UNITED WIND, INC. COMMENT RE: PETITION OF NEW YORK STATE ENERGY RESEARCH AND DEVELOPMENT AUTHORITY TO PROVIDE INITIAL CAPITALIZATION FOR THE NEW YORK GREEN BANK (CASE 13-M-0412)

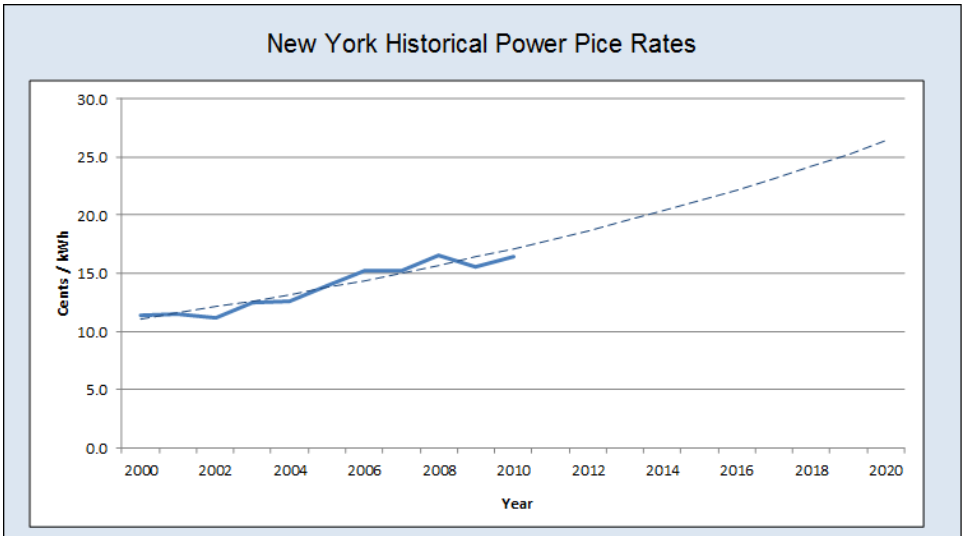
I. Introduction

United Wind, Inc. supports NYSERDA's petition for initial capitalization of the New York Green Bank.

United Wind, Inc. is a distributed wind energy generation system developer based in Brooklyn, NY, offering leasing and financing of small wind turbines (defined as having a AWEA Rated Power of less than 100kW) to end customers throughout the United States. United Wind is the result of a combination of the Brooklyn based company Wind Analytics (a NYSERDA R&D grant recipient), a remote small wind site assessment software developer, and San Diego, CA based Talco, Inc., the leading distributor of small wind turbines in the United States over the past 10 years.

The NYSERDA Petition and the Booz & Co. Final Report generally overlook the quality and size of the potential market for small wind technology throughout New York State, particularly in the upstate counties near and around Rochester and Buffalo. Private financing has recognized this potential, evidenced by United Wind's ability to secure tax equity financing to initiate a pilot fund to develop and lease projects principally in upstate New York. Combined with exclusive relationships with the principal small wind manufacturers in North America, United Wind has the ability *today* to develop approximately 150 projects in New York State within the next 12 months, utilizing local installers for the installation and 20 year maintenance of systems.

United Wind strongly encourages the state to capitalize the Green Bank and direct NYSERDA to design the proposed programs to support the development of distributed wind energy generation systems with the same level of focus as solar PV systems.



Year	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
Cents/kWh	11.38	11.55	11.16	12.44	12.55	13.95	15.27	15.22	16.57	15.52	16.41
% Change		1.5%	-3.4%	11.5%	0.9%	11.2%	9.5%	-0.3%	8.9%	-6.3%	5.7%

Figure 1. Historical power price escalation from 2000 to 2010, with EIA estimate (dotted line) to 2020.

II. Distributed Wind Energy Generation in New York State

Much of rural and upstate New York features the basic qualifications for the installation of small wind turbines: land size greater than 5 acres and a wind speed greater than 5.0 m/s (at a turbine height equal to or greater than 140 feet). The total market opportunity in these regions *today* is up to $2.2 billion. United Wind's mission is to place a small wind turbine on each and every suitable property within the state. The ability to achieve this goal is sustained by state and federal incentives, as well as rising energy prices. The U.S. Energy Information Association (EIA)

estimates that the 10 year growth rate of utility prices in New York state is 4.42% annually (See Figure 1), which will increase total market opportunity by 2030 to $3.3 billion.

In order to be positioned as a mature energy alternative as energy prices increase, state and federal incentives must continue to support small wind technology and implementation at adequate levels. Currently, financing for the direct purchase of a small wind project is supported by 1) upfront payments by the customer, 2) NYSERDA incentives, and 3) tax credits from the Federal Investment Tax Credit ("ITC") (See Figure 2).

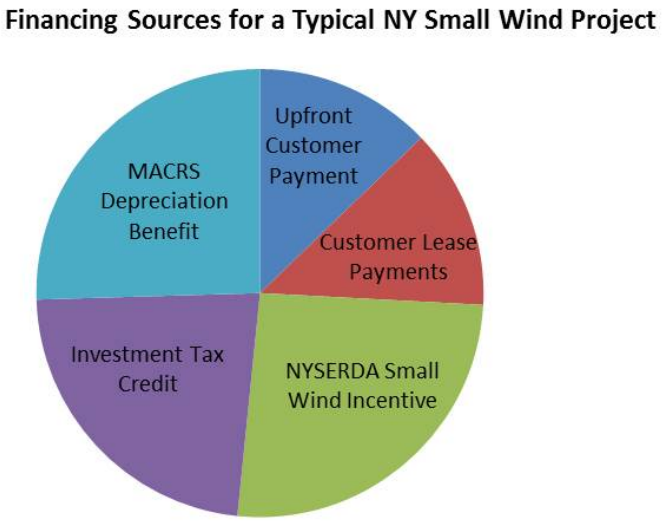


Figure 2. Financing Sources for a typical New York State small wind project.

Due to New York State's strong wind resource, high power prices, and NYSERDA's on-site small wind incentive, small wind is competitive with solar on a levelized cost per watt basis in much of New York State (See Figure 3). As the industry matures, the need for NYSERDA's incentives will decrease, particularly if the proposed NYGB programs come to fruition to support the financing of small wind technology on a smaller scale than the NYSERDA incentive.

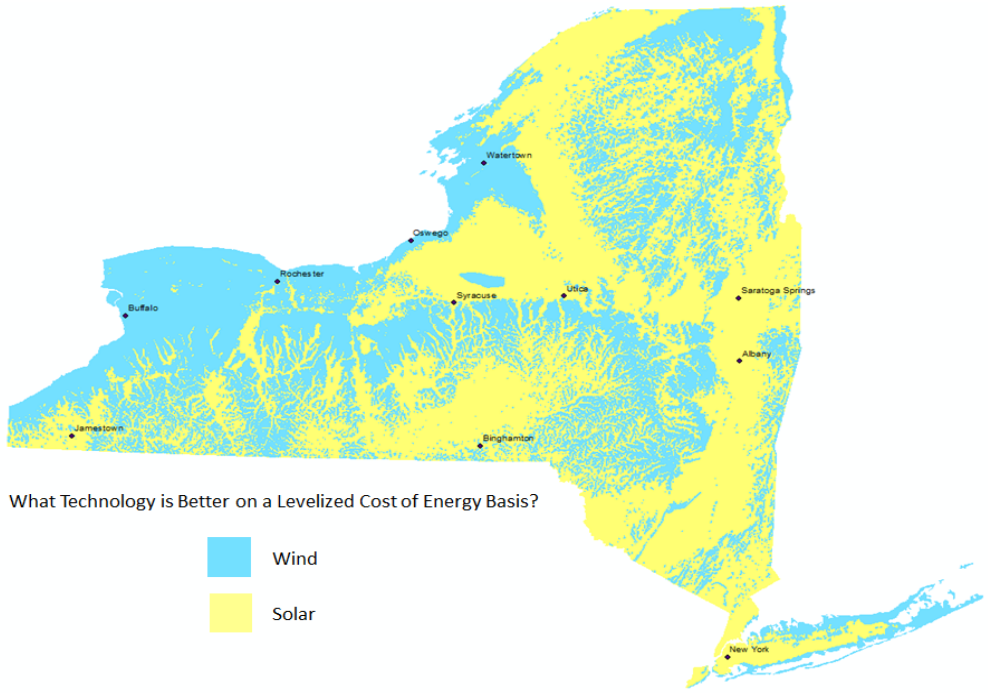


Figure 3. Comparison of LCOE of solar vs. wind technology throughout New York State.

It is critical that New York Green Bank programs are designed to support, expand and continue NYSERDA incentives that enable the growth and maturity of this industry. With wind turbines producing significant energy output advantages over solar PV systems in most of United Wind's target areas in upstate New York, the ability for these customers to continue to take advantage of cheap renewable energy could have significant positive economic impact in the local communities where the money saved from these systems would be distributed.

III. Leasing and Financing and the Local Economy

The principle hurdle in direct sales of small wind turbines has been the upfront costs of systems, which can be up to hundreds of thousands of dollars. As with the decline in solar PV sales due to high upfront costs, the small wind market is poised to breakout with the introduction of leasing and financing products to end customers. Solar PV struggled with growth once the market was

saturated with early adopters and high-income individuals; the introduction of zero down and part prepay leasing and financing resulted in the multi-billion dollar boom in the solar PV industry we see today, a similar trend that is likely to emerge in the small wind market (See Figure 4). Because of the high costs of assessing wind resource and siting small wind turbines, the ability to apply leasing and financing products to small wind had been seen as infeasible; however, United Wind's exclusive license for Wind Analytics' remote site assessment software (which allows for the third-party verified assessment of wind resource at any given address with less than 24 hours turnaround) has reduced siting costs to virtually zero, allowing United Wind to offer zero down leasing and financing options to landowners with qualifying properties.

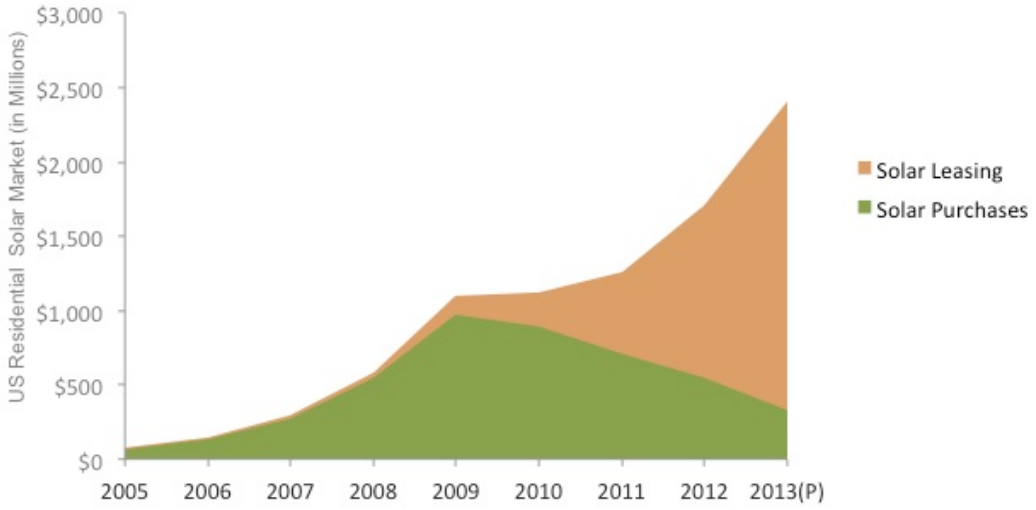


Figure 4. Effect of the introduction of leasing to the solar market (2005-2013).

Under the traditional tax equity financing model, United Wind owns and operates the system for the lease term, in exchange for 20 years of pre-determined lease payments. United Wind and its financing partners provide the development capital and equipment required to install the turbine.

A significant portion of the total revenue generated by the turbine is distributed locally through 1) sales tax revenue (where applicable), 2) direct payment to local installers, and 3) energy savings to customers (See Figure 5). By 2022, the aggregate value of total projects installed could rise up to $2.5 billion (total NYS market that can save at least 20% on total costs over 20 years with either zero down or part prepay lease), an opportunity certain to be missed if institutions such as NYSERDA and the New York Green Bank fail to continue the state's strong support for small wind technology.

Beyond the uncertainty and potential conclusion of federal and state incentive programs, hurdles to achieving maximum market size include 1) high credit requirements from third party financing partners, 2) availability of local installers for parallel project installations, and 3) non-standard local permitting and interconnection approval processes.

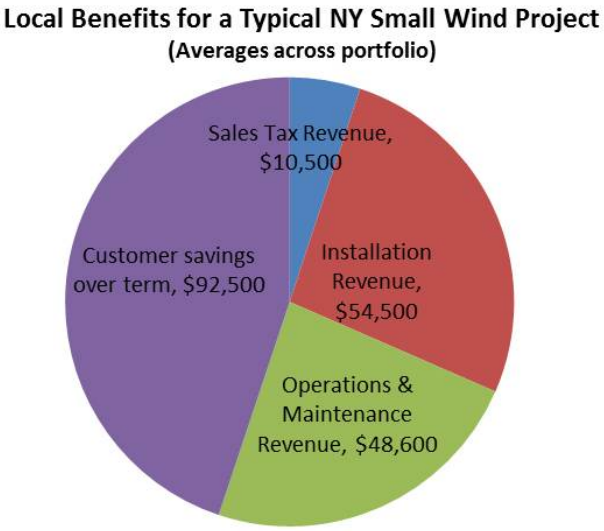


Figure 5. Local benefits for a typical New York State small wind project.

IV. Key Programs for a Growth Relationship

Contrary to the assumptions as laid out in the Final Report, small wind as an industry is mature enough to fit within the stated guiding principles of any program run by the NYGB. Particularly: 1) private financing in the market already exists, as evidenced by United Wind's existing tax equity funding; 2) market gaps can be filled by NYGB's proposed product suite (as described below), and novel programs need not be created specifically for small wind; 3) United Wind's private tax equity financing partner is independently interested in NYGB's product suite to improve the financing offerings available to United Wind; 4) United Wind and its small wind installation partners have a strong existing relationship with NYSERDA; and 5) the economics of small wind have become financeable due to Wind Analytics' unique software, leaving credit and other market barriers reducing adoption potential.

The New York Green Bank's proposed programs would significantly decrease the barriers to adoption of small wind within New York State, while earning the return on investment to the NYGB as proposed in the Final Report. Three of the proposed programs could be implemented for small wind today, and would have the same qualifying parameters as solar PV: 1) credit enhancement; 2) subordinate debt; and 3) loan loss reserve. United Wind has the infrastructure today to work with the NYGB to increase adoption of small wind and benefit to local installers in New York State utilizing these programs.

Credit Enhancement

The credit enhancement program as proposed in the Final Report would have a real and substantial effect on current financing opportunities in the small wind market. Similar to the solar PV market for leasing and financing, credit restraints as imposed by financing partners

eliminates a large proportion of eligible property owners from consideration. The upstate New York small wind market consists mostly of large residential landowners and commercial farms.

A credit enhancement program that extends credit to FICO scores of 600 and higher (as opposed to the traditional 700 and higher required by financing partners) could expand the market by as much as 58% (See Figure 6), more pronounced in small wind as compared to solar PV in that financing partners in the nascent small wind market are traditionally more sensitive to the credit ratings of property owners. The credit enhancement program could be implemented alongside solar PV, reducing costs to the NYGB and opening up significant new opportunities for the program to positively impact local communities where credit ratings have traditionally been lower than the national average.

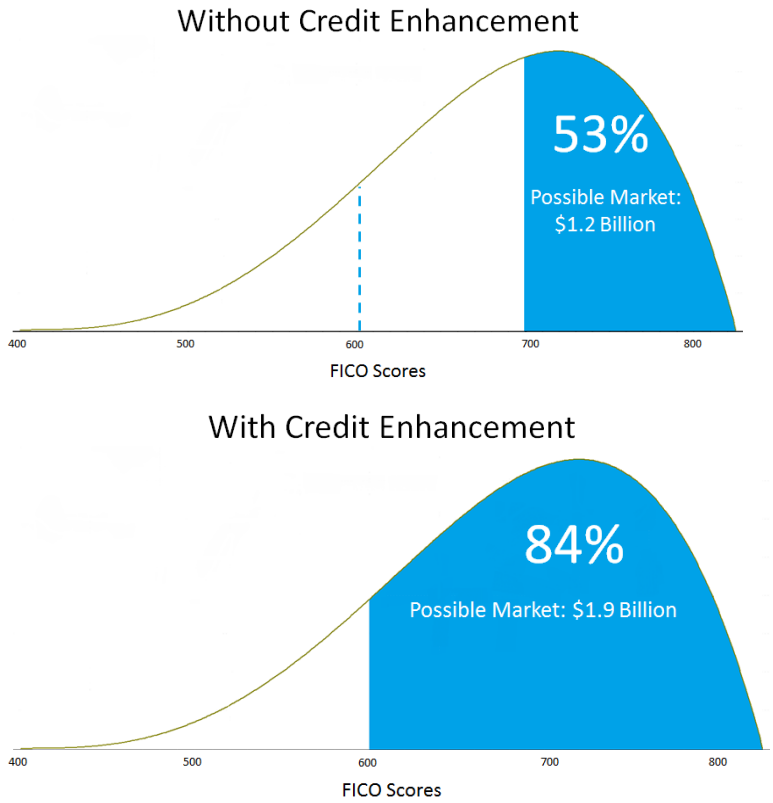


Figure 6. Effect of potential NYGB credit enhancement program on overall market size.

Subordinate Debt and Loan Loss Reserve

The loan loss reserve and subordinate debt model as described in the Final Report may be adapted to the small wind market, and integrated today into the United Wind tax equity funding model (See Figure 8). The capitalization of the NYGB would allow programs to be funded that would have substantial impact on the project economics of numerous upstate small wind installations, with substantially similar risk factors (e.g., default rate, credit rating range, return on investment) as described for solar PV in the Final Report.

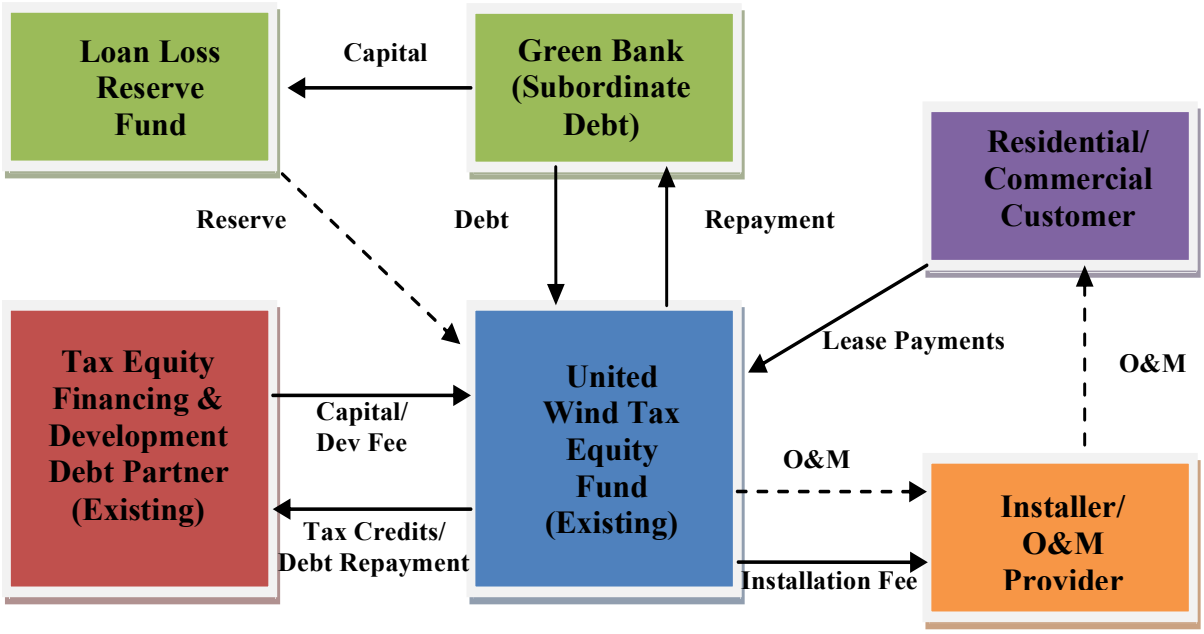


Figure 7. United Wind tax equity financing model with NYGB support.

Additionally, there are several other programs where the NYGB could significantly reduce development costs at minimal risk, including 1) providing an insurance pool for installers and developers to lower the cost of project, installation and shipping insurance; 2) provide grant

funding to local educational institutions to provide job training for new wind turbine installers; 3) provide incentives to local permitting and zoning authorities to standardize and streamline the permitting approval process; and 4) provide incentives to NYSERDA eligible utilities to streamline the interconnection application process.

V. Conclusion

United Wind firmly believes that public-private partnerships will bring technologies such as small wind into the mainstream, allowing the industry to mature and become feasible energy alternatives into the future. The New York Green Bank would represent an important step for the future of renewable energy in New York State, and United Wind strongly supports NYSERDA's petition to capitalize the NYGB, and offer real and substantial financial programs and mechanisms that would translate into real dollars being invested and returned to local communities.