BARRIERS TO UTILITY-SCALE WIND DEVELOPMENT IN NEW YORK STATE
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EXECUTIVE SUMMARY

New York State has the potential to cultivate 52% of its current electric needs from wind power. However, harnessing the State's rich wind resources is only possible if strong renewable energy policies are in place. This thesis explores New York's energy policies through the experience of wind developers working in the state. It uses information obtained through interviews with wind developers to argue that New York's centralized regulatory framework for siting and connecting electric facilities and purchasing of renewable energy attributes may not be ideal for attracting wind development. It concludes that in order for New York to realize its wind potential the state must expand and create its Renewable Portfolio Standard and introduce greater flexibility into its regulatory framework. Without taking these steps to foster a political and economic environment favorable to the wind industry, wind development in the state will stagnate.

INTRODUCTION

Energy sustainability is one of the most pressing challenges of our time. Our reliance on fossil fuels as a primary energy source is unsustainable and has many negative externalities. Emissions from the burning of fossil fuels are causing extensive environmental degradation, and global climate change. In the United States, reliance on foreign countries for fossil fuel supplies plays a central role in US foreign policy; and domestically natural gas and coal production have ravaged our natural environment. In order to reorient our policies towards US environmental quality and public health, cultivate political relationships that are not driven by energy production and mitigate climate change we must focus our efforts on the production of clean energy.

The greatest leaps in the development of new renewable electricity capacity in the US have been in wind development. Net electricity generation from wind grew 291% between 2004 and 2008, and wind is the country's second largest source of renewable energy in (outmatched only by hydroelectric power). Wind is also the primary source of renewable energy in New York State. The amount of installed wind capacity from 0 to 1,638MW between 2000-2012 in New York and wind power currently accounts for 2.1% of electricity consumption. This growth suggests that the New York has created a favorable environment for wind development. However, New York has barely tapped into its wind reserves. The National Renewable Energy Laboratory calculates New York's wind resources to be 25,781 MW and estimates that New York could provide 52% of its current electricity needs with wind power. This potential could result in an abundance of low-cost electricity for New York residents, but only if New York supports wind development with strong renewable energy policies.

Wind farms (in contrast to individual wind turbines) enable states to grow their renewable energy capacity quickly. However, wind farms are large, industrial projects that require thorough environmental review for siting and safety. As key players in development and land use decisions, it falls within the realm of planners to facilitate the siting of wind farms and cultivate an environment open to the deployment of renewable energy. In order to create this environment it is critical to understand the needs of the private sector to ensure that policy and regulation enable industry growth. Thus, this thesis investigates the perspective of wind developers in New York State to inform future renewable energy discussions.

LITERATURE REVIEW

There are many theories and “best practices” for overcoming barriers to renewable energy deployment and incentivizing the use of renewables. Each strategy addresses a different challenge, and some can provide solutions to multiple challenges. As part of the initial research for this thesis literature regarding many of the broad ideas deemed ‘solutions’ to the renewable energy challenge were reviewed.

However, a working knowledge of the electricity industry in the United States, its history and the electric grid is necessary for a valid discussion of any renewable generation additions to the system. This background is helpful for understanding the perspective of policy makers and grid regulators when deciding if and how renewable generation plants can be connected to the existing electrical network. An awareness of electricity pricing is helpful for understanding the economics of renewable energy development. This section discusses the history of the United State's electricity market, ownership of different
components of the grid and the changing role of utilities and electricity producers. In this context it reviews common renewable energy challenges and popular solutions.

DEREGULATION AND RENEWABLE ENERGY GENERATION

In the traditional energy system there are three components to electricity: generation, transmission and distribution. These three processes are controlled by a single utility that is either investor-owned and state regulated, or owned by a local municipality. New generation facilities are built and operated by utilities. The costs of construction are approved by public service commissions and passed on to ratepayers.

In the United States, the 1978 Public Utility Regulatory Policies Act (PURPA) unbundled these services to allow new energy providers to enter the market and reduce the United State's reliance on foreign energy sources. PURPA forced electric utilities to purchase electricity from "qualifying facilities (independently owned electric generation facilities)," at the "avoided cost" of building a new generation plant and producing the power themselves. As a result, many public utility companies signed long term Power Purchasing Agreements (PPAs) to purchase electricity from nuclear energy providers and other independent power providers (IPPs). This was the first step to creating a free-market electricity system.

Although PURPA intended to lower costs for ratepayers, many PURPA contracts ended up costing ratepayers more. When the cost of natural gas and other fuel sources dropped in the 1980s utilities with nuclear PPAs were locked into contracts with high prices. The contrast in electricity prices between states with uneconomic PURPA contracts and those that had resisted signing contracts fueled further demand for restructuring of the electric industry.

The federal government responded in 1992 with the National Energy Policy Act. The act enabled power generators to compete for the sale of electricity to utilities instead of receiving "avoided cost payments." Then, in 1996, the Federal Energy Regulatory Commission (FERC) passed Order 888, which required utilities to open their transmission lines to competitors. As a result many states began to consider further deregulation of electricity markets to increase competition and lower electricity prices. California was the first to deregulate its wholesale electricity market in 1996, since then 24 more states have experimented with electricity restructuring. Electricity price deregulation is still heavily debated and some states have abandoned deregulation. These states abandoned their deregulated policies because prices did not drop as expected and price volatility increased.

Today there are separate companies that generate electricity (Independent Power Producers), transmit the electricity (Transmission Companies or TRANSCOs) and distribute the electricity (Utilities) but in some states (like New York) the utilities own both the local distribution grid and the transmission lines. In most deregulated states customers have the option to purchase electricity from Energy Supply Companies (ESCOs) or, if they do not sign contracts with ESCOs their utility will purchase electricity for them.

It is harder to secure financing to build electric generation facilities in deregulated markets. In regulated markets, where utilities finance, build and recuperate costs through rate cases with public service commissions the cost of construction is distributed amongst all ratepayers. In deregulated markets generators must find independent financing for construction, and build their "return on investment" case around profits from energy sales, payments for ancillary services and capacity added to the electric network.

Electricity producers sell electricity to the wholesale market virtually at operating cost. This means that facilities with low operating costs provide cheaper electricity than facilities with higher operating costs. Higher operating
costs are typically derived from the cost of fuel necessary to create the electricity (e.g. the price of coal or natural gas). Because most renewable electricity does not require fuel, the operating cost of renewable energy facilities is low.

In the electricity market different generators are turned on at different times of day to meet demand. Low-cost sources will be used first and more expensive systems will be turned as demand rises. As more expensive sources are turned on, every less expensive source gets paid the selling price of the most expensive source being used. This price curve is shown in Figure 2.2. The opportunity for renewables to make a profit lies in the gap between the cost of operation and the higher price point of fuel-reliant technologies.

In a deregulated market electricity prices are volatile and unpredictable. The selling point of natural gas and coal facilities will rise and fall depending on the cost of fuel. This price volatility makes it difficult for renewable energy developers to calculate how much profit they will generate from selling electricity. If fossil fuels are cheap wind technologies have a lower profit margin. That means recuperating development costs from selling electricity alone is difficult.

Policymakers have recognized the need to provide additional financial support to help renewable energy developers offset the large capital costs of development. The most widespread financial benefits for renewable energy in the U.S. are the Renewable Energy Credit trading system and the federal Production Tax Credit (PTC). The federal government implemented the Production Tax Credit in 1992 under that year’s Energy Policy Act. The program provides a 2.2cent tax credit on every kWh utility-scale turbines produce for 10 years. The PTC has been influential in growing wind capacity across the country, but congress has allowed the program to expire multiple times creating uncertainties in the wind market. The influence of the PTC on wind development can be seen in figure 2.3.

In addition to the PTC, wind developers can recuperate their investment through the selling of Renewable Energy Credits (RECs). RECs are used to prove consumption of renewable electricity because tracking actual consumption of the electrons produced of renewable sources is impossible. Typically, one REC is generated per kWh of renewable electricity produced. RECs can be sold in compliance (mandatory) markets, or on the voluntary market and prices vary widely, but voluntary market prices are usually much lower than compliance market prices.

In order to create a demand market for renewable energy and RECs, most states will implement a Renewable Portfolio Standard (RPS). A RPS sets targets for how much of the state’s energy should be generated by renewable sources by a certain year. This strategy mandates that electric utility companies “supply a specified minimum amount of customer load with electricity from eligible renewable energy sources.” To date 29 states, Washington D.C. and two territories have RPSs, eight states and two territories also have Renewable Portfolio goals.

The utility company can meet this goal in several ways; it can own and operate a renewable generation plant itself, it can purchase Renewable Energy Credits (RECs) from another electricity provider, or it can purchase the REC and the electricity from a renewable energy producer (often called a “bundled renewable energy certificate”). Typically RPSs apply to investor-owned utility companies only because municipally owned utilities and cooperatives are usually self-regulated.

RPSs can differ in state requirements for qualifying energy sources, diversification specifications, hard and soft targets and the inclusion of penalties for non-compliance. Diversification mandates require certain amounts of electricity to come from different sources to avoid overreliance on any one energy source. States may also have one large mandate (e.g. 30% by 2015) without hard targets, or the large mandate can be broken into yearly targets to help achieve the larger goal (e.g. 1% increase each year until target goal is reached in the final year of the RPS). Some RPSs also have “alternative compliance payments” (ACPs) where utilities can opt to pay a fine for not meeting the state’s mandate. ACPs are usually more expensive than the price renewable energy credits utilities purchase to prove compliance with the RPS.

To create a successful RPS a state must consider many specifications. It is important to identify early on what types of energies qualify, whether it applies on to new plants or also to preexisting ones, what geographic areas are included and whether RECs are bundled or unbundled. The policy should be flexible in its early stages if renewable energy plants are not abundant in the state. Requiring too much energy from renewables when there is not a large supply leaves utilities vulnerable to price surges in the REC market. These higher prices are passed on to the ratepayers and can generate hostility to the renewable market. Legislatures must also balance requirements for renewable purchasing with mechanisms to make renewable energy economically feasible for developers.

Most RPSs anticipate that a majority of the renewable electricity generated to meet the standard will come from utility-scale plants. However, there are many barriers to building a new large-scale renewable generation plant, especially for small-medium size IPPs. Large-
scale plants are capital-intensive and the siting and permitting process is challenging. There is also a strong “not in my backyard” (NIMBY) factor from local residents. RECs help offset the costs of development and create incentives for engaging in this trying process.  

RPSs have a strong influence on REC prices. The most common RPS factors affecting REC prices are the size and strictness of the state’s RPS goal and the supply of renewable energy in that state.  

The price of RECs is a strong determinant in development and create incentives for engaging in this trying process.  

The price of RECs is a strong determinant in where developers will go because states with higher REC prices offer more profit opportunity to renewable energy developers.

Policy considerations arise with RECs over how they should be priced, how long the REC payments should last and whether they should be sold in a market system or through contracts. Contract payments offer the greatest amount of certainty for developers because they can calculate how long it will take for them to make a return on their investment. Although, free market REC trading offers greater potential for developers to profit from high REC prices, particularly if utilities are able to purchase RECs separately from electricity and from out of state generators. On the other hand, if a state has a particularly demanding RPS that forces utilities to purchase very expensive RECs that cost is put on ratepayers and diminishes the benefits of renewable energy to the state.

Although not used in the U.S., an alternative to the RPS-REC system is a feed-in tariff (FIT). In a feed-in-tariff system renewable energy is sold at a premium to utilities and the cost is distributed to all end users for a fixed number of years (usually 20). The tariff amount is based on the real generation cost plus a small premium. The premium provides a return that is significant enough to spur investment in renewable technologies but not high enough for excessive profits. The return can then be reinvested into the company in order to expand production and reach economies of scale. This model has been particularly successful in Germany, where the tariff system holds the rank of law. The tariff varies depending on the size of the system and the burden of payment is distributed among all electricity consumers. The cost of grid connection is the responsibility of the installation operator so that plants can be located where natural resources are the strongest, and not interconnection benefits. This model is a combination of the U.S.’s regulated and deregulated markets-where development costs are spread amongst consumers but generation ownership is separated from distribution. However, the adversity most Americans feel towards higher taxation makes the use of an FIT improbable in the United States.

THE GRID

In order for a renewable energy generator to supply electricity to end users, the facility must be connected to the grid. The U.S. electric grid is has grown and developed significantly over the past century. Initially generation plants were small and near to the communities that they served because a lot of energy was lost during transmission. As transmission technology grew stronger, it was possible to create larger generation plants that wheeled electricity to communities across state board lines. This qualified as interstate commerce and required federal regulation. In 1938 the Federal Power Commission (now known as the Federal Energy Regulatory Commission (FERC)) was given the authority to regulate the sale and transportation of electricity. Today the Federal Energy Regulatory Commission (FERC) negotiates the financial aspects of interstate grid maintenance.

The current US grid is nationally integrated and more efficient than in the past, but it still loses an average of 7% of its electricity during transmission. The majority of electricity is sold over longer distances on the wholesale market, but these longer transmission lines pose threats to grid reliability. Larger transmission lines have lower transmission capacity and should operate under capacity to reduce the risk of power outages. However, most transmission lines are old and must operate at near full capacity to satisfy demand. With electricity demand expected to grow 22% between 2010 and 2035, new transmission lines are needed to prevent congestion and maintain grid reliability.

Federal and state governments recognize the need to upgrade the transmission grid. The federal government has taken action through the Energy Policy Act (2005) the American Recovery and Reinvestment Act (2009), and the Federal Energy Regulatory Commission’s (FERC) Incentive Rates Policy to finance grid improvements. These provisions address the major problems with transmission upgrades: siting, permitting, cost allocation and cost recovery. The financial burden of upgrading the transmission grid falls on utilities. In 2010 members of the Edison Electric Institute (which make up 70% of the US electric power industry) invested $10.6 billion into the transmission system in 2010 and plan to invest an additional $54 billion between 2011 and 2014. They will recuperate this investment through charges to ratepayers at a price negotiated with FERC.

Renewable energy presents technology-specific challenges to the grid. Siting for renewable energy generation is based on natural provisions. Large-scale wind and solar plants (>100MW) are often best suited for locations that are far away from transmission lines or in areas with limited grid capacity. Renewable energy developments put additional pressure on electric companies to expand the grid and ensure transmission capacity is available. Additionally, the intermittence nature of large-scale renewable energy plants requires stricter management from grid operators. It is difficult to predict how much electricity a renewable energy plant will generate at a given point in time. Grid operators must plan around this fact and manage traditional electricity deployment around renewable energy flows.

To avoid issues concerning large transmission line connection, proponents of renewable energy champion its use for small-scale distributed generation. Distributed generation means facilities sited as multiple small generation plants (ie: solar panels on a residential home,
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BACKGROUND

Background knowledge of the New York electric industry structure is necessary to understand its policies. Some background on the components of wind development is also necessary to understand the perspective of wind developers on the State’s policies. The following section outlines the fundamentals of New York’s electric industry, regulatory bodies and the basic of building a wind farm.

THE ELECTRIC INDUSTRY IN NEW YORK

New York State provides an interesting landscape for examining issues surrounding renewable energy development due to its significant shifts in electricity policy over the past 20 years and more recent efforts to grow the amount of renewable energy consumed in the state. Reflecting on these policies and their impacts on the electric industry in New York offers insight into issues facing renewable energy and how future policies can effectively address them.

New York has three main bodies that regulate its electric industry: the Public Service Commission, the New York Independent Systems Operator and the New York State Energy Research and Development Authority. The Public Service Commission (PSC) formulates the State’s electricity policies and governs the siting of electric generating facilities. The New York Independent Systems Operator (NYISO) regulates the electric grid and oversees electricity pricing in the State. The New York State Energy Research and Development Authority (NYSERDA) implements policies created by the PSC to increase renewable energy generation and energy efficiency in New York. Together these agencies ensure that renewable electric generating facilities are properly located, can be connected to the existing electric grid and have the opportunity to take advantage of New York’s financial support programs.

In 1993 the Public Service Commission began deregulated New York’s electricity markets to increase competition and lower the price of electricity in the state. This meant it had to decide how to structure the deregulated wholesale and retail markets, including how to deal with the split in ownership between the transmission and distribution of energy.

As a result the PSC established the New York Independent System Operator (NYISO) to regulate electricity pricing, manage the dispatch of power through the grid, oversee the connection of new electric generation facilities and maintain system reliability. Its role as a monitor of electricity prices is particularly important responsibility because it protects consumers and utilities from paying excessive rates. Under this responsibility NYISO imposes a number of bidding rules. These rules state that NYISO will not accept the “highest bid price”, submitted by electric generators for wholesale purchase. NYISO also tries to “mitigate market effects of any conduct that would substantially distort competitive outcomes.” This conduct being: any conduct that is significantly inconsistent with competitive conduct or any conduct that results in material changes in one of the factors in New York’s electricity market; ie: a physical withholding of output, an economic withholding of output (unjustifiably high bids) or the uneconomic production of output (to take advantage of the transmission constraint). In essence NYISO imposes regulated prices instead of market set prices for electricity, but the system is more closely aligned with the free market than before.

New York is also committed to increasing renewable energy generation and energy efficiency. To this end, the New York State Energy Research and Development Authority (NYSERDA) has been given authority by the PSC to govern a myriad of financing programs that make the use of energy efficient technologies and development of renewable energy less cost-intensive. These programs include a Renewable Portfolio Standard, grants and loans for energy efficiency and customer-sited renewable energy and state-funded research and design. The organization and its programs are funded through a Systems Benefits Charge (SBC) and a Renewable Portfolio Standard (RPS) charge on all ratepayers of the State’s major investor-owned utilities. The SBC was created in 1996 and has been approved for continuance until 2016. The RPS was created in 2004 and is scheduled to terminate in 2015.

THE ECONOMICS OF WIND DEVELOPMENT

There are several necessary components to wind development. These are:

1. Access to land with high wind speeds
2. Financial agreements with local municipalities
3. Siting and permit approval
4. Interconnection approval
5. REC and electricity purchasers

To secure access to land with high wind speeds the developer can lease or purchase property. If being leased, the developer will have to negotiate lease agreements with local property owners. The developer will also have to make arrangements with the town and county for payments in lieu of taxes on the profits generated by the wind farm. Usually the developer will pay for the town’s lawyers and consultants to write and review these contracts.

In addition to financial agreements with landowners and municipalities, the developer must also secure permits from the state and local governments to ensure that the project complies with the environmental standards of the state and local zoning laws. The developer must also secure interconnection approval from the state’s grid system operator. The burden of cost for the permits and engineering studies to support his argument for permit and interconnection is borne by the developer.

To recuperate his costs the developer can sell electricity, sell RECs and use the federal production tax credit. A simplified list of the costs
and revenues for wind development can be found in Figure 3.1.

Figure 3.1: Simplified List of Revenues and Costs for Renewable Energy Projects

<table>
<thead>
<tr>
<th>Revenues</th>
<th>Costs</th>
</tr>
</thead>
<tbody>
<tr>
<td>Energy Sales</td>
<td>Capital Costs:</td>
</tr>
<tr>
<td>Production Tax Credit</td>
<td>Equipment</td>
</tr>
<tr>
<td>REC Sales</td>
<td>Siting and Permitting</td>
</tr>
<tr>
<td>Other incentives/rebates</td>
<td>Labor</td>
</tr>
<tr>
<td>Capacity revenues</td>
<td>Interconnection</td>
</tr>
<tr>
<td></td>
<td>Land lease/Purchase</td>
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</tbody>
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**RESEARCH QUESTION AND METHODOLOGY**

New York State is seemingly committed to renewable energy generation. It has the third largest RPS target in the country (out-matched by only California and Hawaii) and has periodically reviewed and altered the program to make it more effective since its inception. New York reviewed and altered the program to make only California and Hawaii) and has periodically expanded the target to 2015. This is a 28 times the capacity that existed prior to the RPS and places New York 12th in the country for installed wind power capacity. These figures suggest that the policies and regulatory structure in place between 2004 and 2009 were successful in attracting wind development to the state. However, in 2011 New York changed its siting and permitting processes for construction and interconnection of electric facilities. This shift suggests that the regulations that governed new generation construction during the State's period of most rapid growth were flawed.

Examining the efficacy of New York's RPS and regulatory framework through the lens of large-scale wind development provides the most fodder for understanding how these policies and regulations impact development on the ground. The abundance of wind development in New York provides a strong base for the comparison of different experiences. The fact that wind farms are sizeable, industrial projects means they have the potential to face the greatest development challenges.

This thesis looks to the experience of large-scale wind developers as well as the perspective of policymakers and policy influencers to understand how New York’s programs create and mitigate barriers to wind farm development. The thesis considers the role and structure of New York's RPS in cultivating wind development in the state. It speculates on impact of the recent shift in regulation for the siting and interconnection of electric generation facilities on wind development. And it aims to identify ways in which New York’s policies and regulations can be improved to facilitate continued growth of the State's renewable generation capacity.

The research for the thesis was conducted through phone interviews with wind developers, policy makers, and individuals at not for profit organizations concerned with energy. 10 interviews were conducted between January 1st and April 1st 2013. Of those interviews 3 were with renewable energy developers, 3 were with individuals who work in New York State electric agencies (2 of whom also worked for wind development companies in New York between 2004 and 2010), and 3 were with individuals from not for profit organizations that deal with energy. The names of the interviewees have been changed in this paper to protect privacy.

**FINDINGS AND ANALYSIS**

The research conducted for this thesis revealed that New York State policies and development processes create formidable barriers to wind development. The success of wind projects is also strongly influenced by politics and the political economy. In terms of policy, the structure and duration of the RPS can foster the uncertainty the program tries to address. In terms of development, the process for siting and interconnection approval was demanding and uneven prior to 2011, and now appears to be too inflexible. Additionally, under both regulatory structures overcoming public opposition can be challenging.

This portion of the thesis will explore these barriers in greater depth, and the specific aspects of New York's policies and regulatory structure that present the greatest challenges for wind development.

**POLICY BARRIERS**

The Renewable Portfolio Standard in New York is a crucial to wind industry because it creates a demand market, and financial support mechanisms. However, not all RPSs are created equal, and the design of an RPS influences both its success and how attractive a state is to renewable energy development. To understand the barriers present in the design of New York's Renewable
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Portfolio Standard, a deeper understanding of the program’s configuration is necessary. This section explains New York’s RPS in greater depth, and highlights the specific areas that present challenges to wind development, as identified through interviews with wind developers who have worked in the state.

New York State adopted a RPS on September 24, 2004 through an executive order issued by the New York State Public Service Commission (PSC). The PSC had been considering the implementation of an RPS since 2002, when the New York State Energy Plan of that year, "warned of the possible consequences of New York’s fossil fuel dependency, noting that the State’s primary sources of energy are imported to a large degree, from abroad, have significant long-term environmental effects, and ultimately face depletion." As a result, a RPS was approved as a reliable tool for increasing sources of renewable power in the state and reducing the state’s existing reliance on imported fossil fuels.

At the time 19.3% of New York’s electricity was derived from renewable sources, mainly from hydroelectric plants in upstate New York. Through the RPS the PSC set the goal of increasing the amount of renewable electricity consumed to 25% by 2013. This goal included energy from existing facilities so the actual net growth of renewable energy was targeted at 5.7%. Of that target, 24% of the renewable electricity was expected to come from mandates on electricity sources, while 1% of the renewable electricity was expected to come from independent producers such as wind developers who have worked in the state.

Main Tier financing for renewable electricity is distributed through production payment incentives to renewable energy generators in a unique central procurement model administered by the New York State Research and Development Authority (NYSERDA). NYSERDA does not procure electricity directly. It signs 10-year contracts on behalf of utilities with renewable electricity generators. The contracts pay generators for the RPS attributes associated with up to 95% of each megawatt-hour (MWh) of electricity produced (these attributes are same as the Renewable Energy Credits (RECs) described in the literature review section of this thesis). 5% of the attributes are exempt from contract with NYSERDA for sale on the voluntary market, although developers can sell less than 95% of their attributes to NYSERDA if they choose. 54

The central procurement model used in New York is unique. Most states require utilities to independently purchase renewable energy credits (either bundled with electricity or unbundled) to comply with their state’s RPS. New York also puts restrictions on facilities that can qualify for a NYSERDA contract. For all Main Tier Facilities under contract with NYSERDA the electricity associated with the RPS Attributes must be:

1. Delivered into a market administered by the New York Independent System Operator (NYISO) for end-use in New York State; or
2. Delivered through a wholesale meter under the control of a utility, public authority or municipal electric company such that it can be measured, and such that consumption with New York State can be tracked and verified by such entity or by the NYISO; or
3. Delivered through a dedicated generation meter, which shall be approved by and subject to independent verification by NYSERDA, to a customer in New York State (excluding customers in the service territory of the Long Island Power Authority) whose electricity was obtained through the NYISO/utility system as of January 20, 2011. 55

Obtaining a contract with NYSERDA is a competitive process. Renewable energy developers must bid for contracts when NYSERDA issues a Request for Proposals (RFP). To date, NYSERDA has solicited seven competitive Main Tier RFPs. Most of the contracts have been signed with wind power generators. The first RFP was issued in January 2005 and issues contract awards based on the price bid of RPS Attributes alone. The solicitation resulted in contracts with 2 wind facilities and three hydroelectric facility upgrades. The weighted average production incentive was $22.90 per MWh. 56

Figure 5.1 New York Wind Capacity 2000-2011 41

After the first solicitation, NYSERDA decided to alter the determination process for contracts. Awards became based on two evaluation components (1) the bid price, weighted at 70% and (2) the ability of the bidder to demonstrate economic benefits to New York State created by the development, construction and operation of the facility, weighted at 30%. The second RFP was issued in 2007 and resulted in 20 new or upgraded facilities contracts, with a weighted average price award of $15.52 per MWh. The two-step, weighted decision model has been used in all subsequent solicitations by NYSERDA. 40

After seven rounds of solicitation NYSERDA has signed contracts or has pending contracts to purchase RPS Attributes from 56 renewable electricity facilities, 53 of which are in New York State. These facilities will generate a total of 1,841 MW of electricity, 1,654 MW of which will be wind power. The average incentive award has varied each round, with the lowest price being $14.75 per MW in 2007 and the highest price $28.70 in 2011. 42 Although not the sole factor contributing
Barriers to Utility-Scale Wind Development in New York State

The RPS and accompanying renewable energy attribute purchases are critical to the development of New York’s renewable electricity industry; they create both demand for renewable power and financial stability. The deregulated state of the electricity industry in New York increases the price volatility of the wholesale electricity market. This makes it difficult for renewable electricity developers, and investors to calculate how long it will take to recuperate the cost of development from selling electricity. Furthermore, low natural gas prices are driving down the price for electricity in the wholesale market and thus increased the bid price of renewables. Natural gas prices are anticipated to remain low in the future, which means future solicitations by NYSERDA will likely see competitive bid submissions on the higher side of the price spectrum.

Figure 5.2 NYSERDA Main Tier Solicitations-Weighted Average Award Price by RFP Solicitation

The RPS and accompanying renewable energy attribute purchases are critical to the development of New York’s renewable electricity industry; they create both demand for renewable power and financial stability. The deregulated state of the electricity industry in New York increases the price volatility of the wholesale electricity market. This makes it difficult for renewable electricity developers, and investors to calculate how long it will take to recuperate the cost of development from selling electricity. Furthermore, low natural gas prices are driving down the price for electricity in the wholesale market and thus increased the bid price of renewables. Natural gas prices are anticipated to remain low in the future, which means future solicitations by NYSERDA will likely see competitive bid submissions on the higher side of the price spectrum.

The structure of the attribute selling system in New York serves the goals of the state well – it enables the state to get facilities online quickly and remove the state’s obligation to pay for attributes indefinitely. However, developers have mixed feelings about the attribute payment system. A minority of developers choose to sell less than 95% of their attributes to NYSERDA because they anticipate prices in other markets to be high in the future and want the freedom to be able to take advantage of that. However, most developers prefer the long-term contract approach because it offers financial stability. These developers would like the contracts to be longer. They are not enthused about selling their attributes on the voluntary market after their contracts end, NYSERDA and the PSC anticipate a credit. "There is fierce competition when RFPs get issued because PPAs are much easier to secure because they’re reducing our demand." 46

However, the bid process for receiving contracts with NYSERDA is highly competitive and political. The structure also limits the amount of wind development in the state. Without a contract with NYSERDA a developer has nowhere to sell their attributes in the state, besides the voluntary market. The significant contrast in NYSERDA prices and voluntary prices (anywhere from $12-20) means securing a NYSERDA contract can make or break a project. For this reason the bid process is very aggressive. According to J, "There is fierce competition when RFPs get issued because PPAs are much easier to finance- they give you revenues for 10 years instead of selling on the wholesale market where you have to manage your PPA prices. But the RPS is a long-term contract that allows for a stable price and income stream. It is easier to plan for a project when you know you will have a long-term contract and have a stable price. It’s a more predictable revenue stream which is critical to project development. It is a way to mitigate risk." 47

All of the wind developers interviewed agreed that the biggest factor in whether to enter a state is the existence of an RPS program, and how high the target percentage of renewables is. One developer (referred to as J) stated this quite succinctly saying, "we won’t go into a state without an RPS and we actively target states with better RPS programs, that’s built into our business model." 48 He then cited Hawaii as having a particularly attractive RPS program (the state is currently mandating that 40% of energy sold to consumers by utilities must be renewable by 2030). 49 According to J, it is not economically viable for a wind developer to enter a market without an RPS because there is no demand for renewables in states without an enforceable standard. Furthermore, the greater the requirement for renewables is, the higher the demand will be for their renewable energy credits.

Additionally, J commented on how easily it is for an RPS to change or be revoked due to political influences and pressure for public agencies to hit their targets without excessive spending. J said, "If a state doesn’t think it’s going to hit its targets or the program’s putting to much strain on ratepayers it can easily lower [its RPS goals] and that’s bad news for us because they’re reducing our demand." 46

There is a tension here between the obligations of public authorities to their citizens, and the market conditions that drive wind development. Obviously, developers are most motivated to go where demand for their product is highest, and where they can make long-term profits. However, states are under pressure to grow renewable sources of electricity without exploiting the financial resources of their ratepayers. States want to be sure that their policies are transparent, do not impose excessive rates on their customers and grow capacity quickly to bring lower-cost electricity to the market in the long-term.

New York is very wary of this and has designed its policies to favor the financial interests of the public more so than other states in New England. While New York wants to grow its renewable capacity quickly, it aims to do so in the most economical way possible. It has designed its RPS without "hard targets" for increasing renewable energy (unlike other states that require the amount of renewable energy to increase X amount each year until the ultimate target is reached). This structure allows NYSERDA to be selective about the price it pays for renewable energy attributes and keeps the cost of purchasing attributes low. These lower costs are also ensured through the competitive bidding process NYSERDA uses to award contracts. 50

New York’s REC policy is designed to help developers recuperate the costs of development without using RPS funds to generate profit. The PSC elaborates on this point in its 2004 Proceeding on Motion of the Commission Regarding a Retail Renewable Portfolio Standard, saying: "...No renewable generator should receive more than is necessary for incremental projects to be built; a Staff audit should determine the least cost renewable projects and those should be built; RPS payments plus energy, capacity and ancillary services revenues should equal the cost of a given renewable generation unit; and, if RPS payments exceed cost, on an annual basis, consumers should receive a credit." 43

Furthermore, NYSERDA does not purchase renewable energy attributes indefinitely, it will only sign a 10-year contract with generators with the intent of helping them recuperate the sunk costs of development. After these 10-year contracts end, NYSERDA and the PSC anticipate renewable energy attributes generated by New York facilities to be sold on the voluntary market. 51
years. So when you’re in that competitive bid process it’s not uncommon to see low bids, but lowballing does not necessarily win in the end. It’s your reputation, experience and proven access to financing that determines whether or not you get that contract.” 51

Another developer interviewed, referred to as T, felt NYSERDA’s decision-making process was political as well. He illustrated this point through his own experience trying to get a contract:

“Well we just missed an RFP deadline, but we had all of permits and agreements in place and we didn’t want to sit on the project for another year. So we decided to start construction and apply for a contract when the next solicitation came out. And you know, that was good for us because we knew our construction costs and we were able to prepare a very aggressive bid. But then when the next RFP came out they said you couldn’t have started construction, because they thought since we had already started building we didn’t need the contract. So we had to lobby very hard to NYSERDA and the PSC and eventually they allowed us to bid the next time but we couldn’t claim any economic benefits already started building we didn’t need the contract. So we had to lobby very hard to NYSERDA and the PSC and eventually they allowed us to bid the next time but we couldn’t claim any economic benefits and so we had to bid very low which meant we lost money. I don’t think that was fair, we needed the rules to stay constant.” 52

Even though NYSERDA has a weighted 2-part process for giving out contracts that supposedly only looks at economic benefits to the state and attribute price, both developers who had been through the process felt that the review was also political. It appears contract decisions are affected by NYSERDA’s perception of the company that submitted the bid. This subjectivity presents a real challenge in a process that is crucial to the success of wind development project.

Additional pressure is put on the bid price of a contract with NYSERDA due to the lack of options for selling attributes after those contracts end. Because prices on the voluntary market are so low, and the voluntary market is less robust than compliance markets a developer must try to make as much money off of his contract as possible. At the same time, NYSERDA does not differentiate between technologies in the bid process meaning that capital-intensive projects must also be able to compete against lower cost technologies. A developer’s bid cannot be too high or the developer will not win a contract with NYSERDA at all, but it must be high enough to provide a financial incentive. According to T, the absence of a post-contract compliance market for attributes was something that his company did not consider until they had already started the development process, and he believes many other companies had the same experience. He saw this as a large flaw in New York’s RPS design, and explained his opinion as such:

“In New York they said renewable energy costs more so we need to give them a subsidy. We want to give them an upfront subsidy over the first 10 years to cover their costs. But, once you’ve sold to NYSERDA there is nowhere else to sell RECs [attributes] in New York. The hope is that the voluntary market will pop up and they will purchase RECs after the NYSERDA contracts end, but RECs on the voluntary market only sell for $1-2. In Texas all of the utilities have an obligation to buy indefinitely so we don’t have this problem.

We, as developers, don’t know what is going to happen which means we have to build the project assuming we will make all of our money in the first 10 years. The benefit to the state is that once the 10 years is up the wind farms will sell power at a very low price. In the wholesale market you bid at the lowest cost you can stomach selling your electricity at so the state gets pretty low cost power from operating wind plants. Their mentality is get the projects online, pay for it up front, after 10 years it will pay off because they will have lower wholesale prices. It’s not really a long-term sustaining market though because it requires everything to cost more upfront.” 53

When T was asked how what his ideal model for selling RECs would be, he said:

“Renewable energy projects have high capital costs with long-term benefits and you need to have financing structures that take advantage of that. You need policies that have a long horizon. I would like to see counter-parties whether it’s a state or private entity, sign a power-purchasing agreement for 20 years. There can be flexibility but we want long-term contracts that can spread costs over time. Prices could start low and get higher or vice versa, but either way the savings in fuel costs would be cheaper for the state and would ultimately offer power at a lower price than other sources.

[Wind developers] have a level of certainty that other generators that don’t get, we don’t have to worry about predicting fuel prices and utilities should recognize that. There are some utilities that do- in states where utilities are required to purchase a certain amount of renewables, and they are forward thinking. They are willing to sign these long-term contracts but only because the RPS commitment is indefinite, unlike New York.” 54

A review of RPS bid prices conducted for NYSERDA in 2008 came to a similar conclusion. The study included interviews with all renewable energy developers who had signed contracts with NYSERDA. 75% of the developers interviewed said that they would prefer 20 year contracts for selling their attributes because they would be taking on less revenue-risk and would be better equipped to secure project financing. 55

The state appears to be less concerned with the issue of ROI than developers. They feel that after the sunk costs of development have been recuperated, the only financial gain developers should receive should be from the selling of electricity. While this may be in the interest of ratepayers, it creates disincentives for wind developers to enter New York. If a developer knows that other markets offer indefinite RPS terms and the price of RECs will be determined by a compliance market, not a voluntary market than that state offers more financial potential than New York. Furthermore, if states have other RPS design programs that drive up REC prices like yearly percentage mandates, mandates on specific technologies or Alternative Compliance Payments.

This disconnection between the desired outcomes of the state and the market conditions perceived as ideal by developers can limit the growth of the wind in New York. The state thinks that it is providing enough of an incentive for renewable development by created market demand through its RPS and financing support by purchasing attributes through NYSERDA. However, the REC market in New York is limited by its central procurement model. Without a contract with NYSERDA there is no where to sell RECs in New York, and the competitive bidding process makes securing a REC purchaser more difficult than it is in other states. The more attractive REC markets in other states can divert the interests of developers from entering the New York market and thus limit New York’s success in consuming renewable energy.

DEVELOPMENT CHALLENGES

While New York’s Renewable Portfolio Standard and attribute payment system may not be ideal to wind developers, the most tangible challenges they face arise during the development process. Barriers faced during development drive up the costs of a project and create frustration for developers in the New York market. Mitigating these challenges is a goal of state policymakers because higher development costs also drive up
Barriers to Utility-Scale Wind Development in New York State

that the project can be connected to the grid, all fundamental requirement for a wind project to Interconnection approval from NYISO is the most INTERCONNECTION their direction, NYISO has also recently altered its (NYISO). Independent System Operators in every the New York State Independent Systems Operator can be successfully integrated with the existing electric generation facilities. Under Article X siting New York reinstated Article X for the siting of new structure alters barriers in the development process. In order for a wind development to reach fruition it must meet the environmental and interconnection standards of the State. New York has comprehensive measures for contemplating the environmental impacts of any large score. SEQR requires developers to identify and mitigate any significant environmental impacts proposed by the project. Local municipalities used SEQR to administer site approval for wind development until 2011; however, on August 4th of that year New York reinstated Article X for the siting of electric generation facilities. Under Article X siting procedures are now reviewed at the State level. Developers also need to ensure that the project can be successfully integrated with the existing electric distribution grid, through approval from the New York State Independent Systems Operator (NYISO). Independent System Operators in every state are under the jurisdiction of the Federal Energy Regulatory Commission (FERC) and at their direction, NYISO has also recently altered its interconnection procedures.

INTERCONNECTION

Interconnection approval from NYISO is the most fundamental requirement for a wind project to achieve completion. Without the ISO’s assurance that the project can be connected to the grid, all other permits and approvals are meaningless. Concerns about grid capacity are not really a problem in New York, in 2008 NYISO performed a study of its grid capacity and found that it could absorb 8,000 MW of additional renewable energy. However, there are challenges for wind developers inherent in the interconnection process NYISO uses for interconnection approval.

NYISO uses a 3-phase process to evaluate the interconnection feasibility of a new generating facility. Prior to even entering this 3-phase process the developer must submit an interconnection request to NYISO, along with a $10,000 application fee, a $30,000 study deposit and a demonstration of site control or an additional $10,000 in lieu of a site control demonstration. Once these have been received, the project enters NYISO’s queue of projects awaiting interconnection study and approval. The three phases of the study are:

1. Feasibility Study: to develop a conceptual design for the proposed interconnection, evaluate the impact of the project on the pre-existing electric system at and in electrical proximity to the POI (point of interconnection), preliminarily identify the CTO (Connecting Transmission Owner) Attachment Facilities and any System Upgrade Facilities (SUFs) that would be required to interconnect the project to the system in a reliable manner, and develop nonbinding good faith estimates of the cost and time to construct the required facilities.

2. System Reliability Impact Study: to again evaluate the impact of the project on the pre-existing electric system (based on the conceptual interconnection design from the Feasibility Study), re-evaluate and revise as necessary the list of CTO Attachment Facilities and any SUFs identified in the Feasibility Study, and re-evaluate and revise as necessary the nonbinding good faith estimates of the cost and time to construct the required facilities.

3. Interconnection Agreement: After completion of the requisite interconnection studies, the next step of the interconnection process is to develop, negotiate, and execute an Interconnection Agreement. The Large Generator Interconnection Agreement (LGIA) is a three-party agreement between the Developer, NYISO and CTO. In laymen’s terms provided by S (an employee at NYISO who worked as a wind developer prior to joining the organization)...

"The first phase is a high level study to give the developer an idea of does this make sense? Can I move forward? And will the project be economical? It's basically a cost estimate. The second phase provides more detail about feasibility. And the third phase is binding. The developer, NYISO, and the utility enter into an agreement to spell out the cost in exact detail as well as the construction and operation of project."

The cost for the studies and the construction cost of interconnection is borne by the developer. The total cost for the studies (not including actual construction of transmission lines) is typically around $500,000. The standard timeframe for interconnection is 3 years but that can vary for individual projects.

NYISO’s primary objective is to maintain the reliability of the grid. According to S, “For anything that gets connected to grid NYISO needs to ensure that there is no degradation in reliability that means no overloads or any reliability issues downstream. Our primary goal is to identify what is the cost of connecting that project- what does developer need to do cost wise and tech wise to avoid reliability problems? We achieve that through the studies. We ask what are the weak points? What are the consequences of connecting the project? What needs to be done to maintain reliability? We then identify the cost that developer would need to pay to avoid that through installations and system upgrades, and it’s the developer’s responsibility to pay for those upgrades.”

Developers used to have the option of hiring independent consultants to perform the Feasibility and System Reliability Impact Studies, but recently NYISO’s policy has shifted due to federal pressure to standardize and speed up interconnection approval. NYISO has independent authority over electricity transmission in New York but it is regulated by FERC. In 2003, FERC recognized that interconnection procedures across states were unstandardized and created delays in the approval process. As a result FERC issued Order 2003 that established a standard interconnection process across the nation. States were then given the opportunity to follow the standard procedures or file variances as long as they were “equal or superior to the standard agreement... included in Order 2003.” This order resulted in an influx of interconnection requests in ISO queues across the country. As a result, in 2008 FERC urged state ISOs to clean out their queues and create stricter timeframes for moving projects through the approval process.

Under pressure from the federal government, NYISO removed the option for developers to hire their own consultants and NYISO now conducts all of the studies. According to S, this is a positive change for NYISO because “In last few years when things slowed down, developers could put interconnection studies on hold and not make any progress on them for months or years on end. Those project proposals were taking position in queue and had to be accounted for but they were not making any progress and were diverting resources. Now there’s going to be a more consistent approach to the development process with NYISO managing. The rules will be more evenly applied and we will no longer allow developers to park in the queue.”
However, he agreed with other developers interviewed in that this stricter timeframe creates a level of inflexibility that developers don’t like. In order to sign an Interconnection Agreement with NYISO the project must have also received all of the sitting and environmental permits necessary to for build out. Getting these permits can also be time consuming, and are subject to their own barriers (described later in this section). A developer may move through the interconnection process quickly but get held up receiving sitting permits (less of a problem after the 2011 shift in siting policy explained later) or negotiating contracts with landholders and local municipalities. If the developer cannot continue to move forward in the process due to outside setbacks he will get kicked out of the queue and have to start over.

T also found the NYISO approval process difficult because

“You have to put up significant amounts of money with no contract in place, and sometimes the company will want to put something on hold but NYISO doesn’t want us to. At the end of the day do those decisions benefit ratepayers? Or make the process smoother? … They do very expensive studies and the value of those studies is questionable. They also have hard time grappling with the fact that these are very expensive projects that don’t move forward until we get all our agreements and a [power purchase agreement] to sell RECs with NYSERDA. The whole thing is very cumbersome.” 64

Again there is tension here between the objectives of the state and the ability of developers to satisfy those objectives. NYISO’s goal is to get projects online that won’t disrupt the reliability of the grid and to get them approved quickly so that FERC is not critical of their performance. The “expensive studies” questioned in value by T are clearly considered of value to NYISO who has to be sure that new projects will not negatively impact electricity delivery in the state. At the same time, NYISO is focused on only one aspect of wind development while the developer needs to achieve multiple approvals at once. The inflexibility of the interconnection process hinders their ability to keep their project moving forward, and seems like an unnecessary burden to developers. Even though the interconnection approval process may be too strict in developers’ opinions, the process is less cumbersome than the process for obtaining environmental permits. When asked to compare his own experience with NYISO to other challenges he faced working as a wind developer S said, “NYISO is a known process, a rational process that is technically driven. Either you cause a problem on the system or you don’t. The only issue for debate is the costs of getting the system online without causing a reliability problem. It’s a very engineering driven process. The real challenge in New York and New England in general is the permitting process.” 65

### PERMITTING

Prior to 2011 permits for wind farms were granted through the State Environmental Quality Review process and reviewed at the state and local level. This made the approval process for siting wind farms high susceptible to local politics and public opposition. In 2011 Governor Cuomo changed this by reinstating Article X for the siting of electric generation facilities. Article X was a review process that had been used until 2003. After it expired state legislators could not agree on how to restructure the policy so it remained inactive until 2011. Under the new Article X, the approval for siting electric generation facilities is conducted at the state level. However, no new wind projects have been approved for development under the new statute at this time. This portion of the thesis will elaborate on challenges created by using the SEQR process for approving wind projects, the changes to the process under Article X and how the new policy mitigates some of the SEQR challenges but also create new ones.

Under the SEQR guidelines developers had to conduct an environmental impact assessment and release an environmental impact statement (EIS) to state and local authorities for review and public comment. The EIS analyzed the effect of the project on:

1. Possible conflicts between the proposed action and land use plans, policies, or controls for the area concerned
2. Energy requirements and conservation potential
3. Natural or depletable resource requirements and conservation potential
4. Urban quality, historic and cultural resources, and design of the built environment
5. Socially or economically disadvantaged populations
6. Wetlands and floodplains
7. Prime and unique agricultural lands
8. Endangered or threatened plants and animals and their habitats
9. Important scientific, archaeological, and other cultural resources, including historic properties listed or eligible for the National Register of Historic Places
10. Ecologically critical areas, Wild and Scenic Rivers, or other unique natural resources
11. Public health and safety
12. Sacred sites
13. Indian Trust resources 66

Although a wind project may not affect all of these topics, each still had to be analyzed and addressed in the EIS. After analyzing the potential impacts of the project the developer would then have to apply for the necessary federal, state and county permits to construct the facility. The developer would advocate for the permit using the information in the EIS. The list of agencies that a developer had to get approval from was extensive. The following table illustrates some of the agencies that a wind developer typically had to deal with before August 4, 2011: 67

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Although the level of review at each agency varies in its involvement, all permits are still required for the project. The approval process for the permits had no strict deadline, meaning the process could take anywhere from 2-6 years. Depending on the length of the approval period it was easy for developers to run out of financing and lose interest from their investors. According to a senior project manager at NYSERDA, the most common sources of failure for wind developers are the inability to obtain the necessary permits for development and the inability to secure financing. 68

The greatest impediments to permitting approval for wind developers occurred at the local level, where they faced the greatest amount of public opposition and demand for information. Local municipalities were often unfamiliar with the SEQR process, and had to establish new local laws to allow for the development of wind farms. Because each municipality has its own government, the developer was subject to each municipality’s interpretation of SEQR, its requirements and its local wind laws. This situation put a lot of pressure of the developer to please everyone, as S explained...

### Table of Agencies

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Barriers to Utility-Scale Wind Development in New York State

This freedom of interpretation also exposed developers to the challenge of trying to answer emotional questions with rational answers. As well as the nuances of local political forces, which can be stronger than political forces at the state level. S described his experience negotiating this local political environment as such:

"Before Article X projects were very susceptible to influence at the local political level. You have town boards made up of volunteers who aren't in it for the same fortune or glory as state politicians and they are very susceptible to local pressures. Wind development in some towns became a hot button topic and you would have signs for and against it all over the town where a wind farm was proposed, the neighbors are mad. It can put a lot of pressure on the internet and now you have to prove your point... You have different factions who would hire consultants to do noise studies and would come up with unrealistic assessments of ambient noise levels and that would lead to new local laws that were unfeasible. I mean if you don't establish correct ambient noise you can create a law that makes development impossible. Basically, the process became expensive and convoluted and drawn out. It becomes emotional battles as much as arguing the merits of the project." 70

Even when a town welcomes wind development public opposition and the demands of local governments can create barriers. In T's case, the town approached the company and asked them to consider doing a development there. However...

"Once we were in the process it became a huge public challenge, there was a handful of people who weren't going to get turbines and they were angry. We had a few very populated public meetings. Residents called the project an eyesore, said it was too big and were just generally unnecessarily emotional...the opposition used a lot of scare tactics- they said it would be too loud and would destroy the foliage. And the town's interpretation of the State's SEQR when we released our EIS we hired an engineer who reviewed all the information but the other side litigated and said review wasn't adequate." 71

The only real tactic developers had to combat this emotional and demanding response to their project proposals was to implement strong public relations strategies and to underline the economic benefits to the town from the development. The siting of wind turbines often stirs visceral reactions that are hard to deal with in a logical manner, and feelings of malcontent when not every town member reaps the same economic benefit from the development. The excessive time and costs imposed on developers trying to overcome significant local demands, political subjectivity and public opposition under SEQR necessitated a change in policy. It led policymakers to believe that streamlining the application process for electric generation facility permitting would be beneficial to developers and ratepayers.

In part a response to this issue, and in part a long-standing goal, on August 4, 2011 Governor Cuomo signed chapter 388 of the Power Act of New York 2011 enacting Article X- a streamlined, "one-stop" permitting process for electric generation facilities. Article X, and different forms of the same concept, have had a long history in New York State. The laws predecessor, Article VIII was enacted in 1972. It gave the State Board on Electric Generation Siting and the Environment the authority to issue Certificates of Environmental Capacity and Public Need. Article VIII established an environmental review of proposed projects at the state level, allowed limited public participation in the review process and gave the state permission to override local laws and ordinances. Article VIII expired on January 1, 1989 but was replaced with Article X in 1992. In 1999 an amendment was added to Article X to allow the Department of Environmental Conservation to issue permits in conjunction with the certificates of approval issued by the State Board. 72

The original Article X expired on January 1st 2003. Renewing the statute was became a challenge in light of the "restructuring" (deregulation) of New York's electricity market, the recent collapse of Enron (which made finding financing for new electric generation plants even more difficult) and an emerging environmental justice movement that objected to the siting of electric generation facilities in low-income neighborhoods. 73

As a result, it took seven years to get the measure passed with support from industry, environmental advocates, consumer groups, and labor and community organizations. 77 Now that Governor Cuomo has reinstated Article X proposals for new electric generation facilities are solely considered under the regulations of Article X and do not follow SEQR processes.

The new Article X is similar to its predecessor and aims to encourage new investments in clean power in the state. It improves upon SEQR by reducing the time required to get project approval and focusing the approval requirements more

Changes between Article VIII and 1992 Article X

1. Expanded scope of environmental review
2. Greater public participation allowed
3. Requirement for the applicant to set aside "intervenor funds" for public or government bodies affected by the facility
4. Shortened Review Process (24 to 12 months)
5. Increased applicability threshold from 50MW to 80MW

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specifically on issues directly related to electricity generation. It employs a multi-agency siting board to review the environmental impacts of any generating facility over 25 megawatts. The board is overseen by the Chairman of the Department of Public Services and includes heads of the Department of Environmental Conservation, the Department of Public Health, NYSERDA, the Economic Development Agency and two members of the public. There are now five phases to the Article X review:

1. Pre-Application
2. Application
3. Administrative Hearings
4. Siting Board Decision
5. Compliance

In the pre-application phase applicants must file a Public Involvement Program (PIP). The PIP outlines the measures the developer plans to take in order to inform the public about the development. The PIP must be filed 150 days before the applicant submits a Preliminary Scoping Statement (a document that describes the proposed facility, the potential environmental and health impacts and the measures that will be taken to assess the environmental and health impacts). The Preliminary Scoping Statement must be filed 90 days before an actual application is submitted and must be accompanied by an "intervenor fee." The intervenor fee funds the hiring expert witnesses, consultants or lawyers by municipal parties and local parties. The fee is $350 per MW of generating capacity up to $400,000 to the intervenor fund. If the application meets all of the requirements of the board, a public hearing will be set no later than 60 days from the date of submission.  

At the public hearing the application is presented to representatives from the Department of Public Service, the Department of Environmental Conservation, the Department of Economic Development, the Department of health, the Department of Agriculture and Markets, NYSERDA, the Department of State, and the Office of Parks Recreation and Historic Preservation. After the hearing the board evaluates the environmental impacts related to the construction and operation of the facility on:

- Statewide electrical capacity
- Ecology, air, ground and surface water, wildlife and habitat
- Public health and safety
- Cultural, historical and recreational resources
- Transportation, communication and utilities
- The cumulative impact of emissions on the local community in accordance with environmental justice regulations

If the siting board finds that the facility is a "beneficial addition to or substitute for" generation capacity, that its construction is in the public interest, that the environmental effects will be minimized and that it is in compliance with the law, the project will be approved.  

The new Article X makes several important changes to the way that wind farm siting approval was conducted between 2003 and 2011. First, the entire approval process for the environmental and health permits will take a maximum 22 months for approval (or 28 months if there are special conditions) as compared to up to five years for some of the projects mentioned in this paper. Second, prior to Article X local municipalities were given sole responsibility in determining whether the zoning regulations in their town could, or should accommodate wind generation facilities. Under the new Article X the siting board has the ability to override local laws if they are deemed "unjustifiably restrictive." Lastly, under Article X developers are required by law to pay certain fees into intervenor funds—those funds can be used by any party who applies as an "intervenor," not just the local municipality. 

Although the new siting approval process is meant to streamline permitting, wind developers are wary of its effectiveness. There is concern over the costs associated with Article X, the level of structured public involvement demanded, who receives the intervenor funds and the general rigidity of Article X's structure.  

In S's opinion:

"To some extent the benefit [of Article X] is that there should be a little more of a consistent approach from one project to another. You have one application administered at the state level and that may take some of the direct emotional pressure out of the equation. But Article X did establish some higher levels of burden in terms of public outreach, which is something developers did before but maybe in the beginning they didn't do as much public outreach because early on you don't want to make a big splashy show of a project. Now they lose the ability to time their public outreach the way they want. They lose the ability to stay under the radar while making an assessment of the site and project feasibility. And it also adds costs to make a PIP."

As for the intervenor funding, I'm fairly sure that every town's costs for evaluating a project were reimbursed by the developer [under SEQR]. It became a bit of an open checkbook for the town, and as a developer you ended up paying for their consultants to do that or you would pay your consultants to do the study then their consultants to review it. But it wasn't necessarily the same as Article X intervenor funding—that fund is available to a wider array of people involved in the process, under SEQR it was strictly for the town in review of the permitting process."
There is also concern that Article X will make the approval process even more expensive and require greater amounts of capital prior to entering into any sort of tangible development agreements. The shortened procedure time means that developers have to have all financing for pre-construction expenses up front, rather than gathering the funding throughout a lengthier approval process. Second, the costs laid out in the Article X procedures solely reflect the cost of reviewing applications by the state, not the cost of conducting the studies necessary for submission to the Article X Board. Unlike SEQR’s list of required study elements the scope of the analysis for under Article X is determined by the Board. Thus there is room for subjectivity and debate if the demands that the Board makes are seen as excessive by developers.

Additionally, Article X has the potential to fuel local opposition to any new electric facility simply because it overrides the power of the local communities in the decision making process. Even if a town has declared a moratorium against wind power in their district, the Siting Board can overrule their decision. This lack of control can drive even harsher reactions to the development than developers under SEQR. It can also make the developer’s negotiations for lease agreements and payments in lieu of taxes to the town more difficult and expensive.

State agencies in New York have made a forceful effort to streamline the permitting and approval processes for siting and connecting electric generation facilities in New York. To this end they have greatly enhanced the State’s role/ control over the process. The State believes that these changes will make the permitting and interconnection processes easier for developers and will speed up the number of new renewable generation facilities coming online. However, while the streamlining of these processes might provide some relief to developers in terms of continuity, they also make the development process less flexible and require developers to front greater amounts of money with little certainty over whether their projects will actually receive approval or a contract with NYSERDA to sell their attributes. In contrast, longer timelines are actually beneficial to developers because they spread costs over time. Longer timelines also allow developers to explore a project’s feasibility without committing large sums of money upfront. The cost of this greater risk and uncertainty will be reflected in the bid price of RECs and make the development of renewable energy even more expensive to ratepayers in New York.

**CONCLUSION & RECOMMENDATIONS**

In order to enhance the attractiveness of New York to renewable energy development New York must prove its commitment to renewable energy and focus on mitigating the uncertainties of development. Right now the process is highly centralized and gives the state a vast amount of power in determining the fate of projects. While this streamlining of the process may make demands on developers more consistent, it decreases the opportunity for different agencies and levels of government to voice approval for projects. It also creates greater risk for developers because there is less room for negotiation of development demands and puts a higher burden of cost on the developer, without offering greater certainty.

The central procurement model used by NYSERDA to award bid contracts limits the amount of development in the state. Without a NYSERDA contract a wind project is not financially feasible because there is no alternative REC market, other than the voluntary market. If there were more options for selling RECs in the New York the amount of development could be larger. Additionally, when the NYSERDA contracts end the State anticipates that the voluntary market will absorb the additional RECs coming into the marketplace. Considering that there is virtually no flexibility right now and only 1% of RECs are sold in the voluntary market, it seems unlikely that the voluntary market will grow enough to satisfy the amount of future supply.

The uncertainty of New York’s REC market creates a disincentive for developers who have the option of building projects in states where compliance mandates are indefinite and there is long-term potential for selling RECs.

From the State’s perspective the 10-year NYSERDA contracts provide enough financial support for facilities to come online, and after recuperating those sunk costs the state should not be responsible for further financial support to renewable energy. However, this model is not ideal for sustainable development of renewable energy in the state. The State ends up paying more upfront, and if NYSERDA contracts only cover the cost of development, as the state has intended, the profits from selling electricity may not provide enough financial gain for developers to further invest in expansion of wind in the future. Additionally, there is no plan in place for the future of the RPS after 2015. If the RPS is not continued or expanded there will be no demand market for renewables in New York after the program terminates. Wind farms have a lifespan of 15-25 years. After these wind farms expire, if no new RPS is implemented and developers have not gained enough financially to revitalize them, New York will return to its pre-RPS state in terms of renewable capacity.

The recent shifts in the approval processes for environmental permits and interconnection also create barriers for developers because they limit flexibility and increase the burden of cost to developers. In order for developers to get the environmental permits necessary for development they must now assemble capital at the beginning of the development process and expose their projects to public criticism in the very early stages of development. These changes have not given developers any greater certainty that their projects will obtain approval. Furthermore, the centralization of the permit approval process creates greater possibility for decision-makers to be influenced by political forces. Track records and past proven successes weigh heavily in the distribution of permit approvals, whether or not they are written in the standards used by regulatory agencies to allocate permits. This bias makes it more difficult for new companies to get into the New York market and centralizing the governance process limits the number of opposing or unbiased voices participating in the approval process.

In order for New York to create a sustainable renewable energy market and maintain the capacity it has added over the past 9 years, and work towards its full 32% potential, the state needs to show greater commitment to the industry and provide greater flexibility to developers. New York can look to other states that for guidance on this issue. For example, Texas surpassed its RPS target of 10,000 MW of renewable electricity by 2025 in 2009. The state currently has 12,212 MW of installed wind generation. Part of Texas’ success stems from the fact that utilities are required to purchase RECs and receive the burden of cost for grid expansion to facilitate renewable generation. By taking the cost of interconnection away from the developer, development in the state is much cheaper. California also has a very aggressive RPS - 33% by 2020. Thus far the State has added 5,549 MW of wind capacity. California’s RPS allows REC trading within the Western Electricity Coordinating Council’s jurisdiction, but caps the amount of traded RECs that can be used to meet the State’s compliance mandate. This creates a greater market for wind developers to sell their RECs than New York’s central procurement model. Furthermore, even after the State’s RPS targets are met, California is required to maintain 33% of generation from renewables indefinitely. This is key for wind developers, because it gives them assurance than there will always be a purchaser of their electricity.

New York State must extend its RPS so that at minimum, a market for renewable energy will continue to exist, although by extending renewable capacity targets the state can help grow the industry. If the State decides to extend the RPS but abandon the central procurement model, it should encourage long-term power...
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