



Dan Courtemanch, Project Manager
Bureau of Land and Water Quality
Maine Department of Environmental Protection
17 State House Station
Augusta, ME 04333-0017

Re: Response to Friends of Maine's Mountains Comments on Bingham Wind Project

Dear Dan:

The following information responds to comments regarding the Bingham Wind Project (the "Project") that were submitted to the Department by Friends of Maine's Mountains ("FMM") in a letter dated September 30, 2013, but that were provided to the Applicant in late December ("FMM Comments").

FMM's comments purport to be "fact-based and empirical" but in reality are unsupported by any identifiable technical expertise or reference to appropriate source material. FMM has no known expertise or experience in energy markets, project financing, project decommissioning, greenhouse gas emissions, or any of the other technical subjects on which it offers its analysis. Furthermore, FMM's comments lack citation to third-party sources, let alone sources that would be considered objective, credible or relevant. FMM states that their comments are based on "available data from objective sources like the US Energy Information Agency (EIA) and the Independent System Operator – New England (ISO-NE)," FMM Comments at 1, but its claims are tellingly lacking in citation to specific sources. By contrast, First Wind and its consultants have extensive expertise and experience in all facets of wind power development, and the responses below are supported by specific citation to credible, neutral sources as indicated.

I. ENVIRONMENTAL IMPACTS

FMM asserts that the environmental impacts will be massive. FMM Comments at 1. In fact, First Wind has taken care to avoid siting its projects, including this one, in areas of ecologically sensitive habitats. Additionally, with its contractors and the input of regulatory officials, First Wind has developed construction techniques that minimize the impacts associated with construction and operation of both wind turbines and associated electrical facilities. These techniques have proven successful in five First Wind projects in Maine. As a result, impacts associated with construction and operation of the Project have been minimized, and they are well within the level of disturbance allowed under the Site Law. Each of the topics identified by FMM as "big" impacts is addressed below. Because no specific issues were identified by FMM with respect to these topics, we generally reference where they are addressed in the Application and other record material.

Wildlife and habitat impacts are discussed in detail in Sections 1 and 7 of the Application. Additionally, the Applicant has worked cooperatively with Maine Inland Fish & Wildlife to develop

appropriate protocols for pre-construction surveys to assess the habitat and other features present in the Project area, and identify mitigation measures to reduce potential impacts to habitat and species. These are detailed in the Application and were the subject of numerous site visits and supplemental submissions following submission of the Application.

FMM's reference to landscape impacts does not include any specific objectionable impact, but rather just the distance of crane paths, roads, size of the turbine pads and amount of cut and fill associated with the Project. As noted above, construction techniques carefully developed for wind energy developments ensures that this type of activity can occur without significant adverse environmental impacts. Additionally, the majority of the Project area is used for commercial logging and many of the roads the Project will use are in place and used by the current landowner. All road construction will not only benefit that underlying activity, but will do so in a particularly environmentally sensitive manner.

FMM's reference to scenic impacts simply identifies resources in the area, but fails to acknowledge that many of those resources will not have any visibility of the Project and the remaining resources will have very limited visibility of the Project. The scenic impacts of the Project are detailed in Section 30 of the Application. As noted by the Department's third-party scenic expert, the lack of proximity to and visibility of the Project from scenic resources makes this "such a suitable location for a wind project." August 1, 2013 Review of the Bingham Wind Project Visual Impact Assessment Part I: Adequacy, at p. 42.

II. ECONOMIC IMPACTS AND ENVIRONMENTAL BENEFITS

FMM makes a number of arguments related to the impact of the Project on electrical rates and the more general energy and environmental benefits associated with wind energy development. FMM Comments at 2-4. The Wind Energy Act specifically requires the permitting agency to assume the energy and environmental benefits set forth in the Act. This was intentional and reflects the fact that environmental permitting agencies were not tasked with nor do they have the expertise to evaluate the energy and environmental impacts of various forms of energy generation. As a result, many of FMM's arguments concerning electrical rates and energy and environmental benefits associated with wind development are not only contrary to the facts, but are not relevant to criteria to be applied by the Department in connection with this Project. Nonetheless, and for informational purposes only, we are providing a response to some of the key issues raised by FMM on these topics. The Project's energy, environmental and economic impacts are discussed more fully in Section 28 of the Application.

FMM's argument rests on the fundamentally flawed premise that wind power projects impose significant economic costs on Maine citizens. The facts are to the contrary. For example, FMM argues that the Project will require significant upgrades to the electrical grid that will be paid for by ratepayers, and that these "costs" must be considered when evaluating net tangible benefits. FMM Comments at 2.

In fact, the developer, not the ratepayers, is paying for the generator lead line necessary to connect the Project to the grid as well as upgrades to the grid necessary to accommodate the Project's output.

FMM also suggests that there will be additional ratepayer costs because of the high cost of wind power. FMM Comments at 2. Even FMM acknowledges that the cost of wind power has fallen, although it erroneously asserts that wind power is "at best" double the market rate. *Id.* In fact, wind power is competitive, not just compared to other renewable resources, but compared to "market." See: [Wind power now competitive with conventional sources](#), *Boston Globe*, Sept 23, 2013. Wind power is cost-effective in a number of ways:

1. Because the cost of operating and generating wind power is delinked from commodity markets (oil, natural gas, etc.), prices with utilities/customers can be fixed and guaranteed with long term contracts (15-30 years).
2. While the PPA price paid by utilities/customers is cost competitive, wind power has the secondary effect of suppressing market clearing prices for wholesale power, which are based on real-time, relative variable/operating/marginal costs of generation throughout the supply stack.

**PROJECTED PRICE OF
ELECTRICITY BY SOURCE**

CENTS PER KILOWATT HOUR

Mass. wind power contracts
Average price until end of contract

Less than 8

SOURCE: The utilities

Figure: Boston Globe – Wind power now competitive with conventional sources

Note: Bingham is one of the projects included in this average

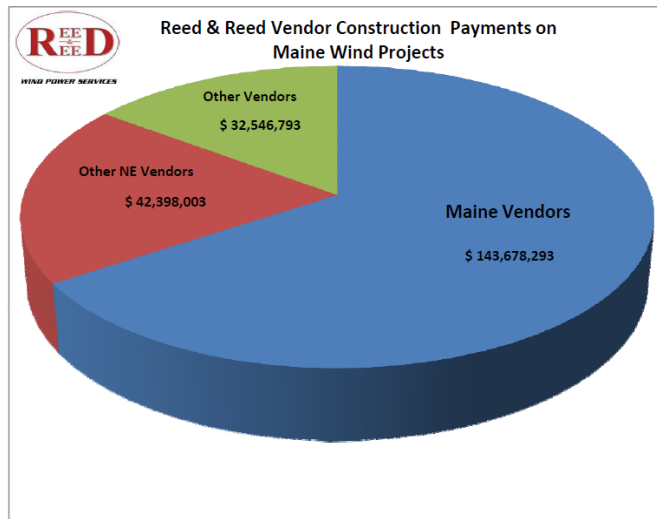
FMM also argues that there are significant "taxpayer" costs that must be considered when evaluating overall tangible benefits. FMM Comments at 2. Wind projects, like other forms of qualifying renewable energy generation sources, may be eligible for a tax credit – not government funded cash "appropriation" as critics would like to believe.¹ Although wind projects are eligible for

¹ The exception is the acceleration and discounting of tax credits as grants issued by the Department of Treasury during the American Recovery and Reinvestment Act of 2009.

certain tax credits, those credits are limited in scope and therefore over their life, wind projects are an asset to U.S. taxpayers. As a production tax credit mechanism, a project reduces government revenue only in comparison to the facility's full tax liability – that is: *not building the project* does not save taxpayer money. Tax credits are a common and effective mechanism for incentivizing private sector investment and extend well beyond the wind industry. Moreover, in addition to federal taxes, the Project will pay significant state and local taxes, including an estimated \$2.1 million in property taxes. See Section 28 of the Application.

FMM makes the curious claim that 8% of the Project's costs, or \$32 million, will be extracted from the Maine economy. FMM Comments at 2. There is absolutely no support for this statement, which appears to be based on a misunderstanding (or misrepresentation) of how transmission costs are paid for. Although other transmission costs, such as the costs of projects needed to maintain the reliability of the regional bulk transmission grid, may be socialized across New England with Maine ratepayers absorbing 8% of such qualifying costs, as noted above, the ratepayers are not paying for any of the generator lead or transmission upgrades necessary to accommodate the Bingham project. Under the ISO-NE interconnection process, all costs for upgrades necessary to interconnect a new generator are paid for by that generator. Moreover, contrary to FMM's erroneous assumption that costs are extracted from the Maine economy, in fact, the Project will inject money into the Maine economy through construction spending, an increase in local jobs, annual tax revenue, and savings to Maine ratepayers from reduced electrical prices. These figures are detailed in Section 28.2 of the Application and are supported by economic studies and analysis, not hypothetical and unsupported assertions.

Finally, Reed & Reed, a Maine-based general contractor that has worked on most major wind farms in the state, breaks down the proportion of Maine and non-Maine vendors in their subcontractor supply chain in the following diagram:

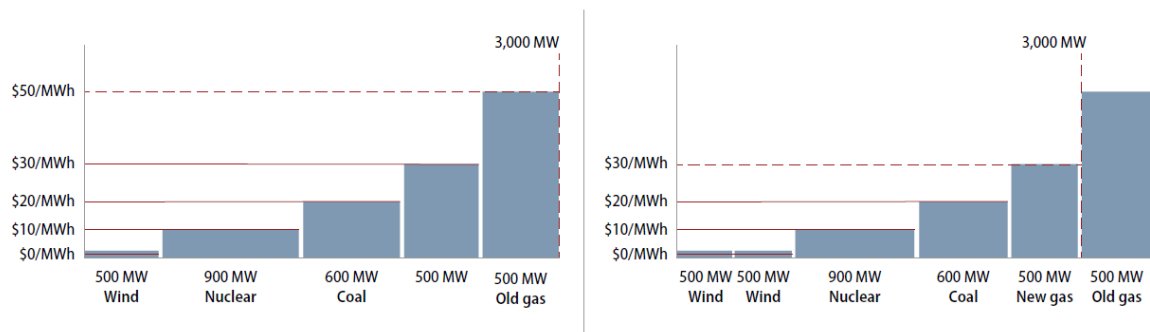


Their data shows that Maine vendors and suppliers have received direct payments of more than \$143 million based on construction of seven Maine projects. These are real dollars to real Maine people and have helped Maine citizens during dire economic times when there has been little other new economic investment in the state.

FMM’s arguments regarding the environmental benefits of wind power are also flawed. By way of background, wind is dispatched to the grid “as-available” in deregulated markets such as ISO-NE because the low marginal cost of generation gives wind capacity priority in the bid stack.

FIGURE 1
Adding more wind power reduces prices in electricity markets

In the first example (on the left), the market clearing price is \$50. In the second example (on the right), more wind pushes the most expensive plants out of the mix, and the clearing price is reduced to \$30.



Note: This is a hypothetical example for illustrative purposes and is not intended to represent any particular power system.

Figure: USCAP – Wind Power Helps to Lower Electricity Prices

The simple environmental equation is: when wind is “on,” it pushes more expensive generation – usually thermal fossil fuel facilities (in the above example, the “500 MW Old gas” plant) – off-line. In New England, the average CO₂e intensity of the electrical system is 834 lbs/MWh. So each megawatt-hour generated by a wind farm avoids (at least) 834 lbs of CO₂e emissions. These impacts add up. [EPA eGRID Subregion Emissions for Greenhouse Gases](#)

The U.S. Energy Information Administration cites penetration of wind energy as one of the “key drivers” for reduction in the energy sectors’ carbon intensity, even as the economy grows. [U.S. Energy Related Carbon Dioxide Emissions](#)

In addition to avoiding thermal emissions during generation, wind energy facilities require no physical fuel transport or supply lines, source emissions from excavation or drilling, water resources for operations, and do not contribute physical effluent to watersheds or particulate matter to the atmosphere.

While FMM dismisses the avoided emissions as insignificant when compared to emissions associated with for example, the transportation, industrial and commercial sectors, FMM Comments at 3, the avoided emissions are quantifiable, verifiable, and real. No one has argued that wind power will solve our most pressing environmental problems, but there is no dispute that wind power offsets emissions from other sources of energy generation. That is something that should be encouraged, not denigrated because it does not eliminate emissions associated with fossil-fuel based sources of energy generation or other industrial sectors.

III. PROJECT DECOMMISSIONING

The majority of FMM’s comments relate to decommissioning. FMM Comments at 5-11. FMM states that “abandoned turbines can have a catastrophic impact,” that failure to heed FMM’s warnings regarding decommissioning “will be catastrophic,” and that “inadequate decommissioning planning is at best irresponsible, and worst calamity.” FMM Comments at 5, 9, 11. This unsupported hyperbole is hardly the “critical thinking,” FMM Comments at 1, that FMM purports to provide with its comments, and it undermines their potential objectivity or credibility with respect to the issues they raise. When the hyperbole is stripped away, FMM’s comments essentially are as follows: The applicant has underestimated the costs of decommissioning and overestimated the salvage value of component parts; salvage values are difficult to predict; and, the risk that a project will require decommissioning by the state is significant. Each of these issues is addressed below.

A. The Decommissioning Costs and Salvage Values Are Well Supported

The decommissioning cost estimates were developed by a Maine consultant with significant experience with wind projects and information gathered from contractors with experience building wind projects in Maine. Application, Exhibit 29A: Decommissioning Budget (“Sewall Report”) at 1; August

20, 2013 Sewall Estimate for Vestas Turbines (“Sewall Vestas Report”) at 1; August 20, 2013 Sewall Estimate for Siemens Turbines (“Sewall Siemens Report”) at 1. The estimates are based on their professional judgment, which is informed by years of experience. Additionally, the budget reflects a contingency of 10% of the total cost as an additional measure of conservatism. Id. at 2.

By its own admission, FMM has no expertise in construction projects or decommissioning a wind energy project. It relies on two projects to support its assumption that decommissioning costs have been significantly underestimated. First, it cites to the cost in California to remove 100 kW turbines. The removal costs there – reportedly \$15,000-\$30,000 per turbine although no back-up support is provided for those numbers – are substantially less than the budgeted costs here. FMM’s apparent argument is that it may be reasonable to assume that the removal costs are approximately 10% of the erection costs. FMM Comments at 5. FMM does not provide any support for its assumption that decommissioning costs should be at least 10% of erection costs. Assuming, for the sake of argument, that it were a relevant benchmark, the budgeted removal costs here are substantially in excess of 10% of the erection costs, thereby meeting FMM’s own benchmark. Specifically, the cost of erecting the turbines is \$13 million, or \$209,677 per turbine. Application at Section 3.1. The budgeted removal and disposal costs for the foundations, turbines and met towers for the Siemens turbines are \$3,912,800, or \$63,109 per turbine, approximately 30% of the erection costs. Sewall Siemens Report at 3-5. Likewise, the budgeted removal and disposal costs for the foundations, turbines and met towers for the Vestas turbines are \$3,995,200, or \$64,438 per turbine, also approximately 30% of the erection costs. Sewall Vestas Report at 3-5.²

FMM also references the costs for removing turbines in Falmouth, Mass. and states that the decommissioning cost is \$2 million per turbine for that project, and the costs for the Bingham project should be in excess of that amount. FMM Comments at 6. In fact, the estimated costs for removing those turbines, as determined by the consultant hired by the town, was \$350,000 per turbine. See Town of Falmouth Massachusetts Wind Energy Facility Mitigation Analysis, prepared by Weston & Sampson, December 2011 (“Weston & Sampson Report”), at 2-2 (attached as Exhibit A).³ Moreover, that per turbine cost reflects a dismantling process designed to allow for the reuse of the turbine, Weston & Sampson Report at Sections 2 and 3, a process that is substantially more time consuming and expensive than a dismantling process in which the turbines are sold for scrap. The \$2 million figure cited by FMM reflects the cost to relocate and install and commission the turbines for use at an alternative site. Weston & Sampson Report at ES-1 and Table 3-1. The costs include, among other things, construction of new

² This comparison is based on the costs for erecting and removing and disposing of the foundation, turbines and met towers. It does not reflect other construction or decommissioning costs including, for example, costs associated with the generator lead and interconnection or new roads.

³ Elsewhere in the report the cost is identified as \$210,000 per turbine. Weston & Sampson Report at 3-3.

foundations (\$500,000 per turbine), electrical infrastructure improvements for the newly installed turbines (\$200,000 per turbine), wind turbine erection (\$350,000 per turbine), testing and re-commissioning of the turbines (\$150,000 per turbine), permitting, planning and design associated with the re-use of the turbines (\$200,000 per turbine), and a host of other costs none of which has any relevance to the decommissioning process that would be used in connection with the Bingham project. Id. Simply put, FMM's claim that the decommissioning cost for that project is \$2 million per turbine is wrong, and it reflects either a fundamental lack of understanding of the data or a deliberate attempt to mislead the Department.

FMM also argues that the Project has overstated the salvage value of the turbines and associated infrastructure that would be recouped in the event of decommissioning. FMM Comments at 7. This speculative assertion is based on "cursory research" that did not include any contact with actual scrap pricing sources. Id. In contrast to FMM's admitted lack of expertise in calculating salvage values, the Project's estimated salvage values were calculated by an independent consultant and reflect quoted prices from an actual scrap dealer in Maine. Sewall Vestas Report at 10; Sewall Siemens Report at 10. The Weston & Sampson Report apparently relied on by FMM acknowledges that any decommissioning costs could be offset by salvage value if the turbines could not be sold or re-used and, like Sewall, that report based the salvage value on the weight of steel (and other metals) in the turbine and components and quotes from regional scrap dealers. Weston & Sampson Report at ES-1 and 2-2 to 2-3. The salvage value used in the Falmouth report for steel was \$270 per ton, whereas the Sewall Reports assumed only \$230 per ton. FMM also erroneously claims that the salvage values are too high because they do not reflect the costs of transporting the scrap to the facility. FMM at 6 and 7. In fact, Sewall included a separate line item for the costs of transporting scrap to a reclamation site. Sewall Vestas Report and Sewall Siemens Report at Sections 4.2, 5.2, 6.2 and 7.2. The scrap prices and costs for preparing and transporting the scrap in the Sewall reports are consistent with the assumptions used in the Weston & Sampson Report.

Finally, FMM also claims that a "third party" evaluated the salvage value estimates used in the Beech Ridge Wind project and concluded that the developer there had overestimated salvage costs and, by implication, the costs here must also be overstated. FMM at 7. Once again, no data is provided. Instead, an undated letter by Tom Hewson that is not on his company letterhead is attached. FMM at 13. No supporting information on the assumptions used by the developer or Mr. Hewson is included, and it is unclear what relevance, if any, his comments have. While Mr. Hewson has testified in opposition to projects in Maine before, his testimony focused on power output, avoided emissions and transmission congestion. FMM has not provided any information on Mr. Hewson's qualifications, if any, to assess decommissioning costs or salvage values. Moreover, the two critical flaws identified by Mr. Hewson in connection with the Beech Ridge Wind project were the use of outdated scrap prices and the failure to take into account transportation costs. FMM Comments at 13. Neither of those flaws is present here. Mr. Hewson also notes that one developer failed to take into account the costs for crane rentals, an issue also not present here. Finally, it is worth noting that Mr. Hewson assumes a decommissioning cost of

\$97,000 per turbine, which is less than the per turbine cost used by Sewall in either of its reports, further undermining FMM's claims that the Project decommissioning costs have been underestimated.

B. The Difficulty in Predicting Future Scrap Values is Addressed

FMM's concerns about price volatility are also addressed. FMM Comments at 7. The decommissioning plan requires that assumptions both on decommissioning costs and salvage values be reassessed in Years 5, 10 and 15. Application at Section 29.3. This periodic true up eliminates the need to try to predict future scrap values.

C. The Risk to the State is Low

The sole reason developers are required to fund a decommissioning plan is to mitigate against the **risk** that the developer will not have the funds available to decommission the project when and if decommissioning is required. The funding requirements, however, should be commensurate with the risk that decommissioning will be required and the developer will not undertake that decommissioning. FMM asserts repeatedly and without substantiation that there is a significant risk not only that the Project will require decommissioning during its useful life, but also that the developer will not pay for such decommissioning (as would be required in its permit). FMM has not provided any support for its assumption that there is a high risk the Project will require decommissioning. To the contrary, with respect to its claims regarding what lenders might or might not do, FMM has absolutely no expertise. It is undisputed that as compared to other sources of energy generation, wind power is capital intensive for construction, but has among the lowest operating costs because it has no fuel costs. This means that there will be a strong economic incentive, for the operator (or a successor entity including a lender) to take reasonable measures to ensure the turbines continue to operate and generate power. The assumption that a lender lacks the expertise to take over and operate a project and therefore the Project will remain idle and scar the landscape reflects a lack of expertise in this area. Entities investing in wind energy projects are sophisticated. They have substantial expertise in valuing these types of assets. They will evaluate the revenue that would be generated from operation of the Project and take reasonable measures to either sell the asset or hire an expert to operate the asset for a period of time until it can be sold.

Finally, there are very few types of development in Maine that require a developer to fund a plan for decommissioning a project at the end of its useful life. The environmental and other risks associated with a wind power project are limited (notwithstanding FMM's hyperbole to the contrary), and the state has already adopted a very cautious and conservative approach by requiring developers to fully fund the decommissioning plan at the outset of project construction.