

Financial Impacts of Wind Turbines on Communities in Western Massachusetts

A closer look

By Lloyd Crawford 9/15/05

When considering local bylaws regulating wind turbine development, towns need to consider whether and to what degree they should be encouraged. The question of how much revenue they might generate for the town will be among the first issues raised. To determine this, there are many things a town with land suitable for commercial wind development needs to consider. Particular attention needs to be paid to long-term trends as well. This paper explores some of these factors and their implications.

Lloyd was an assessor for the Town of Hawley for 16 years. He currently chairs the Wind Study Committee and serves on the Planning Board and Conservation Commission.

Potential Revenues from wind farms

Laws relating to local taxation vary greatly from state to state. As no existing commercial wind farms exist yet in Massachusetts, the best we can do is look to the towns of Florida and Monroe where a tax agreement has been proposed for the wind project planned there. The Towns of Florida and Monroe expect to receive \$150,000-200,000 /year in property taxes initially¹ from the 30 MW project proposed there. In addition enXco will pay quarterly rent payments for land the Town of Florida owns upon which turbines will be sited amounting to 2.5% of gross revenues generated (in the neighborhood of \$7-8000/turbine²) or \$2812.50 whichever is greater³.

The long-term consequences of relying on this income, however, come with a substantial amount of risk relative to more traditional patterns of tax-base growth such as new home construction.

To understand this further it is necessary to understand a bit about the methodology for determining assessments:

Assessment of land in Massachusetts is required to reflect full and fair cash value. Properties are valued on the basis of their highest and best use.

Assessors utilize a combination of the following methods when determining assessments:

- a) Market – this compares subject property to similar properties which have been sold at “arms length”
- b) Replacement Cost New Less Depreciation
- c) Income – this method creates a value based upon what a potential investor would be willing to spend to get a rate of return that is reasonable for the investment and the level of risk involved.

As an alternative to assessing local real estate and/or personal property taxes on wind farms, Massachusetts’s laws allow for special Payment in Lieu of Tax (PIOLT) agreements between host communities and electric generation facility owners⁴. These agreements span a fixed period of time and must be approved by town meeting. Such agreements may alter the timing of payments or the total amount of payments relative to what would otherwise be paid as taxes. This would depend on what is mutually most beneficial from a cash-flow standpoint and to what degree each party accepts the inherent risks in estimating future revenues.

Ultimately, local revenues will be tied to the profitability of wind plants.

Factors that would influence the “bottom line” for wind farm owners include the following:

On one hand:

- 1) Should the price of competing sources of energy rise, the market value of the actual power produced would rise. This could be to the benefit of the host community from an assessment standpoint.

On the other hand:

- 2) Wind farms are only expected to generate on the order of 35-40% of their income from the actual sale of electricity. The remainder will come from the sale of Renewable Energy Credits (RECs) and from Production Tax Credits (PTC’s). RECs, essentially, are the rights to the attributes of the power as a renewable source. The market for RECs comes from Renewable Portfolio Standards (RPS) which are mandates from most states in the region that utilities generate targeted percentages of their future generating capacity from renewable sources. Income generating capacity of wind plants could

¹ January 13, 2005. North Adams Transcript

² my calculation – assumes capacity factor close to national average, revenues from power contracts and sale of RECs equal to .08/kwh

³ Masslandrecords.com Agreement between Enxco and Town of Florida

⁴ Valuation and Taxation of Electric Generating Property. Massachusetts DOR, Bureau of Local Assessment IGR No. 98-403 9/98

severely be reduced should the market value of Renewable Energy Credits fall. In the short run, the Massachusetts Technological Collaborative (largely funded by the Renewable Energy Charge on your electric bill) is willing to enter into agreements to purchase these credits at prices exceeding their market value, however, no price guarantees exist beyond this period. At the point when PTCs expire after 10 years of operation, net operating revenues will decline. (These currently come in the form of tax credits equal to 1.9 cents per kwh generated). Maintenance costs will rise as the turbines age. *This could result in wind plants becoming unprofitable to operate before they wear out which would mean that assessments would necessarily fall dramatically.*

- 3) The worst-case scenario is financial insolvency on the part of the owner resulting in the inability to pay at all. Due to the newness of the technology, the turbulence in energy markets, the threat of Enron-style corporate accounting schemes, this is a risk which needs to be taken seriously.
- 4) As facilities age, they will experience more depreciation resulting in declining valuations.

The future valuation of all property in town needs to be factored into the equation as well.

Purely from a town's financial perspective, building a wind farm will have these consequences:

On the plus side:

1) Land under the wind facility will rise in value and thus generate more taxes, as it will be generating rent for the owner that would otherwise not be gotten. *See Example #1 below.* Other land in town, which has potential for wind development, will rise if it was determined from an economic standpoint that wind development would be its "highest and best use". The affect of this will be to eventually increase the taxes on landowners that have such land. This, in turn, will put pressure on them to lease/sell it to wind developers in much the same way that rising house lot values pressure farmers to subdivide when they can no longer afford to pay the taxes. In turn, this will produce more taxes for the town.

On the negative side:

- 2) Residences, which will be impacted by impairment of view, will fall in value.
- 3) Residences, which will be impacted by noise, will fall in value.
- 4) Land close to turbines will not be useable for residential construction due to poor market perception and zoning setbacks which relate to noise issues. Undeveloped land that is currently located within this zone couldn't be considered as potentially developable and thus could no longer be taxed as such.
- 5) More distant undeveloped "view lots" will decrease in value depending upon distance and relative significance of turbines to the perceived quality of the view.
- 6) The relative amount of new construction by persons who have the greatest ability to choose where they live will fall. This group includes retirees and second homeowners who usually contribute more to communities in the form of taxes than they take away in the form of services provided. As they spend dollars locally that were earned elsewhere, they contribute in a major way to local economies.
- 7) Persons who perceive that their property values will fall will be less inclined to invest in their properties, which will inevitably lead to lower assessments in the long run.

Objective information quantifying the effects of the above does not exist. A study entitled "The Effect of Wind Development on Local Property Values" was produced in 2003 by the Renewable Energy Policy Project – a wind industry sponsored group. Predictably, the report concluded "The statistical analysis of all property sales in the view shed and the comparable community done for this Report provides no evidence that wind development has harmed property values within the view shed". View shed was defined as all properties within a 5-mile radius *regardless of whether the wind turbines were visible* from the sale properties analyzed. No attempt was made to isolate and analyze sales data within a smaller area or analyze property sales data over the actual view shed, a flaw the report itself acknowledges.

Numerous factors will determine the extent of these impacts, including but not limited to topography, proximity of turbines to potentially affected lots, demographics and existing neighborhood conditions.

To get a handle on the magnitude of the tax impacts of these negative consequences, it quickly becomes apparent that the total assessed value of residential property in the community becomes a large factor. Very small declines

in property values would severely affect the net benefit to a town. See Example#2 below:

In reality, values would not drop uniformly across the board. View properties, vacation homes, estates, etc. would likely see the largest drops. Homes in congested areas, along busy highways or otherwise out of sight (or out of earshot) of a wind farm may not decline in value at all. Were this to occur, the tax burden would shift towards the latter class of properties.

A potential source of major conflict lies in the fact that due to the size of these projects, it is likely that many of these negative consequences will occur in adjacent towns that will not have voice in the siting process nor be in a position to benefit from the taxes generated.

Example #1:

Using the Income approach (Income = Rate of return x Value), to value for a property that has 7 operating 1.5 MW turbines situated along a forested ridge unsuitable for housing development, the land owner could expect something in the neighborhood of \$40,000 year in rent⁵. An investor seeking an 8% return on an investment of this kind would thus be willing to pay \$500,000 more for such a property than they would for the exact same property without income potential from turbines. Thus the taxable value of the property would rise accordingly.

Example #2

Compare the towns of Savoy and Lenox for instance. The total assessed value of residential property in FY 2005 for Lenox was \$763,203,237. In Savoy, it was \$49,410,065⁶.

Let's look at the same hypothetical project as in example #1 (which is about 1/3 the size of the one proposed for Florida/Monroe). Let's assume that the towns desire to keep the level of services constant, and for the sake of comparing "apples to apples" the current tax rate is \$20/thousand and that town officials do not want it to rise. Were a deal comparable to the one proposed for the project in Florida/Monroe negotiated with a commercial wind developer, these towns might expect to receive something like \$60,000 year initially in extra taxes/payments. *Were residential properties to fall in value* relative to what they would have otherwise been (for reasons 2-7 above) *by only .4% in Lenox, the revenue from the wind plant would be completely wiped out* by the loss in revenues from taxes on residential property. In the case of Savoy a drop in residential values of 6% would negate the benefits from this hypothetical plant. *Should the revenues from the wind plant fall in subsequent years (for the reasons mentioned above), these percentages would become even smaller.*

To conclude, communities need analyze all aspects of property valuation before arriving at a conclusion that wind farms will benefit them financially. Sensitivity towards impacts on neighboring towns will be required.

⁵ Based on a 2.5% of gross receipts rent agreement (see Masslandrecords.com Agreement between Enxco and Town of Florida)

2.5% of 1.5MW per turbine x 24hrs in a day x 365 days in a year x 1000 kilowatts to the megawatt x capacity factor of .27 x 7 turbines x 8 cents per kWh turbines works out to \$49669 rent per year.

⁶ Mass DOR DLS Municipal Data Bank