The Black Nubble Wind Farm

Section 1: Development Description

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A. Black Nubble Wind Farm Narrative

How the Revised Application Works:

The following submission constitutes Maine Mountain Power's Revised Application for the Black Nubble Wind Farm. This Revised Application is largely the same as the Original Application. Any changes that MMP has made to the Original Application are underlined. Any information that MMP has imported into the Revised Application from another place in the Original Application or from written and/or oral hearing testimony is underlined and annotated with a footnote to indicate the original source[1].

Executive Summary

With this Revised Application, Maine Mountain Power, LLC (MMP), proposes to rezone approximately 487 acres of land to a Planned Development Subdistrict (D-PD) pursuant to the Land Use Regulatory Commission's (LURC's) Land Use Plan, Chapter 10.21,G. Currently 483 acres of property on Black Nubble Mountain is designated a Mountain Area Protection Subdistrict (P-MA) and 3.5 acres is designated a Soils and Geology Protection Subdistrict (P-SG). (Refer to Land Use Guidance maps in Appendix 1.1 and the (P-SG) Soil and Geology Protection Subdistrict Map in Appendix 1.2 for subdistrict locations.)

The purpose of the proposed D-PD subdistrict is to construct, operate and maintain a 54 megawatt (MW) wind generating facility on Black Nubble, in Redington Township, Franklin County, Maine. The developed portion of the wind farm above 2,700', which consists of mountaintop roads, an electrical collection system buried underground and 18 wind turbines, will be operated on approximately 63 acres (less than 7% of the total owned acreage). More than 436 acres on Black Nubble will be left in their natural state during and after construction. Additionally, the entire nearby 517 acres on Redington Mountain, the last remaining private undeveloped peak in Maine greater than 4,000 feet, will be restricted from wind development through an agreement with NRCM (See Section 2.3 Exhibit 11) if the Black Nubble project is permitted.

[1] Some Tables Charts and forms where there were no substantive changes may still have Redington in the Title or may not have the words Black Nubble Underlined.

When built, the Black Nubble Wind Farm will generate approximately 142 million kilowatt-hours a year[2], enough clean, renewable energy to serve more than 21,500 homes[3]. When operating, the wind farm will reduce consumption of fossil fuels and prevent more than 400,000 pounds (200 tons) of air pollution per day[4] from being released by existing power plants in New England.

Black Nubble was chosen because it is not only adjacent to existing development but also on the extreme fringe of LURC jurisdiction—two of the main tenets of LURC policy. The proximity of existing power lines and infrastructure available in Redington Township allows this project to be built with minimal environmental impact. Based upon numerous years of environmental studies, wind resource analyses, and electrical interconnect evaluation this project will provide renewable electricity for which there is both a demonstrated need and available transmission capacity.

This Revised Application follows the format for the DEP application. During a pre-application meeting between the applicant, LURC and DEP staff at the LURC office in Augusta, Maine, in July 2003, the agencies agreed that a single permit application could be filed to satisfy both the DEP and LURC application requirements. Upon passage of LD1588 in June 2005, the DEP jurisdiction was narrowed to only include the small portion of the utility line in Carrabassett Valley; however the agencies agreed that the applications could remain combined as previously determined. Therefore, the information provided in this Revised Application satisfies the requirements in Maine's Department of Environmental Protection (DEP) Site Location of Development Act (Site Location Law) to construct that portion of the line. The DEP Site Location permit was issued on May 24, 2007.

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[1] Calculations by Ron Nierenberg, Consulting Meteorologist from Camas, Washington, based on examination of wind data from meteorological towers at the Redington site.

[3] Davulis, John, Sales Forecast, Volume III-A, Central Maine Power Company, Augusta, Maine, Pre-filed Direct Testimony to the Maine Public Utilities Commission, Investigation of Central Maine Power Company's Stranded Cost Revenue Requirement and Rate Design, docket No. 2001-232 Phase II. October 3, 2001.

[4] Based on the 2004 annual report *NEPOOL Marginal Emissions Rate Analysis* produced annually by the Independent System Operator of New England.

As part of this Revised Application, MMP is also requesting a permit to construct a 2400 square foot Maintenance facility consistent with Chapter 10.22,A,3,c(30) "other uses" within the General Management Subdistrict (M-GN). The proposed construction, sited on a 5-acre portion of the leased property, includes a maintenance building, driveway, parking and "lay-down" area to deliver, store and maintain equipment necessary to operate the wind farm.

Project Overview

This Section describes the project and provides an overview of the benefits and impacts of the Black Nubble Wind Farm.

Project Description:

The Black Nubble Wind Farm consists of 18 wind turbines placed along the ridge of Black Nubble (see Project Base Map in Appendix 1.0 at the end of this section). On the Black Nubble ridge, electrical transmission lines will be underground, out of sight. Below the ridges, electricity will be transported via an above-ground 34.5kV transmission line that descends from the north ridge of Black Nubble to a new substation in the Nash Stream valley. From there, the power will be stepped up to 115kV and transmitted via 7.2 miles of new line to the existing Bigelow Substation, located in Carrabassett Valley near State Route 27 and the border of Wyman Township. The new transmission line will parallel an existing power line (the Stratton Biomass 115kV) along the southern portion of Wyman Township. Roughly half of the 115 kV power line is in DEP jurisdiction and half in LURC. All of the other project activities in this application are in LURC jurisdiction only. (See Project Base Map in Appendix 1.0.)

Access to the turbines will be via 5.61 miles of new road connected to 9.8 miles of existing logging roads currently used for forest operations in the area. MMP has taken extra care to minimize the environmental and visual impacts of the new roads, working closely with state permitting agencies, civil engineers, the turbine manufacturer, and transport companies, to minimize the width and turning radius requirements for new roads. This application contains a detailed erosion and sedimentation control plan to minimize potential environmental impacts during construction (Section 14).

Detailed descriptions of roads, bridges, electrical design, turbine specifications, foundations and assembly can be found in various appendices at the end of this section of the application.

The project is being funded by Maine Mountain Power, LLC. A project subsidiary of Edison Mission Group is providing a development loan to Maine Mountain Power, LLC to fund approved project development expenses, and it will fund equity pursuant to the terms of its agreements upon timely receipt of all necessary permits and commencement of construction and other prerequisites. Edison Mission Group, through its subsidiaries, is an electric power generator and distributor, and an investor in renewable energy projects with assets totaling more than $10.4 billion. Edison Mission Energy is a subsidiary of Edison International a NYSE listed company with $36 billion in assets.[5] Edison owns one of the largest portfolios of windpower in the nation, currently managing over 700 MW of windpower in fifteen projects in the United States. Since the hearings last August, Edison has increased its windpower portfolio substantially, and has started and completed construction on several other wind farms. More information about Edison can be found in Section 3, the Financial Capacity Section of this application.

Benefits and Impacts of the Black Nubble Wind Farm:

This section summarizes the key issues associated with the Black Nubble Wind Farm:

The BNWF Project Preserves the Last Privately Owned Undeveloped 4,000 Foot Mountain in Maine

MMP and Redington Mountain Windpower, LLC have entered into an agreement with the Natural Resources Council of Maine (NRCM) to restrict windpower development on Redington Pond Range. If the Black Nubble Wind Farm is approved and constructed, this restrictive covenant will prohibit the development of windpower on the last undeveloped and unprotected 4,000 foot peak in Maine. (See Section 2.3 Exhibit 11). The restriction of development on Redington Pond Range preserves a documented habitat for the Bicknell Thrush and the

[5] July 14, 2006 Prefiled Testimony of Randolph Mann at p.1 as revised in July 9, 2007 letter to Marcia Spencer-Famous.

unfragmented area between Saddleback and the Bigelow Range, both of which were major concerns of intervenors during the August 2006 hearing process.

The BNWF Site Meets LURC Goals to Place Development on the Fringe of LURC Jurisdiction

As described in more detail in Section 3.B.3 of this Development Description, the Black Nubble Wind Farm site is the best reasonably available site. Some of the reasons why this is the best reasonably available site include:

1. The BNWF site is on the fringe of the LURC jurisdiction. Black Nubble is just over 2 miles from the boundary of the LURC jurisdiction, a portion of the power line is in the organized town of Carrabassett Valley, and the Redington Pond Range parcel to be conserved is immediately adjacent to Carrabassett Valley.

2. The BNWF site is within 7.23 miles of an existing substation, and because some of that distance will be along existing roadways it will not require significant new clearing to connect to existing transmission lines.

3. The BNWF site is served by existing logging roads that run up to and part way up the mountain. Major portions of the "new" access roads will utilize existing logging roads to minimize the amount of new clearing needed.

In sum, the Black Nubble Wind Farm site is one of the only remaining locations within LURC's jurisdiction that has high winds, existing infrastructure and a location at the fringe of LURC jurisdiction. Most other high wind areas are not on the fringe and would require significantly more clearing through pristine LURC territory for transmission lines and/or roads. Wind farms off the coast of Maine are not economically feasible at this time.

Economic Viability

As described in more detail in the Financial Capacity Section (Section 3), Maine Mountain Power has confirmed that it will be economically viable for them to build and operate the BNWF. Edison and MMP evaluated the economics of a single mountain project during the

summer of 2006 when NRCM first raised the Black Nubble - only option. At the time, based on the estimated construction costs and power prices, we concluded that the one-mountain project would be unlikely to meet Edison's, and the larger market's, minimum rate of return. Furthermore, MMP also determined that the market could not withstand the large increase in power price required to attain the minimum rate of return. Therefore, MMP concluded, at that time, that Edison could not justify undertaking the cost of developing a single-mountain project and Mr. Mann presented testimony to that effect during the hearing.[6]

However, after the January 2007 vote of the Commission, MMP revisited the economic analysis related to a one-mountain project and further investigated ways to manage costs so that the project would require a smaller increase in prices. Our construction and design team targeted ways that we could reduce the costs of construction without sacrificing safety and regard for the environment. We have also explored tax increment financing as a way to reduce ongoing costs.[7]

MMP also investigated ways to enhance revenue by beginning the process of renegotiating the price of our power sales contract with our energy distributor. MMP is now confident that the market for windpower will sustain the necessary adjustments, because the market

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[6] August 3, 2006 PowerPoint Presentation of Randolph Mann.

[7] MMP does not receive a tax "write-off" for the wind farm. However, as explained in the July 14, 2006 Prefiled Testimony of Randy Mann, MMP expects to earn two federal tax benefits that the federal government has made available for all qualifying wind projects throughout the United States: (1) the Production Tax Credit (PTC) and (2) depreciation. The PTC is a tax credit currently worth 2.0 cents per kwh, and can be earned over the first 10 years that the Black Nubble Wind Farm operates. It is important to note that the PTC is only earned by MMP when we produce and sell electricity, so it forces us to be efficient, because the more/less we produce, the more/less PTCs we earn. Accelerated depreciation simply means that MMP is allowed to deduct the value of our approximately $150 million investment over 5 years for income tax purposes. The IRS allows all types of project owners to depreciate their investments in this way, but windpower projects benefit from this more rapid depreciation, whereas traditional fossil fuel or hydro projects would take depreciation over much longer periods (e.g. 20 years or so). July 14, 2006 Prefiled Testimony of Randolph Mann at p.8.

for wind power in the region has improved significantly since the date the power sales contract was originally negotiated and since the summer of 2006. Changes since the hearing last summer that support the economic viability of the Black Nubble project include:

1. **Electricity**: An increase in the prices of electricity in Maine due to high natural gas prices contribute to the economic viability of the Black Nubble Wind Farm.[8]

2. **Capacity**: MMP can now earn capacity payments as a result of recent changes in NEPOOL market rules, which is an additional revenue source that contributes to the Black Nubble project's economic viability.

3. **Renewable Energy Credits**: MMP expects that the price of Renewable Energy Credits realized by the Black Nubble Wind Farm will be high due to the difficulty of developing wind power and the growing demand for renewable energy. MMP anticipates that RECs will serve as an additional revenue source that will contribute to the economic viability of the Black Nubble Wind Farm.

4. **Greenhouse Gas**: MMP expects that as federal and regional limitations on carbon dioxide emissions are implemented, the total price of electricity will increase to reflect the added cost of complying with these regulations. Since the Black Nubble Wind Farm does not emit any carbon dioxide, any increase in electricity prices to cover compliance costs will serve as an additional source of revenue for MMP because MMP does not need to spend additional money to comply with these regulations.

Given current and expected power, capacity, REC and carbon pricing, MMP believes that the windpower market can sustain a significant increase in price.

[8] The addition of the Black Nubble Wind Farm will result in lower power prices to Maine consumers. Thus, this benefit provided to Maine consumers by the Black Nubble Wind Farm is increasingly important in a market where natural gas prices and the resultant power prices are high.

Therefore, in combination, these cost-reducing and revenue enhancing measures give MMP the necessary confidence that we can meet the minimum rate of return. The smaller project will produce less power at a higher price but still provides a significant amount of much-needed clean energy for Maine.

Thus, MMP is submitting the Revised Application for the revised Black Nubble Project because MMP believes that it will be economically viable.

Visual Impacts

The project's visual impacts have elicited close scrutiny throughout the hearing process. Although it is impossible to hide a wind farm, MMP has mitigated, to the greatest extent possible, the visual impact of the Black Nubble Wind Farm. For the reasons listed below, the Black Nubble Wind Farm will not have any undue adverse impact on the scenic resources of the jurisdiction:

1. MMP, in this Revised Application, has withdrawn its request to develop Redington Pond Range as a wind farm. MMP and the underlying landowner, RMW, have entered into an agreement with the Natural Resources Council of Maine to restrict wind development on Redington Pond Range. (See Section 2.3 Exhibit 11) In the original application, Redington was the closest mountain to the AT and provided the majority of the mid-ground views of the project from the AT. The restriction of development on Redington significantly decreases the scenic impact of the project and provides assurance regarding the long-term protection of this peak.

2. Proximity to the AT. With this Revised Application for the BNWF, the closest point from the wind farm to the AT is now 3.1 miles. In the original application the closest turbine on Redington was one mile away. Thus, this Revised Application has tripled the distance between the closest point on the project site and the AT.

3. Closest View from the AT. The closest point on the AT where there would be any view of the turbines is at Poplar Ridge, a distance of 3.2 miles. Along the ridge there are a series of five viewpoints, two of which will have filtered views of Black

Nubble. The BNWF will **not** be visible from the Sugarloaf Cirque, Crocker Mountains, or Lone Mountain.

4. Although the Black Nubble turbines will still be visible from afew spots along the AT, only approximately 2.6 miles (7.6%) of the Trail that are located within a 15-mile radius of the BNWF will have unobstructed views of the project (there are 34.2 miles of the AT located within a 15-mile radius of the BNWF). It should be noted that 0.8 miles of open views is from the Bigelow Range, where the turbines will be barely visible at distances of 9 to 13 miles. Additionally, only 0.1 miles (0.3%) of the AT located within a 15-mile radius of the BNWF will have filtered views of the project. Most of the remaining 92.1% of the Trail within 15 miles of the BNWF is located in dense forest, so hikers will not be able to see the turbines and related infrastructure. There are other open views along this segment of the AT that will not be affected by the wind farm at all.

5. Silhouetting. From many viewpoints, the turbines on Black Nubble will be seen against other mountains rather than against the sky. Therefore, they will be less noticeable than the originally proposed project, where many of the turbines on Redington Range would have appeared above the horizon line.

6. Angle of View. By reducing the number of wind turbines, the percentage of the view from the panoramic summits will decrease significantly. The summit of Saddleback Mountain affords a 360-degree view of the surrounding landscape. From this viewpoint the turbines on Black Nubble will be seen over an arc of 15 degrees. This is compared to the original application in which the two mountain project occupied an arc of 35 degrees. From the summit of The Horn, the wind farm will only be visible over 18 degrees, compared to 43 degrees in the original application. From Saddleback Junior the BNWF turbines will only be visible over 22 degrees, compared to 54 degrees in the original application.

7. Proximity to Development. Most of the locations where the turbines will now be visible include views of other signs of development such as Sugarloaf Ski Area, numerous roads, the

Town of Rangeley, Saddleback Mountain Ski Area, and the Navy training center.

8. Mt. Abraham. Mt. Abraham is accessed from a side trail off of the AT. The closest turbines on Black Nubble will be 6.5 miles from the summit of Mt. Abraham, compared to 4.1 miles in the original application. Additionally, the BNWF will be visible over an arc of 12 degrees, compared to 26 degrees in the original application.

9. Scenic Roads. The BNWF will be visible from small portions of the two Scenic Byways in the area. However, at the few locations where the turbines will be visible, they will be seen at distances greater than eight miles where they will be minimally visible.

10. Other Public Locations. The project will have very limited visibility from other public locations since the BNWF project will be visible from less than 5% of the entire area located within 15-miles of the project. The existing forest and mountains block the view from most locations readily available to the public.

As described above and in more detail in the Visual Quality and Scenic Character section of this Revised Application (Section 6), MMP has made great efforts to mitigate to the greatest extent possible, any impact of the Black Nubble Wind Farm on the scenic character of the jurisdiction. The elimination of development on Redington Pond Range and the measures in place since the original application to fit the project harmoniously within the surrounding area, ensures that the Black Nubble Wind Farm will have no undue adverse impact on the scenic character of the jurisdiction.

Air Pollution Reductions

BNWF will also reduce air pollution involving pollutants that cause global warming, acid rain and ozone (or smog) which are known to be harmful to Maine's wildlife, fisheries, and the health of Maine's residents. This is described in more detail below in the Demonstrated Need and Benefits section of this Development Description, but the following points demonstrate how the Black Nubble Wind Farm will have a positive impact on the jurisdiction and the State of Maine:

1. The production of renewable, non-polluting energy from the BNWF will prevent the equivalent of approximately 400,000 pounds of pollution per day from being released into the air from existing power plants.

2. BNWF will help reduce greenhouse gas emissions that contribute to global warming. While BNWF alone will not solve the greenhouse gas problems of the region, it would provide an important and practical contribution to help maintain the present climate in the region which serves as an essential element of the plant and wildlife habitat throughout LURC jurisdiction.

3. The BNWF will help the State meet its recently legislated targets to decrease the production of carbon emissions and increase the percentage of renewable energy production in the State.

Furthermore, the Black Nubble Wind Farm would not displace hydroelectric power, but would displace higher cost, fossil fuel power plants. The Maine Public Utilities Commission and Maine's Office of Energy Independence and Security have confirmed that wind energy will reduce air pollution and reduce dependence on fossil fuels.

Section 1 of this Development Description, Environmental Benefits, discusses the concern that the pollution benefits from the BNWF will be offset by the use of allowances, which could be used by higher polluting power plants to pollute at a later time. As discussed in detail later, the Governor, the Public Utilities Commission and the Office of Energy Independence and Security all support wind energy as a solution to our long-term air pollution problems. These important state agencies would not be supporting windpower as a solution to the goal of reducing pollution and green house gases if the benefits of each project were not real and significant.[9]

Accordingly, based upon the overwhelming evidence in the record, including that from sources independent of either project proponents

[9] Furthermore, Edison Mission Group will not be able to bank allowances or somehow receive allowances as a result of the Black Nubble Wind Farm project ; the project will not create allowances.

or opponents, the Black Nubble project will in fact reduce air pollution and help the State of Maine achieve its GHG reduction goals

Taxes and other local economic benefits

The project will pay over $500,000 per year in taxes and create approximately 80 design, engineering and construction jobs for one year, paying roughly $4 million in wages, not including benefits. BNWF will create 10 permanent jobs and generate nearly $1 million per year in payroll and benefits. The project will also procure a significant amount of goods and services locally over its life. These benefits will occur while the project requires negligible town services. Additionally, electricity produced from the project will be sold to Constellation New Energy, which in turn will sell the electricity to Maine customers using 10-year fixed-price arrangements.

Demand for Clean Renewable Energy

The Black Nubble Wind Farm will also satisfy a demand for clean, renewable energy. Bruce McLeish of Constellation Power testified that Constellation has Maine customers that want clean renewable power and in fact that Constellation's Maine customers are currently demanding more clean renewable power than Constellation can supply. Steve Garwood and Bruce McLeish both testified that the power will be able to get to the users in Maine.

Given that the revised Project will have fewer Megawatts of power to sell than the 90 MWs already purchased, there is ample evidence that the power is needed and that it will be used in the State of Maine.

Environmental Impacts

As addressed in more detail in the No Undue Adverse Effect section below, the Black Nubble Wind Farm will not have undue adverse impacts on the natural resources of the project area:

1. The BNWF will not impact any bog lemming habitat.

2. Black Nubble has less ideal Bicknell Thrush habitat. Compared to Redington Pond Range with its stunted balsam fir and documented Bicknell's Thrush habitat, Black Nubble provides only marginal quality habitat opportunities. Furthermore, MMP has entered into an agreement restricting development on

Redington Pond Range, thereby preserving the more extensive and higher quality Bicknell's Thrush habitat that exists on Redington.

3. Although there will be unavoidable habitat impacts during construction, they will be minimal and the project will not have undue adverse impacts on birds or bats during either construction or its subsequent operations. Resolution of potential impacts and compensation of unavoidable impacts have been closely coordinated with staff from the Maine Department of Inland Fish and Wildlife, who did not find the impacts to be unduly adverse.

4. Wetland impacts from the Black Nubble project are very low—approximately 1.78 acres of temporary impact and only .03 acres of permanent wetland loss. MMP has already received permits from the U. S. Army Corps of Engineers, the Maine Department of Environmental Protection and the Town of Carrabassett Valley, which demonstrate that there will be no undue impacts to wetlands.

5. MMP's soil and erosion control techniques have been reviewed and approved by the State Soil Scientist, David Rocque.

6. The design and methodology for preserving the natural hydrology down the mountain and across the access roads have also been approved by David Rocque.

7. The project will upgrade and use existing logging roads to access the site to avoid constructing new roads where possible.

8. The environmental impacts from clearing for the project would be small and of a similar nature to the roadway clearing associated with tree harvesting, which is a permitted use and a frequent occurrence in that area.

9. Finally, the fact that the State of Maine's experts in wetlands, biology, wildlife and soil hydrology as well as the U.S. Army Corps of Engineers have all given their approvals to this project demonstrate that it will not have an undue adverse impact either during construction or during operation.

For the reasons cited above, the environmental benefits from this project, which include cleaner air, reduced emissions of greenhouse gases that cause global warming, reduced volatility of energy prices, and the goal of achieving the State's renewable energy policy, outweigh the limited adverse impacts of the Black Nubble Wind Farm. Moreover, the agreement to restrict development on Redington, the last undeveloped, unprotected 4,000 foot peak in Maine, further increases the benefits of the project. On balance the Black Nubble Wind Farm will result in long-term benefits and does not cause undue adverse impacts to the jurisdiction.

Key Facts Table

The table below shows the key facts for the proposed wind farm. This table includes numerical values for road lengths, cleared areas, turbine output and more.

Key Facts	New Black Nubble	Original Redington	Difference	Units
Number of Turbines:	**18**	**30**	**-12**	**turbines**
Redington	0	12	-12	turbines
Black Nubble	18	18	0	turbines
Turbine Capacity				
Per Turbine	3	3	0	MWatt
Total Wind Farm	***54***	***90***	***-36***	***MWatt***
Energy Output / Year				
Per Turbine	7,900	8,866	-966	MWhrs/yr
Total Wind Farm	***142,200***	***266,000***	***-123,800***	***MWhrs/yr***
Maine Homes Equivalent	21,545	44,300	-22,755	Homes
Pollution Avoided				
Per Turbine	22,247	28,000	-6,000	pounds/day
Total Wind Farm/Day	400,451	860,000	-459,600	pounds/day
Total Wind Farm/Year	73,082	157,000	-103,940	tons/year
Cleared Acreage				
Turbine Pads - beyond 45 feet from centerline of roadway	8.47	13.14	-4.67	acres
Mountaintop Roads	39.46	92.20	-52.74	acres
Reference Tower	0.75	0.00	0.75	
New Access Roads	12.32	23.10	-10.78	acres
New Access Roads Wide-Outs	Included Above	0.23	-	acres
Underground Electric transmission line from turbine 18 to PL, between	1.81	0.41	1.40	acres

Key Facts	New Black Nubble	Original Redington	Difference	Units
12 and 11, and beyond roadway limits in other areas				
Existing Roads General Widening	29.00	7.00	22.00	acres
Existing Wide-outs	Included Above	0.85	-	acres
Existing Curves	Included Above	1.70	-	acres
Stump Dumps	2.00	4.00	-2.00	acres
New Temporary Transmission Line Access Routes	5.50	5.50	0.00	acres
Redington Power Line	0.00	24.00	-24.00	acres
Black Nubble Line	10.40	11.00	-0.60	acres
New Substation	0.85	1.00	-0.15	acres
Main Line 115kV	123.00	123.00	0.00	acres
Total Project	***233.56***	***307.13***	***-73.57***	***acres***
Cleared Acreage (above 2700')				
Redington above 2700'	0 -	64.82	-64.82	acres
Black Nubble above 2700'	63.51 -	70.94	-7.43	acres
Total above 2700'	***63.51***	***135.76***	***-72.25***	***acres***
Total below 2700'	***170.05***	***171.37***	***-1.32***	***acres***
Cleared Acreage-Proposed D-PD Subdistrict				
Cleared Acreage	50.49	105.75	-55.26	acres
Untouched Acreage	436.51	898.25	*	acres
Wetlands Impacted				
Roads	0.03	0.44	-0.41	acres
Power Line Corridors	1.75	8.99	-7.24	acres
Total	***1.78***	***9.43***	***-7.65***	***acres***
Road Mileage				
New Redington	0.00	5.40	-5.40	miles
New Black Nubble	5.61	6.20	-0.59	miles
New Temporary Power Line Access	0.80	0.80	0.00	miles
New to Substation	0.13	0.10	0.03	miles
Total New	***6.54***	***12.50***	***-5.96***	***miles***
Existing IP road, RE2 & RE6b Plus 0.5 mile road to substation	9.80	12.00	-2.20	miles
Total Existing	***9.80***	***12.00***	***-2.20***	***miles***
Total Road Mileage	***16.34***	***24.50***	***-8.16***	***miles***

Key Facts	New Black Nubble	Original Redington	Difference	Units
Transmission Line Miles				
Redington 34.5kV	0.00	2.60	-2.60	miles
Black Nubble 34.5kV	1.14	1.20	-0.06	miles
Main Line 115kV	7.23	7.50	-0.27	miles
Total	***8.37***	***11.30***	***-2.93***	***miles***

*Note - Untouched acreage comparison is not shown since Redington acreage is no longer being developed.

Where to Find LURC Permit Requirements in this Application

Chapter 10,21,G,1 states that the *"purpose of the D-PD subdistrict is to allow for large scale, well planned developments" that are "separated from existing developed areas, provided that they can be shown to be of high quality and not detrimental to other values established in the Comprehensive Land Use Plan".*

> See Item 9 under Criteria for Approval of a Preliminary Development Plan (page 79 in this document). Also, refer to Criteria for Approval of a Preliminary Development Plan on page 30 in this document.

Chapter 10,21,G,1 further states these developments *"depend on a particular natural feature or location which is available at the proposed site".*

> The project's natural feature, a first-class wind resource is described on page 72 in this document, "Utilizes the Best Reasonably Available Site".

Chapter 10.21,G,2 – Subdistrict should include "*at least 50 contiguous acres".*

> See item 10 under Criteria for Approval of a Preliminary Development Plan (page 40) in this document. In addition, the Project Base Map in Appendix 1.0 of this section clearly delineates the acreage of the wind farm.

Chapter 10.21,G,2 – *"No development other than access roads and utility lines shall be less than 400' from any property line.*

Furthermore, the project shall be reasonably self-contained and self-sufficient and to the extent practicable provide for its own water and sewage services, road maintenance, fire protection, solid waste disposal and police security".

> See items 11 and 12 under Criteria for Approval of a Preliminary Development Plan (beginning on page 80) in this document.

Chapter 10.21,G,3 – Permitted Uses

> A concept plan describing uses allowed without a permit, without a permit subject to standards and with a permit begins on page 83 of this document.

Chapter 10.21,G,8,a – *"Evidence that the proposal conforms with the Commission's Comprehensive Land Use Plan".*

> See page 51 in this document for text titled "Conforms with the Comprehensive Land Use Plan".

Chapter 10.21,G,8,a,(1) – Legal description of the property boundaries

> See Section 2, Land, Title and Easements in this permit application.

Chapter 10.21,G,8,a,(2) – Statement of *"objectives to be achieved by locating the development in its proposed location" and "why the site is the best reasonably available for the proposed use(s)".*

> The project's objectives are stated on page 21 of this document. In addition, this document describes the demonstrated need, benefits and how the project fits harmoniously into the environment beginning on page 22. Refer to page 72 in this document, "Utilizes the Best Reasonably Available Site", for details on site selection.

Chapter 10.21,G,8,a,(3) – *"A reasonably complete development schedule and construction program".*

> See the construction plan on page 106 of this document.

Chapter 10.21,G,8,a,(4) – *"Statement of the applicant's intentions with regard to future selling, leasing or subdividing portions of the project".*

See Section 2, Land, Title and Easements in this permit application.

Chapter 10.21,G,8,a,(5) – Statements that the *"project is realistic, can be financed and completed".*

See Section 3, Financial Capacity, in this permit application. In addition, Section 4, Technical Ability, describes the expert consultants commissioned to develop the project's design.

Chapter 10.21,G,8,a,(6) – Statement of "*environmental impact of the proposed development which sets forth the reasonably foreseeable adverse effects and measures to be taken to minimize such effects".*

Several sections of this application deal with environmental issues:
Section 5, Sound
Section 6, Visual Quality and Scenic Character
Section 7, Wildlife and Fisheries
Section 8, Historic Sites
Section 9, Unusual Natural Areas
Section 15, Groundwater
Section 17, Wastewater Disposal
Section 19, Flooding
Section 20, Blasting
Section 21, Air Emissions
Section 22, Odors
Section 23, Water Vapor
Section 24, Sunlight

Chapter 10.21,G,8,a,(7) – *"A general statement that indicates how the natural resources of the area will be managed and protected so as to reasonably assure that those resources currently designated within protection subdistricts will receive protection that is substantially equivalent to that under the original subdistrict designation".*

Several sections of this application deal with natural resources:
Section 5, Sound
Section 6, Visual Quality and Scenic Character
Section 7, Wildlife and Fisheries
Section 8, Historic Sites
Section 9, Unusual Natural Areas
Section 10, Buffers
Section 13, Maintenance

Section 15, Groundwater
Section 17, Wastewater Disposal
Section 19, Flooding
Section 20, Blasting
Section 21, Air Emissions
Section 22, Odors
Section 23, Water Vapor
Section 24, Sunlight

Chapter 10.21,G,8,a,(8) – A location map (Commission Land Use Guidance Map) that "*indicates the area for which a D-PD subdistrict designation is sought. This map should show all existing subdistricts*".

See appendix 1.1 at the end of this section for LURC Land Use Guidance Maps.

Chapter 10.21,G,8,a,(9) – *"A map showing existing site conditions including contours at 10 foot intervals, water courses, unique natural conditions, forest cover, swamps, lakes, ponds, existing buildings, road boundaries, property lines and names of adjoining property owners, scenic locations and other prominent topographical or environmental features".*

See appendix 1.0 at the end of this section for Project Base Map. Due to the size of the project area, MMP reached an agreement with DEP and LURC staff to display the base map at 20' contour intervals.

Many detail maps and drawings are available. Refer to the text on design drawings on page 107 of this document.

Chapter 10.21,G,8,a,(10) – *"A soils map of at least medium intensity that covers those portions of the site where any development is proposed. The description should use the soil group designation utilized in the Subsurface Waste Water Disposal Rules or the USDA Soil Series names."*

See Section 11 on Soils and Section 17 on Wastewater disposal.

Chapter 10.21,G,8,a,(11) – "*A site plan that shows the approximate location and size of all existing proposed buildings, structures and other improvements, including roads, bridges, beaches, dumps, wells, sewage disposal facilities, storm drainage, cut and fill operations… …parking areas, service and loading areas."*

See appendix 1.0 at the end of this section for Project Base Map. Road, bridge and turbine foundation construction plans are located in the appendices at the end of this section. Stormwater Management is described in Section 12. Erosion and Sedimentation Control is in Section 14. A site plan for the Maintenance Facility is available in Section 13.

Chapter 10.21,G,8,a,(12) – *"A map or description of the approximate type, size and location of proposed utility systems including waste disposal, water supply and electric and telephone lines".*

See appendix 1.0 at the end of this section for Project Base Map. Also see appendix 5 at the end of this document for a description of the electrical system and various electrical drawings. Refer to Section 16 for Water Supply and Section 18, Solid Waste.

Chapter 10.21,G,8,b – *Criteria for the Approval of a Preliminary Development Plan.*

The eight required criteria listed in this portion of Chapter 10 are clearly addressed in this document as items one through eight beginning on page 51.

Chapter 10.21,G,10,a,(2)(a) – Drawings that include all the information required on the preliminary site plan *"plus the dimensions and heights, foundation design, material specifications, and elevations and colors of all building and structures".*

Refer to requirement for Chapter 10.21,G,8,a,(11) above. All drawings and exhibits give specifics on dimensions, heights, foundation design.

Chapter 10.21,G,10,a,(2)(b) – *"Drawings that illustrate all roads, parking service and traffic circulation areas. The dimension of curve radii, grades and number of parking spaces are to be specified".* Bridges *"should be shown as scaled engineering plans and sections."*

Refer to Appendices 2.0 and 4.0 at the end of this section for road design and bridge design. The project base map shows turning points at the top of the mountain. Parking is available at the Maintenance Center, shown in Maintenance, Section 13 of this application.

Chapter 10.21,G,10,a,(2)(c) – *"If individual sewage disposal system is proposed, an on-site soil report for each proposed lot is required."*

See Section 17, Wastewater Disposal.

Chapter 10.21,G,10,a,(2)(d) – *"Drawings that indicate all surface water runoff and storm drainage systems, soil stabilization procedures, and landscape plans for planting, screening, revegetation and erosion control and lighting of outdoor spaces."*

See Section 12, Stormwater Management and Section 14, Erosion and Sedimentation Control.
MMP's proposal for lighting the wind turbines, subject to FAA approval, is on page 111 in this section.

Chapter 10.21,G,10,a,(2)(e) – *"To the extent reasonably available, copies of the restrictions, covenants, conditions, and/or contractual agreements that will be imposed upon persons buying, leasing, using, maintaining, or operating land or facilities within the Planned Development".*

Refer to Section 2, Land, Title and Easements, for legal agreements and Section 13 for Property Maintenance.

1. Development Objectives, Purpose of D-PD and Need

Objectives

Broad development objectives for the Black Nubble Wind Farm project are three-fold:

1) To provide a clean, renewable source of electricity to the local area, the state of Maine and the New England region in an economically and environmentally sustainable manner;

2) To maximize local and regional benefits from the wind farm, including competitive energy on a long-term, fixed-price basis, increased Franklin County tax revenue, Maine construction jobs, and long-term local employment in wind farm maintenance and operations;

3) To ensure that the wind farm has no undue adverse effect on the wildlife and working forests where it is sited or to the area's scenic viewshed.

The Black Nubble Wind Farm will provide significant renewable energy, help stabilize energy prices, reduce Maine's dependence on oil and gas, provide an economic stimulus, reduce pollution, and support Maine energy policy objectives. Details on how MMP will meet these objectives are described in the Demonstrated Need section below.

Demonstrated Need, Benefits and No Undue Adverse Effect

The Black Nubble Wind Farm will help Maine's economy become more economically and environmentally sustainable. It will generate enough clean, renewable energy to power the equivalent of approximately 21,500 Maine homes, will promote economic development, will reduce pollution and greenhouse gases, and will help reduce our dependence on imported fossil fuels.

Significant Renewable Energy

The latest calculations show that Black Nubble Wind Farm, on average, will produce over 142,000,000 kilowatt-hours (kWh) a year. This is about 1.2% of Maine's total consumption of about 12 billion kWh a year[10]. Since the average Maine residential customer uses about 6,600[11] kWh a year, the wind farm will produce enough power for the equivalent of about 21,500 homes. Based on data provided by Natural Resources Council of Maine on hydroelectric power production, the Black Nubble Wind Farm will produce more power than 95 out of Maine's roughly 100 hydroelectric dams. The NRCM spreadsheet is available as Appendix 10.6, Natural Resources Council of Maine data.

Stable Electricity Prices for Customers

In the past several years, natural gas prices have been volatile and increasing. Power prices have followed suit. MMP has a contract with Constellation New Energy ("Constellation") under which Constellation will resell the wind farm's electrical output to municipal, industrial and commercial customers. Constellation will take output from the wind farm and will secure the transmission path for the power and deliver it to Maine customers. There are known congestion issues at the Maine/New Hampshire border at certain times. The PUC Executive

[10] ISO-NE's 2004 Annual Markets Report, p. 15.

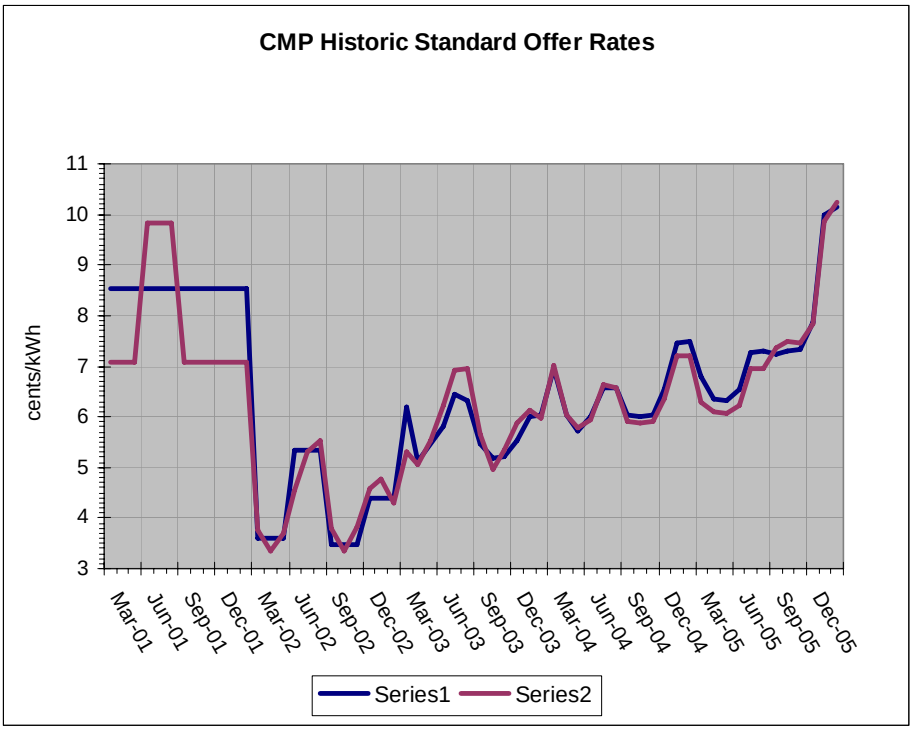
[11] Conversation with Dennis Bergeroun of MPUC 5/06.

Summary of their Maine Wind Energy Act study states, "There are sufficient markets available to windpower facilities developed in Maine". The entire text of the executive summary is available in Appendix 10.8 of this section.

It is the power marketer's responsibility to get the power to any out-of-state customers. To provide maximum benefit to Maine consumers, MMP's power marketer will offer contracts to Maine customers, beginning with those geographically closest to the wind farm, before offering remaining power, if any, out of state. MMP and Constellation personnel have had discussions with the towns of Rangeley and Carrabassett Valley, Sugarloaf and Saddleback ski areas, School Administrative District 58 (which has singed an Memorandum of Understanding (MOU) expressing its interest in power from the project), the University of Southern Maine (which has also signed an MOU), the University of Maine System, the College of the Atlantic, Chewonki (MOU signed) and others.[12]

The graph below shows Central Maine Power (CMP) standard offer prices for commercial and industrial customers from 2001 to 2005:

[12] July 14, 2006 Pre-Filed Testimony of Bruce McLeish, p. 7.



As described in Appendix 10.1, volatile and rising prices have been especially hard on medium and large power customers — the same customers to whom Constellation is able to sell wind-generated power to. Constellation is offering ten-year fixed-price contracts, which eliminate price volatility and price increases. Constellation is also selling windpower in combination with Renewable Energy Credits. Renewable Energy Credits are green attributes that offer customers an independently certified way of tying their consumption to the electricity produced by the Wind Farm. Customers may either obtain all of their power from the wind farm at that ceiling price or sell some of the Renewable Energy Credits to significantly reduce their net costs.

Hedge Against Gas and Oil Prices

Along with the rest of New England, Maine has seen a dramatic increase in the construction of gas-fired power plants over the past several years. Since the 840 MW Maine Yankee plant shut down in 1997, 1500 MW of gas-fired capacity has been installed in Maine[13]

[13] Steven G. Ward, Public Advocate, March 7, 2004 Article, *Will Maine Consumers of Electricity Face the California Problem?*

alone and much more than that throughout the region. The region has reached the point where this has not only caused price volatility and broad price increases but serious concerns about supply interruptions as well. For more information, refer to Appendix 10.3 at the end of this section for a U.S. Department of Energy white paper on natural gas dependence in New England.

Transmission and Interconnect Studies

Any new source of electricity needs to be able to connect to the existing electrical grid which is operated and maintained by the New England Power Pool (NEPOOL). One of the main reasons the Black Nubble site was chosen was because it is located in close proximity to the existing Central Maine Power (CMP) transmission system. At some of the other sites Endless Energy considered, the transmission lines were located far enough away from the project that the footprint resulting from clearing and building the transmission line alone would have far exceeded the footprint of the entire project on Black Nubble.

The Black Nubble Wind Farm project has devoted years to acquiring these two key assets: a queue position and a completed study. To add a new source of generation to the New England power grid, various electrical studies are initiated to ensure reliability and stability for the proposed interconnection. ISO-NE maintains a queue of approved energy projects for the region. Obtaining a slot in that queue involves a lengthy application and testing process with ISO-NE and Central Maine Power, which owns and maintains power lines and related equipment in Maine. MMP has completed all of these studies and obtained approvals on July 13, 2006 and February 1, 2007 to connect the power to the grid subject to completing various upgrades. This approval demonstrates that the transmission line, once upgraded, has the capacity to carry the electricity generated by the Black Nubble Wind Farm to the market. Thus, said another way, once these upgrades are completed, there will not be congestion preventing the electricity generated by the Black Nubble Wind Farm from ultimately reaching consumers.

Ongoing Economic Sustainability

Over the long run, wind and hydroelectric installations promise to produce the lowest-cost power for Maine. Currently, hydroelectric power from old dams is the least expensive of all sources. Key

factors in the low cost of hydro power are that capital costs of the dams were paid down years ago; that the source of energy, water, is abundant, predictable, and endless; and that operating and maintenance costs are low. Some dams in Maine have been producing power for over 100 years.

A productive wind farm follows a similar scenario. Operating and maintenance costs are slightly higher than large dams, but still far lower than any thermal plant. Wind also uses an endless, predictable, and in Black Nubble Wind Farm's case, abundant natural source of kinetic energy to turn a generator directly. In contrast to thermal plants, wind generation does not require converting chemical (or nuclear) energy first to heat, then to mechanical energy — which eliminates added costs and risks associated with fuel extraction, transportation and handling, combustion equipment, boilers, pollution control, waste disposal, etc.

Wind energy, like hydro, can be produced forever at a consistently low cost with no pollution. It meets the needs of current generations without burdening future generations, the basic definition of economic sustainability.

In response to economic considerations as well as wildlife concerns, some Maine dams are being decommissioned and removed, not refurbished. The Black Nubble Wind Farm represents a brand-new source of clean long-term electricity at an attractive cost for Maine citizens.

Supports Maine's Renewable Energy Policy

Approval of the Black Nubble wind farm will help Maine meet several recently-passed legislative targets for renewable energy. In a presentation to LURC Commissioners on April 5, 2006, Beth Nagusky, then the head of the Office of Energy Independence and Security, explained how important it is for Maine to reduce its dependence on foreign oil and to reduce our greenhouse gas (GHG) emissions. She also outlined the climate-related laws and policies related to wind energy which are aimed at reducing greenhouse gas emissions and reducing global warming.

This year, the Maine legislature passed Gov. John Baldacci's bill to implement the Regional Greenhouse Gas Initiative (RGGI). Additionally, the 2006 session featured enactment of a bill proposed by Governor Baldacci, L.D. 2041, *An Act to Enhance Maine's Energy Independence and Security* (2006 Energy Act)(P.L. 2005, ch. 677), that included two provisions promoting windpower. The bill established a State goal of increasing by 10% by 2017 the share of new renewable capacity resources as a percentage of the total capacity resources in Maine.[14]

There is little doubt that Maine supports increasing Maine's renewable energy portfolio and there is also little doubt that the State experts on GHG policy are all pushing renewable energy sources as a way to reduce GHG emissions. The State experts in the PUC, the Maine DEP and the Office of Energy Independence and Security are all saying that wind is an important part of the Greenhouse Gas reduction strategy. The choice should be clear, one of the important benefits of this project will be to help increase Maine's renewable energy portfolio and reduce GHG emissions.

Jobs, Taxes, and Access

The Black Nubble wind farm will create both a short-term and long-term boost to the Franklin County economy. It is expected to create upwards of eighty (80) design, engineering and construction jobs during the implementation phase of the project and five to ten permanent jobs. MMP intends to contract with local firms wherever possible for constructing power lines, roads and bridges. According to Maine Department of Labor data cited by Alison Hagerstrom of the Franklin County Development Corporation, each construction job is expected to create 1.95 additional indirect jobs and each permanent job will create 1.5 additional indirect jobs. [15]

[14] Roughly speaking, ten percent new generation is 350 MW (but as a practical matter, it could be substantially higher than 350 MW depending on mix of resources used to meet the goal).

[15] July 14, 2006 Prefiled Direct Testimony of Alison Hagerstrom, Franklin County Development Corporation, at pp. 2-3.

For a discussion on job creation and economic impacts of a 24 MW wind farm project in rural Oregon, see Appendix 10.2, a study of the Klondike Wind Project.

Other economic stimulation will come from lease payments, local purchases, taxes, etc. MMP expects to pay over $350,000 a year in lease payments, over $500,000 in first year and $125,000 per year afterwards in purchases of goods and services. (These figures are calculated by reducing the numbers for the full project by half to reflect the Black Nubble Wind Farm.) Additionally, under current law the Black Nubble project will pay over $500,000 per year in property taxes — a significant portion of which will stay in Franklin County.

Access roads to the perimeter of the wind farm will be open except during mud season, when timber companies normally close their gates.

MMP expects to leave the top of the mountain open to nonmotorized travel unless there are circumstances that present a risk to public safety. In addition, mountain access roads and power lines will generally be gated or fenced during the winter.

Environmental Benefits

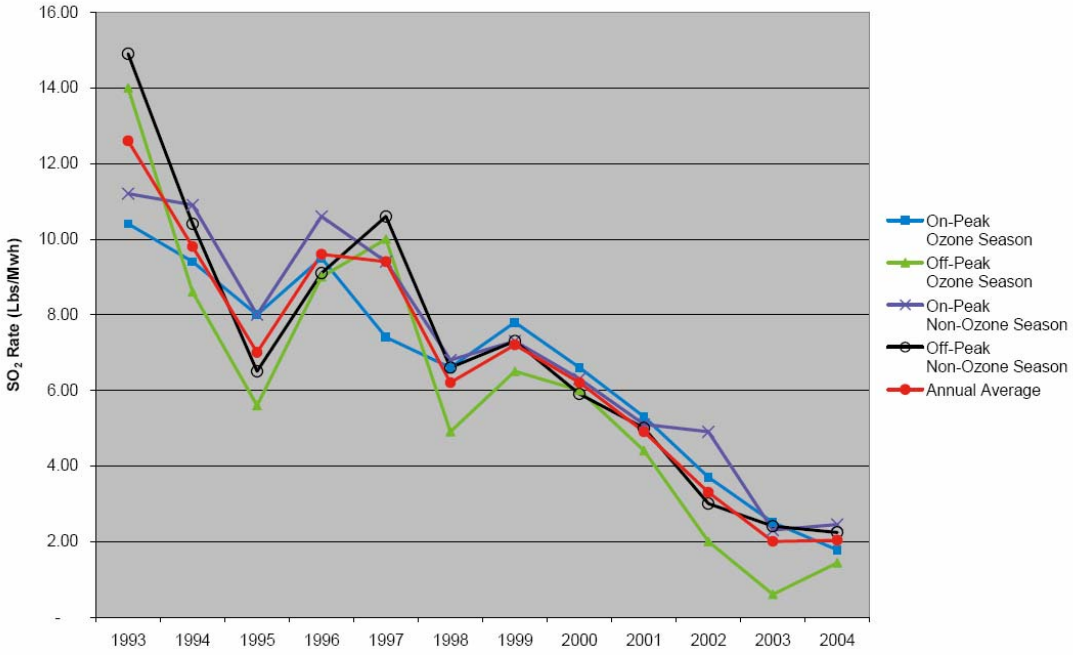
The Black Nubble Wind Farm is part of the solution to the problem of pollution and global warming. The generation of power creates a significant portion of all pollution. Common sense dictates that adding air pollution-free power from wind-generated power to a grid will reduce total air pollution. In fact, as newer, lower polluting gas-fired plants have come on-line in New England over the last several years, they have displaced older, dirtier fossil fuel-fired power plants and thereby reduced the creation of additional air pollution. The New England Marginal Emission Rate Analysis reports published since the early 1990's show that the addition of lower-polluting power generators have decreased the overall pollution in the New England area.[16] The following three graphs demonstrate the reduction in overall

[16] For example, the 2004 New England Marginal Emission Rate Analysis observed that the addition of new gas-fired plants resulted in an overall decrease in pollution in 2004: "In addition to the increased availability of nuclear generation, the additions of highly efficient, low emitting natural gas-fired generating plants in New England have contributed towards a decline in the calculated marginal emission rates.

pollution during a ten year period from 1994 to 2004 that is the result of the addition of newer, lower-polluting power generators (although the information only reflects data up through 2004, this is the most recent information ISO-NE).

The following graph shows that the creation of sulfur dioxide pollution has decreased significantly (from 13 lbs per MWH to 2 lbs per megawatt hours (MWH) of electricity generated) over a ten-year period from 1994 to 2004.

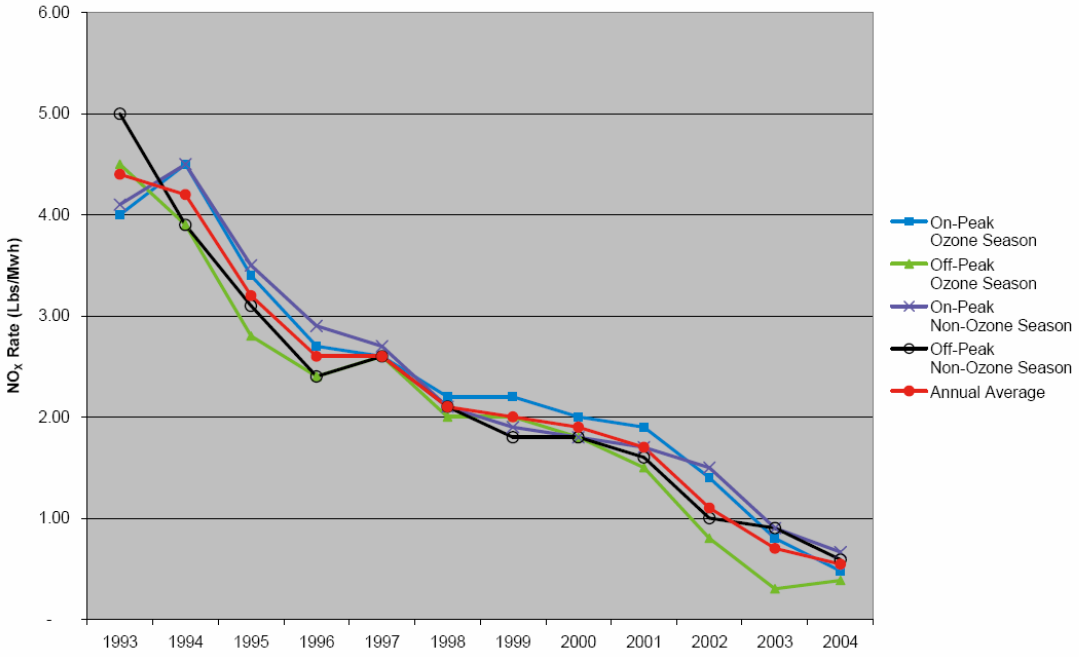
Figure 5.2: Historically Calculated SO_2 Marginal Emission Rates



This next graph similarly shows that the average emissions rates for nitrous oxides have also declined significantly – from approximately 4.5 lbs per MWH of electricity generated to approximately 0.5 lbs over the same period of time.

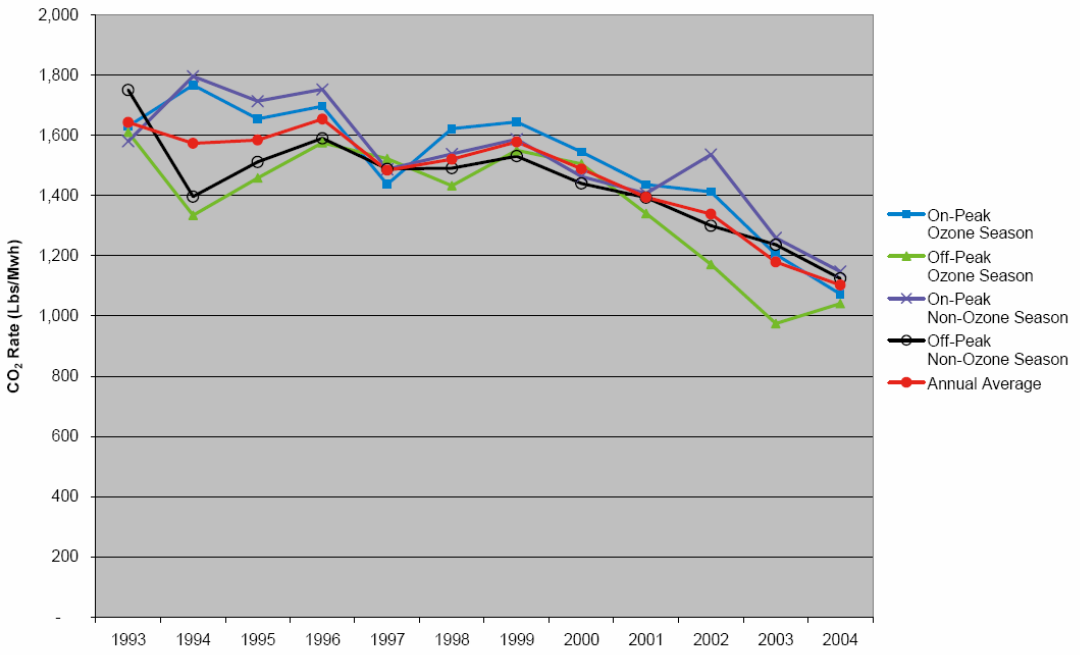
Overall, results for 2004 illustrate that marginal air emission rates continue to decline from prior years."

Figure 5.3: Historically Calculated NO_X Marginal Emission Rates



This last graph shows that carbon dioxide emissions have decreased during this same period of time, although not as significantly as sulfur dioxide and nitrous oxides. This is because the new natural gas fired generation plants still produces carbon dioxide, although these plants produce less carbon dioxide than the older, less efficient energy generation facilities.

Figure 5.4: Historically Calculated CO_2 Marginal Emission Rates



These graphs clearly show that there have been reductions in SO_2, NO_x and CO_2 between 1994 and 2004. The graphs also show that the reductions in SO_2 and NO_x, where there are regulatory cap and trade (allowance) programs, are greater than for CO_2 where there has not been a cap and trade program.

The regulators in Maine and New England and the experts at ISO New England all agree that wind energy will reduce emissions.

Short-term pollution reductions

The Black Nubble Wind Farm will reduce pollution emissions in the short-term. Using the marginal emissions rate for Maine from the 2004 ISO-NE report, the Black Nubble Wind Farm will prevent approximately 400,000 pounds of pollutants *per day* from being released into the air by existing Maine power plants, the equivalent of removing 12,000 cars from our roads permanently. Using another yardstick for environmental benefit, an oil-burning power plant would consume 27,000 gallons of oil *per day* to produce the same amount of

power as the Black Nubble Wind Farm[17]. Refer to MMP's Pollution Avoided Spreadsheet in Appendix 10.7 for background on calculating these benefits.

Long-term pollution reductions

The Black Nubble wind farm will also reduce pollution on a long-term basis. The graphs above demonstrate that there is a reduction in air pollution when cleaner energy producers displace dirtier, less efficient fossil fuel plants. Windpower, along with hydropower, is the cleanest energy producer of all of the power generation sources. Since cleaner energy production such as wind and hydro is also cheaper, it will always displace dirtier, more expensive fossil fuel based power plants, which will result in an overall reduction in the emission of pollutants.

The existence of the Black Nubble Wind Farm does not determine whether or not fossil fuel-fired power producers have pollution allowances available to them in the future.[18] These power producers have allowances available to them at any time because there is a surplus of allowances in the market, even if the Black Nubble Wind Farm doesn't exist. Moreover, regardless of whether the operation of the Black Nubble Wind Farm results in additional allowances being available for future use, windpower energy will always displace fossil fuel-fired energy, resulting in long-term pollution reductions.

The Black Nubble Wind Farm will also assist in decreasing reliance on fossil fuel based power. As the Maine Public Utilities Commission stated in their August 11, 2006 Post-Hearing comments, Maine is over-reliant on natural gas generation. This has resulted in large increases in energy prices, substantial price volatility, and a less

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[17] NEPOOL, page 1.

[18] Under cap & trade programs, a regulatory body sets a cap or total quantity of allowable emissions in a given time period. This cap is distributed to emitters proportionally, in the form of allowances (also known as "credits"), usually as a share of their emissions or fuel consumption. Allowances give the emitter the right to release a unit of emissions, usually a ton or pound. If emitters can reduce their emissions, they can sell their excess allowances to other market participants or "bank" them for future use. The cap can be reduced over time to achieve the desired outcome of lower emissions.

reliable system.[19] The MPUC has clearly stated that the "development of new *diverse* generating facilities (i.e. facilities that are not fired by natural gas) in Maine and throughout New England is crucial to the economic needs of Maine."[20] (emphasis in original) The addition of the Black Nubble Wind Farm, a new, diverse, generating resource for renewable energy will not only result in a reduction in pollution, but it will contribute to the diversification of energy generation that is so necessary to the economic and energy future of this State.

The Governor, the Maine Public Utilities Commission, and the Office of Energy Independence and Security have stated that windpower is essential to Maine's goal of reducing pollution over the long-term.

No Undue Adverse Effect, Fitting Harmoniously into the Environment

A. Statutory Criteria

The no undue adverse impact standard is central to the criteria for rezoning and permit approval. Title 12, section 685-A of the Maine Statutes, the rezoning criteria, requires that the proposed land use district "has no undue adverse impact on existing uses or resources." 12 M.R.S.A. § 685-A(8-A)(B). Similarly, in Section 685-B, the Commission's criteria for approval of an application for development provides that an application must make "adequate provision . . . for fitting the proposal harmoniously into the existing environment in order to assure that there will be no undue adverse effect on existing uses, scenic character and natural and historic resources in the area." 12 M.R.S.A. § 685-B(4)(C).

Neither of these statutes mandate that the project not have any adverse impact, they merely require that the adverse impact not be

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[19] August 11, 2006 Comments of Maine Public Utilities Comission in their "Responses to LURC Questions", Response No. 2 at p.2. The same points were made and verified by Governor Baldacci's Office of Energy Independence and Security in their August 11, 2006 "Responses to Land Use Regulation Commission Questions".

[20] August 11, 2006 Comments of MPUC in "Responses to LURC Questions",, Response No. 2 at p.2.

undue. The term "undue adverse impact" is not defined in the statutes relating to the Commission, nor is it expressly defined in the Commission's Comprehensive Land Use Plan (CLUP). However, the Maine Legislature recently defined undue adverse impact in the context of development in the recently enacted Informed Growth Act passed in June 2007.[21] The Act defines "undue adverse impact" to mean that, within the impact area, the estimated overall negative effects on the factors listed for consideration outweigh the estimated overall positive effects on those factors.[22] Although the Act does not apply to the Black Nubble Wind Farm, the Legislature's interpretation of the terms is instructive.

B. No Undue Adverse Impact on Scenic and Natural Resources

As is discussed in greater detail within the Visual, Wetlands and Wildlife, and Construction and Design sections of the Revised Application and as summarized below, the Black Nubble Wind Farm is a well-planned project that has been designed to fit into the surrounding environment to the greatest extent possible without any undue adverse impacts on the (1) scenic character, (2) wildlife and habitat, (3) wetlands, and (4) mountain resources of the project area.

B.1 No Undue Adverse Impact on the Scenic Character of the Area

MMP, with the assistance of landscape architects from Terrence J. DeWan and Associates, project engineers and other resource consultants, has developed a well-designed project that does not result in undue adverse impacts to the scenic character of the jurisdiction. The design of the Black Nubble Wind Farm and the selection of the project site avoids and mitigates impacts to the scenic resources of the area to the maximum extent possible. MMP's efforts to avoid and mitigate scenic impacts include the following:

Site Selection and Planning

[21] See 30-A M.R.S.A. § 4365 *et seq.*

[22] See 30-A M.R.S.A. § 4366(10).

- This site was selected in part due to its proximity to existing transmission lines and access roads thereby reducing the amount of clearing needed to build the project.
- MMP opted to use the more powerful V90 turbines, rather than older, less powerful turbines, so that fewer turbines would be needed on site to produce the same amount of energy.
- MMP and the underlying landowner, RMW, entered into an agreement to restrict development on Redington Pond Range mountain, thereby moving the project farther away from the Appalachian Trail and decreasing the amount of points on the AT from with the project can be seen.

Design

- MMP selected the V90 turbine in part for its clean design (tapered base, uncluttered lines and aerodynamic forms, shape of the airfoil blades, and thin profile) to decrease the visual impact of the structure to the greatest extent possible.
- By keeping the height of the towers and the size of the turbines consistent, the line of the turbine nacelles will run parallel to the existing ridgeline formation to create a sense of visual uniformity from most locations where they are visible.
- The color of the blades, tower, and nacelle will be white, which is preferred by the FAA. This color selection avoided the FAA requirement that the turbines be lit with white strobe lights.
- Lighting will consist of stationary red lights, slow off and slow on, the minimum required under FAA regulations. MMP worked with the FAA to reduce the number of lit turbines on Black Nubble from nine in the original application to seven.

Construction

- The laydown area at the base of each turbine will be limited to the minimum size required to assemble the towers and blades.
- Following installation, the laydown areas will be revegetated to minimize contrasts in color and texture.
- The concrete bases for the towers will be buried to allow vegetation to become re-established at the foot of the turbine. This will minimize the amount of disturbed area and substantially reduce contrast between the light-colored concrete and native vegetation.

Access Road Network

- The access road network will follow existing timber haul roads wherever possible to minimize the amount of new earthwork, cutting, culverting, and road construction.
- MMP will follow the guidelines in the Erosion and Sedimentation Control Report for the Roadways to avoid erosion and sedimentation and minimize the amount of land that is cleared at any one time to greatly reduce visual contrasts.
- MMP will also follow the guidance in the Erosion and Sedimentation Control Report with respect to effective fugitive dust control during road construction, which can be a significant source of visual pollution.
- New access roads to the top of Black Nubble have been sited to minimize their visibility from public viewpoints and scenic resources. Alternative road alignments were considered and discarded for their potential visibility from public viewpoints.
- Switchback curves were sited in areas of relatively mild topography wherever possible to minimize the depth of cut and fill sections.
- Access roads above 2,700 feet are being carefully sited to avoid steep slopes and significant cuts and fills wherever possible to minimize contrasts in color, line, and texture.
- Access roads are being kept as narrow as possible (typically 12-16 feet travel surface with 2 to 4-foot shoulders) to minimize visual impacts. Summit roads are being designed as narrow as possible.
- Following turbine installation, the travel way for both the access roads and summit roads will be reduced to a maximum width of 12 feet.
- Roadway construction will use naturally occurring materials wherever possible to maintain consistency in color and texture with the surrounding landscape.
- The contractor will be required to have a number of tools and techniques at their disposal to deal with unusual situations (such as steep side slopes that might normally require extensive tree clearing and earth moving). These include the use of filter cloth, geotextile fabrics, erosion control mesh, and geogrids.
- Seed mix will be tailored to the specific requirements of the site, using native materials wherever feasible to achieve a stable surface that closely resembles the color and texture of existing vegetation. The color of these materials will minimize color

contrast and provide a growing medium for the establishment of native vegetation.

Transmission Lines

- The 34.5 kV power and communication lines will be buried in a trench under the summit roadways to minimize clutter. Trenches will be revegetated following installation.
- The 34.5 kV lines leading from the turbines down the mountains have been sited to take advantage of topography and existing clear cuts to make them as unobtrusive as possible.
- The 115 kV transmission line will be buried as it crosses Route 27 and the Appalachian trail to minimize impacts on the trail, the existing trailhead parking lot, and the Scenic Byway.
- Visually sensitive areas and viewpoints have been avoided to the maximum extent possible.
- Adjustments were made in the transmission corridor alignment to minimize visibility and take advantage of existing vegetation and landforms.
- Buffer zones will be provided for screening at all river, stream, and road crossings.

Substation

- The substation was sited well off Route 27 to allow a substantial buffer between the public and the facility. Existing vegetation, clearings, and landforms have been considered in siting the substation and maintenance facilities.
- The proposed location concentrates impacts by locating the facilities in the vicinity of an existing gravel pit/staging area, and the Nash Stream Road.

As discussed in more detail in Section 6 of the Revised Application, these mitigation efforts in combination will ensure that the Black Nubble Wind Farm will have no undue adverse impacts on the scenic character of the area.

B.2 No Undue Adverse Impact on the Wildlife and Habitat of the Area

As described in more detail in Section 7 of this Revised Application, Woodlot Alternatives has conducted extensive wildlife studies in the project area since 1993. Woodlot Alternatives has also conducted

extensive surveys of natural areas within the project site. As a result of these observations, Woodlot has concluded that the Black Nubble Wind Farm poses no undue adverse impact to rare natural communities or plants, birds, bats, small or large mammals, or rare, threatened or endangered species. Although each of these subjects is addressed in great detail in Section 7, much of the focus on wildlife and habitat issues associated with this project during the hearing process was on the impact to migratory birds, bats, the Northern Bog Lemming, Bicknell's thrush and habitat fragmentation. The Black Nubble Wind Farm will have no undue adverse impact on these species or their habitats for the following reasons:

- Migratory Birds: The amount of habitat disturbance for migratory birds will be very limited, relative to the amount of available habitat in the region. While the risk of avian collision with the turbines is difficult to predict, surveys conducted at this site and third-party studies done in other areas of the Northeast indicate that it is likely that the majority of bird migration would occur at a height well below the project area ridgelines. Furthermore, quantitative assessments of the Black Nubble Project Area suggest that migratory birds do not pass over the ridgeline, but instead divert their paths to pass over valleys, along valley side slopes and over low ridgelines, which significantly reduces the risk of collision with wind turbines.
- Bats: The high elevation, dense stunted tree canopy, cold climate, and lack of wetlands and other feeding habitat at the Black Nubble Wind Farm site is not favorable habitat for the tree-roosting species of bats that have been at risk for collisions at other windpower sites in the past. In addition, the frequency of high winds at the project site will decrease the availability of insect prey, further decreasing the likelihood of bats in the project area. For these reasons, in addition to the fact that the project site is located at the far northern limit of the habitat range for bats, it is expected that the impact of the Black Nubble Wind Farm on bats will be low.
- Northern Bog Lemming: Despite extensive surveys, no Northern bog lemming has been observed on Black Nubble. While there is a known Northern bog lemming habitat on Redington, the Black Nubble Wind Farm Project will permanently restrict development on Redington , creating more protection for the Bog lemming than currently exists. Thus, the Black Nubble Wind Farm will have a positive impact on the Northern bog lemming.

- Bicknell's Thrush: The Black Nubble Wind Farm will not have an undue adverse impact on the Bicknell's thrush habitat because: (1) the project will only impact the ridgeline habitats, which are a small portion of the viable habitat that exists on Black Nubble and Redington mountains; (2) the project restricts development on Redington, which will protect the Bicknell's thrush where they are known to occur; (3) studies indicate that Bicknell's thrush thrive in edge habitats, so short-term disturbance of limited habitat on Black Nubble will not unduly adversely impact the Bicknell's Thrush species.
- Habitat Fragmentation: The Black Nubble ridgeline is not located within a large and contiguous unfragmented forest occurring above 2,700 feet in elevation. Although the project will convert some forested, mountaintop habitat to narrow roads and clearings for turbine pads, this is a small area relative to the entire project area and will not pose a significant restriction to wildlife using these habitats. Furthermore, the Black Nubble Wind Farm will restrict development on Redington, which by contrast is located within that large, contiguous, unfragmented forest – further protecting the natural resources and character of the area.

Thus, as set forth above and in more detail in Section 7 of the Revised Application, the Black Nubble Wind Farm will not have any undue adverse impacts on the wildlife or wildlife habitat in the project area.

B.3 No Undue Adverse Impact on Wetlands and Streams

As described in Section 7 of this Revised Application, Woodlot Alternatives has done extensive field work and wetland and stream resource identification in the project area of the Black Nubble Wind Farm. As a result of their work, and in conjunction with project engineers and other resource consultants, MMP has minimized the impact of the Black Nubble Wind Farm on wetlands and streams in the project area in the following ways:

- The entire 18 turbine project will have only .03 acres of permanent impact to wetlands. This means that of the 233.56 cleared acreage required to build and operate the Black Nubble Wind Farm, less than a tenth of an acre of wetland will be lost.
- There will be only 1.75 acres of temporary wetland impacts. These temporary impacts are due to vegetation clearing and

temporary fill, but will not result in a reduction of wetland area.

- The temporary impacts to wetlands are largely in the form of vegetation clearing for project transmission lines. MMP has minimized wetland impacts from transmission lines to the greatest extent possible by rerouting the 115kV line and co-locating it with the existing Boralex transmission line. This alteration moved transmission line and associated clearing away from the Nash Stream floodplain and away from the floodplain of Stony Brook, reducing potential wetland impacts by more than 10 acres.
- MMP chose a route for the 34.5 kV line that runs parallel to and away from streams running down the ridgeline of the project area. Where the transmission line is required to cross Nash Stream, MMP chose a stream crossing point where there was very little floodplain wetland. Additionally, because the stream channel at the crossing point is located in a narrow, deep valley, the pole placements will be higher and not require as much canopy clearing over the stream – thereby preserving the shade over the stream and reducing impacts to water quality.
- MMP moved the location of the proposed Nash Stream substation on two separate occasions to ensure that the substation did not impact any potential wetland impacts.

Accordingly, MMP has minimized impact to wetlands and streams in the project area to the greatest extent possible to ensure that the Black Nubble Wind Farm will not result in any undue adverse impacts.

B.4 No Undue Adverse Impact on Mountain Resources of the Area

As described in more detail in the Appendices to Section 1 of the Revised Application, MMP has worked with design engineers from Deluca Hoffman Associates, and in conjunction with other resource consultants, MMP has minimized the impact of the Black Nubble Wind Farm on the mountain resources of the project area in the following ways:

- The access road network will follow existing timber haul roads wherever possible to minimize the amount of new earthwork, cutting, culverting, and road construction.

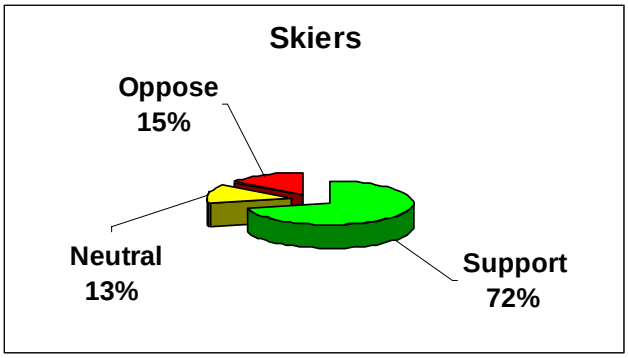
- New roads constructed for the Black Nubble Wind Farm are designed to fit the natural topography of the mountain top and mountain sides to the greatest extent possible and to avoid steep terrain to the extent possible to minimize alterations to the mountain topography.
- The construction of the roads themselves will incorporate erosion and sediment control measures and soil hydrology preservation measures to prevent and minimize any erosion and to maintain the natural flow of water through the soils and down the mountain. MMP will follow Current Soil Conservation Service Best Management Practices for road construction and erosion control.
- Switchback curves were sited in areas of relatively mild topography wherever possible to minimize the depth of cut and fill sections.
- The laydown area at the base of each turbine will be limited to the minimum size required to assemble the towers and blades and will be revegetated with native species after construction to minimize long-term disturbance.
- The concrete bases for the towers will be buried to allow vegetation to become re-established at the foot of the turbine which will minimize the amount of disturbed area.
- The transmission lines are placed in corridor easements to allow for slight variations of placement to minimize impacts to wetlands, seeps and or other wet areas.
- The 34.5 kV lines leading from the turbines down the mountains have been sited to take advantage of topography and existing clear cuts to make them as unobtrusive as possible.

Using these methods, MMP has avoided and minimized to the greatest extent possible, impacts to the mountain resources of the project area. In addition, as described above, MMP has also avoided impacts to the scenic character and other natural resources of the project area to ensure that the Black Nubble Wind Farm will have no undue adverse effect on the jurisdiction and to ensure that the project will fit harmoniously into the existing environment.

Public Opinion Surveys and Results

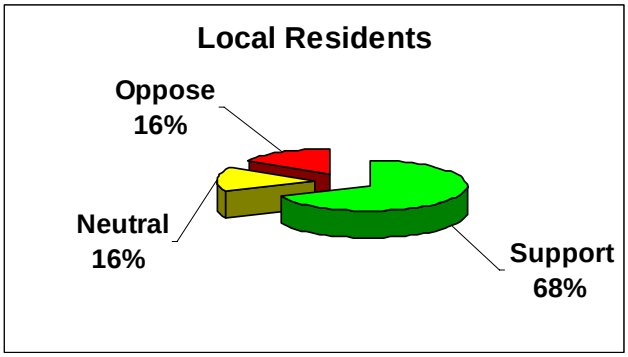
The majority of the public supports the Black Nubble Wind Farm. RMW, and later MMP, commissioned public opinion surveys to gauge support for the proposed wind farm. The effort began in 1994, when RMW worked with trail group representatives to develop questions and methodology for a survey that would reflect perspective and input from groups with opposing viewpoints. An independent contractor then administered the survey, which consisted of several dozen questions, to representative samples from five groups — local residents, skiers, hunters, hikers, and snowmobilers. One question that asked respondents to rate how appropriate windpower was for Carrabassett Valley area while they were shown photo-simulated views of the Redington Wind Farm, elicited the following responses in 1994 (note, survey data are for a Redington/Black Nubble combined project):[23]

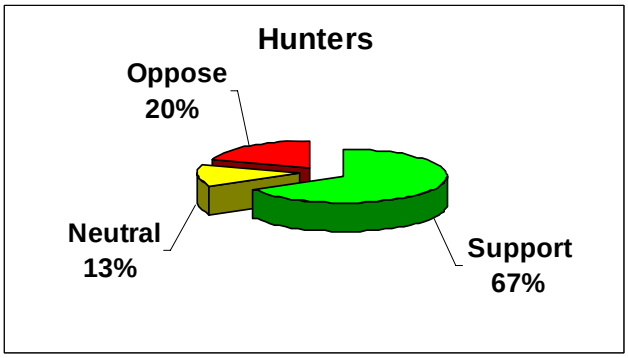
Skiers, who will constitute the largest group by far of mid-distance viewers of the project were strongly supportive:

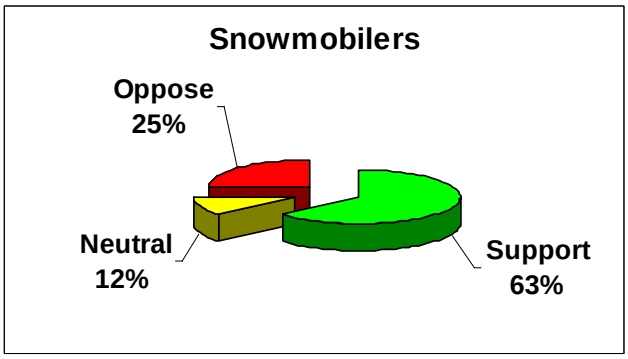


Locals, hunters, and snowmobilers, also were supportive:

[23] These results reflect the percentages of those who responded to the survey questions; they do not include individuals who did not respond.

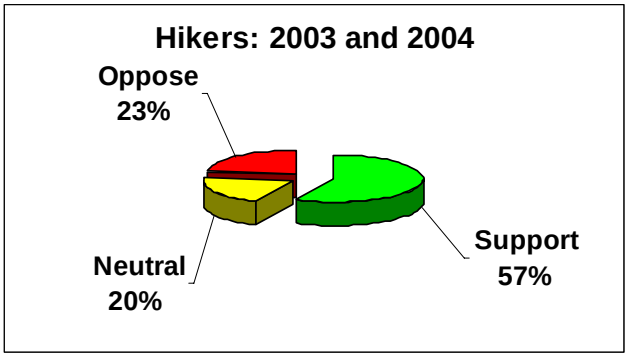




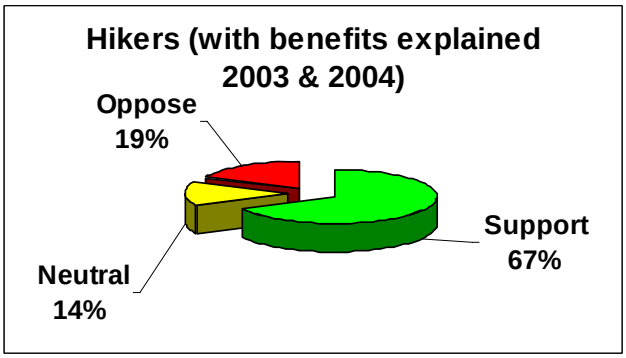


Overall, 75 to 84% of locals, skiers, hunters and snowmobilers gave the project a neutral or positive rating. This level of support usually only occurs after a wind farm is up and running. Of the hikers surveyed in 1994, 51% gave the Redington Wind Farm a neutral or positive rating. A resurvey of hikers using more updated and accurate simulations was conducted in the fall of 2003 when many day hikers and Maine residents were on the trail. Results very closely matched results obtained earlier from the other four groups: 79% of hikers responding were supportive or neutral about the wind farm. To further validate results, the survey was given again in the summer of 2004

when a higher proportion of through hikers were on the trail: 75% of hikers responding were supportive or neutral.



Interestingly, when the benefits of the project were explained—the amount of electricity to be generated, the amount of oil that would be needed to generate the same amount of power, pollution prevented—support increased.

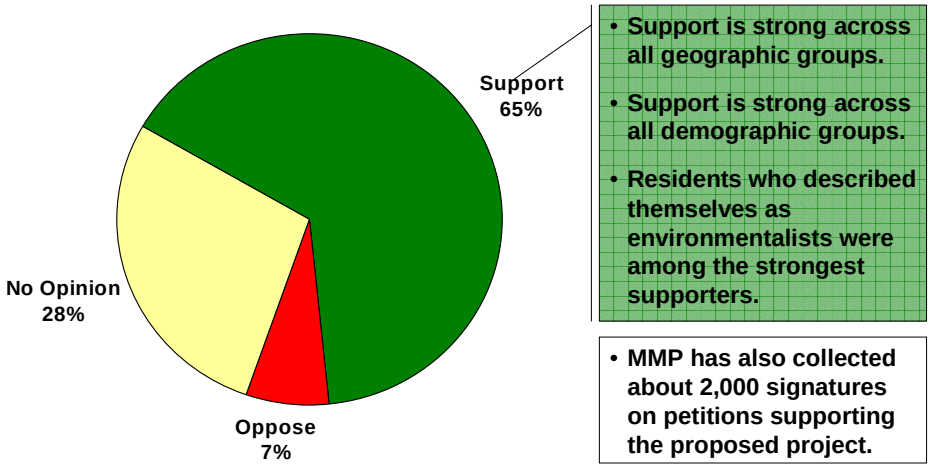


See Section 6 of this application (Visual Quality) for complete survey results. Also see Appendix 11.1 (Supporters Database List) and 11.2 (Hiker Support Letters).

In 2006, MMP commissioned the Potholm Group to conduct an independent statewide survey to determine the level of support for the wind farm. Supporters outnumbered opponents by a 9 to 1 margin.[24]

[24] August 3, 2006 Hearing Testimony of Randolph Mann, Panel 1 PowerPoint Presentation.

Maine's Residents Solidly Support Our Project



Poll conducted by The Potholm Group of Harpswell Maine in April 2006. Margin of error +/- 5%.

Maine Mountain Power

Finally a statewide poll independently conducted in May of 2007 showed very strong support for wind farms in LURC jurisdiction. [25]

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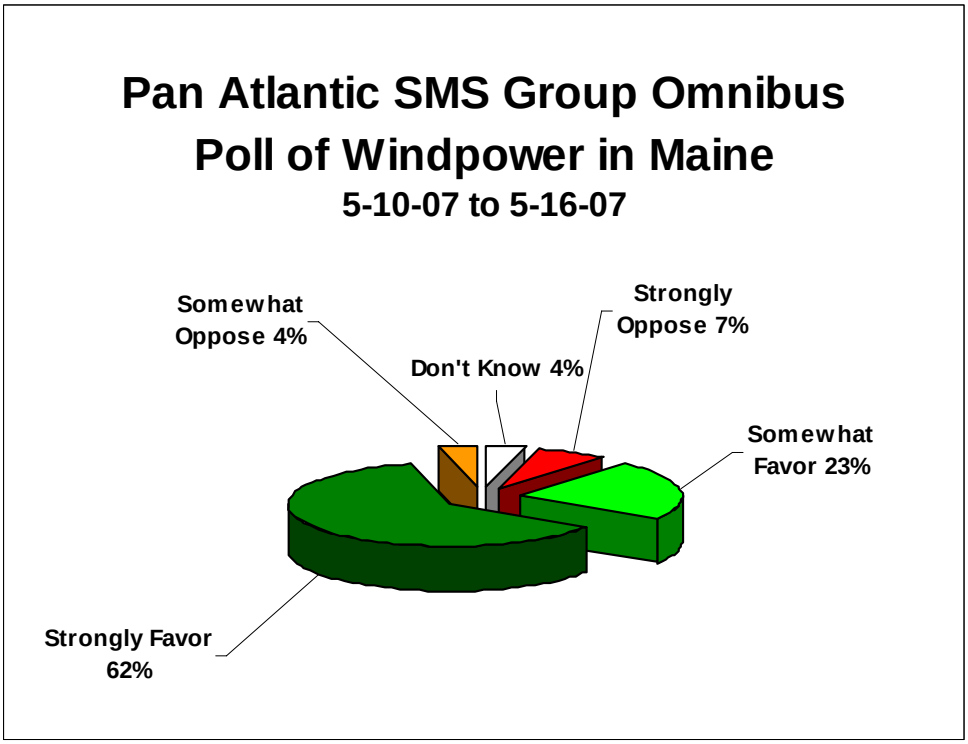
[25] The question in the 2007 survey was:

The Maine Land Use Regulation Commission is considering several multi-million dollar proposals for wind development projects in the Unorganized Territories of Maine. Supporters say that wind development is good for Maine because it promotes renewable energy. Opponents say that the wind development projects will be bad for Maine because they may negatively impact Maine's landscape. Do you favor or oppose the development of wind power projects in Maine? Is that strongly or somewhat favor/oppose?



All of this data clearly shows that the majority of the hikers, skiers, recreational users and Maine residents throughout the state support wind farms in general and the Black Nubble Wind Farm in particular. The surveys demonstrate that the majority of the public does not consider the impact of the wind farm to be excessive or undue, and that as a whole, the benefits of the project outweigh its impacts.

Outreach Activities

MMP has made particular efforts to inform leaders of the local political and business communities, interested citizens, educators, and leaders of trail, outdoor recreation, and environmental organizations about the project and to provide them with complete and factual information on the environmental and economic benefits of the project. Outreach efforts over the past three years include:

- Presentations to town officials in Rangeley and Carrabassett Valley and to the Carrabassett Valley Planning Board;
- Visual simulations at the Rangeley town office and at the Common Ground Fair,

- Debating the merits and effects of the wind farm with a trail group representative at a conference on renewable energy sponsored by the Chewonki Foundation;

- Hosting visits to the sites of the proposed wind farm for state regulators, representatives of trail and environmental organizations, and members of the Carrabassett Valley Outing Association;

- Sponsoring a visit to the Green Mountain Power wind farm, in Searsburg, Vermont, so local community and political leaders as well as interested citizens in Rangeley and Carrabassett Valley could see first-hand a wind farm in operation;

- Presentations to members of the Rangeley Region Guides' and Sportsmen's Association and to the membership of the Maine Appalachian Trail Club at their annual meeting;

- Negotiations to establish a formal collaborative process with concerned environmental and trail organizations. These negotiations have resulted in an agreement with the Natural Resources Council of Maine to restrict the development of windpower on Redington Pond Range mountain.

A collection of large visual photo simulations depicting the proposed wind farm from different viewpoints located from about one to ten miles away from the site has been part of every presentation, and copies of the same simulations have been made available to the Rangeley and Carrabassett Valley town offices for long-term display. The press has ready access to project spokesperson Harley Lee, who frequently provides general background information about wind energy to journalists and has been interviewed about the Black Nubble project numerous times. In addition, MMP has maintained a list of individuals who are supportive of the wind farm. Names are available in Appendix 11.1 of this section.

2. Existing Facilities and Uses

The following section lists the existing facilities.

Redington Township Facilities

Redington Township is the proposed location for the wind turbines, mountain roads, portions of the power lines, and the maintenance center. The Redington Township area has long been part of the working forest and is crisscrossed by dozens of logging roads and skidder trails with many bridges and culverts installed over streams. Evidence of logging activities is pervasive. This area is at some distance from Route 27 and power lines. MMP is not aware of any private camps in Redington Township.

Ten meteorological towers have been erected since 1993 on the proposed D-PD site. Only two remain, one on Black Nubble and one on Redington. Tower parts are stored at some of the sites where wind measurements were previously taken.

U.S. Navy/SERE School

The southern half of Redington Township, owned by the U.S. Navy, is the site of a SERE (survival, evasion, resistance, escape) training center. The SERE school, which is run out of the Brunswick Naval Air Station, has a helipad and a handful of buildings as well as a mock prisoner of war camp. It is not unusual to hear machine gun fire or aircraft. The southern boundary of RMW land abuts the northern boundary of the Navy property.

Appalachian Trail

The Appalachian Trail, a scenic hiking trail, runs through the southern end of Redington Township and through Carrabassett Valley. For its exact location, refer to the Project Base Map.

Dallas Company, Stratton Maine

The Dallas Company also owns land that abuts the proposed D-PD site in Redington Township. Dallas currently manages this property for timber growth and harvesting. In addition to logging roads, the Dallas property includes several gravel pits.

> Facilities for dumping stumps are noted in Section 18, Solid Waste.
>
> Gravel pit locations are mapped in Section 11, Soils.

Existing bridges and major culverts are described in Appendix 4 at the end of this section.

Plum Creek Timber Company, Inc.

Plum Creek Timber Company, Inc., the second largest private timberland owner in the United States, owns significant amounts of forest and roads in Carrabassett Valley, adjacent to and east of the proposed D-PD site. Use of this property is for timber growth and harvesting. Plum Creek logging roads are noted on the project base map.

International Paper, Coplin Plantation

MMP will be using the IP logging road as the main access into the D-PD site for turbine delivery, construction and ongoing maintenance. This land, located in the southern half of Coplin Plantation, is working forest. There are some houses and camp lots near Route 27.

Boralex Biomass Generation Facility, Stratton, Maine

The 50 MW Stratton Energy plant is the largest of the biomass-fired independent power projects developed in Maine. The power line from the biomass plant runs through the southern end of Wyman Township and connects at CMP's Bigelow substation. MMP's proposed power line will run immediately adjacent to the Boralex line.

3. Consistency with LURC Land Use and D-PD Zoning

MMP proposes to create a LURC D-PD subdistrict within a previously designated P-MA subdistrict for the Black Nubble Wind Farm project. As stated in LURC Chapter 10.21,G (D-PD), this subdistricting is "*designed to encourage creative and imaginative design and site planning, to promote efficient use of the land and to afford the applicant reasonable guidance in formulating an acceptable development proposal."*

Chapter 10.21,G (D-PD) specifies that the D-PD should be used for large scale, well planned developments that are separated from existing developed areas, that depend on a particular natural feature which is available at the proposed site, and that are high quality

projects not detrimental to other values established in the Comprehensive Land Use Plan.

LURC criteria for determining whether the BNWF may appropriately be rezoned to a D-PD subdistrict appear in 12 M.R.S.A. § 685-A(8-A) and LURC Land Use Districts and Standards Chapter 10.21,G,8,b. LURC Chapter 10.21,G,8,b sets out specific criteria for approval of a preliminary development plan in a D-PD subdistrict. Other requirements for a D-PD subdistrict are interspersed throughout Chapter 10.21,G, including: the description of the D-PD subdistrict, Chapter 10.21,G,2, which lists requirements for real estate, access roads, utility lines, water and sewage services, road maintenance, fire protection, solid waste disposal, and security; and the Permitted Uses section, Chapter 10.21,G,3, which requires that all uses in the Final Development Plan for the D-PD subdistrict shall be permitted.

The next several pages provide a summary of how MMP has demonstrated that the proposed project meets the criteria for approval for a D-PD subdistrict.

A. Criteria for Amendment of Land Use District Boundaries

Title 12, section 685-A of the Maine statutes sets out the overarching criteria for rezoning a P-MA subdistrict to a D-PD subdistrict. 12 M.R.S.A. § 685-A(8-A) allows LURC to rezone a land use district boundary if:

(A) the proposed land use district is consistent with: (i) the standards for district boundaries in effect at the time, (ii) the Comprehensive Land Use Plan (CLUP), and (iii) the purpose, intent and provision of Title 12, Chapter 206-A of the Maine statutes; and

(B) the proposed land use district (i) satisfies a demonstrated need in the community or area and (ii) has no undue adverse impact on existing uses or resources.

As will be discussed more fully in the next section, the proposed D-PD subdistrict for the Black Nubble Wind Farm is consistent with the standards for D-PD subdistrict set forth in LURC Chapter 10.21,G and the CLUP.

The BNWF also satisfies the purpose and intent of Title 12, Chapter 206-A of the Maine statutes, which is to extend principles of sound

planning and zoning to the unorganized townships of the State. As discussed throughout this Amended Application, the BNWF is a well-planned development which satisfies the zoning requirements of the D-PD subdistrict.

In addition, as discussed at length in the Section 1 of this Development Description, the BNWF satisfies a demonstrated need in the local, State and global community. Section 1 of this Development Description also discusses how the BNWF will have no undue adverse effect on existing uses or resources. Finally, MMP will also demonstrate how the BNWF is consistent with the CLUP (Section 3.B of this Development Description).

B. Criteria for Approval of a Preliminary Development Plan in a D-PD Subdistrict

The LURC Comprehensive Land Use Plan allows the Commission to approve an application permit for development on the basis of several criteria. Chapter 10.21,G,8(b) sets forth the principle criteria for determining whether the BNWF is appropriate for the D-PD subdistrict; those criteria are addressed below in items one through eight. Items nine through twelve address additional criteria for a D-PD subdistrict contained in Chapter 10.21,G,2, the D-PD description section. Item 13 addresses the description of activities proposed for the D-PD subdistrict as required by Chapter 10.21,G,3 and a includes a list of the various permissible uses with and without a permit in the D-PD subdistrict.

1). Conforms with the Comprehensive Land Use Plan

Both LURC Chapter 10.21,G,8(b) and the statutory rezoning criteria contained in 12 M.R.S.A. § 685-A require that the preliminary development plan and permit application conform with the objectives and policies of the Comprehensive Land Use Plan (CLUP).

The following statements appear on page 40 of Chapter 3 of the Comprehensive Land Use Plan:

"Maine's wind resource is considerable, and much of it occurs along high mountain tops and ridges within the jurisdiction. These winds have the potential to power wind energy technologies that appear to compete with more traditional energy sources."

"As a renewable form of energy, windpower offers an attractive alternative to the burning of fossil fuels. Large windpower installations, however, have the potential to conflict with other values…particularly those associated with mountain areas, the areas where windpower developers have focused their efforts to date."

Respect for the forest, viewsheds, and mountain environment was the guiding principle for all development decisions for the Black Nubble Wind Farm. This permit application conforms with LURC's Goals and Policies stated in Chapter 5 of the Comprehensive Land Use Plan as outlined below:

Air Resources:

> Goal: Protect the quality of air resources throughout the jurisdiction.
>
> Policy #1: Require compliance with all state and federal air quality standards.
>
> Policy #2: Encourage state initiatives directed at reducing emissions of air pollutants.
>
> MMP's compliance with all state and federal air quality standards is described in Section 21, Air Emissions. More importantly, however, the BNWF furthers Maine initiatives directed at reducing emissions of air pollutants. As discussed in the Demonstrated Need and Benefits section (Section 1) of this Development Description, the power produced by the BNWF would reduce air pollution emissions by 400,000 pounds per day, which is the equivalent of removing 12,000 cars off of the road and saving the equivalent of 26,000 gallons of oil per day.
>
> Furthermore, the BNWF is consistent with the State of Maine's policies to encourage reduction of emissions, and to encourage the generation of renewable energy.[26] The Project will bring Maine 12% of the way towards achieving its newly enacted policy of increasing Maine's renewable energy portfolio by 10%

[26] The following section on Maine's policies to encourage reduction of emissions and to encourage the generation of renewable energy was presented in the July 14, 2006 Prefiled Testimony of Randolph P. Mann at pp. 21-22.

by 2017. *See* 35-A M.R.S.A. § 3210-C(2)(A) ("Act to Enhance Maine's Energy Independence and Security"). The BNWF is an integral step toward supporting Maine's statutory policies of increasing renewable energy generation in the State.

Cultural, Archaeological and Historical Resources:

Goal: Protect and enhance archaeological and historical resources of cultural significance.
Policy: Identify and protect unique, rare and representative cultural resources to preserve their educational, scientific, and social values.

MMP's compliance is described in Section 8, Historic Sites.

Energy Resources:

Goal: Provide for the environmentally sound and socially beneficial utilization of indigenous energy resources where there are not overriding, conflicting public values which require protection.

Policy #1: Encourage energy conservation and diversification and the use of indigenous renewable resources to increase the state's energy self-sufficiency.

Policy # 2: Prohibit energy developments and related land uses in areas identified as environmentally sensitive where there are overriding, conflicting, environmental and other public values requiring protection.

Policy #3: Permit new energy developments where their need to the people of Maine has been demonstrated and they are sited, constructed and landscaped to minimize intrusion on natural and human resources.

Policy #7: Allow new or emerging energy technologies which do not have an undue adverse impact on existing uses or natural resources.

The renewable energy produced by the BNWF is consistent with LURC's policy to encourage the use of renewable resources to increase Maine's energy self-sufficiency. The CLUP encourages LURC to balance competing interests with the "needs and values

of the jurisdiction as well as the state."[27] The State has expressed a need for renewable energy, enacting a statute "to encourage the generation of electricity from renewable and efficient sources and to diversify electricity production on which the residents of this State rely…." 35-A M.R.S.A. § 3210(1).[28] The production of windpower from the BNWF diversifies Maine's energy portfolio. In fact, the April 2006 Review Comments filed with LURC in this case from the Governor's Office of Energy Independence and Security stated that "[t]he bottom line from an energy perspective is that the region not only needs to increase energy conservation and demand response efforts, but it also needs to site and construct new lower cost non-natural gas generation resources. Wind is one of these lower cost resources, and one whose fuel cost we can depend on to always be zero."[29] The Maine Public Utilities Commission also stated that "new development of diverse generating resources, such as windpower, in Maine and throughout New England is crucial to decrease the region's over reliance on fossil fuel generation, to reduce electricity costs and price volatility for Maine consumers, and to enhance the reliability of the system."[30] As discussed earlier in the section on Environmental Benefits, both the Office of Energy Independence and Security and the Public Utilitites Commission reaffirmed this conclusion in their post-hearing comments.

LURC's Energy Policy #2 cautions that energy projects may not be developed in environmentally sensitive areas where there are overriding, conflicting environmental and other public values requiring protection. Policies #3 and #7, look at the weighing process from a more positive perspective, stating that energy

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[27] CLUP p. 40.

[28] *See* July 14, 2006 Prefiled Testimony of Randolph P. Mann at pp. 21-22.

[29] See April 2006 Review Comments of Office of Energy Independence and Security at p. 2 (filed with LURC and also attached as Exhibit 2 to July 14, 2006 Prefiled Testimony of Randy Mann).

[30] See April 2006 Review Comments of Maine Public Utilities Commission at p. 2 (filed with LURC and attached as Exhibit 3 to July 14, 2006 Prefiled Testimony of Randy Mann).

> projects that satisfy a demonstrated need and do not unduly adversely impact the surrounding resources should be permitted. The CLUP states that in cases where there are competing interests, "the Commission must balance these competing interests with the needs and values of the jurisdiction as well as the state."[31] As demonstrated in Section 1 of this Development Description, there are significant benefits to be gained from the construction and operation of the BNWF and there is a strong, demonstrated need for the project. While it is impossible to hide a wind farm, the Visual Impact (Section 6), Wildlife & Fisheries (Section 7) and Road Design (Appendix 2.0 of this Section) sections of this Revised Application describe the extraordinary efforts MMP has made to minimize intrusion to the extent possible and assure that the BNWF will not result in any undue adverse impacts to the surrounding area.[32] (For example, wetland impacts were reduced from approximately 20 acres to less than two acres during extensive redesigns of the project.) Furthermore, MMP has entered into an agreement to permanently restrict development on Redington Pond Range Mountain, which has higher natural resource values and more visibility from the Appalachian Trail than Black Nubble. The development of Black Nubble-only and the restriction of development on Redington further decreases any impact of the project to the existing uses, scenic character and natural resources of the surrounding area. Therefore, the BNWF is an environmentally sound and socially beneficial utilization of an indigenous energy resources that is not outweighed by, but accommodates to the greatest extent possible, competing resource values.

Forest Resources:

> Goal: Conserve, protect and enhance the forest resources which are essential to the economy of the state as well as to the jurisdiction.

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[31] CLUP at p. 40.

[32] See also Section 1 of this Development Description above (pp. 21-47) for an overview of how the BNWF will not result in any undue adverse impact to the natural and scenic resources of the jurisdiction.

Policy #2: Protect areas identified as environmentally sensitive by regulating forestry activities, timber harvesting, and construction of land management roads.

The CLUP recognizes that the forests offer a variety of opportunities and values, including timber harvesting, recreation, energy production, wildlife habitat and watershed protection.[33] The purpose of LURC's regulations are to "minimize adverse effects on water quality, fisheries, wildlife, and aesthetic and recreational values while allowing for economic utilization of the forest resource."[34] The BNWF balances these various interests by providing an opportunity to harvest the wind as an indigenous energy resource much like the timber is harvested. At the same time, the BNWF is designed to minimize impact to the surrounding natural resources to the greatest extent possible[35] and to protect large areas of forest and wildlife habitat. Approximately 51 acres of 487 mountaintop acres on Black Nubble will be developed for the wind farm. The remaining 436 acres of Black Nubble forest will be preserved, as MMP has no plans to harvest timber.

Furthermore, as discussed above, MMP and RMW have entered into an agreement with NRCM to prohibit the development of windpower on Redington Pond Range mountain, thereby preserving wildlife habitat and other natural resources on one of Maine's last undeveloped, unprotected 4,000 foot peaks. MMP has developed a well-designed plan for road construction that is designed to avoid environmentally sensitive areas and minimize impact to the natural resources of the project area. Sections on Scenic Impact (Section 6), Wildlife & Fisheries (Section 7) and Road Design (Appendix 2.0 of this Section) address in more detail MMP's efforts to minimize the impact of the BNWF.

Geologic Resources:

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[33] CLUP at p.41.

[34] CLUP at 46.

[35] For a discussion of how the project does not result in undue adverse impact, see Demonstrated Need, Benefits and No Undue Adverse Effect earlier in this section, commencing on page 22.

Goal: Conserve soil and geological resources by controlling erosion and by protecting areas of significance.

Policy#2: Regulate land uses in areas with identified topographical or geological hazards, including areas with fragile soils, steep slopes, high elevations, or seismic faults.

Policy#3: Administer standards for structural development and other land uses based on soil suitability.

Policy#4: Administer performance standards for timber harvesting, road construction, gravel extraction, stream crossings and other land use activities in order to control potential causes of accelerated soil erosion.

MMP's compliance is addressed in Section 11, Soils, Section 14 on Erosion Control, and Section 20, Blasting. These sections demonstrate MMP's efforts, in conjunction with project design engineers, and wetlands, soils and seeps experts, to control potential causes of soil erosion, to design the project such that it does not accelerate soil erosion and to avoid, to the extent possible, areas of geologic and ecological sensitivity.

Mineral Resources:

Goal: Allow environmentally responsible exploration and mining of mineral resources where there are not overriding, conflicting public values which require protection.

Policy #8: Permit larger sand and gravel extraction operations in areas zoned for industrial development where a benefit to the people of Maine has been demonstrated and the operations are sited and developed in a fashion which minimizes adverse effects on other land uses and natural resources.

Compliance with respect to gravel pit locations is addressed in Section 11 on Soils. All gravel or shale pits currently on Dallas property are less than 1 acre in size. The project will keep the pits under the 5 acre limit specified in LURC rules. Details on gravel requirements for construction are in Section 18, Solid Waste.

Mountain Resources:

Goal: Conserve and protect the values of high mountain areas from undue adverse impacts.

Policy#13: Regulate high mountain areas to preserve the natural equilibrium of vegetation, geology, slope, soil and climate, to reduce danger to public health and safety posed by unstable mountain areas, to protect water quality, to preserve scenic values, vegetative communities, and low-impact recreational opportunities.

The CLUP recognizes that windpower projects must be located where the wind resource exists[36] and that there are excellent wind energy resources in the jurisdiction's mountain areas.[37] However, the CLUP also recognizes that windpower's need for wind energy resources can compete with the values of preserving the scenic quality and vegetative communities of the jurisdiction's mountain areas.[38] Thus, the CLUP identifies four primary issues for siting windpower facilities: visual impacts, soils impacts, wildlife impacts and technical feasibility.[39] LURC's Mountain Resources Policy #13 comprehensively addresses these concerns by preserving the "natural equilibrium" of the vegetation, geology, slope, and soil, and by preserving the scenic values, vegetative communities, and low-impact recreational opportunities of the area.[40]

Sections on Visual Impact (Section 6), Wildlife & Fisheries (Section 7), Natural Areas (Section 9), Buffers (Section 10), Soils (Section 11), and Road Design (Appendix 2.0 of this Section) address in more detail MMP's efforts to preserve the natural equilibrium of the mountain terrain and vegetative communities and to assure that there are no undue adverse impacts to the scenic values of the area.

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[36] CLUP p. 131.

[37] CLUP p. 58.

[38] CLUP p. 58-59.

[39] CLUP p. 58-59.

[40] CLUP p. 138.

Recreational Resources:

> Goal: Conserve and protect the natural beauty and unspoiled qualities of mountains, plant and animal habitats, forests, scenic vistas, trails and other natural and recreational features in order to protect and enhance their values for a range of public recreational uses.
>
> Policy #2: Encourage diversified, nonintensive, nonexclusive uses of recreational resources.
>
> Policy #3: Promote a range of recreational opportunities, including (a) major, intensive recreational facilities near organized areas or in new development centers determined to be appropriate . . . .
>
> Policy#6: Encourage traditional outdoor recreation by working with landowners to conserve the natural resources of the jurisdiction and to enhance recreational opportunities.
>
> The CLUP recognizes that there is a tension between the remote values of the jurisdiction that make the area so attractive for less intensive recreation and the increased use of the jurisdiction for development and even for more intensive recreational uses.[41] The CLUP states that "the Commission seeks to balance these considerations, recognizing the need to accommodate the recreation-related activity and development, while preserving the values that make recreating in the jurisdiction so special. Although the BNWF is located in the vicinity of the Appalachian Trail and two large ski areas, the project can be seen from only 7.9% of the portion of the AT that is within a 15-mile radius of the project site. Hikers will not be able to see the turbines and related infrastructure over the remaining 92.1% of the AT within a 15-mile radius of the project. Furthermore, the discussion in Section 1 of this Development Description (Public Opinion Surveys and Results) demonstrates that hikers in the project area surveyed over the course of several years overwhelmingly support the presence of the wind farm project and feel that it would only have a very minor effect on their hiking experience.

[41] CLUP at p. 60.

As discussed in more detail below in the Best Reasonably Available Site analysis, the BNWF is located on the fringe of LURC's jurisdiction and near existing residential and commercial development. This is consistent with one of LURC's major tenets (also reflected in Recreational Policy #3): to develop on the fringe and thereby minimize the impact to the remote core of the jurisdiction. As discussed earlier in this Development Description, Section 1, the Black Nubble Wind Farm will not have any undue adverse impact on the scenic and wildlife resources of the project area – two resource values that are fundamental to the recreational experience in the jurisdiction. A more in depth discussion of MMP's efforts to minimize the impact of the BNWF upon the scenic character of the area is described in Section 6, Visual Quality and Scenic Character; MMP's efforts to minimize impact to the wildlife resources of the jurisdiction described in Section 7, Wildlife and Fisheries.

Additionally, the BNWF will create additional recreational opportunities for the area. MMP will support public access to the area, support and enhance existing recreation patterns, and offer new educational and recreational opportunities by: not blocking off pre-existing mountain roads; extending new roads to higher elevations; and conducting periodic tours for school children and area organizations.[42] Additionally, MMP granted the Western Mountains Foundation the right to build their new hut and trail system across the site, including over Black Nubble.[43] Thus, the BNWF is consistent with the preservation of recreational resources in the area.

Special Natural Areas:

Goal: Protect and enhance identified features and areas of natural significance.

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[42] MMP's support for public access for recreation and education was presented to the Commission during the August 3, 2006 public hearing testimony of Randolph Mann. See August 3, 2006 handout of MMP PowerPoint presentation of Randolph Mann.

[43] See August 3, 2006 handout of MMP PowerPoint presentation of Randolph Mann.

Policy: Identify and protect natural areas that possess unique physical features, or which serve as habitat for rare, threatened or endangered species or representative plant communities.

MMP compliance is described in Section 7, Wildlife and Fisheries; Section 9, Unusual Natural Areas; and Section 10, Buffers. This Revised Application presenting the one-mountain, BNWF, further protects the unique natural areas that serve as habitat for rare, threatened or endangered species. As discussed in more detail in Section 7, the restriction of development on Redington Pond Range mountain means that the wind farm no longer impacts the identified habitat for the Northern Bog Lemming in the saddle of Redington or the better habitat for the Bicknell's Thrush that was located in the forests on the slopes of Redington. Furthermore, as also discussed in Section 7, the Black Nubble Wind Farm is designed to avoid wetland resources, if at all possible, and minimize impact to those wetland resources if avoidance was not feasible. Accordingly, the permanent impact to wetlands in the 487 acre proposed D-PD project area is less than a tenth of an acre (0.03 acres).

Water Resources:

Goal: Preserve, protect and enhance the quality and quantity of surface and ground waters.

Policy#1: Regulate uses of land and water, including wetlands, in order to prevent degradation of water quality and undue harm to natural habitats.

Policy#10: Protect ground water quality throughout the jurisdiction through proper controls on potentially polluting activities.

MMP compliance on wetland protection is described in Section 7, Wildlife & Fisheries, and water quality is discussed in Section 15, Groundwater, and Section 17, Wastewater. See section below on Wetland Resources, and Section 7 (Wildlife & Fisheries) for a more in depth discussion of Wetland Resources.

Wetland Resources:

Goal: Conserve and protect the aesthetic, ecological, recreational, scientific, cultural and economic values of wetland resources.

Policy#4: Ensure that development projects in wetlands (in this order) avoid, minimize, restore, reduce or eliminate over time and/or compensate for functional wetland losses.

MMP compliance in avoiding wetlands is described in the Impact Assessment text in Section 7, Wildlife and Fisheries, and in Section 10, Buffers. As discussed above, and as discussed in more detail in Sections 7 and 10, the Black Nubble Wind Farm was designed to avoid wetland resources, if at all possible, and minimize impact to those wetland resources if avoidance was not feasible. Accordingly, the permanent impact to wetlands in the 487 acre proposed D-PD project area is less than a tenth of an acre (0.03 acres). Thus, the Black Nubble Wind Farm is consistent with the CLUP policy to that development projects in wetlands (in this order) avoid, minimize, restore, reduce or eliminate over time and/or compensate for functional wetland losses.

Wildlife and Fisheries Resources:

Goal: Conserve and protect the aesthetic, ecological, recreational, scientific, cultural and economic values of wildlife and fisheries resources.

Policy #1: Regulate land use activities to protect habitats, including deer wintering areas and coastal bird nesting sites, ecosystems, food sources and other life requisites for wildlife species.

Policy #2: Protect wildlife habitat in a fashion which is balanced and reasonably considers the management needs and economic constraints of landowners.

Policy #3: Regulate land use activities to protect habitats for fish spawning, nursery, feeding and other life requirements for fish species.

Policy #4: Encourage management of fisheries and wildlife resources to maintain their habitats, diversity, and populations.

Policy #5: Encourage cooperative agreements between landowners and public agencies which further the Commission's policies and goals, and, when appropriate, modify the Commission's zoning to facilitate the execution of such agreements.

Wildlife Policy #2 illustrates the balancing act that the commission must undertake in evaluating the Black Nubble Wind Farm project. The CLUP directs the Commission to "protect wildlife habitat in a fashion which is balanced and reasonably considers the management needs and economic constraints of landowners." The mechanism for protection of wildlife is the criteria that the project have no undue adverse impact on the natural resources used and inhabited by the wildlife in the area. As discussed in the No Undue Adverse Effect Section in Section 1 of this Development Description and in more detail in Section 7, Wildlife and Fisheries, the Black Nubble Wind Farm is a well-planned development designed to minimize impact on the surrounding habitat and preserve the natural equilibrium of the vegetation, geology, slope, soil and climate of the project area. As discussed in the No Undue Adverse Effect section and in more detail in Section 7 (Wildlife & Fisheries), the BNWF will not have a significant impact on fisheries or the Northern Bog Lemming. Avian surveys conducted by Woodlot Alternatives indicate that the BNWF will have no undue adverse impact on migratory birds or bats. Furthermore, the BNWF will not result in an undue adverse effects to the Bicknell's thrush population because MMP is protecting the more desirable Bicknell's thrush habitat on Redington and what limited impacts to Bicknell's thrush habitat occur on Black Nubble will not unduly impact the Bicknell's thrush because they have been shown to thrive in edge habitats and any impacts will be limited in duration.

Additionally, as discussed previously in this section, MMP and the underlying landowner, RMW, have entered into an agreement, consistent with Wildlife and Fisheries Resources Policy #5, that prohibits windpower development on Redington Pond Range mountain. A copy of this Restriction Agreement is attached to this Revised Application in Section 2.3, Exhibit 11. The elimination of wind farm development on Redington Pond Range mountain has further reduced impact to the wildlife communities. For example, the Wind Farm no longer impacts

the habitat of the Northern Bog Lemming and the high value Bicknell's thrush habitat on Redington Mountain will not be disturbed. The restriction of windpower development on Redington also means that the BNWF will not interrupt the large and contiguous unfragmented forest above 2,700 feet that was of concern during the hearing process.

Finally, the benefit of preventing 400,000 pounds of pollution a day, thereby contributing to a reduction in green house gases that cause global warming, will have a long-term large ecological benefit for the wildlife and wildlife habitat in the jurisdiction. Accordingly, the Black Nubble Wind Farm minimizes impacts to wildlife to the greatest extent possible and will not result in any undue adverse impact to the wildlife or the wildlife habitat of the project area or surrounding jurisdiction.

Scenic Resources:

Goal: Protect scenic character and natural values by fitting proposed land use activities harmoniously into the natural environment and by minimizing adverse aesthetic effects on existing uses, scenic beauty, and natural and cultural resources.

Policy #1: Encourage concentrated patterns of growth to minimize impacts on natural values and scenic character.

Policy #2: Regulate land uses generally in order to protect natural aesthetic values and prevent incompatibility of land uses.

Policy #3: Protect the scenic values of mountain, recreation and other scenic areas.

LURC Ch. 10.25,E provides specific guidance as to how to design a proposed development so that, to the extent possible, it will fit harmoniously into the environment by minimizing impacts on the natural values and scenic character of the project area and surrounding area.

LURC's Chapter 10.25.E.1.a-c scenic character standards ask that the project design reasonably minimize visual impact of structures on surrounding areas (especially viewed from existing roadways); to the "extent practicable" place proposed structures in locations least likely to block/interrupt scenic views as seen

from traveled ways, water bodies or public property; and preserve the natural character of the ridgeline.[44]

Many factors demonstrate that the BNWF will meet all three LURC standards:

- The Wind Farm will be visible to less than 5% of the viewing area within the 15-mile radius study area.
- Where the project will be seen from most lakes, scenic byways, and settlements in the area, the turbines will appear to be very small, if they are visible at all due to the viewing distance.
- The Wind Farm is located in close proximity to other large-scale developments: i.e. Sugarloaf Ski Area, Sugarloaf Golf Course, Saddleback Mountain Ski area, at the edge of LURC's jurisdiction where it will be part of a concentrated pattern of development that utilizes the service center resources of nearby towns of Rangeley, Stratton, and Carrabassett Valley. Moreover, the areas adjacent to the project area provide a context for the scenic impact of the project; surrounding the BNWF project area is a working forest adjacent to or containing highways, logging roads, an 18-hole golf course, gravel pits, an airport, sewage lagoons, a biomass plant, clear cuts, and towns. A harvesting operating was taking place on Black Nubble during the Commissioners' visit to the site in July 2006. BNWF is in the working forest.
- Of the 281 miles of the Appalachian Trail in Maine, hikers may see the Wind Farm on certain parts of the 34 miles between Bigelow Mountain and Saddleback-- but during almost all of the viewing time they will also see two of Maine's largest ski areas and many other examples of cultural modification. Under ideal weather conditions, the Wind Farm will be visible over only 2.9 miles of the trail (less in normal or hazy weather) within which hikers will get a total of only 0.1 miles of filtered views within four miles at two locations and 0.1 miles of open views at four

[44] The following analysis of how the BNWF project meets the scenic character standards is included in the record in the following location: August 21, 2006 MMP Rebuttal Comments at p. 20-24.

miles. As shown in Section 1, hikers rate the visual impact of the wind farm on their hiking experience as a minor effect—far less than the effects of other man-made impacts also visible in the area. The wind farm had the lowest impact followed—in increasing impact—by ski areas, roads, power lines, developed areas, large clear cuts, and industrial facilities like a biomass generator.

- Mitigation measures have been incorporated into the planning and design of the project to assure that there will be no undue impacts on the mountaintops or soils which could result in visual impacts, and that the project will fit harmoniously into the landscape, including siting the turbines so their nacelles will parallel the ridgeline to mimic the ridgelines and thus minimize contrasts in line.
- There will be the required FAA lighting on 7 of the 18 turbines consisting of a stationary red light on the nacelle. Neither the blades nor towers will be lit. The red lights will only be on after sunset and before sunrise. White strobes will not be used. The wind farm will not produce a strong, dazzling light or reflection that would affect any off-site viewer, nor will they create nuisance conditions for any significant water bodies or roadways. They thus will be in conformance with LURC Chapter 10.25.F,2,b.
- Local weather and haze conditions will play a significant role in decreasing the visibility of the BNWF, especially during the summer months.
- As an electric generating facility, the BNWF occupies a large land area, but with a relatively minor amount of land disturbance.
- For many viewers, the Wind Farm will be a positive addition to the landscape.[45] For example, the Searsburg wind farm public acceptance study conducted by LURC's consultant, Jim Palmer found the following:

> *The most common reaction was a sense of 'awe' or express 'amazement,' while others find the rotating*

[45] The preceding list of scenic mitigation factors is included in the record in the following location: August 21, 2006 MMP Rebuttal Comments at pp. 21-22.

> *turbines 'calming.' For some the experience was 'almost spiritual.'"*

Therefore, although there is no way to mitigate the scenic impact of a wind farm to the point that it is no longer visible, the existing impacts of the BNWF will not be "undue."[46]

The location of the Black Nubble Wind Farm is consistent with the goals and policies outlined in the CLUP that new development is preferred to take place "near existing towns or communities,"[47] on the fringe of LURC's jurisdiction, and as part of "concentrated patterns of growth to minimize impacts on natural values and scenic character."[48] As LURC's Division Manager of Planning, Fred Todd, stated during the April 2006 CLUP discussions on windpower, "wind towers probably make the most sense where we've already made an imprint on the land." As discussed in more detail in Section 6 (Visual), the BNWF is located near existing towns and communities and between two large and growing ski resorts.

While the BNWF is located more than three miles from the Appalachian Trail, MMP has taken a great number of steps to minimize and avoid impacts of the wind farm on the Appalachian Trail, including eliminating Redington Mountain from the project proposal. Furthermore, the hiker surveys discussed in Section 1 of this Development Description, as many people who have testified before or submitted letters to the Commission about this project, demonstrate that not only would the Wind Farm not deter a significant number of people from using or enjoying the AT, but that many people would look forward to seeing the harvesting of wind into electricity by slender-looking turbines.[49]

Generating renewable, emission-free low-cost power is a positive 21st century experience which will help Maine meet the first

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[46] August 21, 2006 MMP Rebuttal Comments at p. 22.

[47] LURC Location of Development Policy #2, CLUP at p. 140.

[48] LURC Scenic Resources Policy #1, CLUP at p. 139.

[49] August 21, 2006 MMP Rebuttal Comments at pp. 23-24.

Broad Goal of the Commission outlined in the CLUP – to "support and promote the management of all the resources, based on principles of sound planning and multiple use, to enhance the living and working conditions of the people of Maine, to ensure the separation of incompatible uses, and to ensure the continued availability of outstanding quality water, wildlife and other natural resource values of the jurisdiction."[50] Wind turbines are a cultural resource appropriate to be seen from a hiking trail—for example, wind turbines are immediately adjacent to the Pacific Crest Scenic Trail and the International Appalachian Trail—and can be compatible with area uses.[51]

In sum, the scenic impacts of the Black Nubble Wind Farm comply with the applicable regulatory and statutory standards, and in conformance with the CLUP. For a more in-depth discussion of the Visual Quality and Scenic Character assessment, please refer to Section 6.

2). Incorporates Environmental / Resource Protection

LURC's criteria for approval of a development in a D-PD subdistrict requires that *development on the proposed D-PD site must incorporate a substantially equivalent level of environmental and resource protection as was afforded under the former protected subdistrict.* LURC Ch. 10.21,G,8,b,(2).

The mountaintop development portion of the wind farm will be constructed on approximately 51 of 487 total acres of owned property on Black Nubble. Of those 51 acres, nearly 22 acres will be allowed to revegetate after construction. Comprehensive environmental studies have been performed in every area that will be affected. Areas of concern have been identified and avoided (wetlands, streams, etc.). In all altered areas, environmental studies conclude that there will be no significant long-term impacts once construction is completed.

The Black Nubble Wind Farm is a well-designed project that will incorporate a substantially equivalent level of environmental and

[50] CLUP at p. 134.

[51] August 21, 2006 MMP Rebuttal Comments at pp. 23-24.

resource protection to what is currently afforded in the project area under the Mountain Area Protection (P-MA) subdistrict.[52] There are four classes of land uses are allowed in the P-MA subdistrict: (1) uses allowed without a permit; (2) uses allowed without a permit but subject to standards; (3) uses allowed with a permit; and (4) uses allowed by special exception.[53]

Many of the activities that are currently allowed in the P-MA subdistrict by permit and/or special exception have a far greater impact on the resources on Redington and Black Nubble than the proposed wind farm.[54] For example, the P-MA allows the following uses with a permit:

- Timber Harvesting;
- Road projects (Level B) including minor relocations and reconstructions (involving limited work outside of existing right-of-way of public/private roads);
- Trails;
- Water impoundments (water bodies created, or elevation of which is raised, by man through construction of a dam).[55]

With a special exception the following land uses are allowed in a P-MA:

- Mineral Exploration Activities (Level B) involving bulk sampling of mineral deposits;
- Construction of new public/private roads and relocations or reconstruction of existing roads (Level C Road Projects);
- Construction of structures relating to downhill skiing and other mountain related recreation facilities (chairlifts, base lodges, mountainside and mountain top restaurants);
- Construction of utility facilities including, but without limitation:
    - radar, radio, television or other communication facilities;
    - electric power transmission or distribution lines, towers and related equipment;
    - telephone cables or lines, poles and related equipment;

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[52] August 21, 2006 MMP Rebuttal Comments at p.8.

[53] August 14, 2006 Post-Hearing Comments of Harley Lee at pp.4-6.

[54] August 21, 2006 MMP Rebuttal Comments at p.10.

[55] August 14, 2006 Post-Hearing Comments of Harley Lee at p.5.

- municipal sewage lines;
- gas, oil, water, slurry or other similar pipe lines; and
- above ground storage tanks.[56]

The Black Nubble Wind Farm meets the standard for obtaining a special exception use in P-MA subdistrict because:

1) The site is the best reasonably available alternative as described in the next section.

2) The wind farm is compatible with forestry, skiing, hiking, snowmobiling, mountain-bike riding, military training, or other local uses and will not have any undue adverse impacts on scenic or other resources.

3) MMP will meet conditions reasonably imposed by the Commission in accordance with the Comprehensive Land Use Plan.

4) MMP has taken many steps to avoid or minimize potential environmental, visual, and footprint impacts associated with the wind farm, such as reducing permanent wetland impacts from 20 acres to 0.03 acres. [57]

MMP has made considerable changes to the design of the Black Nubble project to reduce any impacts upon the natural and scenic resources of the project area in order to assure that it receives the same or greater protection the area is accorded in the P-MA subdistrict. These on-site mitigation efforts include:[58]

- Road locations and power lines were changed many times to avoid wetlands and reduce or eliminate scenic impacts, including upon the Appalachian Trail. Over the past several years, numerous project redesigns have reduced direct wetland impacts from approximately 20 acres to 0.03 acres. Biological

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[56] August 14, 2006 Post-Hearing Comments of Harley Lee at p.5.

[57] August 14, 2006 Post-Hearing Comments of Harley Lee at p.5 and Exhibit A to Lee Prefiled testimony.

[58] The following list of mitigation efforts was introduced into the record through the August 21, 2006 MMP Rebuttal Comments at p. 11-13 and Exhibit A to July 14, 2006 Prefiled Testimony of Harley Lee.

consultants were sent back into the field repeatedly to delineate wetlands for changed routes.

- Road widths were narrowed by using the turning radius specifications from specialized transport equipment. Steerable trailers, for example, allow wind turbine blades to be delivered around tighter corners. Using tighter corners reduced clearing and visual impacts.
- The Electric Harvest substation and the 34.5 kV transmission lines were originally planned for locations near or adjacent to Nash Stream. In an effort to reduce any impact on both the stream and neighboring wetland areas and to reduce visual impacts, the substation and 34.5kV line were moved to upland areas to the east.
- To minimize visual impact and fragmentation effects of power lines on the mountaintops and partially down the slopes, these lines will be buried in conduit along the road shoulders and transmission routes at a significant cost to the project.
- Power lines will also be buried under and along the Route 27 Scenic Byway right-of-way to the Bigelow substation, minimizing intrusion on the Appalachian Trail and clearing in the area.
- Turbine pads and crane assembly areas will be allowed to revegetate after construction to lessen visual and habitat fragmentation effects, as well as areas along roads to reduce post-construction impacts.
- Selection of the Vestas V90 turbine has allowed the project to use fewer turbines to generate more power. MMP considered the use of older 1.5 MW turbines but would have had to use 1/3rd more turbines to generate 1/3rd less power. By using the larger turbines, MMP has maximized the amount of energy produced per mile of ridgeline. This reduces visual and other environmental impacts. Additionally, turbine components will be white, which reduces visual impact as the turbines are viewed against the sky. The turbines have been sited so their nacelles will parallel the ridgeline to minimize conflicts with the ridgeline.
- Seven of the turbines will be lit, which is the minimum required by the FAA. The lights will be mounted on the nacelle and will not be on between sunrise and sunset.

All of these measures demonstrate that the Black Nubble Wind Farm will have no greater impact than other permitted uses in the P-MA subdistrict, and assure that the Black Nubble project provides an equal

if not greater level of protection from what is currently afforded to the project area.[59]

Moreover, MMP has affirmed its willingness upon approval to prevent development on the approximately 89 percent of its land (436 acres) on Black Nubble that will not be used by the wind farm. With the submission of this Revised Application, MMP also has also agreed with NRCM to protect from development RMW's 500 acres of ownership on Redington Pond Range mountain, one of the jurisdiction's last privately owned and unprotected 4,000 foot peaks.

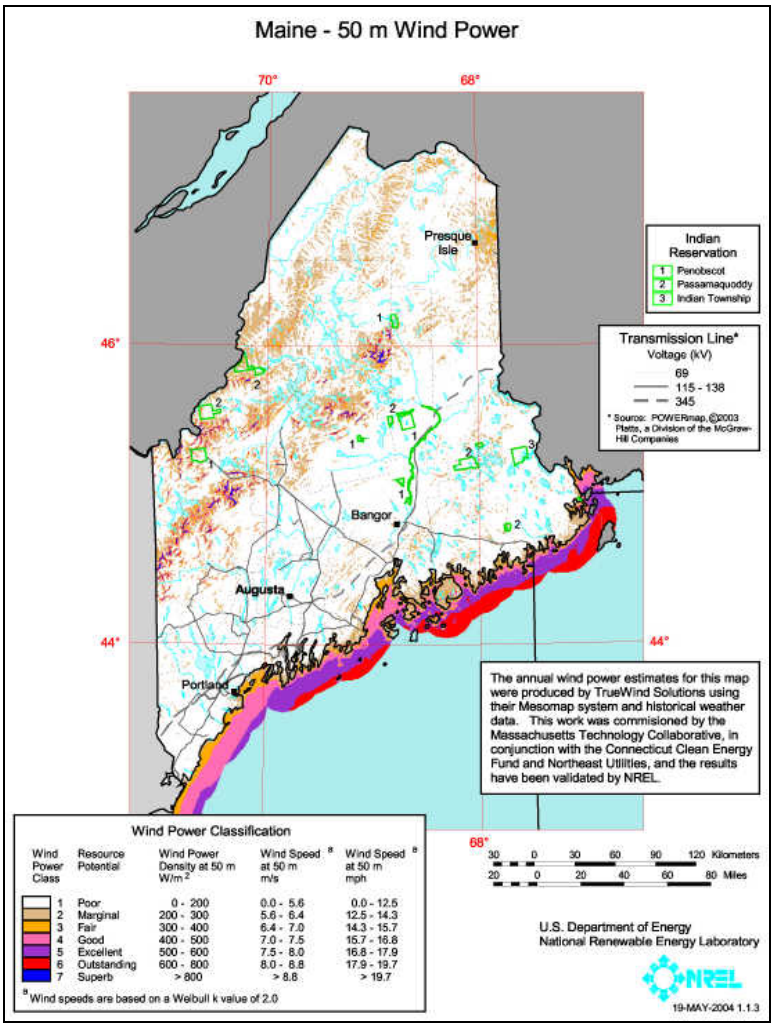
Accordingly, many activities are currently allowed under the Mountain Area Protection (P-MA) subdistrict that could have a far greater impact on the resources on Black Nubble than the proposed wind farm. Thus, the Black Nubble Wind Farm will incorporate a level of environmental and resource protection at least as great, if not greater in some areas, as is afforded under the P-MA subdistrict.

3). Utilizes the Best Reasonably Available Site

LURC Chapter 10.21,G,8,b,3 requires that the proposed project utilize the best reasonably available site for the proposed use. The Black Nubble project site is the best reasonably available site for the BNWF because it: (1) has access to a sufficiently strong wind resource and suitably oriented mountaintops, both necessary for commercial power generation; (2) is located in close proximity to existing development; (3) is located in close proximity to existing roads and necessary infrastructure including high voltage electric transmission lines and electrical substations on the fringe of LURC's jurisdiction.[60]

[59] August 21, 2006 MMP Rebuttal Comments at p. 13.

[60] August 21, 2006 MMP Rebuttal Comments at p. 13.



Maine Wind Energy Map - Map courtesy of US-DOE and NREL
(for more detail - see full-size PDF in Appendix 10.5 Note: There is an error in this map in that it shows a power line going well beyond Flagstaff Lake. The CMP line ends at Bigelow substation near Sugarloaf Mountain.)

Maine has a very limited number of areas suitable for wind energy production. In fact, the majority of the state is unsuitable for wind energy production because of low average wind speeds and/or distance from transmission lines. In general, average wind speed increases with height, so the few land-based areas suitable for wind energy production are mountain ridges. Among these mountain ridges, many areas (like Mt. Katahdin) have high wind speeds but are unsuitable for development. As shown on the above map, lower elevation flat areas are unlikely to have sufficient average wind speeds to provide an economic return for wind farm investment. The map also shows the dearth of power lines in the windiest portions of the

state. Black Nubble is unusual in that it has strong winds, a nearby power line, roads, **and** nearby existing development. The enclosed Maine wind energy map was created by NREL (National Renewable Energy Labs) and DOE (Department of Energy).

Black Nubble is one of the few sites in Maine with energetic winds. Black Nubble has strong class 6 winds, which are some of the strongest in New England.[61] From a practical standpoint, this means that a large amount of cost-effective power can be generated in a relatively small area. Going to less energetic sites increases the cost of the power as well as the footprint and visual impact of a project. Black Nubble's wind resource has been scientifically confirmed with nearly ten years of wind energy measurements obtained from ten different measurement locations on Redington and Black Nubble mountains. Black Nubble falls into the higher wind energy classes. In addition, Black Nubble has north-south ridgelines that are high enough to generate maximum electricity from strong prevailing westerly winds.[62]

MMP also confirmed the low average wind speeds in lower elevation sites. Endless Energy Corporation (EEC) previously operated an experimental wind turbine on the coast (Orland, Maine). The average wind speeds at this location are very low and energy production at this site is consequently low. In fact, EEC was ultimately forced to sell the turbine due to poor energy production from the low wind speeds. EEC also measured wind speeds at another site in Maine (near Waterville) that also proved to have unsuitable average wind speeds.

Selecting sites with suitable average wind speeds is critical to the success of a wind farm. Small differences in average wind speeds can make large differences in energy output. In theory, the power available in the wind is proportional to the cube of its speed. In practice, the relationship between annual average wind speed and annual average wind project electrical output also depends on other factors including turbine technology, distribution of wind speeds, planned and unplanned outages, etc.[63] As a rule of thumb estimate, a

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[61] August 14, 2006 Post-Hearing Comments of Harley Lee at 2.

[62] Moved from another paragraph within the Best Reasonably Available Site section of the Original Application.

[63] July 14, 2006 Prefiled Testimony of Randolph Mann at p. 17.

10% change in average wind speed can be expected to result in about a 25% change in energy output.[64] Consequently, what seems like a small difference in wind speed can mean a large difference in available energy and in electricity produced, and therefore, a large difference in the cost of the electricity generated. Also, there is little energy to be harvested at very low wind speeds (6 mph winds contain less than one-eighth the energy of 12 mph winds). Therefore, a wind farm at a project site with lower wind speeds would require many more turbines (approximately a third more turbines if wind speed class is decreased by level) to generate the same amount of power, which would greatly increase visual and environmental impacts as well as the cost of the constructing the wind farm.[65] Thus, while there are lower elevation sites for wind farms in Maine, they will require more turbines with a larger footprint and likely have more expensive power.

Second, the Black Nubble site is located on the fringe of the LURC jurisdiction in the same vicinity as two large ski areas on either side of the site (totaling 1,800 acres of development to date), a biomass plant, local towns, the Navy's SERE facility, and the working forest, including extensive logging roads and trails.[66] Despite all of the area development, the site is relatively well hidden; it is visible from less than 5% of the area within a within a 15-mile radius of the project site.[67]

Finally, the site is located near existing necessary infrastructure. Black Nubble has existing logging roads and bridges leading up to and part way up the mountain, thus reducing the need for new road construction and minimizing the impact to the natural resources in the project area.[68] In addition, the Black Nubble site is near high voltage

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[64] July 14, 2006 Prefiled Testimony of Randolph Mann at p. 17.

[65] August 14, 2006 Post-Hearing Comments of Harley Lee at p. 4.

[66] July 14, 2006 Prefiled Testimony of Harley Lee at p. 6; August 21, 2006 MMP Rebuttal Comments at pp. 13-14; July 14, 2006 Prefiled Testimony of Terrence DeWan and Amy Bell-Segal at p. 8.

[67] August 21, 2006 MMP Rebuttal Comments at pp. 13-14; July 14, 2006 Prefiled Testimony of Terrence DeWan and Amy Bell-Segal at p. 7.

[68] August 14, 2006 Post-Hearing Comments of Harley Lee at 2; August 21, 2006 MMP Rebuttal Comments at pp. 14.

power lines that have the capacity to transmit the electricity from the nearby Bigelow substation to the rest of Maine.[69] This unusual combination of access to existing high voltage interconnection and transmission in close proximity to high wind locations caused the Black Nubble site to emerge as the best reasonably available site.[70]

Additionally, MMP has undergone an extensive alternatives analysis.[71] Over the course of several years, Endless Energy looked at numerous sites and conducted a more in-depth investigation of fifteen sites in four states (Maine, Massachusetts, Vermont, and Rhode Island) to assess their viability as a location for a wind farm. The screening process weighed: the expected wind resource, proximity to existing development and transmission lines, appropriate topography, proximity to access roads and public resources; location of existing development, environmental suitability and availability of the land.[72] Nine of these sites were along the coast and six were mountain locations. Endless Energy's investigation showed the coastal locations did not have adequate winds for generating significant amounts of economical power, while the mountain locations had significantly stronger winds. There are few onshore land areas ranked Windpower Class 4 or better (e.g. "good" to "superb") that could be conducive to building an economically feasible wind project. The onshore locations other than Black Nubble with good wind speeds are also located on similar ridgelines because wind speeds are positively correlated with altitude. Unlike Redington and Black Nubble, however, many of these other ridgeline locations may not be suitable for wind project development due to the fact that they are quite distant from the high

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[69] July 14, 2006 Prefiled Testimony of Harley Lee at p. 6; August 14, 2006 Post-Hearing Comments of Harley Lee at 2; August 21, 2006 MMP Rebuttal Comments at pp. 14.

[70] August 21, 2006 MMP Rebuttal Comments at pp. 14

[71] The following discussion of MMP's alternatives analysis is discussed in the record in the following locations: August 21, 2006 MMP Rebuttal Comments at pp. 14-15; July 14, 2006 Prefiled Testimony of Harley Lee at p. 3; August 14, 2006 Post-Hearing Comments of Harley Lee at 1-2.

[72] List of factors for alternatives analysis was presented in the August 14, 2007 Post-Hearing Comments of Harley Lee at p.1-2.

voltage electric transmission grid or that they are located in state or national parks or other areas set aside for conservation.

Therefore, the Black Nubble Wind Farm site presents the ideal confluence of good wind located near already developed areas and existing transmission capacity. The location also supports one of LURC's main tenets: to develop on the fringe and thereby minimize the impact of the project on the remote core of the jurisdiction. The BNWF site satisfies all of these needs while still remaining an economically feasible location for wind generation. Therefore, the BNWF site is the best reasonably available site for the Black Nubble Wind Farm.[73]

4). Conserves Productive Forest Land

LURC Chapter 10.21,G,8,b,4 requires that the proposed project conserve productive forest and/or farm land. Approximately 436 of the 487 acres in the Black Nubble parcel will remain in it's natural state, untouched. Moreover, as previously discussed, MMP and the landowner of the project area, RMW, have entered into an agreement with NRCM to prohibit Redington Pond Range Mountain from being developed as a windpower site. Therefore, the BNWF project conserves even more land, including one of the last, previously unprotected, 4,000 foot peaks within the State.

Terrain at higher elevations in Maine is generally unsuitable for forest or farm cultivation. Severe weather limits the growing season for all plants, and soils are thin and nutrient-poor. Use of the mountain ridges proposed for the Black Nubble Wind Farm will not affect any productive forest or farmland.

The wind farm will not interfere with ongoing work in the surrounding forest; instead, it makes productive use of a relatively small area of forest land that is virtually useless for commercial logging due to the poor quality of the vegetation and the steep terrain.

[73] This concluding paragraph is already in the record in the following location: August 21, 2006 MMP Rebuttal Comments at pp. 15.

5). Incorporates High Quality Planning and Design

LURC Chapter 10.21,G,8,b,5 requires that the proposed project "incorporates high quality site planning and design in accordance with accepted contemporary planning principles." MMP has prepared, in partnership with a number of Maine's most knowledgeable and respected engineering and environmental consulting firms, a detailed and complete wind farm design. For a detailed discussion of the construction and design plan for the BNWF, please refer to Section 1, Appendix 2.

6). Self-Sufficient with Regard to Public Services

LURC Chapter 10.21,G,8,b,6 requires that the proposed project "envisions a project that is reasonably self-sufficient in terms of necessary public services." MMP has reviewed fire protection and security needs for the wind farm with the Maine State Forest Service and the towns of Rangeley, Stratton, and Carrabassett. The wind farm should not cause any significantly increased demand on the affected fire and police resources.

7). Provides Safe and Efficient Traffic Circulation

LURC Chapter 10.21,G,8,b,7 requires that the proposed project "provides for save and efficient traffic circulation." Construction of the wind farm is expected to take place in phases over the course of a year. During construction there will be occasional limited periods of heavy traffic on state routes 16 and 27 to transport employees and equipment to and from the site. Traffic volume will be well within the existing capacity of the state highways.

On the mountains, heaviest traffic is expected during road and power line construction. This "internal" construction traffic will not interfere with any public roads or highways. Construction materials will be delivered as needed and will not cause any disruption to local traffic. Turnaround areas for construction vehicles on the mountain top roads are shown on the project base map (see Appendix 1). Parking areas are shown on the maintenance lot (see drawing in Property Maintenance Section 13).

Toward the end of the construction phase, when turbine components are being delivered, there will be a minor impact to traffic on area roads from the Waterville railhead, including local segments of routes

27 and 16. (A descriptive summary and pictures of a typical delivery can be found in Appendix 8.0).

Post-construction, when the wind farm is in operation, usual highway traffic will be limited to five to ten maintenance people traveling to the maintenance center for routine operations. Routine wind farm maintenance will occur within the site using private logging roads and the extensions connecting them to the turbine sites.

8). Reduces Pollution & Energy Consumption

LURC Chapter 10.21,G,8,b,8 provides that the project shall "utilize[] the best practical technology to reduce pollution, waste and energy consumption." Wind is the fastest growing renewable energy source in the world. It is cheap, abundant, inexhaustible, widely distributed, clean, climate-benign, fossil-fuel-independent, and geopolitically neutral. No other energy source has all of these attributes.

Wind turbines for this project are manufactured by the Danish firm Vestas, the current world leader in turbine design. They are the latest generation of multi-megawatt turbines, field-tested under different conditions at locations across the globe. Using these particular machines and technology allows the wind farm to produce more electricity with fewer turbines. Although it is beyond the purpose and reach of any wind farm to reduce energy consumption, the Black Nubble Wind Farm will avoid releasing approximately 400,000 pounds of pollution from fossil-fuel generation into the Maine atmosphere every day. For a more in-depth discussion of benefits of the Black Nubble Wind Farm in reducing pollution, waste and energy consumption, see the Demonstrated Need and Benefits section (Section 1) of this Development Description.

9). Separate from Existing Developed Areas

The description of the D-PD subdistrict states that D-PD areas are "separated from existing development patterns." LURC Ch. 10.21,G,2. The Black Nubble Wind Farm is sited on Black Nubble. Except for its maintenance facility, the wind farm is over four miles from the closest developed areas, private residences along Route 16 and the Sugarloaf ski area summit. Unlike other proposed wind farms, however, the Black Nubble Wind Farm is located on the fringe of LURC jurisdiction, within sight of existing development (if viewed from the top of the ski mountains) and near existing transmission lines. This is consistent

with LURC's principle value of placing development on the fringe, rather than at the core of the jurisdiction.

10). Greater than 50 Contiguous Acres

The description of the D-PD subdistrict provides that a D-PD subdistrict proposed for a predominantly commercial or industrial land use shall include at least 50 contiguous acres. LURC Ch. 10.21,G,2. The proposed D-PD area on Black Nubble is 487 acres. The combined cleared acreage within the D-PD for construction on Black Nubble is approximately 51 acres. Cleared acreage for the entire project area is approximately 234 acres. Wind generation facilities are exempt from the requirement for a 30,000 square-foot minimum building floor area.

11). 400' Minimum Distance from Property Lines

The description of the D-PD subdistrict provides that development shall be 400 feet from any property line. LURC Ch. 10.21,G,2. The mountaintop properties that MMP purchased for the wind farm were intentionally surveyed not just to include necessary wind-rich ridge tops, but also to cause the least possible additional impact to high mountain terrain. Where it has been necessary to locate turbines closer than 400 feet to the property boundary, there are no negative impacts to the surrounding forested terrain.

MMP has signed agreements with the Dallas Corporation and Plum Creek, two of the three neighbors of the wind farm, to locate wind turbines closer to the property boundary. These documents are available for review in Section 2, Land Title and Easements, as Black Nubble Expansion (for Dallas) and Plum Creek Option Agreement. The Navy, the third neighbor, is maintaining a neutral position on the wind farm.

MMP requests a reduction in the setback requirements for those wind turbines that are closer than 400 feet to the property line. Setbacks are listed in the chart below:

Amended Turbine No.	**Original Turbine No.**	**Distance from Property Line to center of Turbine (ft)**	**Distance from Property Line to Turbine Base (ft) ✶**	**Distance from Property Line to Tip of Turbine Blade (ft) ✶✶**
1	30	456.69	450.19	309.09
2	29	245.64	239.14	98.04
3	28	377.30	370.80	229.70
4	27	315.44	308.94	167.84
5	26	173.00	166.50	25.40
6	25	204.26	197.76	56.66
7	24	453.44	446.94	305.84
8	23	486.91	480.41	339.31
9	22	399.20	392.70	251.60
10	21	373.31	366.81	225.71
11	20	768.01	761.51	620.41
12	19	739.01	732.51	591.41
13	18	625.95	619.45	478.35
14	17	426.83	420.33	279.23
15	16	516.49	509.99	368.89
16	15	585.33	578.83	437.73
17	14	421.76	415.26	274.16
18	13	432.61	426.11	285.01

✶Radius of Turbine Base = 6.5 feet

✶✶Distance from center of turbine to blade tips (45 meters) = 147.6 feet

12). Water, Road, Fire, Security and Solid Waste

The description of the D-PD subdistrict provides that project shall be "reasonably self-contained and self-sufficient and to the extent

practicable provide for its own water and sewage services, road maintenance, fire protection, solid waste disposal and police security." LURC Ch. 10.21,G,2. The BNWF project described in this application will be self-contained and self-sufficient, as follows:

- Septic

The Maintenance Center will have a drilled well and a septic system designed and installed to applicable local codes. See the wastewater permit (disposal system application) in Section 17 (Wastewater) of this application. During construction and operation, portable sanitary stations will be utilized at various locations on the project site.

- Fire & Security

The towns of Stratton, Rangeley, and Carrabassett Valley will supply fire protection services for the wind farm. These towns do not officially work with unorganized townships - like Redington Township - but they do work with the Maine State Forest Service, the entity responsible for fire services in the unorganized territories. A letter from the Forest Service is included in the revisions section of the permit. The nearest fire station is located in Stratton.

For police services, the area is served by the state police and the local sheriff's department. They alternate on a weekly basis for coverage in the Redington Township area. A letter from the Franklin County Sheriff's office is included in the revisions section of the permit.

Road improvements necessary for Black Nubble will enhance emergency access to these areas. Roads and power line openings will also provide fire breaks. Fires from wind turbines are extremely rare; however, each wind turbine is equipped with a fire suppression system and is fully alarmed and monitored for fires and other unusual activity.

Prior to construction, MMP will review the project with local fire marshals, to get their input on the fire risk associated with the turbines, the substation, and the power lines. Emergency access will be enhanced with the designation of emergency locations for helicopter rescue (life-flight) and with the installation of road signs.

During construction, private security personnel will be utilized to patrol the construction areas and equipment. After construction, security requirements at the wind turbine sites will be minimal. The turbines

are locked, tamper-proof, and do not present a security risk. Turbine access roads will be gated to prevent unauthorized motor-vehicle use.

Any additional or specialized training necessary for emergency rescue related to the wind turbines will be provided by MMP (ropes training, high angle rescue).

After construction, security requirements at the wind turbine sites will be minimal. The turbines are locked, tamper-proof, and do not present a security risk. Roads will be gated at times during the winter and "mud" season to prevent road use during hazardous conditions.

- Solid Waste

MMP has begun discussions with local waste haulers to remove assorted construction debris. Construction debris is not expected to be significant, however, all trash services will be provided by local, private waste-hauling firms.

Solid waste disposal, a construction concern, will be addressed as defined in Section 18, Solid Waste.

Description of Activities

This section provides information on each of the elements that is included in the preliminary development plan application.

Sections A and B specify the activities that are requested in the D-PD Subdistrict without a permit, or without a permit subject to the Commission's Land Use Districts and Standards. Section C specifies the land uses and structures that are requested in the Redington Wind Farm (D-PD) Planned Development Subdistrict. Section D specifies the infrastructure and other uses and structures associated with those activities requested in the D-PD Subdistrict, but located outside the subdistrict boundaries.

A. Uses allowed without a permit within the (D-PD)

MMP will be requesting Final Development Plan approval in the Redington Wind Farm (D-PD) Planned Development Subdistrict for the following uses without a permit:

(1) Emergency operations for wind farm contractors during construction and maintenance; and emergency operations conducted for the public health, safety or general welfare;

(2) Motorized vehicular traffic on roads and trails, and snowmobiling, as authorized by Maine Mountain Power;

(3) Primitive recreational uses authorized by Maine Mountain Power;

(4) Surveying and other resource analysis authorized by Maine Mountain Power, including wind resource studies; and

(5) Wildlife and fisheries management activities as authorized by Maine Mountain Power, or conducted by state and federal wildlife resource agencies.

B. Uses allowed without a permit subject to standards within the (D-PD)

MMP will be requesting Final Development Plan approval in the Redington Wind Farm (D-PD) Planned Development Subdistrict for the following uses without a permit subject to standards within the (D-PD):

(1) Level A road projects; Redington Wind Farm construction will include upgrading existing primary roads, access roads and bridges to withstand heavy loads during construction and maintenance. Activities will include replacing culverts, resurfacing and installing temporary bridges. See the road and bridge construction documents in Appendices 2-4.

(2) Signs listed as exempt in Chapter 10.27,J; Signs installed on the roadways will assist in directing traffic and emergency personnel. Signs warning of potential icing events will be posted at mountain road entrances.

(3) Mineral exploration and extraction; Exploratory pits and test borings will be dug or drilled to determine the composition of underlying soils for design and siting of turbine foundations and roads.

(4) Forest management activities by Maine Mountain Power, except for timber harvesting and land management roads;

(5) Alteration of less than 15,000 square feet of P-WL2 and P-WL3 wetlands for road construction; and alteration of streams (P-WL1 wetlands) for road crossings;

(6) Alteration of up to 4,300 square feet of P-WL2 and P-WL3 Wetland Protection Subdistricts;

C. Uses requiring a permit within the (D-PD)

MMP will be requesting Final Development Plan approval in the Redington Wind Farm (D-PD) Planned Development Subdistrict for the following uses requiring a permit within the (D-PD):

(1) Blasting as needed for the turbine foundations, roads, and transmission lines;

(2) Clearing for the roads, turbines, transmission lines, and meteorological towers:

a. The width of the cleared area for the ridgeline road will be no more than an average of 90 feet;

b. The post-construction road width will be no more than approximately 12 feet unless otherwise required for turning radius or otherwise approved by the Commission;

c. The clearing for the turbine and crane pads will be limited to the size of the areas specified for the pads below under "Filling and Grading". The crane pads and turbine pads must be mostly revegetated after construction;

d. The corridor cleared for the above ground transmission line will be no wider than approximately 75 feet except at areas of turning structures with guy wires, and the clearing will not remove the shrub or herbaceous layer;

e. The area cleared to install the underground transmission lines where the lines are not within the roadway, will be no wider than approximately 12 feet, except for areas of staging and turnarounds intermittently staged along the corridor and will be revegetated after construction; and

f. The total area cleared for the meteorological tower will be no more than approximately 0.7 acres, the clearing must not remove the shrub or herbaceous layer, and the vegetation will be allowed to regenerate after construction;

(3) Filling and grading:

a. Eighteen (18) turbine pads (160 feet by 50 feet);

b. Two (2) temporary crane pads (25 feet by 240 feet);

c. A 12 foot wide corridor for installation of underground transmission line not within the roadway; and

d. As needed for the roads and under-ground transmission lines and communication system within the roadway;

(4) Level B road projects for repair and maintenance of turbines and roads where the 12 foot wide post-construction roads would be temporarily expanded to allow access by heavy equipment [Note: In the event that the post-construction access roads would need to be temporarily expanded, prior to undertaking the work, the petitioner will submit a proposal to the Commission for review and approval];

(5) Level C road projects:

a. Approximately 6.2 miles of new ridgeline roads on Black Nubble to connect the turbine sites; The traveled surface of the ridgeline roads would be approximately 32 feet wide plus shoulders during construction, reduced to approximately 12 feet wide after construction. The traveled surface of a portion of the summit roads between the property line and the crane assembly area would be approximately 12'-20' wide during construction and reduced to approximately 12' wide after construction. The access roads would be approximately 12 feet to approximately 20 feet wide plus shoulders during construction, reduced to approximately 12 feet wide after construction;

b. Approximately eight (8) foot wide by 200 foot long wide-outs along portions of the narrow area of the summit road every ½ mile;

(6) Lighting as approved by the Federal Aviation Administration on the turbines;

(7) Meteorological reference towers: One 60 meter tall (262 foot) wind measurement reference tower. The tower will hold anemometers and wind vanes to measure wind speeds and direction;

(8) Transmission lines and communication system:

a. Underground 34.5 kV electrical transmission collector and communication systems within or adjacent to the ridgeline roads;

b. Approximately 2,500 feet of underground 34.5 kV transmission line on Black Nubble;

(9) Water crossings of minor flowing waters;

(10) Eighteen (18) wind turbines with foundations on Black Nubble Mountain. Each turbine tower would be 262' (80m) feet tall, with a 144' (44m) long rotor blade. The total height would be 410 feet when the rotor blade is extended directly upward.

(11) An approximately 12' wide temporary construction access road (with associated wider clearing) that is aligned within the permanent road area for use during initial construction of the permanent road, and:

(12) Portable Toilet Facilities

D. Infrastructure and other uses and structures requiring a permit outside the (D-PD)

MMP is requesting Final Development Plan approval for the following activities and structures associated with proposed Redington Wind Farm pursuant to Section 10.21,G,10 of the Commission's Land Use Districts and Standards. Except for road and transmission line crossings, designated wetland impacts, and other activities identified as occurring in the (P-MA) Protection Mountain Area Subdistricts, the (P-WL) Wetland Protection Subdistricts or the (P-SL) Shoreland Protection Subdistricts, such uses and structures will be located in the

(M-GN) General Management Subdistrict, and will be subject to the applicable requirements set forth in Sections 10.25 to 10.27 of the Commission's Land Use Districts and Standards. Activities not specifically listed are subject to the provisions of the Commission's Land Use Districts and Standards for the subdistrict in which the activity would occur.

(1) Alteration of the water table for production of concrete for turbine foundations and dust control during construction;

(2) Filling and grading not in conformance with the standards of Section 10.27,F of the Commission's Land Use Districts and Standards;

(3) Level A mineral exploration activities, including associated access ways, which are not in conformance with the standards of Section 10.27,C Commission's Land Use Districts and Standards;

(4) Level B mineral extraction for road construction and maintenance for the Redington Wind Farm;

(5) Level B road projects: Upgrades of existing access roads to provide access to the Redington Wind Farm that meet the definition in Section 10.02(71) of the Commission's Land Use Districts and Standards; Level C road projects:

   (a) Approximately 2.4 miles of new access roads;

   (b) The traveled surface of the access roads would be 12 feet to 20 feet wide during construction, reduced to 12 feet wide after construction;

   (c) Approximately eight (8) foot wide by 200 foot long wide-outs along the access roads every ½ mile during construction;

   (d) Water crossings proposed for the access roads; and

   (e) Approximately 0.8 miles of temporary access road;

(6) Maintenance facility: An approximately 5,000 square foot maintenance facility with parking lot, equipment storage area, office, and combine subsurface wastewater disposal system;

(7) Portable toilet facilities – at various locations

(8) Mineral extraction operations:

(a) Affecting an area less than 5 acres in size that are not in conformance with the standards of Section 10.27,C of the Commission's Land Use Districts and Standards;

(b) Affecting an area between 5 acres and 30 acres provided the unreclaimed area is less than 15 acres; and

(c) Structures essential to the extraction activity having a gross floor area of no more than 2,000 square feet;

(9) Portable mineral processing equipment;

(10) Structures devoted to the storage of sand or salt;

(11) Stump dump disposal areas affecting an area less than 2 acres in size;

(12) Temporary concrete batch plant;

(13) Temporary laydown area;

(14) Temporary office and storage trailers;

(15) Truck or equipment storage;

(16) Utility facilities:

(a) Approximately 2.6 miles of 34.5 kV transmission lines within 75 foot wide cleared corridors;

(b) Approximately 7.2 miles of 115 kV transmission lines within a 150 foot wide cleared corridor, expect for the portion adjacent to the Boralex line which would be a 75 foot wide corridor;

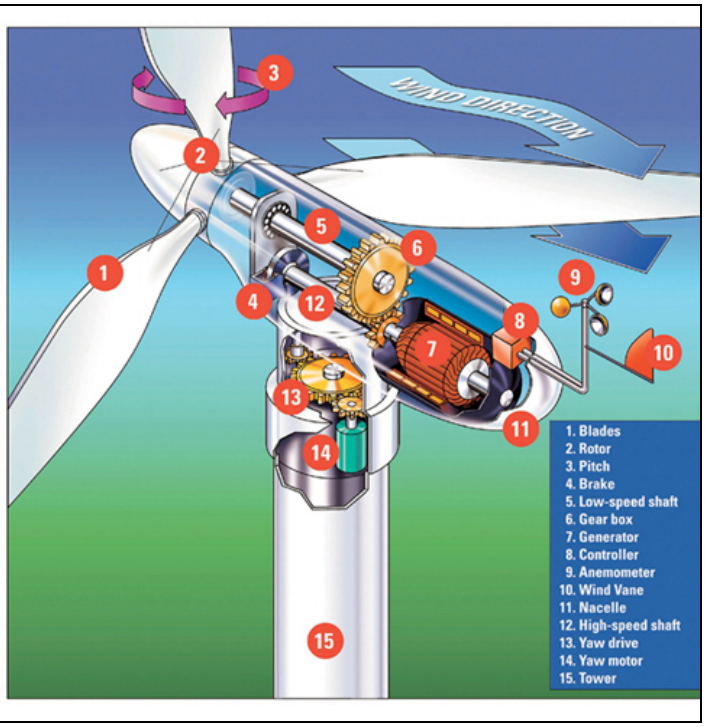
(c) Approximately 2,500 feet of underground 115 kV transmission line and the associated clearing, grading and filling to install the line; and

(d) The Nash Stream substation within an approximately 120 foot by 150 foot fenced in area, and approximately 0.1 mile extension of an existing access road.

4. Description of the Technical Components

The project consists of wind turbines, lighting, road access and bridges, an electrical collection system, a 34.5kv transmission line and substation, a 115kv transmission line and a maintenance facility. Each of these components is discussed below.

Description of the Wind Turbine – Vestas V90



The Vestas V90 wind turbine was selected for the Black Nubble Wind Farm because it is a Class 1 machine (designed for high wind environments). Vestas has been the leader in the development and manufacture of commercial wind turbines for over twenty years and is the largest manufacturer of wind turbines in the world. Their recently introduced V90 is based on new, thoroughly-tested improvements in the blade and nacelle design, blended with Vestas' known and proven

turbine technology, making the V90 a natural extension of their existing range of MW class machines.

The Vestas V90 is one of the newest of the high-output wind turbines currently available. The V90 is specifically designed to be situated in high-wind areas. The Black Nubble Wind Farm has a very strong wind resource, and the V90 is well suited for the environment.

The V90 is a pitch-regulated upwind wind turbine, with active yaw control and a three-blade rotor. The turbine has a rotor diameter of 90 meters (about 300'), with a generator rated at 3.0 MW.

Facts cited are available in the detailed Vestas specifications in Appendix 6.0 – V90 General Specifications.

Towers

The wind turbine towers are fabricated from four pieces of conical tubular steel, 13 feet in diameter at the base, tapering to 7.5 feet at the top. The height of the towers will be 80 meters (263 feet). To accommodate the strong wind resource and the severe winter conditions expected at the site, MMP will utilize a class 1 tower, rated to withstand 120mph winds.

The tower external surfaces are smooth, providing no bird perches, and internally consist of 3 evenly spaced platforms, an access ladder or lift, and top-to-bottom runs of power and communications wiring. Access into the tower will be via a locked door at the base.

Nacelle

The nacelle is the housing for the generator located at the top of the tower where the blades connect to the hub. It is a heated, weather-protected steel frame and fiberglass assembly, housing the turbine's 360 degree yaw control, main rotor bearing and blade pitch mechanism, transmission, electric generator, and control electronics. An opening in the floor provides access into the nacelle from the tower. The roof section is equipped with a skylight, which can be opened to access the wind sensors (mounted on the nacelle roof) and FAA lighting.

A cold weather package for the V90 will be used, consisting of extra sealing and heating in the nacelle, special cold-weather lubricants, and

adjustments to the turbine control system to allow operation in colder temperatures.

For turbine erection, the components will first be delivered to the project's maintenance area and pre-assembled. When the cranes are in place at the turbine site, first the tower sections, then the nacelle, and finally the blades will be driven up to the pad using specialized heavy transport vehicles. Once at the pad, each component will be lifted and placed on the foundation. Pictures and video of the wind turbine erection process can be found in Appendix 8 on the permitting cd.

Blades

The blade design uses a new airfoil shape, developed in conjunction with the Riso National Laboratory in Denmark. It is also extremely light, using carbon fiber in place of fiberglass for the load-carrying structure of the blade, reducing the fiberglass content overall, cutting weight even further. The 144 foot V90 blades are actually lighter than the 130 foot blades used on the earlier model V80.

Lighting for Navigation

The V90 wind turbines, as with all structures over 200 feet high, must have aircraft warning lights installed in accordance with Federal Aviation Administration (FAA) guidelines.

The wind energy industry and the FAA have developed new regulations that minimize lighting requirements for wind turbines. MMP has submitted an aeronautical study plan to the FAA and obtained a determination.

Reducing the number of turbines from 30 to 18 required a reevaluation by the FAA. Upon further review, the FAA decided it would require MMP to light fewer turbines than the original Redington proposal. The FAA is requiring the Black Nubble Wind Farm to light 7 of the 18 turbines as shown on the FAA Lighting Map included in Section 1 Appendices (9.2 - FAA Lighting Map). Additionally, FAA will only require one light on each of the seven turbines. At the time of the original application, FAA would have required a pair of lights on each lit turbine.

The light color will be red, with all turbines synchronized to simultaneously flash a slow-on, slow-off profile. Lights will be mounted on the nacelles located approximately one half mile apart around the perimeter of the site.

See Appendix 9.0 for additional information on turbine lighting.

Turbine Sites and Foundations

Crane & Turbine Base Pads

Each turbine site will be located in a 160' x 50' cleared area next to the mountaintop access road. The turbine foundation will be centered at one end of the clearing. The remaining portion of the pad will be used as the crane footprint, so it must be flat and able to carry the heavy crane loads.

The first turbine site at the beginning of each mountain's access road will be expanded to accommodate temporary material storage and for assembly / disassembly of the lifting cranes. Once assembled, the cranes can then be driven to other turbine sites along the mountaintop roads.

For photos of cranes see Appendix 8.0 (Transportation and Assembly) on the permitting cd.

Foundation Types

There are three general types of foundations used to securely anchor wind turbines to the earth, described as the tube-style (proprietary), gravity (mushroom), and rock-anchored. Civil engineers choose foundation designs that hold fast in strong winds, are low cost to build and have low construction risks.

Based on initial geotechnical borings on Black Nubble, the foundation design assumption for the Black Nubble project is a gravity spread footing that will have a diameter range of approximately 53'-56', a depth of approximately 7', a perimeter thickness of approximately 2.5'-4.0' with a neat concrete volume of 375-500 cubic yards. The geometry of the foundation will be very similar to the Gravity Type Foundation drawing in Appendix 7.0 of Section 1 of the Permit Application documents.

Many borings will need to take place after a permit is received to further our knowledge on soil and rock conditions on Black Nubble. Final foundation design cannot be determined until these borings and further soil analysis have been completed. Foundation types are discussed briefly below.

For more details on foundations, see Appendix 7.0 (Wind Turbine Foundation Details).

Tube-Style Foundation

The tube-style foundation uses a patented tube design b Revision 1.1 2/1/06
Henderson, Inc. that reduces overall impact and costs.
requires only an 18-20' diameter hole, which is either excavated or blasted to the required depth. The hole is then lined with two concentric steel tubes, bedrock anchors and steel reinforcing are installed, and electrical and communications lines brought in. The ring of the 'doughnut' is then filled with concrete, and the center back-filled with earth. Pouring a concrete cap on top completes the foundation.

Soil survey maps show the geology of Black Nubble mountains to be a mix of soil and small rocks at the surface, with anchor-friendly bedrock at variable depths. (Refer to the soils map in Section 11 of this application). The P&H design is a good solution for this variable terrain because it specifies a standard depth for the tube, which can be shortened to a minimum depth with rock anchors when bedrock is close enough to the surface.

After building access roads and clearing areas for turbine pads, test holes will be drilled around the optimal perimeter for each foundation tube, to confirm foundation type and the depth to bedrock. If soil analysis does not support the Patrick and Henderson foundation, two alternatives are described below.

Gravity Foundation

The gravity foundation, shaped like an upside-down mushroom, is designed to be installed in existing soils, and hold the wind turbine upright through sheer weight and leverage. The design is used widely, but requires the most concrete to build (and is thus the most costly).

Rock-Anchored Foundation

If a wind turbine is sited on solid, non-fracturing rock, a series of anchors can be drilled into the base stone and then tied to a foundation cap on the surface. This "rock-anchored" type of foundation is less expensive to build than a gravity foundation, but can only be used where the rock formations are close to the surface, with a geological structure that will hold anchors securely over time.

Roads & Bridges

Primary access for the Black Nubble project will be from Route 16 via the existing International Paper road and subsequent network of forest mountain roads in the area. The wind farm requires a composite of new and upgraded roads, carefully planned to accommodate the foundation construction and delivery of turbine components, as well as long-term maintenance of the wind farm. Existing forest mountain roads will be used to the greatest extent possible, and new roads will be built to access the summits and reach the turbines.

The engineering design for the roads has been accomplished with four goals in mind:

1. To use existing logging roads as much as possible, and build new roads only when necessary;

2. To incorporate flexibility into the final design by engineering road corridors with +/-250 feet of play, so roads can be re-routed to avoid potential difficult areas;

3. To collaborate with the turbine manufacturer and with transportation experts on strategies to make the roads ascending the mountains as narrow as possible and turning radii as small as possible;

4. To achieve load-carrying functionality, drainage and erosion control while minimizing width, wetland impacts and visual impacts.

The civil design for the new roads for the project has been prepared as a "tool kit" of construction, drainage and erosion control options, using a common roadbed design. The tool kit design allows roads to be more easily shifted within the rights-of-way, to avoid wetlands and difficult terrain.

In consultation with the turbine manufacturer (Vestas) and their preferred transportation experts, a formal effort was made to reduce the road width and clearing necessary to bring the turbine components up the mountain. The result was an access roadway design 20% narrower than standard. These specifications substantially reduce the environmental and visual impacts of the new access roads. The "narrow road" design specifications are in Appendix 2.6 at the end of this section.

Drainage and erosion control are also an important part of the road design, given the steep mountain terrain and the typical winter snow and spring melt conditions. In November 2003, David Rocque from the Maine State Soils office, Albert Frick of Albert Frick & Associates, Dwight Anderson, civil engineering consultant of Deluca-Hoffman Associates, Inc., MMP staff and International Paper personnel visited forest roads in the project area. They examined typical one to ten year old roads to assess the effectiveness of different types of erosion control over time. The research identified the types of embankment problems likely to occur and the best erosion control methods to use. The results from this trip, text and pictures, are included in Section 11, Soils, and reflected in the Erosion and Sedimentation Control plan in Section 14.

Road Uses & Requirements

This project will require modifications to existing primary access roads, construction of new access roads, construction of mountain top roads, construction of access roads for the transmission line and upgrading and construction of new bridges.

Primary Access Roads

Existing and new access roads need to support the transport of heavy turbine tower sections, the 70-ton nacelles and the 144 foot blades. The access roads will be built as gravel roads, with 12-20 foot travel surfaces and 2 to 4 foot shoulders, load-carrying capacity of 90-100 tons, and vegetation cleared to 14 feet minimum from centerline.

Mountaintop Roads

Mountaintop roads connecting turbine sites must carry the same heavy loads as access roads, but must also be broad enough for transporting the 32-foot-wide heavy-lift erection crane. The crane will be brought

to the site disassembled, and will be assembled near the first turbine pad. The crane will then travel from one site to the next as each turbine site is ready.

The mountaintop roads connecting turbine sites will also be built as gravel roads with the same 90-100 ton load-carrying capacity, but with 32-foot travel surfaces to allow safe movement of the turbine assembly crane. After construction, the road traveling surface will be reduced to a width of 12 feet by mulching and seeding beyond that width and allowing it to revegetate.

Power Line Construction Access Roads

Initial access to the corridor for the 7.2 mile long 115kV power line will be from the substation and from Route 27 at either end and in the middle via new extensions built onto existing area forest mountain roads. Multiple access points will enable multiple construction crews to work concurrently and will eliminate stream crossings. These road extensions will match the existing roads, used today for logging operations. The extensions will be gravel roads, with 12-foot travel surfaces and vegetation cleared to 10 feet from centerline.

Internal Corridor ATV Access Roads

Within the corridors of the 115kV and 34.5kV power lines, minimum-width all-terrain skidder trails will be constructed, so all-terrain vehicles can travel the corridor to clear land, install electrical poles, lines, and perform post-construction inspection and maintenance.

All-terrain trails will be built as minimal forest mountain roads, with/without gravel, with 10-foot travel surfaces and vegetation cleared to 10 feet from centerline.

Bridges

Existing access roads include a number of bridges that need to be repaired or reinforced. All existing bridges have been inspected, and the upgrades required are described in the report from Gagnon Engineering, Inc., in Appendix 4 of this section. No new bridges are needed.

Electrical Transmission System

The electricity generated by each turbine must be collected and transmitted to the existing Maine power transmission system (the grid). It will require the construction of an electrical collection system, substations and transmission lines.

Mountaintop Electrical Collection System

The purpose of the electrical collection system is to interconnect the individual wind turbines to a single exit power line located at the north end of the mountain. The collection system will consist of a 34.5kV, three-phase cable system, direct-buried under the mountaintop roadway (avoiding overhead lines visible along the ridge). The mountain will have several collector strings, so output from the turbines is distributed across several series circuits for improved reliability.

Along with the three-phase electrical transmission wires, fiber optic communication cabling for the SCADA (System Control And Data Acquisition) system that controls, monitors, and collects performance data from each turbine, telephone lines and other communication wires will be buried in their own conduit.

The collector system strings will merge at a small, fenced-in transition area at the north end of the mountain, where they will interconnect with the aboveground transmission line.

Collection System Construction

The mountaintop collection system will be direct buried under the fill-side of the roadway using a trenching machine. When lines, conduits and surrounding sand are in place, trenches will be backfilled and graded. The electrical wiring will be buried without encasement, as required by code, wherever possible. In places that call for a shallower depth or where wiring passes under areas subject to heavy load, electrical cables will be placed in steel conduit or concrete-encased PVC.

34.5kV Transmission Line and Substation

Black Nubble's collector system will run underground to the exit point at the north end of the ridge, where a 34.5kV overhead line will continue north down the mountain, across Nash Stream and into the

substation. The Black Nubble line will also be built in a 75-foot cleared corridor with single pole-cross arm construction and conductors, sized for 54 megawatts (18 turbines).

Routing and Impacts

Biologists have delineated wetlands for the 34.5kV Black Nubble corridor and details can be viewed in the Wetlands portion of Section 7, Wildlife and Fisheries.

Substation

The new Electric Harvest substation will be located in a flat area on the east side of Nash Stream, near the junction of forest roads RE6A and RE6B, as shown on the project base map. The substation will consist of a 120-foot by 150-foot fenced-in area, containing the main 34.5kV-to-115kV step-up transformer, connection points for the incoming and outgoing power lines, and a small weather-protected enclosure for back-up power generation, SCADA connection and other communication needs. For access to the substation, a new road spur will be built, running northwest from the substation into an existing forest mountain road.

Substation & 34.5kV Transmission Line Construction

The corridors will first be cleared using access points from forest roads, the new substation, the existing north Black Nubble road, and the access road / power line junctions at the top of the mountain ridge. An ATV-compatible equipment trail will be constructed within each corridor, after which poles will be erected and wires installed. For the corridor clearing, all marketable timber will be removed; brush and small timber will either be chipped in place or hauled out.

Substation construction will be straightforward. The access road will be built, and the main area cleared and leveled. Foundations for the main transformer and building and mounting pads for the electrical risers will be installed. Substation components will then be delivered and assembled.

115kV Transmission Line and Grid Interconnect

From the substation the main 115kV transmission line is approximately 7.2 miles long. It will proceed north along the Nash Stream valley to

the Redington Township line. This location minimizes visibility from the Appalachian Trail and keeps the clearing uphill from sensitive streams and wetlands. The route then runs east along the Redington Township border, then north and east within Carrabassett Valley Township along the borders with Coplin Plantation and Wyman Township. The line will then turn northeast into Wyman Township to join and parallel the corridor of the existing Boralex 115kV transmission line, which serves the Stratton biomass plant.

The line itself will consist of 3–phase overhead wires built on wooden poles in a 150-foot cleared corridor, narrowing to 75 feet when it parallels the Boralex corridor. H-frame construction will be used to minimize structure height and visual impact. The conductors will be sized to carry the wind farm's full 54 megawatts. Communication lines and the SCADA system's fiber optic cables will also be run along the poles, out to State Route 27 and to the interconnection point.

When the line approaches State Route 27, it will transition to an underground cable system and proceed under Route 27 to the east side shoulder, then run underground within the highway right of way. The underground line will then cross into Carrabassett Valley to the Bigelow substation, the wind farm's interconnect point into Central Maine Power's transmission grid.

Routing and Impacts

Routing for the first two thirds of the line follows township borders, to minimize conflicts with forest harvesting machinery and personnel. The transmission line corridor has been walked several times by biologists and altered a number of times to minimize impact on wetlands. For example, the transmission line was routed originally to the northwest corner of Carrabassett Valley. However, after biologists found four wetlands on the proposed route, the corner was bypassed to avoid wetlands. More detail on avoiding impacts to wetlands may be found in the Wetlands portion of Section 7, Wildlife and Fisheries.

115kV Transmission Line and Grid Interconnect Construction

The 115kV corridor will be accessible from RMW's Electric Harvest substation, from Route 27 and from a number of points along the line that are reached via existing forest roads with new road extensions. Multiple access points will allow parallel construction, eliminate the

need to cross most streams, and provide easier access for tree and brush removal.

As with the 34.5kV lines, an ATV-compatible equipment trail will be created within the corridor and cleared in segments using all-terrain equipment. All marketable timber will be removed, and brush and small timber will either be chipped in place or hauled out. Installation of poles and wires will follow.

The underground segment of the power line along Route 27 will be constructed in accordance with special requirements of the Maine Department of Transportation.

More detail on the electrical and transmission line design can be found in Appendix 5.0 at the end of this section.

Maintenance Facility

The maintenance facility will function as an office for operational management of the wind farm, as a location to store light maintenance materials as well as transportation and road maintenance vehicles (ATVs, snowmobiles and snow-cats).

The maintenance facility will be located on a 5 acre parcel in close proximity to the Coplin Plantation site entrance. A 5000 sq. ft. building, with parking lot, will house vehicles and equipment. A portion of the grounds will be set aside for temporary storage of turbine components for maintenance activities. This area will be appropriately secured and visually screened. An artist's sketch of the proposed facility is shown in Section 13 of this application.

Turbine Delivery and Erection

Turbine components are large, with special handling requirements. Usually, they must be transported great distances from the point of manufacture to installation sites. The Vestas V90 nacelles and blades are manufactured in Denmark. The towers are expected to be made in the U.S. or Canada.

Turbine components will be delivered to the U.S. via ship, then off-loaded in Searsport, Maine. There the various components will be loaded onto custom transport vehicles and driven across state highways with State Police escorts to the project site. Specialty

turbine transportation companies have already selected this route in cooperation with the Maine DOT.

The project will have a lay-down yard, near the Coplin Plantation site entrance, to stage towers, nacelles, and blades. As they are needed,

5 . Decommissioning

Decommissioning of wind power projects

During the April 6, 2005 LURC meeting dealing with Redington Mountain Windpower's met tower removal requirements, the Commissioners indicated an interest in considering decommissioning issues—especially as they pertain to wind farms. In this section, Maine Mountain Power responds to the LURC staff request that the possible decommissioning of the wind farm be addressed.

Policy Implications

Other than the Maine Yankee nuclear power plant, to the applicant's knowledge, no other power plant in Maine has been required to provide a plant decommissioning program or funds. Moreover, there are no federal or Maine laws or regulations requiring a wind farm facility like MMP's to provide a decommissioning program or funds. Singling out wind energy—arguably one of the most economically and environmentally sustainable energy sources—might discourage the development of this technology and, ironically, encourage non-sustainable technologies with far greater pollution and waste disposal implications. That unintended result would be contrary to the Legislature's and the State's goals of increasing the amount of renewable energy produced in Maine and decreasing the State's dependence upon domestic and foreign fossil fuels.

Given that the Maine Legislature has not passed a law requiring that wind farm decommissioning be addressed, and that neither LURC nor DEP has regulations or standards requiring that decommissioning be a consideration of the financial or technical capacity of an applicant, MMP respectfully submits that neither the Commission nor the Department has legal authority to address the issue in its review of this project.

However, without waiving its position that neither LURC nor the DEP has jurisdiction or authority to require decommissioning programs or funds from an applicant, to further demonstrate its responsiveness to

Commission concerns MMP has reviewed the long-term economics of operating the Black Nubble Wind Farm as well as the costs of decommissioning.

The turbines to be installed on the Black Nubble site are very likely to be replaced by newer technology before the end of their productive lifetime of approximately 30 years. However, as an extra level of protection, the salvage value of the turbines provides a security against abandonment of the facility. MMP expects that, during the equipment's useful lifetime, the salvage value of the equipment will be greater than the cost of removal and site restoration. There is an active salvage market for recycled wind turbines, so decommissioning, if it were to occur, would occur through normal market forces.

The remainder of this section discusses why MMP does not believe that the project will ever need decommissioning**.**

Wind Farms: probability and risk

Both the probability of, as well as the risks associated with, abandonment of wind farms is quite low. The probability of abandonment is low for several reasons. First, wind energy has consistently lower operating costs than all other generation sources, except for hydroelectric power. So, once the wind turbines are operating, they will be one of the cheapest sources of electricity. Second, most New England's electric generating suppliers need to expand their use of renewable energy to meet rising renewable portfolio standard requirements and the pressing need for more generation diversity in the region. Third, the demand for electricity in the region is quite reliable; it is not subject to big swings. Finally, even when wind turbines are near the end of their useful life, it is relatively easy and cost-effective to replace them with newer, more efficient units.

The risks of abandonment are low because 1) the equipment is modular and relatively simple and can be uninstalled more easily than other generation technologies and 2) there are no hazardous fuel supplies or waste products. These are discussed in more detail below.

The probability of abandonment is also low. Along with hydroelectric power, wind farms are likely to produce the lowest cost power over the very long run. The lowest cost power in Maine now comes from old hydroelectric dams. The reason this power is so cheap is that the

capital costs of the dam have been paid for, there are no fuel costs, the operating and maintenance costs are very low, and lots of water keeps coming year after year. In fact, some hydro sites have been operating in New England for 100 years.

A good wind farm site, like the one MMP is proposing, will be similar. Although O&M costs will be slightly higher than for a hydro plant, they will still be lower than any thermal plant. Like hydropower, wind uses a kinetic energy source from nature to directly turn a generator, and the source (wind) will be available year after year. Unlike thermal plants, there is no need to convert chemical (or nuclear) energy to heat and then to mechanical energy. There is no fuel transportation, fuel handling, fuel storage, combustion equipment, boilers, pollution controls, waste disposal, etc. associated with a wind farm. Wind energy, like hydro, will have a consistently low cost while producing no pollution. Thus, windpower is considered environmentally and economically sustainable…endless energy.

Wind turbines are typically designed to last twenty to thirty years. Because wind turbine technology has been and continues to improve, it generally makes sense, over time, to replace still-operating wind turbines with newer, more efficient ones. Because of improving technology, the incentive to replace turbines with new technology increases over time. The economic incentive for repowering is very strong because the necessary infrastructure is in place, the wind resource is proven and well understood, and the land is already in use as a wind farm.

Taking down a wind turbine is just the opposite of erecting it—using cranes, crews unbolt blades, nacelle, tower sections, etc. and truck them down the mountain. Examples of wind turbine repowering occurring in New England include Princeton and Hull, Massachusetts, as well as Manchester, Vermont. In Princeton, a wind farm consisting of eight 40 kW wind turbines installed in 1984 is slated to soon be replaced by two 1,500 kW wind turbines. In Hull, a 1985 wind turbine was replaced in 2001 by a Vestas turbine that generates more than 116 times the old turbine's output. As stated by a Vestas official, "The efficiency of the turbines has gone up about 5 percent every year." (Philipp Andres, August 28, 2003 New York Times). At Little Equinox Mountain in Vermont, four old turbines were removed in 1989 and were replaced with two 100 kW turbines.

While it is true that in the very early days of the wind energy industry some wind farms were abandoned, that was because federal incentives and wind technology were very different from those in existence today. In those early days a Federal Energy Tax Credit—and, in the case of California a state credit as well—provided a large tax incentive for just the installation of wind turbines. In addition, the wind turbine technology was immature. Furthermore, investors, many of them wealthy individuals without energy business backgrounds, were not always sophisticated about the need for comprehensive wind resource studies and other business requirements for a successful project. As a result, there were some early failures—including abandoned projects.

However, the technology has improved greatly, and by the mid 1980's, wind energy reliability was considered comparable to other forms of generation. The tax incentives for wind energy were also changed to a production (not merely installation) tax credit—thus, project owners made money only by producing power. The newer tax provisions were also only targeted towards institutional investors that had more and increasing sophistication to conduct comprehensive due diligence reviews of projects before investing. The result of all these factors is that the probability of abandonment—already low—has been reduced even further over time.

Low risks: The consequences of an abandoned wind farm, while arguably negative, are not on the scale of other thermal or hydro generation facilities. There are no giant tanks of fossil or nuclear fuels, no large repositories of radioactive, hazardous, or special waste products, no blockage of riverine fish passage, no huge piles of wood debris or sawdust and no dams that would need to be removed. There are no environmental safety risks from polluted ground or surface waters, or leaking radioactive or special wastes. Unlike, for example, the Maine Yankee plant there is no need to wait for development in Nevada or somewhere else of a repository for project byproducts.

Given everything presented above, even if decommissioning were a legally authorized consideration (which it is not) for the Commissioners, market forces demonstrate that the project will not be abandoned and left in place.

Regardless, it has also been stated and affirmed under oath by Randolph P. Mann, currently Vice President, Wind Development Edison Mission Energy, that Edison will if necessary decommission the Project.

See Prefiled Direct Testimony of Randolph P. Mann at page 3 and Exhibit 1 thereto, Mr. Mann's May 26, 2006 to LURC.

B. Topographic (Project) Map

1. Project Base Map

Showing the development area, turbines, roads, power lines and the maintenance center. See Appendix 1.0 at the end of this section.

2. Ownership Map

Showing property owners. See the Project Base Map for ownership and the Land and Title Easement map in section 2 for easements.

3. LURC Zoning Maps

See Appendix 1.1 at the end of this section.

C. Construction Plan

Construction of the Black Nubble Wind Farm will be a single-year project, with all but approximately 6-8 weeks of mud season available for various phases of construction. The precise schedule will depend on and commence with the issuance of a final permit but a sequencing plan, outlined by Quarter is included below. The goal is to have the wind farm generating electricity within a year of starting construction. During all phases of construction, the Erosion and Sedimentation Control Plan described in Section 14 will be in place to prevent erosion.

1. Construction sequence (major aspects and timeframes)

The project construction sequence is summarized below. It assumes that the permit will be approved and any appeals brought to closure prior to commencement. Note that Quarters are not necessarily calendar quarters, but rather project quarters. This schedule assumes that construction will be curtailed from mid-March to May, during mud season, when the spring thaw renders most gravel roads in the area unusable for heavy loads.

- Q1 – Complete final design details; Construction bids are evaluated and awarded.

- Q1 –Order substation components, structural steel, power poles & other long-lead material.
- Q1 – CMP facilities design finalized and material ordered, for Bigelow substation and any other needed upgrades.
- Q2– Final alignment surveys and start forest clearing of new roads / power line corridors, start bridge repair on existing roads. To the extent allowed, forest clearing will be targeted to be conducted during the winter months when the ground is frozen.
- Q2/Q3 – Construction of new roads and transmission lines - multiple crews for Black Nubble roads, and for transmission line corridors.
- Q2/Q3 – Excavation and construction of turbine foundations. Begin installation of underground collection system
- Q2/Q3 – Construction of Electric Harvest substation.
- Q3/Q4 – Delivery and erection of wind turbines. Turbine electricals interconnected into collection system.
- Q3/Q4 – Construction of Maintenance building, including wind turbine SCADA system.
- Q4 – Completion and pre-test of all transmission lines, Electric Harvest substation, and upgrades to CMP's system.
- Q4 – Backfeed power from CMP. Test and commissioning of wind turbines.
- Q4 - Wind Farm is On-line.

D. Design Drawings

1. Development Facilities

Appendices at the end of this section contain all drawings.

Road Design Length/cross-sections for roads

See Appendix 2 – Road detail drawings, slope maps and profiles

See Appendix 3.0 – Wetland inset maps

See Appendix 12.0 – Road reference photo collection (on the permitting cd).

Bridges

See Appendix 4.0 – Bridge design drawings

Parking, traffic

Revision 1.1 2/1/06

See Section 13, Property Maintenance for drawings of the Maintenance Center and parking lot. In addition, refer to road drawings in Appendix 2 at the end of this Section.

Dimensions, Foundation design of Maintenance Center

See Section 13, Property Maintenance for details on the Maintenance Center.

Electrical Design - collector system, power lines and substation

See Appendix 5.0 – Electrical design drawings and E-Series transmission maps

2. Site Work

Foundation Designs of Wind Turbines

See Appendix 7.0 – Foundation design drawings

3. Existing Facilities

See project base map for location of all existing facilities.

References

1. Calculations by Ron Nierenberg, Consulting Meteorologist from Camas, Washington, based on examination of wind data from meteorological towers at the Black Nubble site.

2. Davulis, John, Sales Forecast, Volume III-A, Central Maine Power Company, Augusta, Maine, Pre-filed Direct Testimony to the Maine Public Utilities Commission, Investigation of Central Maine Power Company's Stranded Cost Revenue Requirement and Rate Design, docket No. 2001-232 Phase II. October 3, 2001.

3. Based on the December 2004 annual report *NEPOOL Marginal Emissions Rate Analysis* produced annually by the Independent System Operator of New England.

4. ISO-NE's 2004 Annual Markets Report, p. 15.

5. Stephen G. Ward, Public Advocate, March 7, 2004 Article *Will Maine Consumers of Electricity Face the California Problem?*

6. "Maine on Right Energy Course", *Bangor Daily News,* August 30, 2005.

7. 35-A MRSA c. 34

8. "Regional System Plan 2005: Executive Summary", ISO New England

9. *Wind Energy Update*, National Renewable Energy Lab, January 2005

10. ISO-NE's 2004 Annual Markets Report, p. 24.

E. Appendices

1.0 – Project Base MAP (C3) (UPDATED)

1.1 – LURC Land Use Guidance Maps

Project Base Map with LURC Zones Identified (UPDATED)

Redington Township (N/C)

Coplin Plantation (N/C)

Wyman Township (N/C)

1.2 (P-SG) Soil and Geology Protection Detail Map (UPDATED)

1.3 Project Location / LURC Jurisdiction Fringe Maps (New)

2.0 – Road Design Narrative (UPDATED)

2.1 Mountain Road Maps (C1-C2 & C-BN4-7 & C-BN18) (UPDATED)

2.10 Additional Civil Design Criteria (New)

2.11 Civil Engineering Design Specifications (New)

2.2 Road Detail (C46-C55) (UPDATED)

2.3 Mountain Drainage Analysis Maps (C-BN56-58) (UPDATED)

2.4 Cut / Fill Road Analysis Detail (C-BN24-30) (UPDATED)

2.5 Slope Maps (S1-S2) (UPDATED)

2.6 RMW Narrow Road Specification (UPDATED)

2.7 Deluca-Hoffman Site Visit Notes (N/C)

2.8 Wetland Detail Maps (C40-C43) (NEW)

2.9 Substation Detail (C-44) (NEW)

3.0 – Obsolete - See: 2.8 Wetland Detail Maps (C40-C43)

4.0 – Bridge Design Narrative (MINOR UPDATES)

4.1 Bridge Design Drawings (N/C)

5.0 – Electrical System

5.1 Collector System & Substation Design (UPDATED)

5.2 Collector System Design Appendices

Appendix A – (duplicate - see Appendix 6.0) (N/C)

Appendix F – 34.5 kV Line Construction Details (N/C)

Appendix I – 115 kV H-Frame Details (N/C)

Appendix J – Underground 115 kV Line Details (N/C)

5.3 Transmission Line Construction Plan (MINOR UPDATES)

5.4 System Impact Study Summary (UPDATED)

5.5 E-Series 34.5 kV Line Maps (Obsolete - see Wildlife and Fisheries Figure 7.1)

6.0 V90 General Specifications (N/C)

7.0 Wind Turbine Foundation Details

Patrick & Henderson Design (N/C)

Gravity Type (soil) (N/C)

Rock Anchored (N/C)

7.1 Patrick & Henderson Drawings

Foundation Design Drawing (N/C)

Foundation Installation Photo Gallery (N/C)

8.0 Turbine Transportation & Assembly Details

8.1 Transportation Images - Buffalo Mt. Tennessee (N/C)

8.2 Turbine Installation Video (Vestas Promotional) (N/C)

8.3 Vestas V90 Road & Transport Specifications (UPDATED)

9.0 FAA Lighting Details

9.1 Turbine Latitude / Longitude Coordinates (UPDATED)

9.2 FAA Lighting Map (UPDATED)

9.3 Light Beacon Light Distribution Diagram (N/C)

10.0 Demonstrated Need

10.1 Electricity Shopping becoming Essential (N/C)

10.2 Windfarm Economic Impact Study (N/C)

10.3 Natural Gas and Wind Implications (N/C)

10.4 Fuel Diversity Need - ISO NE Report (N/C)