

# Industrial Wind Farms, Economic Development, and Land Use: What Planners Need to Know

Kate McCarthy and Eric VanderMaas  
Department of City and Regional Planning, Cornell University

## Introduction

Planners, economic development professionals, and local officials<sup>1</sup> find themselves at the center of discussions about industrial wind farms because these developments have both economic development potential and major land use impacts. For some towns, hosting a wind farm may be an exciting opportunity for economic growth and “green” industry. However, as countless newspaper articles, websites, and town meetings have revealed, these projects can tear at the very fabric of towns whose sense of community is their greatest source of pride.

Federal subsidies, increasing awareness about climate change, and states’ promotion of energy production with renewable portfolio standards mean that the issue of industrial wind will remain important for years to come (U.S. Department of Energy 2009). Because of this, planners need to answer two questions: First, how do wind farms contribute to local economic development? Second, what are the implications for planners and local officials, who must “re-tool” to manage the wind development process? To answer these questions, we will define “industrial scale” wind farms, explore how they promote local economic development, and then suggest actions to manage wind development at the local level. We will close by questioning how local economic development and land use decisions might change in the future. Our paper uses interviews and research from upstate New York, a busy site for wind development.

## The basics of industrial wind

Planners are being called upon to manage all types of wind development - small wind, community wind, and industrial scale wind farms - but this brief focuses on industrial scale wind power. These “farms” can range from a few, to hundreds of turbines, and produce power that is sold to a utility company and distributed via the electrical grid (American Wind Energy Association, 2010). A wind farm’s classification as “industrial” depends on the size of the turbines and how much power they are rated to produce; generally including turbines with generation capacities over 1MW. Many sleek-looking models stand over 400 feet tall from their concrete base to the blade tip. Wind companies usually lease land from private landowners rather than buying it, with leases typically lasting from 20 to 30 years. Negotiating these leases can be a challenging situation for private landowners and planners, who may be unfamiliar with negotiating such

contracts. The lack of knowledge can leave many issues unaddressed. For example, who is responsible to decommission and remove the turbines upon project termination (Barton 2009)?

Common concerns about industrial scale wind include noise, the “flicker” from spinning blades’ shadows, ice throw, bird and bat fatalities, and visual impacts. Careful siting of turbines minimizes some of these problems, but they remain important questions for residents. Because of this, some states have created model wind ordinances, and many localities have tailored plans and ordinances that address local concerns related to wind development.

In the wind development process, there are companies – we call them “wind developers” – who liaise with large wind energy companies to orchestrate wind farm installation, much like a general contractor. Developers assemble land leases, obtain permits, and purchase and install the turbines. Because the energy companies who manage the farms are often multi-national firms (Aeon, First Wind, and Gamesa, for example), wind developers represent a bridge between a global industry (turbine manufacturing and energy) and local projects (wind farms). A global wind energy market means that developers must compete against other developers for turbines. In addition, they must install the turbines in time to fill their reserved (and contracted) space on the electrical grid, and face penalties if they fail to meet the reserved capacity. These factors combine to make industrial wind development risky even without the local approval processes that can stall a project or tie it up in litigation.

For town officials - many of whom are volunteers - this development process consumes substantial time and resources during negotiation, permitting and buildout. Equally challenging, local officials have the role of balancing the rights of private land owners with broader, larger community goals. They must consider whether these efforts are worthwhile for the payments, leases, and jobs the development will bring.

## **Economic development I: taxes, PILOTs, HCAs, land leases**

### **Alternatives to the property tax**

Like other types of development, a wind farm increases the land valuation where it is built, yielding a high property tax assessment (Reynolds 2009, Isamann 2009). This benefits the local tax rolls but some developers say it makes building cost-prohibitive (Reynolds 2009). New York’s real property tax law, §487, tries to make it less cost-prohibitive by providing a generous 15-year shelter from real property taxes for industrial wind installations (New York State: Office of Real Property Services 2010).<sup>ii</sup>

In addition, in New York, towns, developers, and county Industrial Development Agencies (IDAs) can utilize two financial tools to compensate towns. The first is the Payment in Lieu of Taxes (PILOT),

made by the developer to the town. These payments start off small at the beginning and grow as the project becomes profitable. Like taxes collected by a local government, PILOT revenue is split, by formula, among the different public services (schools, special service districts) and governments (town, county). This can be problematic if the local government's share represents the smallest percentage of the formula, since it may not cover the time and money spent during the wind development review process.

In New York, the county's Industrial Development Agency (a private benefit corporation independent of local government, charged with promoting economic development) is empowered to negotiate PILOTs with the developer, separate from the local government. While the intention of this arrangement aims to assist economic development, it means that the locality earns less since the PILOT payment is lower than a standard property tax assessment. So, while a PILOT payment may be better than no tax revenue at all, its negotiation by the IDA limits local power over the revenue benefits of development (Hevesi 2006).

To balance the PILOT payments, which start small, some municipalities negotiate a "Host Community Agreement" (HCA). With the HCA, the developer makes payments up front directly to the municipality. In contrast to the PILOT, the payment amounts decrease over time. This arrangement allows the town to cover its up-front development-related costs.

### **Land Leases**

The leases that developers sign with landowners can be very lucrative and generally leave the land available for continued farming. While profitable, landowners may find themselves in the same position as the local government: having to accept a negotiation without much knowledge of their land's worth as an industrial wind site, since it is likely a new use. Increased landowner knowledge may help to bolster the bargaining power of communities as they develop an understanding of wind development and the regional market for it (Tegen 2008).

## **Economic development II: employment**

### **Local and international jobs**

The most important question for economic developers is how many jobs wind farms create. Per unit of energy, the construction, manufacturing and installation processes needed to create a wind facility produce more jobs than coal and gas facilities (Kammen, Kapadia and Fripp 2004).<sup>iii</sup> However, the bulk of jobs lie in turbine manufacturing, much of which takes place outside the U.S. (Kammen, Kapadia and Fripp 2004). The challenges to establishing wind manufacturing in the U.S. are twofold: first, it is significantly less expensive to manufacture overseas, and second, the U.S. has been inconsistent with its incentive

programs (i.e. the Renewable Energy Production Tax Credit) and energy policy (Tankersly 2010). As wind development continues to grow in importance, debates about whether to provide subsidies to international conglomerates manufacturing wind turbine parts outside the U.S., will continue (Chipman and Duce, Bar Funds for China-Backed Wind Farm, Senator Says (Update 1) 2009).<sup>iv</sup>

Locally, most hiring comes from the 12-18 month construction phase. After that, operation and maintenance creates a permanent job for every ten to twenty installed turbines (Hunt 2009). The exact number of jobs and required training varies with technology and location, but the limited manufacture of turbine parts in the U.S. means that job creation potential of wind power is not being fully realized (Tankersly 2010).

### **Wind compared to other development types**

Compared to other economic development like regional retail, industrial wind farms are different in two main ways. First, when a leading retail store expresses interest in a community, it often generates additional store development – a very visible type of growth. Wind farms do not share this trait: they generally do not attract additional wind farms. Second, wind farms generate almost no sales tax revenue (multiplier effects from local employment aside). There may be tax on the electricity consumed, but wind farm presence does not necessarily affect regional electricity usage.

Wind may be a good economic development strategy for some towns, but it has limitations. Wind installations are not generators of growth like regional retail, and the jobs during construction are limited, even if they are filled by local residents. Ongoing operations and maintenance jobs provide some benefits, but perhaps fewer than touted. However, PILOTS, HCAs, and leases can benefit a town's coffers, as well as individual property owners, and wind installations do create more jobs than a comparable non-renewable plants (Kammen, Kapadia and Fripp 2004). These benefits need to be balanced directly with the shared positive and negative externalities (advancing renewable energy, possibility of a reduced property tax rate, viewshed, community concerns) and the opportunity cost(s) of occupying land with turbines. The benefits take on greater importance in rural areas that lack other economic development opportunities – wind might look pretty good. Marketing information from wind companies can also obscure the actual economic development benefits, making this a difficult decision. The balance sheet for each community will look different depending on their location and the other available economic development options.

### **Planning for wind development: now and later**

We conclude that while industrial wind energy has economic development potential, its benefits may be overstated. For many reasons, however, including state and national goals for alternative energy

production, the building of industrial scale wind farms will continue. With this in mind, what steps can help manage the wind development process? Given the current context – local review of energy siting decisions – we present four ideas, gleaned from research and interviews, to help public officials and planners manage wind development.

### **Four actions that help manage wind development**

*Work with community members early and often* – Discussing how (and if) wind fits in with a town’s future *before* a wind developer arrives allows people to have their questions answered and voice their concerns without having to “take sides” in the face of change. Assessing a community’s potential for development (i.e., windiness) can help determine the urgency of this work.

*Involve a neutral third party* – Including a knowledgeable third party can help engage residents in a conversation about wind, develop ordinances and, perhaps most importantly, help towns negotiate for the maximum benefit if they decide to permit development. An attorney can be a key player, but engineers, foresters, and mediators can also help.

*Gather information about the developer* – Wind developers take many different approaches to negotiation, working with communities, and dealing with environmental and conservation issues. Because of this, it is essential to gather information about a wind developer’s previous projects. Looking at financial statements, talking with local officials where the developer has worked, and searching for newspaper articles are a few “due diligence” approaches that officials can take.

*Develop zoning and wind ordinances* – Many prime wind farm sites lie in towns without zoning or comprehensive plans. This gives landowners flexibility on how they use their land, but leaves towns without any way to regulate wind turbine siting or other industrial development. We strongly recommend that town officials spend the time and money to develop guidelines that reflect their town’s goals. A comprehensive plan, a zoning code, and/or a wind ordinance can define things like setbacks and bonding for decommissioning. This may be challenging in places that have not traditionally regulated land uses, but it is worth considering to manage development on this scale.

### **A possible future: centralization of siting decisions?**

Even as we consider how local planners and officials can manage industrial wind development, we need to ask a tough question: how long will energy siting decisions remain local? In New York, the complexity and costliness of the wind development process, along with the stated Renewable Energy Portfolio Standards, suggest that the state may be poised to increase its control over wind farm siting decisions. Lawsuits by developers represent companies’ frustration with the inefficiencies of some local

processes but at the same time, it is easy to understand why towns take their time. This is new, it is complex, and whatever the potential of wind, they want to proceed cautiously.

The now defunct legislation known as Article X, which streamlined and centralized permitting and review for energy plants over a certain size, is again being debated in New York. Specifically, suggestions to reduce the 80MW review threshold to 30MW would capture more wind projects (Assembly 2010). This could lead to efficiencies from centralized (state) permitting, but also less local control over the review and permitting processes.

Ostrow and Salkin, recognizing both the importance of wind energy and its externalities, suggest a model of “cooperative federalism” similar to the Telecommunications Act (TCA). A federal wind siting policy would set general parameters that serve overall energy goals, while leaving specific siting decisions to local governments (Ostrow and Salkin 2009). They suggest that, just as the TCA facilitated quick creation of a nationwide wireless communications network, a federal policy could encourage alternative energy production in a timely fashion.

If more states centralize approvals for industrial wind farms, our research about whether towns should pursue industrial wind as economic development may become moot. The new questions for economic developers will include, “How can towns with wind farms bargain for economic benefit when they have less control over the siting process?” “How can local expertise, vision, and needs be aligned with the goals of energy policy via centralized decision making?” and “Who bears the costs for any externalities caused by wind turbines?” Experience with other types of natural resource extraction (natural gas, coal, oil) may offer lessons.

The work of planners, economic development professionals, and town officials is just beginning. The volatility of gas and oil prices, continuing subsidies for wind, plus advances in turbine efficiency will likely increase wind’s importance to upstate New York and elsewhere. Decision-makers will be under significant pressure to balance local economic development needs and options with land use impacts and quality of life concerns. At this point, the best approach that communities can take is a proactive one that considers what they want for their town’s future, and whether wind, as a specific economic development strategy, fits that vision. Wind may be “green,” but it is still industry, and planners and others will need to find a way to manage it as such, both in terms of economic development potential and land uses.

## Resources

- NYSERDA Small Wind Explorer  
<http://nyswe.awstruewind.com/>  
This searchable map of New York wind resources generates average velocity measurements and energy potentials for small wind projects.
- Wind Resource Explorer  
<http://windexplorer.awstruewind.com/NewYork/NewYorkWRE.htm>  
This site contains interactive and static maps at elevations up to 100 meters above ground level.
- Global Energy Concepts, LLC for NYSERDA. Wind Energy Development: A Guide for Local Authorities in New York (October 2002). <http://text.nyserda.org/programs/pdfs/windguide.pdf>  
This document discusses benefits and impacts of wind energy installation.
- Daniels, Katherine for NYSERDA. Wind Energy: Model Ordinance Options.  
[http://www.powernaturally.org/programs/wind/toolkit/2\\_windenergymodel.pdf](http://www.powernaturally.org/programs/wind/toolkit/2_windenergymodel.pdf)  
Discusses wind ordinance models and makes specific suggestions about ordinance content.
- Dixmont, Maine. Wind ordinance and ordinance primer.  
Primer: <http://www.dixmontwind.org/home/wind-ordinance-primer>  
The primer discusses the purpose of wind ordinances and suggests some considerations for their development.
- Database of state incentives for renewable energy and energy efficiency.  
<http://www.dsireusa.org/>  
State by state searchable database for incentives and policies that promote renewable energy and energy efficiency.
- Office of the New York State Comptroller, Industrial Development Agencies in New York State.  
[www.osc.state.ny.us/localgov/pubs/research/idabackground.pdf](http://www.osc.state.ny.us/localgov/pubs/research/idabackground.pdf)  
This report discusses policies of IDAs and includes information related to their processes, authority and accountability.
- NYS Public Service Commission; Implementing regulations for Article 10.  
<http://www.dps.state.ny.us/articlex.htm>  
Article X expired in 2003, but the link details projects that submitted while the law was still in effect.
- Carter Ledyard & Milburn LLP and The New York Area Alliance  
Carter Ledyard & Milburn LLP: <http://www.clm.com/publication.cfm/ID/173>  
NY Area Alliance: [www.area-alliance.org/documents/ArticleX.pdf](http://www.area-alliance.org/documents/ArticleX.pdf)  
Two separate opinion pieces regarding Article 10.
- NYS Department of Environmental Conservation.  
Environmental Impact Statement, Italy, NY: <http://www.ecogeneis.com/reports.html>
- Draft Environmental Impact Statement, Hounsfield, NY:  
[http://www.dec.ny.gov/docs/permits\\_ej\\_operations\\_pdf/hounsfielddfteis.pdf](http://www.dec.ny.gov/docs/permits_ej_operations_pdf/hounsfielddfteis.pdf)  
Examples of New York environmental impact statements for industrial wind projects.

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<http://www.bloomberg.com/apps/news?pid=20601103&sid=aY5rXUJG5KwI> (accessed February 10, 2010).

*Database of state incentives for renewables and efficiency*. February 13, 2010.

[http://www.dsireusa.org/incentives/incentive.cfm?Incentive\\_Code=US13F&re=1&ee=1](http://www.dsireusa.org/incentives/incentive.cfm?Incentive_Code=US13F&re=1&ee=1) (accessed February 13, 2010).

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## Endnotes

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<sup>i</sup> We include “planners, and economic development professionals,” along with “local officials” while recognizing that many of the rural towns where wind farms are located do not have planning staff – indeed, many have volunteer elected governments. These factors can make the questions of economic development, negotiation, community benefit, etc. even more challenging for a relatively new type of development like industrial wind energy.

<sup>ii</sup> The law provides the following exemption as a local option: “With respect to solar, wind, or farm waste energy systems constructed after January 1, 1991 and before January 1, 2011, each county, city, town, village and school district (except the city school districts of New York, Buffalo, Rochester, Syracuse, and Yonkers) may choose whether to disallow the exemption. The option must be exercised by counties, cities, towns, and villages through adoption of a local law and by school districts by adoption of a resolution.”

<sup>iii</sup> This research makes this comparison while observing the differences in capacity factors inherent to each form of energy production. The capacity factor is the average energy production over time as opposed to total possible production capacity.

<sup>iv</sup> The solar panel manufacturing industry is in the same boat.