evaluation and facilitates licensing at the state level, several federal agencies also have jurisdiction over certain elements of the project. In order to provide an understanding of the overall regulatory context, a brief discussion of each is provided below.

#### 1.3.1 *United States Army Corps of Engineers*

The United States Army Corps of Engineers (USACE) will have jurisdiction over any proposed placement of fill in waters of the United States, including wetlands. For this project, TransCanada has been working closely with USACE, as well as various state agencies, to ensure that delineation of surface waters, wetlands and vernal pools at the site accurately define jurisdictional resources for the project. Avoidance of such resources has been a priority for the siting and design of the project, and impacts to such resources have been minimized where they could not be avoided, consistent with USACE requirements. A separate application will be filed with the USACE for review of unavoidable wetland impacts associated with all of the project's elements.

#### 1.3.2 *United States Fish and Wildlife Service*

The United States Fish and Wildlife Service (USFWS) will participate in the USACE application review process. Although no specific jurisdiction is triggered by this project, TransCanada has consulted with USFWS throughout preparation of the application and has incorporated into various studies species of particular interest to USFWS. Consultation with USFWS is expected to continue with regard to species issues for the project.

#### 1.3.3 *United States Environmental Protection Agency*

The United States Environmental Protection Agency (U.S. EPA) also participates in the USACE review process. No specific jurisdiction is triggered by this project, as federal water discharge programs, including for stormwater, are delegated to the DEP for implementation. TransCanada has provided project information to U.S. EPA to ensure they are familiar with the project, and will continue to provide updates to them as the project progresses.

### **1.3.4 Federal Aviation Administration**

The FAA is responsible for air navigation safety, and reviews the specific location of facilities over 200 feet (61 m) tall to determine whether they are considered to be a hazard to air navigation. TransCanada submitted review information to the FAA on November 15, 2006, and received determinations on February 19, 2007 that the turbines would not be a hazard to navigation. The issued determinations require lighting of selected turbines to ensure visibility for air traffic safety. The filed layout reflected 47 potential turbine locations.<sup>1</sup> Seven of the 19 turbines on Series A and 18 of the 28 turbines on Series B indicate that lighting (synchronized red lights) is required. The 47 determinations, as well as a map illustrating the filed turbine layout and turbines for which lighting is required, are provided in Appendix 1-B. Following preliminary project approval, revised filings will be made as appropriate. It is anticipated that the lighting requirements, however, will remain similar to the overall approach reflected in the FAA determinations. TransCanada will continue to work with the FAA to identify the amount and type of lighting necessary to meet safety requirements with a consideration to minimizing visibility for the local community.

## **1.4 Project History**

TransCanada is committed to the development of wind energy generation, and has numerous wind projects in various stages of development and operation. With a portfolio of energy projects in both Canada and the United States, TransCanada looks for opportunities to bring clean, renewable energy as a meaningful contributor to the energy mix in both countries.

Selecting the proper site is the most critical factor in a successful project. Wind resources vary considerably from region to region and from site to site within a region. Although the characteristics of wind resources follow certain physical laws of nature, there are many factors for identifying and confirming an optimal site for wind development. Details of the site selection process for this project are outlined in Section 2.2. One of the factors in determining initial feasibility for the project at this site was its history as the former site of a permitted wind energy facility.

In the early 1990s, Kenetech Wind Power Inc. (Kenetech) prepared a LURC application for rezoning and development, providing detailed studies for a project that encompassed significantly greater land area than the Kibby Wind Power Project (Figure 1-4). In addition to preparing numerous studies, including meteorological wind resource measurements and environmental assessments, the former project proceeded through the application review process and received LURC approval (provided in Appendix 1-C). Kenetech's earlier successful effort was a key element in TransCanada's earliest consideration of project feasibility. Table 1-4 provides a brief comparison between the former Kenetech project and the Kibby Wind Power Project.

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<sup>1</sup> Note that only 44 turbines are proposed.



**Table 1-4: Comparison Between the Former Kenetech and Kibby Wind Power Projects**

<b>Issue</b>	<b>Former Kenetech Project<sup>1</sup></b>	<b>Kibby Wind Power Project</b>
Number of turbines	Up to 761 turbines: Phase I – 400 turbines Phase II – 361 turbines	44 turbines <sup>2</sup>
Miles of ridgeline	30.5 miles in Kibby, Skinner, Merrill Strip and Haynestown Township	13.1 miles in Kibby and a small portion of Skinner Township
Names of ridgelines (#s of turbine strings)	Kibby Mountain (5), Kibby Range (7), Tumbledown Mountain (5), Caribou Mountain (4), Merrill Mountain (3), Three Slide Mountain (5), Boundary Ridge (8), other unnamed ridges (10)	Kibby Mountain (4), Kibby Range (7)
Miles of new permanent turbine access roads (below 2,700' elevation/above 2,700' elevation)	66.3 miles (11.4 miles/54.9 miles)	17.4 miles (3.6 miles/13.8 miles)
Miles of existing road	69.5 miles	19.0 miles
Height of turbines (to hub/to tip of blade)	80 feet/132.5 feet (on ridges); 100 feet/152.5 feet (in saddles)	260 feet/410 feet
Type of turbine	USW Model 33M-VS	Vestas V-90
Power produced by each turbine	300 kW	3 MW
Project Output	Phase I – 132 MW Phase II – 118 MW	132 MW

<sup>1</sup> Based on information presented in the Kenetech permit application.

<sup>2</sup> Note that 46 locations are shown in the application to assess impacts for alternate locations that will be refined based on wind data assessment.

Since that time, TransCanada has conducted extensive studies of its own to confirm and understand resource characteristics of the site, and has used that information (as well as the significant stakeholder input described in Section 3) to optimize the layout and design. A significant effort has been focused on micro-siting of the overall project and individual turbines to take best advantage of the premiere wind resource offered on Kibby Mountain and Kibby Range while minimizing potential impacts to environmental and community resources. Detailed studies for the Kibby Wind Power Project have been ongoing since the summer of 2005.

A pre-application conference was scheduled by LURC on May 11, 2006. This conference was attended by agency and other stakeholder groups as a formal introduction to the Kibby Wind Power Project and the studies underway. Meeting notes documenting that pre-application conference are provided in Appendix 1-D. A pre-submission meeting was also held on December 21, 2006. At this meeting, also attended by interested agency and stakeholder representatives, project team members discussed the application contents and administrative procedures. Discussion and comments from each of these meetings have been incorporated into this application.

## **1.5 Applicant and Project Team**

### **1.5.1 Applicant Experience**

TransCanada Maine Wind Development Inc. is a wholly owned subsidiary of TransCanada Corporation, a leader in the responsible development and reliable operation of North American energy infrastructure. TransCanada's approximately 3,550 employees provide industry-leading expertise in pipeline and power operations, and have the project management skills, industry experience, financial resources, and proven track record that are required to successfully develop the Kibby Wind Power Project.

TransCanada plays a vital role in connecting energy supplies to key Canadian and United States markets. As North American demand for energy increases, TransCanada is well positioned to connect new sources of supply, from northern natural gas and imported liquefied natural gas, to wind power and cogeneration. TransCanada's network of more than 36,500 miles of wholly-owned pipeline transports the majority of Western Canada's natural gas production to continental markets. TransCanada owns, or has interests in, approximately 7,700 MW of power generation in Canada and the United States. A discussion of TransCanada's experience with the range of energy projects is provided below. TransCanada's Corporate Responsibility program is provided in Appendix 1-E as it provides an important context for TransCanada's development and operational practices.

#### **1.5.1.1 Power**

The power segment of TransCanada's business builds, acquires, operates and owns interests in energy generation projects in Canada and New England. Table 1-5 provides a listing of TransCanada's power projects.

**Table 1-5: TransCanada's Power Project List**

<b>Plant Name</b>	<b>Type</b>	<b>Nameplate Capacity (MW)</b>	<b>Location</b>
Ocean State	Natural Gas	560	Rhode Island
Connecticut River System	Hydro	484	New Hampshire/Vermont
Deerfield River System	Hydro	83	Massachusetts/Vermont
Carseland	Natural Gas	80	Alberta
Grandview	Natural Gas	90	New Brunswick
Halton Hills	Natural Gas	683	Ontario
Mackay River	Natural Gas	165	Alberta
Cancarb	Natural Gas	27	Alberta
Bear Creek	Natural Gas	80	Alberta
Bécancour Power Plant Centrale Cogénération de Bécancour	Natural Gas	550	Quebec
Redwater	Natural Gas	40	Alberta

Other TransCanada power investments include:

- Affiliates of TransCanada own approximately 950 MW through a 31.6 percent interest in the nuclear-powered Bruce Power Limited Partnership (Bruce Power) and approximately 1,400 MW through a 47.4 percent interest in Bruce Power Limited Partnership. With the restart of Bruce A Units 1 & 2 (the first unit is anticipated to come back online in late 2009), Bruce Power's total generating capacity will be more than 6,200 MW.
- The Portlands Energy Centre is high-efficiency, combined-cycle natural gas generation plant located in downtown Toronto, Ontario that will begin supplying power in the summer of 2008 under a 20-year contract with the Ontario Power Authority. Construction of the 550 MW plant will be completed by the second quarter of 2009. Portlands Energy Centre is a limited partnership of TransCanada and Ontario Power Generation.
- Halton Hills Generation Station is a 683 MW natural gas-fired power plant in the town of Halton Hills, Ontario. The Halton Hills Generating Station will use state-of-the-art low emissions technology and will meet high environmental standards in order to fulfill the Ontario Power Authority's request for additional clean power generation. The facility will have the capacity to generate enough power for approximately 600,000 homes and is anticipated to be in-service by the summer of 2010.

- TransCanada also has rights to the electricity generated by the coal-fired 560 MW Sundance A power plant (100 percent), the 706 MW, Sundance B Plant (50 percent) and the 756 MW, Sheerness plant (100 percent) in Alberta.

### **1.5.1.2 TransCanada's Wind Projects**

TransCanada is the majority owner of Cartier Wind Energy Inc., which was awarded six projects, representing a total of 740 MW by Hydro-Québec Distribution in a Request for Proposals (RFP) issued in October 2004. TransCanada's combination of competitive pricing, power experience and strong balance sheet led to Cartier being awarded 740 MW of the total 1,000 MW awarded. The assets related to the projects are indirectly co-owned by TransCanada (62 percent) and Innergex II Income Fund (38 percent).

These projects represent an investment of more than \$1.1 billion and will be commissioned beginning in 2006 and continue up to 2012. The projects' total annual production will represent 2.3 terawatthours.

The Cartier projects are:

- Baie des Sables (109.5 MW);
- Anse à Valteau (100.5 MW);
- Carleton (109.5 MW);
- Les Méchins (150 MW);
- Montagne-Sèche (58.5 MW); and
- Gros-Morne I and II (211.5 MW).

The Baie des Sables wind farm went into commercial operation on November 22, 2006. One of the largest wind farms in Canada, it provides 109.5 MW to the Hydro-Quebec grid.

TransCanada is actively developing an additional 1,000 MW of wind projects for the 2,000 MW Wind RFP in Quebec in anticipation of submitting bids on May 15, 2007.

TransCanada is also active in developing wind power projects in Alberta, Manitoba, Ontario, Atlantic Canada and the United States.

### **1.5.1.3 Natural Gas Transmission**

The natural gas transmission segment of TransCanada's business includes the operation of its wholly owned pipelines in Canada and the United States – the Alberta System; the Canadian Mainline; the Foothills System; the B.C. System; the GTN System; and the North Baja System, as listed in Table 1-6. On February 22, 2006, TransCanada acquired the ANR Pipeline Company. ANR Pipeline Company has approximately 10,500 miles of natural gas pipelines running from the Gulf Coast and Texas/Oklahoma to the Midwest.

**Table 1-6: Listing of TransCanada's Natural Gas Transmission Segment**

Pipeline System	Length
Alberta System	14,502 miles (23,339 km)
Canadian Mainline	9,257 miles (14,898 km)
Foothills System	771 miles (1,241 km)
ANR Pipeline	10,563 miles (17,000 km)
GTN	1,351 miles (2,174 km)
North Baja	80 miles (129 km)

Other TransCanada investments in natural gas pipelines located in Canada and the United States are listed in Table 1-7.

**Table 1-7: List of TransCanada's Natural Gas Pipeline Investments**

Affiliated Pipeline	Length	Average Throughput (Bcf/d) <sup>1</sup> (2005)
Great Lakes Gas Transmission Company (50% ownership)	2,114 miles (3,402 km)	2.3
Iroquois Gas Transmission System (44.5% ownership)	412 miles (663 km)	1.1
Northern Border Pipeline Company (6.7% indirect ownership)	1,249 miles (2,010 km)	2.2
Portland Natural Gas Transmission System <sup>2</sup> (61.71% ownership)	295 miles (474 km)	0.2
Trans Québec and Maritimes Pipeline (TQM) <sup>2</sup> (50% ownership)	355 miles (572 km)	0.5
Tuscarora Gas Transmission (6.6% indirect ownership; 1% direct ownership)	240 miles (386 km)	0.1

<sup>1</sup>Bcf/d – billion cubic feet per day

<sup>2</sup>Operated by TransCanada

TransCanada manages the operations of its partially owned pipelines, Trans Quebec & Maritimes Pipeline (TQM) and Portland Natural Gas Transmission System (PNGTS). TransCanada is also the operator and the largest unit holder of TC PipeLines, LP, a publicly held limited partnership that has interests in the Tuscarora and Northern Border Pipelines. TransCanada also owns and operates CrossAlta Gas Storage & Service Ltd. CrossAlta is an underground natural gas storage facility with a working capacity of 40 billion cubic feet which is connected to the Alberta System and is located near Crossfield, Alberta.

#### **1.5.1.4 Other Projects and Initiatives**

In addition to the operating or under-construction projects listed above, TransCanada is developing several large scale projects across North America, as described below.

##### ***The Alaska Highway Pipeline Project***

The Alaska Highway Pipeline Project proposes to move natural gas from Prudhoe Bay in northern Alaska to North American markets. The pipeline would stretch more than 1,687 miles (2,700 km) from Prudhoe Bay in Alaska to Alberta. It would follow the route of the existing trans-Alaska oil pipeline and the Alaska Highway, and continue through northern British Columbia to link with the pipeline grid in north western Alberta.

TransCanada's subsidiary, Foothills Pipe Lines Ltd., has been working on the Alaska Highway Pipeline Project since it was first proposed in 1976. Continental gas prices halted the project years ago, but the need for natural gas continues to grow, and the project can aid in meeting demand.

TransCanada holds certificates under the Northern Pipeline Act (Canada) which enable it to build the Canadian part of the Alaska Highway Pipeline Project faster and cheaper than other alternatives. TransCanada has been – and continues to be – focused on advancing the project when the market conditions are right and commercial agreements are in place.

##### ***The Mackenzie Valley Gas Pipeline Project***

On June 18, 2003, Imperial Oil Resources, on behalf of the Producers Group, announced TransCanada's involvement in the Mackenzie Valley pipeline. If development of this pipeline goes ahead, it would connect with TransCanada's system in Northern Alberta.

TransCanada is providing funding for the Aboriginal Pipeline Group (APG) for the project definition phase of the Mackenzie Gas Project. The APG was formed in 2000 to represent the ownership interest of the Aboriginal peoples of the Northwest Territories in the proposed Mackenzie Valley pipeline. In exchange for this funding, TransCanada earns a number of acquisition and expansion rights together with a financial return if the project goes ahead.

The Mackenzie Gas Project includes the Mackenzie Valley pipeline and gas gathering system, liquids extraction, liquids pipeline and field developments. The proponents of the project include Imperial Oil Resources, ConocoPhillips Canada, Shell Canada Limited, ExxonMobil Canada (the producers) and the APG.

##### ***The Keystone Oil Pipeline Project***

Estimated to cost \$2.1 billion, the Keystone Oil Pipeline (Keystone) will be capable of transporting approximately 435,000 barrels per day of crude oil from Alberta, Canada to markets in the United States. The total length of the proposed Keystone Pipeline is 1,830 miles (2,946 km).

The project is a cost-competitive way to link growing Canadian oil sands supply to refineries in the United States Midwest. Keystone would initiate at the crude oil supply hub near Hardisty, Alta and terminate near the crude oil storage and pipeline hub near Patoka, Illinois.

Keystone would also interconnect with other existing crude oil pipelines that could supply refinery markets in Cushing, Oklahoma, Wood River, Illinois, and the United States Gulf Coast.

### ***NorthernLights Electric Transmission***

NorthernLights is a TransCanada initiative that proposes three major high-voltage direct current (HVDC) transmission lines linking low cost, clean fossil fuel and renewable generation with growing loads in the Pacific Northwest, Nevada, Arizona, and California. NorthernLights will use long distance, HVDC transmission lines that maximize the use of existing and emerging energy infrastructure corridors and rights-of-way where practical. Each line will be rated approximately 3,000 MW and will cost \$1.2 – 1.8 billion.

#### ***1.5.1.5 Power Trading and Marketing in New England Power Pool (NEPOOL)***

TransCanada maintains an office in Westborough, Massachusetts that is actively managing its eastern assets under TransCanada Power Marketing Limited (TCPM). TCPM has established itself as a leading energy provider and marketer and is focused on selling power under short- and long-term contracts to wholesale, commercial and industrial customers while managing a portfolio of power supplies sourced from both its own generation and wholesale power purchases. TCPM is a full requirement electricity service provider offering varied products and services to assist customers in managing their power supply and power prices in deregulated power markets. TransCanada provides power to customers in Massachusetts, Rhode Island, Maine, New Hampshire, Connecticut and Vermont. Power supplied to these markets is from TransCanada's Ocean State power plant and its hydroelectric operations on the Deerfield and Connecticut Rivers in New England, and from power purchased in the wholesale power markets. The power trading and marketing personnel have a detailed knowledge of the New England Independent System Operator (ISO-NE) trading rules and work closely within the NEPOOL system. The expertise provided from this office ensures a strong understanding of electric customers throughout New England and the system within which power is provided.

#### ***1.5.2 Key Project Team Members***

TransCanada has significant experience in the development of infrastructure projects, and will utilize its staff capabilities for this effort. To support the proposed development, TransCanada has retained a team of highly qualified and experienced consultants and contractors to supplement its own staff on the Kibby Wind Power Project. A brief qualifications summary is provided below for each of these companies.

**AMEC** is an international project management and services company. Over the last 10 years, AMEC has provided engineering and environmental services to the power industry for over 1,000 facilities worldwide. AMEC provides a full range of services to energy companies,

including wind energy. AMEC's Earth & Environmental division is a national leader in environmental permitting, engineering and compliance services for energy companies and projects. In the last ten years, AMEC Earth & Environmental professionals have successfully permitted over 40,000 MW of electric generation nationwide. AMEC's Power & Process division provides engineering, project management and construction services to the energy industry, with a focus on wind turbine project design and construction throughout North America. Staff from AMEC offices, including in Portland, Maine, are providing full service engineering and environmental support to the Kibby Wind Power Project.

Other engineering and specialty contractors working on engineering issues for the project include:

- **S.W. Cole Engineering, Inc.**, located in Bangor, Maine, provides geotechnical engineering and geologic and construction quality assurance testing services. S.W. Cole has provided geotechnical evaluation services for the project.
- **White Construction Inc., USA** is providing constructability assistance to the project. White Construction is a specialty contractor providing assistance with: service road design and construction; wind turbine foundation installation; wind turbine transportation and logistics; wind turbine assembly and erection; and wind turbine mechanical/electrical completion.

Other environmental and specialty contractors working on environmental issues for the project include:

- **TRC** is working closely with AMEC as a key contributor on environmental issues associated with the project. TRC has over 25 years experience working within all aspects of environmental regulations in Maine, including environmental licensing work on the Maritimes & Northeast Pipeline Project and the Bangor Hydro-Electric Company 345 kV Transmission Line Project. TRC has offices located in Augusta, Portland and Ellsworth, Maine. Staff from these and other TRC offices have been involved in supporting this project, supported by specialty staff from such firms as Biodiversity and Statewide Surveys, Inc.
- **Jean Vissering** is a landscape architect who has conducted aesthetic evaluations for a number of wind projects, as well as having authored several papers and guideline documents on the aesthetics of siting wind turbines. Ms. Vissering conducted the visual impact assessment for the Kibby Wind Power Project. She is working with Stone Environmental and Xtra-Spatial Productions, LLC for production of visual simulations and other graphic support.
- **Woodlot Alternatives, Inc.** is a natural resources company, based in Topsham, Maine, experienced in evaluating the impact of wind farms on avian resources and mapping the movement of migratory birds and bats over proposed wind sites. Woodlot Alternatives, Inc. conducted the radar and bat monitoring studies for the Kibby Wind Power Project.

- **Michael Theriault Acoustics** is located in Portland, Maine, and has more than 17 years of consulting expertise specializing in environmental noise impact assessment for energy projects, including wind power. Michael Theriault Acoustics has provided the noise impact assessment for the Kibby Wind Power Project.
- **The James W. Sewall Company**, with headquarters in Old Town, Maine, provides comprehensive services in geographic information management for municipal government, utilities, and the natural resource industry. Sewall prepared topographic surveys for the Kibby Wind Power Project ridgelines and proposed transmission line corridor.
- **Gilman and Briggs Environmental** is an environmental company with a specialty in rare plant surveys. Arthur Gilman conducted a reconnaissance of rare plant species at the proposed Kibby Wind Power Project site to update his knowledge of the area associated with his former work on the Kenetech Project.
- **Farr Consulting** provides strategic and regulatory advice regarding the market structure, operation and governance of restructured electric power pools. Farr Consulting has provided air emissions displacement analysis for the Kibby Wind Power Project.
- **Dr. Charles Colgan**, Professor of Public Policy and Management in the Muskie School at the University of Southern Maine, and former Maine State Economist, has conducted an economic analysis for the Kibby Wind Power Project.

**Verrill Dana**, with headquarters in Portland, Maine, serves as legal counsel on the Kibby Wind Power Project. Verrill Dana has successfully permitted major utility infrastructure projects in Maine, including the Maritimes & Northeast Pipeline project and the Bangor Hydro-Electric Company 345 kV transmission line project, managed other large environmental permitting matters, including expansion of one of the state's two commercial landfills and the licensing of Maine Yankee's independent spent fuel installation facility, and provides developers and other clients with the full range of environmental services on permitting, compliance, litigation and transactional matters. Verrill Dana also successfully represented the developer of Maine's first large scale wind power project currently under construction in Mars Hill.

**Barton & Gingold**, with offices in Portland, Maine, is Maine's oldest independent full-service management consulting firm. It specializes in communication, government and public relations, community outreach, marketing and mediation. The firm has worked on multiple energy projects including windpower, hydropower and natural gas and electrical transmission. Barton & Gingold has assisted with the public outreach aspects of the Kibby Wind Power Project.

**Garrad Hassan** is the leading international wind energy consulting firm. For the Kibby Wind Power Project, Garrad Hassan conducted an assessment of the wind climate and expected energy production from the proposed wind farm.

### 1.5.3 Applicant Financial Capacity

#### 1.5.3.1 Estimated Project Costs

The total project cost, as outlined in Table 1-8, is estimated at \$270 million, inclusive of the entire transmission line and excluding a contingency allowance.

**Table 1-8: Estimate of Project Cost (\$ million)**

<b>Project Element</b>	<b>Estimated Costs (\$ million)</b>
Turbine supply	166
Collector system and substation	15
Turbine foundations and erection	18
Roads	28
Indirect costs and escalation	23
<b>Subtotal</b>	<b>250</b>
115 kV transmission line and grid modifications	20
<b>Total</b>	<b>270</b>

#### 1.5.3.2 Project Financing

The project will be financed in its entirety by TransCanada, utilizing internal sources of funding. As of December 31, 2006, TransCanada had over \$24 billion of assets, \$2.0 billion of cash flow and \$900 million of net income from continuing operations. The vast majority of these are long-lived assets that are regulated by federal authorities in either the United States or Canada, providing long term stability to TransCanada's earnings. TransCanada has a solid track record of success driven by diligent and disciplined execution of growth strategies. Over the past 5 years, TransCanada has invested more than \$8.5 billion in its core business of gas transmission and power generation. A copy of TransCanada's 2006 Annual Report is provided in Appendix 1-F.

TransCanada Maine Wind Development Inc. is a wholly owned subsidiary of TransCanada PipeLine USA Ltd. As evidenced in the letter attached as Appendix 1-G, TransCanada has committed to advance as necessary the funds required for the project.

TransCanada's issuer rating assigned by Moody's Investors Service (Moody's) is A3 with a stable outlook. Credit ratings on TCPL's senior unsecured debt assigned by Dominion Bond Rating Service Limited (DBRS), Moody's and Standard & Poor's are currently A, A2 and A-, respectively. All three organizations maintain a stable outlook on their ratings.

#### **1.5.4 Right, Title and Interest**

Documentation with regard to right, title and interest is provided in Exhibit B. Note that details regarding right, title and interest along the proposed 115 kV transmission line corridor are provided in Volume V.

#### **1.5.5 Statement of Intentions Regarding Project Operations**

Consistent with its project development philosophy, TransCanada's intention is to develop, own and operate the Kibby Wind Power Project. Contractors engaged to provide various services in that regard must meet TransCanada's safety and environmental qualifications and work under the direction of TransCanada staff in providing those services.