28.0 TANGIBLE BENEFITS

28.1 INTRODUCTION

The Bingham Wind Project (project) will provide significant tangible benefits throughout Maine, including direct benefits to Somerset and Piscataquis Counties and the host communities of Bingham, Moscow, Mayfield Township, Kingsbury Plantation, Abbot, and Parkman. Tangible benefits are defined as environmental or economic improvements or benefits to residents of the state attributable to the construction, operation, and maintenance of the project and include, but are not limited to, property tax payments resulting from the development; other payments to a host community, including, but not limited to, payments under a community benefits agreement; construction-related employment; local purchase of materials; employment in operations and maintenance; reduced property taxes; reduced electrical rates; land or natural resource conservation; performance of construction, operations, and maintenance activities by trained, qualified and licensed workers; or other comparable benefits. There is no requirement in the statute that projects provide benefits in each of the specified areas, but rather that the collective benefits from the project be significant.

Table 28.1 Summary of Tangible Benefits from the Bingham Wind Project

Value	Benefit
$400,000,000	Approximate Total Capital Investment
$6,858,000	Cumulative Annual Community Benefits (See 28.2.3), equivalent to $5,530 per turbine per year
$42,000,000	Cumulative Property Taxes (See 28.2.4)
$145,000,000	Est. Construction/Supply Chain Spending in Maine (See 28.2.5) Of this total, approximately $34,000,000 is Supply Chain Wages
350 jobs	Est. Direct, Full-time Construction Jobs (See 28.2.5)
95 jobs	Est. Maine-based firms the Applicants will utilize to build the project, based on supply chain of First Wind's 5 previous Maine wind farms
$600,000	Cumulative Annual Tangible Benefit to Somerset Economic Development Corporation
$200,000	Cumulative Annual Tangible Benefit to Moose Alley Riders ATV club
$200,000	Cumulative Annual Tangible Benefit to New England Mountain Bike Association
$200,000	Cumulative Annual Tangible Benefit to Valley Riders (Snowmobile)
228,100	Approximate tonnage of CO2 avoided annually from 551,000 megawatt hours of clean, wind energy (See 28.3)

Tangible benefits from the project will extend from the communities in the project area to businesses and contractors throughout the state, to ratepayers in the state and region. Locally, the benefits manifest in the form of new landowner income, community benefit agreements and economic development, and support of local recreation clubs and environmental non-profits.

Regionally, economic development will result from the significant portion of total capital investment, estimated at $145 million, dedicated to Maine-based contractors, employment, and supply chain. Finally, ratepayers across the state and the region realize the benefit of added wind energy capacity in the form of predictable, long-term wholesale contracts delinked from volatile markets and demand for fossil fuels, and the downward pressure on rates resulting from the introduction of new renewable energy sources.

The most significant environmental benefit is the generation of electricity without pollution and emissions that result from conventional fossil fuel sources, a characteristic of wind energy consistent with the Maine Renewable Portfolio Standard (RPS). Clean air is especially important in Maine, whose residents manifest some of the highest rates of asthma in the U.S..[1] Wind energy can reduce both carbon dioxide and criteria pollutant emissions because the Independent Operator of New England (ISO-NE) backs down more expensive, fossil-fueled generators when wind facilities are online..[2] (Note: The potential economic impact of wind energy on public health is quantified by London Economics in Table 28.2 per the field "Annual Emissions Reductions").

28.2 ECONOMIC BENEFITS

28.2.1 General Economic Benefits

The economic benefits of wind energy development in Maine and New England are well documented. Charles Colgan of the University of Southern Maine has provided a retroactive review of the economic impacts of three utility-scale projects built and now operating in Maine. His research showed $222 million in-state investment from 3 projects – about $860,000 per megawatt (MW) installed – and an average of nearly 250 jobs created or supported annually for 7 continuous years. Other research from London Economics International (LEI), at the direction of the Maine Public Utilities Commission (MPUC), has projected future economic impacts for an estimated 625 MW of new wind capacity in Maine. LEI chose to model 625 MW as it reflected a rough estimate of the near-term build-out of wind power in Maine. In order to meet RPS requirements across New England by 2020, 5 to 7 times that amount of wind power (or its equivalent) will be needed, according to ISO-New England. A summary of their analysis for 625 MW of new wind capacity additions in Maine follows.

[1] Maine Division of Population Health
http://www.maine.gov/dhhs/mecdc/population-health/mat/asthma-information/asthma-in-maine.htm
[2] Direct Testimony of Abigail Krich, on behalf of Conservation Law Foundation, Development Permit DP 4889

Table 28.2 Summary of Maine Benefits[3]

$1,140,000	Increase in Gross State Product (GSP)
$560,000,000	In-state Spending and Investment
11,700 jobs	Increase in Local Jobs
$6,300,000	Annual Tax Revenue
$4,300,000	Annual Savings to Maine ratepayers from reduced electricity prices
$13,000,000	Annual Emissions Reductions

Assumes 625 MW wind built with a capital cost of $2,563/KW

The following subsections describe specific tangible and economic benefits associated with the project.

28.2.2 New Income for Landowners

The project provides a new source of long-term income and direct economic benefit to the local landowners participating in the project through land leases, fee acquisitions, and easements. The estimated economic value of land leases over the life of the project, assuming a 20-year project life, will be approximately $40 million. Additional income from the project to the landowners will also be a stable source of "multiplier" spending in the region.

The project allows landowners to capture economic benefits without disruption to existing land uses, which throughout the project area is primarily logging. Income from the project will supplement, not displace, what landowners typically earn from logging and other traditional uses of their property. Amid broader and uncertain economic and market conditions, this stable and diversified income stream for landowners can help preserve forestry, recreational, and other traditional uses.

28.2.3 Community Benefits Package

Community outreach and support is woven into First Wind's development strategy and operations platform. As long-term owner-operators of the projects developed, First Wind understands the value of community support and continuously strives to cultivate positive community relations. First Wind is proud that wind projects often become a symbol of local clean energy leadership, and First Wind, through its multiple projects, including the one proposed by the Applicants, seeks to help communities utilize projects for educational purposes and as examples of environmental stewardship.

Turbines associated with the project are located in the Bingham, Mayfield Township, and Kingsbury Plantation, in Somerset and Piscataquis Counties. The generator lead extends into the Towns of Parkman and Abbot, and there are minor upgrades proposed to a pre-existing road in Moscow. The region has limited means for economic development. In 2011, Somerset ranked 14th among Maine's 16 counties for per capital personal income ($31,538), 18 percent

[3] See London Economics International LLC MPUC RPS Report 2011-Review of RPS Requirements and Compliance in Maine at 19.

below the state average..[4] In addition to creating a new source of tax revenue, the project has signed Community Benefit Agreements that collectively exceed the statutory criteria by 40 percent of that required..[5]

Town of Bingham
$106,000 annually, payable to the Town of Bingham pursuant to a Community Benefit Agreement, that can be used at the Town's discretion for public purposes such as lowering taxes or, if deemed necessary, investment in municipal assets and/or services (Exhibit 28A)..[6] Bingham voted 45 for versus 28 against to accept this agreement at a Town Meeting on March 3, 2011.

Town of Abbot
$20,000 annually, payable to the Town of Abbot pursuant to a Community Benefit Agreement, that can be used at the Town's discretion for public purposes such as lowering taxes or, if deemed necessary, investment in municipal assets and/or services (Exhibit 28A). Abbott voted 28 for versus 8 against to accept this agreement at a Town Meeting on February 2, 2013.

Town of Parkman
$20,000 annually, payable to the Town of Parkman pursuant to a Community Benefit Agreement, that can be used at the Town's discretion for public purposes such as lowering taxes or, if deemed necessary, investment in municipal assets and/or services (Exhibit 28A). Parkman voted 43 for versus 9 against to accept this agreement at a Town Meeting on February 25, 2013.

Town of Moscow
$20,000 annually, payable to the Town of Moscow pursuant to a Community Benefit Agreement, that can be used at the Town's discretion for public purposes such as lowering taxes or, if deemed necessary, investment in municipal assets and/or services (Exhibit 28A). Moscow voted to accept this agreement at a Town Meeting on November 15, 2012.

Kingsbury Plantation
$176,000 annually, payable to Kingsbury Plantation pursuant to a Community Benefit Agreement, that can be used at the Towns' discretion for public purposes such as lowering taxes or, if deemed necessary, investment in municipal assets and/or services Exhibit 28A). Kingsbury voted 13 for versus 1 against to accept this agreement at a Town Meeting on December 15, 2012.

[4] U.S. Department of Commerce, Bureau of Economic Analysis Regional Fact Sheets
[5] $5,530 per turbine in signed agreements vs. $4,000 per turbine statutory requirement
[6] Community Benefit Agreements for the Towns of Abbot and Parkman have not been fully executed as of this submission. The residents of both towns have overwhelmingly voted in support of the agreements and signatures are pending. Copies of the unexecuted versions are included with this filing. Mayfield Township did not vote to accept a community benefit agreement, because they are an unorganized Town and have no voters.

Table 28.2.3 Community Benefit Agreements

Annual Value	Approximate Cumulative Value	Counter-party
$106,900	**$2,138,000**	Town of Bingham
$20,000	**$400,000**	Town of Abbot
$20,000	**$400,000**	Town of Parkman
$20,000	**$400,000**	Town of Moscow
$176,000	**$3,520,000**	Kingsbury Plantation
$342,900	**$6,858,000**	Total for Bingham Project assuming a 20-year project life
$5,530		Total per turbine

28.2.4 .Other Community and Resource-Based Tangible Benefits

Somerset Economic Development Corporation
$30,000 annually, pursuant to a Tangible Benefit Agreement, for use in economic development projects and initiatives in the areas designated in the Agreement (Exhibit 28B).

Moose Alley Riders (ATV)
$10,000 annually, pursuant to a Tangible Benefit Agreement, to maintain trails, repair rail bridges and perform stormwater management activities, all of which are to occur exclusively within the State of Maine (Exhibit 28B).

New England Mountain Bike Association
$10,000 annually, pursuant to a Tangible Benefit Agreement, to maintain trails, repair trail bridges, and perform stormwater management activities, all of which are to occur exclusively within the State of Maine (Exhibit 28B).

Valley Riders
$10,000 annually, pursuant to a Tangible Benefit Agreement, to maintain trails, repair trail bridges, and perform stormwater management activities, all of which are to occur exclusively within the State of Maine (Exhibit 28B).

Table 28.2.4 Other Community and Resource-Based Tangible Benefits

Annual Value	Approximate Cumulative Value	Counter-party
$30,000	**$600,000**	Somerset Economic Development Corporation
$10,000	**$200,000**	Moose Alley Riders (ATV)
$10,000	**$200,000**	NEMBA-New England Mountain Bike Association
$10,000	**$200,000**	Valley Riders (Snowmobile)
$60,000	**$1,200,000**	Total additional tangible benefits for the Bingham Project assuming a 20-year project life
$968.00		Total per turbine

In addition to tax payments and Community Benefit Agreements, the project's host communities will become eligible for First Wind's traditional community outreach programs and support, including:

- *Direct support:* All First Wind operating projects have a budget to be responsive to charitable needs and requests from the immediate community.
- *Sponsorships of community events:* First Wind provides sponsorships for local civic organizations, environmental groups, and events.
- *Corporate scholarship program:* College-bound high school students living in the vicinity of First Wind operating projects are eligible to apply to a corporate scholarship program. One student from each project operating area is selected for a one-time $3,000 scholarship; and one student from the entire applicant pool is selected for a 4-year, $5,000 scholarship ($20,000 total). Since the program began in 2010, 43 scholarships totaling $180,000 in awards, including 10 scholarships totaling $47,000 for Maine awardees.
- *Outreach to local schools:* First Wind has a strong track record of participating in local science and technology curriculum, and making wind projects available for tours (subject to operating schedules and constraints).

28.2.5 Property Taxes

The large investment in a wind power project can result in a dramatic increase in real property value, and typically has the corresponding effect of substantially increasing the local property tax base, thereby reducing taxes for other parties. While the on-site capital investments required for the project will provide significant taxable property value, the project will put minimal demands on local and municipal services, resulting in a meaningful net tax benefit for local, county, and state. The Applicants estimate that the project will contribute average annualized property tax revenue totaling $2.1 million (taking into account the Bingham Tax Increment Financing).

28.2.6 Employment and Supply Chain

Wind power projects like this one represent significant investment opportunities for host communities and the state during what has been an otherwise economically challenging period (Exhibit 28C). According to the Maine Renewable Energy Association: "wind energy projects in Maine, totaling $950 million, already have brought more than $378 million to Maine in job creation, wages, taxes, land conservation programs, and support for basic infrastructure such as ports, engineering and environmental firms, and transportation companies."[7]

A significant portion of the project's estimated $400 million capital expenditures will be spent on non-turbine supplies, engineering and consulting services, and construction-related activities, many of which can be provided by Maine-based businesses, contractors and suppliers. Research by Charles Colgan, PhD, at the Maine Center for Business and Economic Research

[7] http://www.windforme.org/economy.htm

at the University of Southern Maine, estimates the direct in-state economic impacts of wind energy development and construction to be $863,813 per MW of capacity installed.[8] That total includes $681,813 attributable to Maine-based goods, supplies, and services. The balance, $182,000 per MW, is paid as wages to Maine workers. If similar levels of in-state investment are achieved, the project could result in a $160 million supply chain opportunity for Maine-based contractors, firms, and workers during the construction phase alone. This is consistent with First Wind's internal estimate for the project of $145 million in expenditures on Maine-based contracting, services and labor. Historically, First Wind has utilized more than 300 Maine-based businesses (gross) to build wind projects in Maine; the project is yet another opportunity for these firms and others to engage with and benefit from Maine's growing clean energy industry.

The general contractor is expected to subcontract with local businesses for activities like concrete supply, civil and electrical work, and tree-clearing. The construction activity will provide an economic boost to ancillary businesses in the project area that support construction such as lodging, restaurants, and fuel stations. New income for local subcontractors, suppliers and workers will also be a source of "multiplier" spending in the region during construction.

Construction-related jobs are a major component of the project's potential economic benefits. In total, more than 1,000 Maine-based workers have worked on First Wind projects at Mars Hill, Stetson, Stetson II, Rollins, and Bull Hill. The project will hire locally whenever possible, providing construction, operations, and maintenance employment opportunities to residents in the area. Based on First Wind's experience developing and constructing facilities for similar projects in Maine, development and construction of the proposed project is estimated to require the direct labor of approximately 350 full-time equivalent jobs. The cumulative wages paid in Maine for project labor is estimated to be $34 million.[9] Following the construction phase, First Wind anticipates a staffing plan of 6 to 10 permanent employees to operate and maintain the facility, including on-site staff of the turbine manufacturer. Finally, First Wind directly and continuously employs 20+ Maine-based employees at Maine offices to support ongoing development, project management, and operations of both operating and proposed wind facilities.

The cumulative effect of the above impacts is enhanced economic stability for the local, regional, and statewide economy. Although the exact amounts of direct and indirect economic benefits of the project may be difficult to predict, the historical spending and investment associated with the development and construction of First Wind's other Maine projects are evidence of the tangible economic benefits that can be expected from this project. To date, First Wind has spent over $150 million with more than 300 Maine-based businesses, and employed over 1,000 workers to build 5 operating projects. Exhibit 28D further demonstrates the breadth and geographical reach of Maine-based businesses that were engaged during the development and construction stages of a single project, Stetson Wind I. Contractors throughout the state from Fryeburg to Presque Isle, consultants with offices throughout the

[8] The Employment Impacts of Wind Power Development in Maine 2003-2010; Charles Colgan, PhD; Maine Center for Business and Economic Research; University of Southern Maine.
[9] Approximately $182,000 per MW; The Employment Impacts of Wind Power Development in Maine 2003-2010; Charles Colgan, PhD; Maine Center for Business and Economic Research; University of Southern Maine.

state, and local businesses in the Lincoln and Danforth area all benefited from these project expenditures. Notably, in addition to working on wind projects in Maine, a number of companies are leveraging their Maine experience and expertise to win and perform wind farm related contracts out of state, which is a significant achievement for this growing Maine industry.

28.2.7 Ratepayer Benefits

The addition of new power generation facilities in Maine will likely exert a downward pressure on electricity prices. Abigail Krich, on behalf of the Conservation Law Foundation, expressed the concept in this way: "Wind has almost no marginal cost for producing electricity once it is built so it typically acts as a price-taker in the wholesale electricity markets. Price-taking energy, like wind, displaces more expensive energy in the markets, helping keep power prices low."[10] Krich noted that a 2011 Economic Study by ISO-NE estimates the price-savings could amount to approximately $108 per MW hour of wind energy.[11] With the project production estimates, the estimated cost savings would be $60,083,964 annually. The low and predictable marginal cost of wind energy supply was one of the factors, which led the MPUC to approve a Power Purchase Agreement between First Wind's Rollins Wind project and the Central Maine Power Company/Bangor-Hydro Electric, pursuant to a request for proposals designed to "obtain contracts that would be beneficial in terms of lower and/or more stable electricity rates."[12]

Furthermore, RPS are designed to diversify the electricity supply portfolio, stabilize rates, increase energy security, improve environmental quality, invigorate the clean energy industry, and promote economic development. ISO-NE determined that up to 12,000 MW of wind could be integrated into the grid without the need for additional electrical storage.[13] Further, no new power plants would be needed to balance the additional variations expected from up to 12,000 MW of wind energy in New England.[14] The Maine Legislature has reaffirmed its support for the Maine RPS in recent sessions. The combined effect of the RPS requirements throughout New England is an increasing regional demand for renewable energy that far exceeds the currently available and qualifying supply. This project is estimated to provide an approximate average output of 556,333 MW hours per year, and thereby provide an important contribution toward achieving the policy objectives of the Maine RPS law. In aggregate, First Wind's Maine projects generated 425,990 MW hours in 2012, enough to power 68,136 average Maine homes.

[10] Pre-Filed Direct Testimony of Abigail Krich, on behalf of Conservation Law Foundation, Champlain Wind, LLC DEP Application #L-25800-24-25800-TE-B-N ("Krich Test.") at 2.
[11] Id.
[12] Maine Public Utilities Commission; 2009 Annual Report
[13] Krich Test. at 2.
[14] Krich Test. at 3 (citing *ISO New England Weekly Market Performance Reports, Week Ending March 3, 2013.)*

28.3 ENVIRONMENTAL BENEFITS

Electricity generated from wind energy produces no air or water pollution and displaces generation from more costly and polluting sources. Maine and the region have set aggressive greenhouse gas reduction goals to protect public health and quality of place. According to Mark Ishkanian, Board Member of the Maine Chapter of the American Lung Association, Maine has some of the nation's highest rates of asthma, and also a high proportion of elderly citizens, factors that make the population especially susceptible to air pollution..[15] State and regional experts, including ISO-New England, have concluded that Maine and the region cannot meet these greenhouse gas policy goals without significant additions of wind power and other renewable energy sources in Maine and elsewhere..[16]

As noted by Ms. Krich, "wind energy primarily displaces natural gas and oil and will displace increasing amounts of coal electricity as more wind is installed..[17] An ISO-NE study found that if 20 percent of New England's electricity were supplied by wind, it would reduce the region's electricity-related CO2 emissions by 25 percent, SO2 by 6 percent, and NOx by 26 percent. Specifically, the project could annually avoid an additional 228,100 tons of emitted CO2, as well as 231 tons of NOX and 783 tons of SO2. Installations of projects like the project will facilitate fossil fuel emission reductions.

28.4 CONCLUSION

The "environmental or economic improvements attributable to the construction, operation and maintenance" of the project constitute a significant tangible benefit under the Maine Wind Power Act. The collective impact of the construction-related employment, local purchase of materials, employment in operations and maintenance, annual property taxes, contributions to recreational groups, and community benefits described above, significant tangible benefits to the State of Maine, Somerset and Piscataquis Counties and the local jurisdictions not only meet, but exceed, the regulatory standards.

[15] Kennebec Journal OpEd by Mark Ishkanian.
[16] Krich Test at 2.
[17] Krich Test. at 17.

Exhibit 28A: Community Benefit Agreements

Town of Bingham

Town of Abbot

Town of Parkman

Town of Moscow

Kingsbury Plantation

Governor's Office of Policy and Management

Executive Department

PAUL R. LEPAGE
Governor

RICHARD W. ROSEN
Director

To: Daniel Courtemanch, Maine Department of Environmental Protection
From: Amanda Rector, State Economist
Date: June 17, 2013
Subject: Bingham Wind Project Review

Pursuant and subject to 38 M.R.S.A. §484, sub-§10, I am providing review comments regarding tangible benefits on the Bingham Wind Project application. This is not a legal opinion. Below are my comments based on review of the "tangible benefits" provisions from M.R.S.A. 35-A, Ch. 34-A.

Any permit application for an expedited wind energy development is required to include documentation of the following information:

1. Estimated jobs to be created statewide and in the host community or communities, as a result of construction, maintenance and operations of the project;
2. Estimated annual generation of wind energy;
3. Projected property tax payments;
4. A descriptions of the community benefits package, including but not limited to community benefit agreement payments, valued at no less than $4,000 per year per wind turbine, averaged over a 20-year period; and
5. Any other tangible benefits to be provided by the project.

The application submitted by Blue Sky West, LLC and Blue Sky West II, LLC, wholly owned subsidiaries of First Wind Energy, LLC, regarding the Bingham Wind Project does address each of these required pieces of information.

The tangible benefits described in the Bingham Wind Project application appear to meet the criteria established in 35-A M.R.S.A. §3454. The community benefits package exceeds the minimum statutory requirements.

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