



## Massachusetts Renewable Energy Trust Commonwealth Wind Incentive Program: Community Scale Solicitation No. 2010-CWIPCS-01

### Feasibility Grant Application



## Town of Northborough, Massachusetts

November 17, 2009

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Sustainable Solutions  
from Wind Power Experts™



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Commonwealth Wind

Feasibility Study and Design & Construction Grants (2010-CWIPCS-01)

**Authorized Applicant's Signature and Acceptance Form**

The undersigned is a duly authorized representative of the applicant listed below. The Applicant has read and understands the Solicitation requirements. The undersigned acknowledges that all of the terms and conditions of the Solicitation are mandatory.

The Applicant specifically acknowledges the application of the procedures regarding submission of sensitive information as set forth in Section 9.1.2 of the Solicitation, and specifically agrees that it shall be bound by those procedures. The applicant understands that all materials submitted as part of the application are subject to disclosure under the Massachusetts Public Records Law; and acknowledges and agrees that MTC and the Trust have no obligation, and retain the sole discretion to fund or choose not to fund the application set forth herein, and that MTC's/MRET's receipt of the application does not imply any promise of funding at any time.

The undersigned has either:

Please  
check  
one.

- ☐ specified exceptions and counterproposals to the Grant Agreement in the Application;
- ☒ agreed to the terms and conditions of the Grant Agreement and has included an *original*, signed copy of with its Application; or
- ☐ acknowledged that it has previously executed the Grant Agreement.

The undersigned acknowledges and agrees that the failure to submit exceptions and counterproposals with this Application shall be deemed a waiver and neither the Grant Agreement nor the task order shall be subject to further negotiation.

The applicant understands that, if selected by MRET, the applicant and MTC will detail and execute a Task Order that outlines the respective roles and responsibilities.

I certify that the statements made in this application, including all attachments and exhibits, are true and correct to the best of my knowledge.

Applicant: Town of Northborough  
(Printed Name of Applicant)

By:   
(Signature of Authorized Representative)

Name: John W. Coderre

Title: Town Administrator

Date: 11/13/09

## Commonwealth Wind Incentive Program: Community Scale

### Feasibility Study\*

Solicitation No. 2010-CWIPCS-01

#### Application and Budget Instructions and Forms

Complete the forms provided in this document by saving this MS Word file (Commonwealth Wind Incentive Program: Community Scale Initiative Application and Budget Forms) under a distinguishing file name. The application narrative must not be more than **twelve (12) pages in length (10 pt font), excluding the cover sheet, budget forms, and required attachments**. It is acceptable to expand the boxes to insert sufficient text in order to supply the requested information. MRET's evaluation criteria require complete, clear, and concise proposals. It is the sole responsibility of the applicant to ensure that its application is complete, meets minimum threshold requirements, and is properly submitted to MRET (as detailed in the Solicitation). MRET reserves the right to only consider applications that, in its sole judgment, meet the minimum threshold requirements.

The application must contain, at minimum, the following:

- ✓ Authorized Applicants Signature and Acceptance Form (**Attachment A** of the Solicitation)
- ✓ Completed Application Summary Sheet
- ✓ Completed Application Narrative
- ✓ Completed Budget Form(s)
- ✓ Signed General Terms and Conditions, if no exceptions noted (**Attachment G** of the Solicitation)
- ✓ Required Attachments (see Section 12 for list)

#### REMINDER:

**Funds awarded are public funds and any information submitted to MRET by the Applicant in response to this grant solicitation is subject to public disclosure requirements as set forth in the Massachusetts Public Records Act. See Section 9.1 of the solicitation for a discussion of Public Disclosure requirements and procedures for handling documents submitted to MRET and identified by the Applicant as "sensitive information".**

\*In the case of Public Projects, the Feasibility Study Application and Potential Grant will include funding for Business Planning Activities

## Application Summary Sheet

Applicant Information	
<b>Primary Applicant – Organization (must be primary end user):</b> Town of Northborough	<b>Partners (if any):</b> NA
<b>Short Title of Project:</b> Northborough Community Wind Energy Development	<b>Grant Type:</b> Feasibility Study
<b>Applicant legal status and state of jurisdiction:</b> Massachusetts Municipality	<b>Applicant Taxpayer ID#:</b> 046-001-249
<b>Total Project Cost (Feasibility Study):</b> \$85,000	<b>Total MRET Funding Amount Sought:</b> \$85,000
<b>Mailing Street Address:</b> 295 South Street	<b>City/ Town:</b> Northborough
<b>State:</b> Massachusetts	<b>Zip Code:</b> 01532
<b>Applicant's Simple Payback Requirement for Wind Energy System (years):</b> 12years or less	<b>Has Applicant previously received assistance from MRET? If yes, please explain and include amount received:</b> Yes, the Town was awarded a grant in the amount of \$6,000 by the Massachusetts Technology Collaborative (MTC) for a Desktop study of three sites performed by the University of Massachusetts (UMASS) Wind Energy Center (WEC): The three sites investigated were the Tougas Farm, Davidian Brothers Farm and Mt. Pisgah. Each of these sites demonstrated positive characteristics necessary for a successful wind turbine installation.

Facility and Site Information	
<b>Name of Project Facility (Electrical Load end user):</b> The Town of Northborough will be the primary end user of the electrical load. It is assumed that net metering provisions, still being finalized by the Department of Public Utilities (DPU), will allow the Town of Northborough to aggregate and offset multiple municipal loads with power produced from a single wind turbine project, as long as meters are under the same distribution company and located in the same ISO-NE load zone.	
<b>Facility Type (highlight appropriate facility type):</b>	
<b>Public</b> <i>State agency building, municipal building, school, etc.</i>	<b>Commercial</b> <i>Retail, office space, high-rise housing, multi-family homes (&gt; 6 units), warehouse, large farm, etc.</i>
<b>Industrial</b> <i>Manufacturing, industrial services, etc.</i>	<b>Institutional (private)</b> <i>University, museum, private school, not for profit, etc.</i>
<b>Facility Street Address:</b> 295 South Street	<b>City/ Town:</b> Northborough
<b>State:</b> Massachusetts	<b>Zip Code:</b> 01532
<b>Electric Utility Service Provider and Rate Class:</b> National Grid with various rate classes from Residential to General Service.	<b>Average Annual Retail Electricity Usage (kWh) and Peak Electricity Demand (kW) for Project:</b> ~2.5 million kWh/year. This study will be used to evaluate all meters owned by the Town, including the school district to determine accurate usage and peak demand figures.

### Wind Energy Project Technical Information

#### Proposed Wind Project System Size

On-site Horizontal Axis Wind Turbine Generator

900kW AC (peak output) per manufacturers specifications

**Annual Net Electricity Production Estimate (kWh) and Estimate of Behind the Meter Electricity Use:** SED utilized the estimated wind speeds from the Commonwealth Wind Site Evaluation and Siting Tool (CWEST), which was estimated to be 6.2m/s at 70m above ground level at the Mt. Pisgah site. The Mt. Pisgah location will be the main site for this application, as it demonstrates the strongest wind resource, however the two additional locations identified in the WEC assessment, will be evaluated in the feasibility study as well.

Using this average wind speed, representative assumptions were made for: k-value (2.25), wind shear (0.330) and turbulence factor (20%). These assumptions were made based on SED standard inputs and Wind Resource Statistics in the CWEST. SED then used a proprietary spreadsheet model and the CWEST tool which estimated the wind data adjusted for terrain, vegetation and elevation. The estimated average wind speed at a 75m hub height was determined to be 6.34m/s. Next, the Weibull curve for the wind data at hub height was crossed with the power curves for the EWT 900kW wind turbine to obtain estimated annual energy outputs. The estimated outputs were then reduced by 7.5% to account for losses. The predicted annual net electricity production for an EWT 900kW wind turbine at the Mt. Pisgah site is 1,701,655/annually (21% capacity factor).

SED anticipates that 100% of the wind generated electricity usage will be net metered to the Town's electricity accounts based on the project team's legal and technical understanding of net metering regulations currently being finalized by the Massachusetts Department of Public Utilities. The Town of Northborough uses over 2.5 million kWh annually with power costs of ~ \$0.013/kWh.

**Estimated Installation Completion Date of Wind Energy Project:** Summer 2012

**Estimated Simple Payback of Wind Project without MRET Incentive (years):** 12 to 14 Years

**Estimated Simple Payback of Wind Project with MRET Incentive (years):** 9 to 11 Years

### Point of Contact Information

**Primary Contact: Authorized to commit organization; notified upon decision of grant award**

**Name:** Fred Litchfield

**Title:** Town Engineer

**Organization:** Town of Northborough

**Phone:** 508.393.5040

**Email Address:** flitchfield@town.northborough.ma.us

**Fax:** 508.393.6996



<b>Mailing Street Address:</b> 63 Main Street	<b>City/ Town:</b> Northborough
<b>State:</b> Massachusetts	<b>Zip +4 Code:</b> 01532-1943
<b>Website:</b> <a href="http://www.town.northborough.ma.us/">http://www.town.northborough.ma.us/</a>	
<b>Project Manager: Contact over course of project</b>	
<b>Name:</b> Matthew Vanderbrook	<b>Title:</b> Project Manager
<b>Organization:</b> Sustainable Energy Developments, Inc.	<b>Phone:</b> 585.265.2384
<b>Email Address:</b> matt.vanderbrook@sed-net.com	<b>Fax:</b> 585.265.1148
<b>Mailing Street Address:</b> 317 Route 104	<b>City/ Town:</b> Ontario
<b>State:</b> New York	<b>Zip +4 Code:</b> 14519-8958
<b>Website:</b> <a href="http://www.sed-net.com">www.sed-net.com</a>	
<b>Publicity Contact: Listed on MTC website for project information requests; contact for publicity efforts</b>	
<b>Name:</b> John Coderre	<b>Title:</b> Town Administrator
<b>Organization:</b> Town of Northborough	<b>Phone:</b> 508-393-5040
<b>Email Address:</b> <a href="mailto:jcoderre@town.northborough.ma.us">jcoderre@town.northborough.ma.us</a>	<b>Fax:</b> 508.393.6996
<b>Mailing Street Address:</b> 63 Main Street	<b>City/ Town:</b> Northborough
<b>State:</b> Massachusetts	<b>Zip +4 Code:</b> 01532-1943

<b>Other Contractors Contact Information (For Conflict of Interest Verification)</b>	
<b>Name:</b> Richard C. Gross P.E.	<b>Title:</b> Owner's Engineer/Principal
<b>Organization:</b> Richard C. Gross, P.E. Inc.	<b>Phone:</b> 508.665.5805
<b>Email Address:</b> rgross@ieee.org	<b>Fax:</b> 508.665.5858
<b>Mailing Street Address:</b> 10 Open Street	<b>City/ Town:</b> Framingham
<b>State:</b> Massachusetts	<b>Zip +4 Code:</b> 01701
<b>Website:</b> NA	
<b>Name:</b> Courtney Timmons	<b>Title:</b> Project Coordinator
<b>Organization:</b> AWS TrueWind LLC.	<b>Phone:</b> 518.213.0044 ext. 1069
<b>Email Address:</b> ctimmons@awstruewind.com	<b>Fax:</b> 518.213.0045
<b>Mailing Street Address:</b> 463 Karner Road	<b>City/ Town:</b> Albany
<b>State:</b> New York	<b>Zip +4 Code:</b> 12205
<b>Website:</b> <a href="http://www.awstruewind.com">www.awstruewind.com</a>	

## Application Narrative

### 1. Proposed Project Summary

Project Title and Location (City and State)		<p>The Town of Northborough wishes to perform an in-depth feasibility study exploring the installation of a wind turbine that will be net metered to serve municipal loads and offset electrical utility expenses. The Town had an MTC/MRET funded preliminary site assessment completed by the UMASS WEC that identified three potential locations for a wind turbine in the Town - Mt. Pisgah, Davidian Bros. Farm, and Tougas Farm. All of these locations will be evaluated for their wind energy potential in the feasibility phase. The feasibility study will take no more than 21 months to complete for a total budget of \$85,000, which will include the purchase and installation of a meteorological tower at one of the three identified sites. The Town has negotiated a Memorandum of Understanding (MOU) for a met tower at the Tougas Farm location. Due to the minimal distance to the other locations, this collected wind data will provide accurate data for modeling all sites under consideration. The proposed scope of work meets the required deliverables of MRET and the full scope can be found in Appendix G. The Town selected Sustainable Energy Developments, Inc. (SED) to submit this application and conduct this study through a competitive bid process in the fall of 2009. The project team will consist of SED, who will act as the Project Manager, and the Town of Northborough represented by Fred Litchfield, Town Engineer. The project team has the necessary knowledge and specific on-site wind development experience to successfully complete this feasibility study. In a preliminary analysis, SED determined that a 900kW wind turbine would be an appropriate fit based on the Town's electrical demand and the characteristics of the potential locations. The feasibility study will explore wind turbine options in detail.</p>
Organization:	<i>Town of Northborough</i>	
Facility Type:	<i>Net Metered for Massachusetts Municipality</i>	
Project Size (kW)::	<i>900kW or larger</i>	
Grant Request:	<i>\$85,000</i>	
Contact:	<i>Fred Litchfield, <a href="mailto:flitchfield@town.northborough.ma.us">flitchfield@town.northborough.ma.us</a> 508.393.5040</i>	

### 2. Team Commitment and Qualifications

#### 2.1. Applicant Commitment

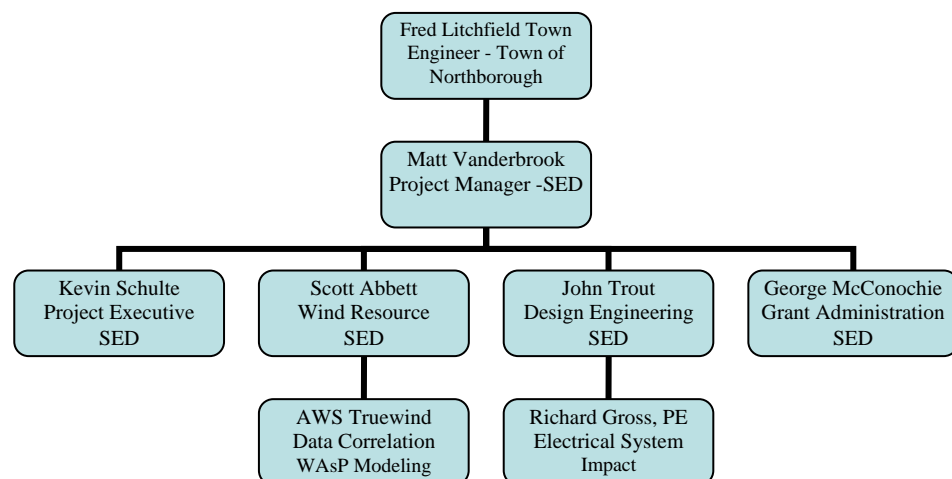
The Town of Northborough is the primary/end energy user and is therefore the applicant for the project contemplated in this feasibility study grant application. There is a strong commitment from the Town to reduce energy costs for municipally owned facilities and do so in an environmentally friendly manner. See Appendix C for the full Site Owner Commitment Letter from the Town of Northborough. The Town is committed to providing all necessary details towards the completion of this study. Initial interest prompted the Town to apply for and receive a study commissioned by the MTC/MRET and performed by the UMASS WEC, to evaluate the suitability for medium and utility-scale wind turbines at three potential wind sites. The preliminary results of this study demonstrate that the Mt. Pisgah site has the most favorable characteristics for a wind turbine development based on the favorable wind speeds, the fact that it is situated on Town owned lands and that it has the greatest setbacks from nearby residences. The two additional sites will be further explored as part of this study to determine their logistical and economic viability for a successful development. The intended goal of this in-depth study is to achieve a level of project detail that will permit the continued design and construction of a replicable on-site wind project to off-set town electrical expenditures generated by fire, police, public works facilities, schools, and town offices. The Town's financial requirements for this type of project are to have a return on the investment within 10 to 12 years of



	electricity savings. Based on SED's preliminary analysis, this project is well within the stated goals.
<b>2.2. Host/Partner Commitment</b>	The Town of Northborough is both the applicant and site owner for the project contemplated in this feasibility study grant application. SED has committed to performing the work necessary to successfully complete this project. (See Appendix D for SED's commitment letter.)
<b>2.3. Team Description and Qualifications</b>	<p>In its role of performing a feasibility study for the Town of Northborough, SED will bring a level of experience in all aspects of wind project development to ensure the technical and economic success of this study. To date, SED's project team remains the leader of installed wind power capacity in the Commonwealth of Massachusetts having managed projects from the initial feasibility phase through to design, construction and commissioning. SED's intent is to not just complete a feasibility study, but provide a clear pathway to the development of a high quality wind turbine project for the Town of Northborough.</p> <p>SED has been contracted to perform 15 feasibility studies within the Commonwealth, 12 of which have been completed and three of which are currently underway. Nine of these feasibility studies have progressed into the design and construction phase, six of which are successfully installed, commissioned, interconnected and currently operational. In addition to SED's six completed utility scale wind turbine projects in the State, SED will 'break ground' on at least four additional MA wind energy projects in the next six to 12 months. SED's operational utility scale installations include a 1.5MW wind turbine project at Jiminy Peak Ski Resort in Hancock, MA, the first turbine installed under the Massachusetts Technology Collaborative (MTC) Large Onsite Renewable Initiative (LORI); two 600kW wind turbines, one at Holy Name Central Catholic School in Worcester and the other at Williams Stone Company, Inc. in East Otis. Additionally, SED has installed three Northwind 100kW wind turbines in the State at Country Garden (Hyannis), McGlynn Middle School (Medford) and at the Woods Hole Research Center (Woods Hole). Current on-site developments managed by SED within the State of Massachusetts include: Mount Saint Mary's Abbey (Wrentham) – 100kW, The Town of Hanover – 225kW, various sites owned by the Massachusetts Bay Transportation Authority (MBTA), Berkshire East Ski Resort (Charlemont, MA), Bay Path Regional Vocational Technical High School (Charlton, MA) and the Masonic Health System (Charlton, MA).</p> <p>SED's project team will include Kevin Schulte, Scott Abbett, George McConochie, John Trout and Matt Vanderbrook. Matt Vanderbrook will be the Project Manager and his responsibilities will include development of timelines, client communication, turbine site selection and project logistics. Kevin Schulte will be responsible for technical oversight of the study and project financial modeling, which will include wind generated electricity values, economic modeling, tax implications, budgets, capital costs and green marketing opportunities. Scott Abbett will be responsible for wind resource/GIS tasks such as wind data management, modeling and on-site usage analysis. George McConochie will be responsible for grant administration, permitting and reporting. John Trout will be the design engineer whose responsibilities will include design engineering, buildability assessment and interconnection.</p> <p>SED will be responsible for the entire project including performance of the proposed scope of work and will include input from the Town of Northborough through Town Engineer Fred Litchfield, who will serve as the Town's primary contact. Regular communication will ensure that the study meets the Town's internal financial and project development requirements. In addition, AWS Truewind and Mr. Richard C. Gross will be retained as subcontractors for this study. AWS Truewind will perform a long-term correlation of collected and existing wind resource data after six months and again at 12 months to extrapolate the met tower measurement period to an</p>

average annual period. This will be used to identify the area's wind resource characteristics, including annual average wind speed, average wind power density wind rose and diurnal profile. SED will then make a determination on the development viability of each site from a wind resource perspective. Mr. Richard C. Gross, a professional electrical engineer, licensed in the State of Massachusetts was chosen for his capability and experience in designing electrical interconnection plans specifically for wind power projects; he specializes in the conceptual design, interconnection and analysis of wind energy projects. He has worked in the electric utility industry for 25 years providing system planning, electrical design and project management services for high voltage electrical power systems and renewable energy projects. He provides electrical engineering expertise to project developers from site assessment and transmission/interconnection analyses through permitting and plant design. For this study he will perform an electrical interconnection system impact study to include design and costing for the proposed site.

Resumes of the project team's key individuals have been previously submitted to the MTC via LORI applications and have not been resubmitted with this application as requested in the instructions.



### 3. Project Technical Characteristics and Current Status

#### 3.1. Site Suitability

The Town's annual electric load is over 2.5 million kWh; the study will investigate all Town and School accounts for a better understanding of these figures and the impact of a wind turbine development. This study will explore the installation of a 900kW wind turbine on Town owned land at one of three locations: Mt. Pisgah, Davidian Bros. Farm and Tougas Farm. This section will focus on Mt. Pisgah as it has the best wind resource and appropriate setbacks from residential areas. Designated as a Conservation Area by the Town, Mt. Pisgah is a broad unused, densely forested hill with an elevation of 700ft situated on Smith Rd, east of Ball Hill Rd and South Linden St. It is over 600m from the nearest residence. The nearest 3-phase interconnection point is located at the intersections of Linden and Derby Streets. The other two locations possess adequate spacing for the staging and construction of a utility scale (900kW and larger) wind turbine.

<p><b>3.2. Proposed Technology</b></p>	<p>SED recommends the Emergya Wind Technologies (EWT) 900kW horizontal axis wind turbine with a 54-m rotor diameter and a 75-m hub height. This is a direct drive machine making it significantly quieter than comparably sized wind turbines that use a gearbox. EWT's pitch controlled variable speed models has a reliable drive solution with a track record of over 200 operational units worldwide, which replaces a complex high-speed geared drive train common in most other wind turbines. The manufacturer typically recommends that the installation include a pad mount transformer at the base of the turbine. Similar machines of equal or larger size and as high of quality, in addition to the known availability of the machine turbine models will also be explored through the course of this study. The initial analysis demonstrated an annual energy output of 1,814,812kWh, with 100% of the power net metered to Town accounts. Assumptions used include the detail cost of electricity at the facilities of \$0.013/kWh, a mean wind speed of 6.2m/s at 70m a.g.l. based on publicly available wind maps, operations and maintenance, and energy costs to increase at 3% per year, and the Town cannot take advantage of any tax incentives.</p>
<p><b>3.3. Financial Analysis</b></p>	<p>The initial assumption is that the Town will own this project. SED's initial analysis (Appendix H) demonstrated this to be the most beneficial arrangement. The study will look at baseline economics and ownership structures. Associated cashflow models will be developed including full applicant ownership, third party ownership, flip-switch ownership, and land lease opportunities. Based on ever-growing support from the financial community, SED is confident in its ability to provide more capital financing options to projects like the Town' allowing for greater flexibility in debt/equity structures, including those from MRET, CREBS or other federal programs. At a 3.53% annual rate of electricity cost escalation (Five Year Average Annual Energy Escalation Rate in Massachusetts), an EWT 900kW at the Mt. Pisgah site will experience an IRR of 8.1% and payback period of 10years. These returns meet the Town's 12year payback requirements with the inclusion of the maximum available MRET funding. Details on model inputs and a sample of the cash flow model can also be found in Appendix H. The value of wind generated electricity was calculated assuming 100% of the electricity generated would be net metered to other Town or School electric accounts. The study will thoroughly examine eligibility for net metering and financial implications on economic returns. This is based on SED's understanding of the pending net metering legislation and confidence that it will allow for this scenario considered by the Town. SED's study will account for alterations made in the final net metering regulations, scheduled for Dec. 2009, to ensure a viable project is presented to the Town of Northborough.</p>
<p><b>3.4. Project Risks</b></p>	<p>The Town has taken great strides to involve and educate the community through the formation of a volunteer wind turbine committee comprised of engineers and other professionals all of whom are town residents. All work completed to date has been transparent and open to public review. SED will work closely with the Town and Committee to continue dialogue with the community and provide updates as the project progresses. The findings of the proposed study will be distributed to the public and the project team will work to facilitate an informed decision as to whether or not a wind project is in the best interest of the Town. The biggest risk to the Town in developing this type of project is the quantity and quality of the return on investment. Preliminary economic returns will meet Town requirements. It should be noted that no fatal flaws are noted thus far by SED or the WEC. Site access and clearing will be needed for a met tower and development, but will not hinder this project. SED's experience dictates this project has a high probability for success. Interconnection could add costs to the wind project at the Mt. Pisgah site. For the farm sites, 3-phase power is located at the cold storage building on site. These sites will be less challenging to access and interconnect, however the Mt Pisgah project size would allow for a quicker payback than the other two sites. The Town has begun the process of an MOU with the owners should one of these sites be selected as the best match for development. No adjustments to the standard interconnection process</p>

	are anticipated as it relates to net metering and the standard interconnection process with National Grid should be adequate. Electrical production potential and interconnection costs will be evaluated and compared during the electrical system impact study. This process should not impact the success of the project. SED has had successful interconnection experience with National Grid on previous projects, and will continue to work closely with them on any issues of concern.
<b>3.5. Development Progress</b>	<p>The Town created a volunteer wind turbine committee to address: site selection, financial analysis, technical grid and equipment review, public and town interfaces and administrative portions of the project. These working groups meet on a regular basis to ensure timely decision making, identify potential problems, and develop and implement solutions. The Town applied for and received a grant towards the completion of a municipal site survey from the Renewable Energy Trust. This survey was performed by the UMASS Wind Energy Center and included a survey of wind potential at three possible sites within the Town. The results of this study indicated that key factors needed for a utility sized wind project at two of the three sites contemplated in this proposal are present. The Committee has investigated Agricultural Preservation Restriction (APR) Program requirements, National Grid electrical grid interconnection requirements, and Town electrical billing data for use in project analysis. An RFQ was issued and SED was contracted to perform a wind turbine feasibility study. This will bring the project to a level of understanding that will allow the Town to make an informed decision as to the pursuit of further MRET design and construction funding. A preliminary analysis performed by SED yielded favorable results. The study should be complete by the Summer of 2011, with construction to start in the Fall of 2012, dependent on MRET solicitation dates and the public procurement process. The following is a list of all permits and approvals needed, regardless of their applicability to this project.</p> <p><b>Federal Level:</b> FAA – not initiated. The project site contemplated is located ~eight miles (~13 kilometers) from Marlboro and Sterling Airports. The FAA process will be initiated as part of the study; US Fish and Wildlife Service - not initiated.</p> <p><b>State Level:</b> Massachusetts Environmental Protection Act – not initiated; Massachusetts Division of Fisheries and Wildlife – not initiated; Mass Department of Environmental Management &amp; US EPA - Required if more than one acre of land is disturbed not initiated; Wetlands Program Policy- Activities In The Buffer Zone Under The Wetlands Protection Act - not initiated; Massachusetts Water Quality Act Section 401 Water Quality Certification – Not applicable since activity will not alter more than 5,000 square feet of wetlands; Massachusetts Historical Commission (MHC) – not initiated; Massachusetts Department of Environmental Protection – Noise control policy - to be covered through local process.</p> <p><b>Local Level:</b> There is currently not a wind turbine ordinance in the Town of Northborough, so the standard local permitting process will be reviewed in the feasibility study for a recommended pathway. A building permit, site plan, zoning variance, and special use permit may apply.</p>
<b>4. Energy Efficiency Measures</b>	
<p>Over the last 20 years, The Town of Northborough has taken many steps to reduce their carbon footprint, all while improving their bottom line. These efforts have largely taken form through the reduction of solid waste for the Town through a drop-off recycling program, a pay as you throw program, and an agreement though Wheelabrator in Millbury for a waste to energy incinerator program. Schools have made a push to increase efficiency by looking at use of energy, practices in the cafeteria, and strategies which can decrease the Town's carbon footprint. The wind turbine would provide a major reduction in town municipal energy costs, supplying energy for local schools and town government and potentially selling excess energy to the local energy grid. The Town could sell renewable energy credits back to "dirty" coal, oil and other electrical generating plants.</p>	

## 5. Project Programmatic Benefits

This project will reduce Massachusetts' importation of electricity (and fuels for generation) and will provide a wide array of system benefits, including enhanced energy security, deferred distribution facility upgrades, reduction of electricity line losses, increased grid reliability and possible support to the grid in case of partial grid failure. Wind power will buffer against the volatility of conventional fuels, as it is not subject to national or international market swings or to supply disruptions due to labor, transportation or market vagaries. Furthermore, the decentralized nature and relatively small scale of distributed power generation projects make them less vulnerable to sabotage or the accidental disruptions experienced by larger fossil fuel and nuclear power plants.

This study is unique in that it explores the opportunity for a town to diversify its energy mix utilizing stand alone wind turbines to offset municipal loads through the provisions of the Green Communities Act. This project will help to increase the penetration of wind development in the Town and across Massachusetts, spreading the economic and environmental benefits wind power offers users. It is symbolic of the success and publicity generated by wind turbine projects supported by MRET. This is not the first study to investigate the potential for wind energy at a Town in Massachusetts, but will be one of the first studies to investigate the potential to offset municipal loads employing the net metering law under the Green Communities Act. Current DPU discussions suggest a wind turbine project would be eligible for net metering, supplying credits to other Town electricity accounts, including schools. This model could dramatically change the energy landscape throughout Massachusetts, putting energy opportunities and control in the hands of communities, and financially strengthening municipalities and schools. The Town has the desire to host workshops and other public education events at the facility using it as a driver for educating the community on the benefits of renewable energy and a resource for growing the green energy workforce in Massachusetts. The Town will act as a model and source of experience for other towns. This project will demonstrate that Town's such as Northborough, not particularly known for having great wind energy potential, can implement a successful renewable energy project and provide a replicable model for on-site wind power generation to diversify the geographic distribution of wind energy projects in the State. The addition of this wind turbine will demonstrate the viability of these projects and spread the economic and environmental benefits to more of the Commonwealth's rate payers. A project such as this will once again place Massachusetts as a leader in the newest renewable energy developments in the nation.

To every extent possible, without sacrificing quality or cost, the project team will employ locally manufactured products, labor and expertise. SED is a New York based company with an office and one full-time employee in Massachusetts. The company producing the EWT 900kW wind turbine recommended for the Town also has plans to manufacture the generator in Fitchburg, MA by 2010, contributing to creation and maintenance of a wind turbine manufacturing sector within the Commonwealth. Based upon the success SED has experienced in the Massachusetts market to date, with over 3000kW of installed wind capacity, and SED's commitment to maintaining a leading role in this market, SED will open a new office in Massachusetts in the first half of 2010 that will house three full-time employees and be designed to support SED's Business Development team, as well as construction and maintenance activities in the Commonwealth and throughout New England.

## 6. Scope of Work and Schedule

### 6.1. Required Deliverables

The project team understands and accepts the MTC's Standard Deliverable requirements associated with the Feasibility grants as outlined in the application documents.



## 6.2. Scope of Work and Schedule

Feasibility		
Task/ Milestone	End Date	Responsible Party
<b>Project Kick Off Meeting</b>	02/01/2010	SED and Town
<b>Obtain Building Permit (if applicable)</b>	04/01/2010	Town
<b>Installation of MET Tower (If applicable)</b>	05/01/2010	SED
<b>Draft Feasibility Report</b>		
1.Wind Resource Assessment	05/01/2011	SED
2.Wind Resource Modeling	06/01/2011	SED and AWS
3.Wind Turbine Site Selection, Configuration and Production	08/01/2010	SED
4.Interconnection Investigation and Wind Generated Electricity Value	12/01/2010	SED
5.Buildability	12/01/2010	SED
6.Wind Turbine Impact Assessment	10/01/2010	SED
7.Regulatory Review and Public Outreach	10/01/2010	SED
8.Development Budget, Timeline and Total Capital Costs	06/01/2010	SED
9.Economic Analysis	07/01/2010	SED
10.Financing, Ownership and Operations	07/15/2010	SED
11.Business Plan	12/01/2011	SED
12.Executive Summary	08/01/2011	SED
<b>Final Feasibility Report</b>	11/01/2011	SED

## 7. Incentive Calculation (Feasibility Study or Design & Construction)

The Town is requesting \$85,000 from MRET for the completion of this feasibility study.

## 8. Budget

<b>8.1. Budget Form</b>	The Standard Budget Form and additional supporting documents are attached as Appendix A.
<b>8.2. Prevailing Wage</b>	NA

## 9. Exceptions to the General Terms and Conditions and Task Order Template

There are no exceptions to the General Terms and Conditions and Task Order Template. See Appendix B for the signed General Terms and Conditions.



10. Demonstrate No Conflict of Interest	
	Applicant affirms that there is no conflict of interest with applicant or contractors and that none of these parties provide services directly to MTC/MRET through a Master Agreement for Services and/or associated Work Orders.
11. Massachusetts Government Entities Only: Demonstrate Compliance with Massachusetts Public Procurement Law	
	The Town of Northborough is committed to working within the Massachusetts Public Procurement Law. Town Administrator John Coderre is the Procurement Officer for the Town of Northborough and can verify compliance with State Procurement laws. The Town of Northborough issued an RFP for the submittal of an application for feasibility study funding from MRET and subsequent performance of a study. SED was selected to perform this work in October. Additional information regarding this bid process can be obtained by contacting Mr. Coderre.
12. Required Attachments (in addition to Authorized Applicants Signature and Acceptance Form)	
12.1. Feasibility Attachments	<p>The following attachments are included:</p> <ul style="list-style-type: none"> <li>• Completed Budget Forms (Appendix A)</li> <li>• Signed General Terms and Conditions (Appendix B)</li> <li>• Site Owner Commitment Letter. (Appendix C)</li> <li>• Project Partner Commitment Letter from SED (Appendix D)</li> <li>• Electricity bill for load (or estimates for new construction) (Appendix E)</li> <li>• Completed Attachment D-1: Site Assessment Deliverable Template (Appendix F)</li> <li>• SED Recommended Scope of Works (Appendix G)</li> <li>• Project Team Resumes (Submitted previously to MRET)</li> </ul>
12.2. Design and Construction Attachments	N/A
12.3. Optional Attachments	<ul style="list-style-type: none"> <li>• Town of Northborough Preliminary Analysis (Appendix H)</li> </ul>



APPENDIX A  
COMPLETED BUDGET FORMS

## Budget Form

General Cost Information (BUDGET FORM IS AN EXCEL SPREADSHEET: SEE INSTRUCTIONS FOR FILLING OUT BUDGET FORM)

<b>Applicant:</b> Town of Northborough	<b>Title of Proposed Project:</b> Northborough Community Wind Energy Development	<b>Type of Project:</b> Feasibility Study
<b>Total Project Budget:</b> \$85,000		<b>Total MRET Grant Request:</b> \$85,000

<b>I. Subcontractors/Consultants</b>			
<i>Firm, Consultant name, and title</i>	<i>hours</i>	<i>rate/hr</i>	<i>Total Cost</i>
SED - Kevin Schulte, Project Executive and Finance	54	170	\$ 9,180.00
SED - Matthew Vanderbrook, Project Manager	107	140	\$ 14,980.00
SED - John Trout, Design Engineer	76	110	\$ 8,360.00
SED - Scott Abbott, Wind Resource Technician	50	110	\$ 5,500.00
SED - George McConochie, Grant Administrator	87	90	\$ 7,830.00
<b>Total Subcontractors/Consultants</b>			<b>\$ 45,850.00</b>
<b>II. Direct Materials (Not Applicable for Feasibility and Design Grants)</b>			
<i>Item</i>			<i>Total Cost</i>
SED - Met Tower Purchase, Installation and Decommissioning			\$ 28,500.00
AWS Truewind - Wind Resource Data Validation and Long Term Correlation			\$ 5,000.00
Rich Gross, PE - Electrical System Impact Study			\$ 4,000.00
<b>Total Direct Materials</b>			<b>\$ 37,500.00</b>
<b>III. Travel (Must include purpose and basis on supporting schedule)</b>			
<i>Item</i>			<i>Total Cost</i>
4 Site Visits			\$ 1,650.00
<b>IV. Other Direct Costs (list by type)</b>			
<i>Item</i>			<i>Total Cost</i>
<b>Total Other Direct Costs</b>			<b>\$ -</b>
<b>Cost Summary</b>			
I. Subcontractors/Consultants			\$ 45,850.00
II. Direct Materials (Not Applicable for Feasibility and Design Grants)			\$ 37,500.00
III. Travel (Must include purpose and basis on supporting schedule)			\$ 1,650.00
IV. Other Direct Costs (list by type)			\$ -
<b>Total Project Costs</b>			<b>\$ 85,000.00</b>
<b>Total MRET Grant Request</b>			<b>\$ 85,000.00</b>
<b>Total Cost Share</b>			<b>\$ -</b>
<b>Cost Share as a Percentage of Project Cost</b>			<b>0%</b>
<b>MRET Grant Request as a Percentage of Project Cost</b>			<b>100%</b>
<b>Cost Sharing</b>			
<i>Source (List name of company and type of cost share provided)</i>			<i>Amount</i>
			\$ -
			\$ -
<b>Total Cost Share</b>			<b>\$ -</b>
<b>Cost Share Budget Check</b>			<b>OK</b>

Supporting Schedule - Budget Form		
Budget Category	Item Description and Basis of Budgeted Cost	Amount
Travel	2 Trips From Sterling to Northborough @ \$250 per diem + 27 Miles Round Trip @ .55 per mile 2 Trip From Ontario to Northborough @ \$250 per diem + 700 Miles Round Trip @ .55 per Mile	\$1,650
Other Direct Costs	Purchase of NRG 50m HD Met Tower (\$15,500); Travel and Labor for Installation (\$8,000); Travel and Labor for Maintenance and Decommissioning (\$5,000)	\$28,500



# APPENDIX B SIGNED GENERAL TERMS AND CONDITIONS

## MASSACHUSETTS TECHNOLOGY COLLABORATIVE

### General Terms and Conditions

The following General Terms and Conditions are issued by the Massachusetts Technology Park Corporation, an independent public instrumentality of the Commonwealth of Massachusetts doing business as the Massachusetts Technology Collaborative ("MTC"). ***Any changes or electronic alterations to the official version of this form shall be void.*** Participants shall be bound by these General Terms and Conditions upon execution and submission to MTC. These General Terms and Conditions will be incorporated by reference into any Task Order for any financial assistance award executed by the Participant and MTC.

#### 1. Definitions

"Agreement" means these General Terms and Conditions and all Task Orders entered into hereunder and all other referenced attachments hereto and thereto, as the same may be amended from time to time in accordance with the terms of these General Terms and Conditions.

"Commonwealth" means the Commonwealth of Massachusetts (and its political subdivisions or agents where the context so requires).

"Deliverable" means any tangible product to be delivered as an element of performance under a Task Order.

"Grant" means the funding awarded by MTC's Board of Directors as set forth in the applicable Task Order.

"General Counsel" means MTC's General Counsel, or, in the event that no Person holds such title at the time in question, such other legal counsel to MTC as MTC's Executive Director may designate.

"Governmental Authority" means any national or federal government, any state or other political subdivision thereof, and any other Person exercising executive, legislative, judicial, regulatory or administrative functions of or pertaining to government.

"JAIL" means the John Adams Innovation Institute created by the Economic Stimulus Bill of 2004.

"MTC" means the Massachusetts Technology Park Corporation d/b/a Massachusetts Technology Collaborative and any of its subsidiaries, subdivisions or affiliates, and the successors or assigns thereof.

"Participant" means any Person who has sought funding or other financial support from, or has submitted one or more proposals for projects to, MTC and has been awarded such financial support or funding under any of MTC's programs or initiatives as in effect from time to time.

"Project" means services rendered, obligations due, costs incurred, commodities and deliverables provided and accepted by the MTC, programs provided or other commitments authorized under a Task Order.

"Project Administrator" means the individual, set forth in the applicable Task Order, employed by MTC who shall have secondary responsibility for managing the Project for MTC.

"Project Manager" means the individual, set forth in the applicable Task Order, employed by MTC and by Participant, respectively who shall have primary responsibility for managing the Project.

"Project Budget" means the costs associated with the tasks set forth in the Project Plan which shall be reimbursed by MTC pursuant to the terms and conditions of this Agreement and the applicable Task Order.

"Project Plan" means the set of tasks required to complete the Project as set forth in the applicable Task Order.

"Public Records Act" means the Massachusetts Public Records Act, M.G.L. Chapter 66, and any successor thereto.

"RET" or the "Trust" means the Commonwealth's Renewable Energy Trust Fund created by the Electric Utility Restructuring Act of 1997.

“Task Order” means the documentation that sets forth the Grant awarded, the specifics of the Project for which the Grant was awarded and all terms and conditions for the application and use of such Grant funds, including the Project Plan and Budget.

## **2. Term and Termination**

- a) The effective start date of performance under a Task Order shall be the date such Task Order has been executed by an authorized signatory of the Participant and MTC.
- b) This Agreement may be terminated by either MTC or Participant at any time for a material breach of any term of the Agreement. In the event of such termination, compensation shall be paid to the Participant for the actual costs of allowable expenses incurred for work performed and the reasonable and necessary actual direct costs incurred in the performance of the work pursuant to the applicable Task Order prior to the effective date of the termination.
- c) MTC may terminate this Agreement in the event of loss of availability of sufficient funds for the purposes of this Agreement or in the event of an unforeseen public emergency or other change of law mandating immediate MTC action inconsistent with performing its obligations under this Agreement.

## **3. Payments and Compensation**

The Participant shall only be compensated for performance delivered and accepted by the MTC in accordance with the specific terms and conditions of the applicable Task Order. Acceptance by the Participant of any payment or partial payment, without any written objection by the Participant, shall in each instance operate as a release and discharge of MTC from all claims, liabilities or other obligations relating to the performance of a Task Order.

## **4. Insurance**

Specific requirements for insurance shall be set forth in the applicable Task Order.

## **5. Access and Use**

Participant agrees to license or otherwise make available to MTC in perpetuity, without charge, all materials prepared and produced for the Project, including, without limitation, all plans, specifications and analyses developed in connection with the Project for MTC's use and dissemination.

## **6. Publicity**

- a) The Participant shall collaborate with MTC on any press releases, events, signs and to plan for any news conference concerning the Project. In any media produced by Participant, Participant will not represent that positions taken or advanced by it represent the opinion or position of MTC.
- b) The Participant agrees that MTC shall have the right to make use of and disseminate, in whole or in part, all work products, reports, and other information produced in the course of the Project, and to use the information therein contained to produce summaries, case studies or similar information resources.

## **7. Assignment and Subcontracting**

- a) The Participant shall not assign or in any way transfer any interest in this Grant or the Agreement without the prior written consent of MTC, including subcontracting any services except as otherwise included in the Participant's Project Plan and Project Budget.
- b) The Participant will procure services from subcontractors using commercially responsible procurement mechanisms, and to the greatest extent practicable, using competitive procurement procedures. Furthermore, the Participant is required to notify MTC in the event that it intends to or has entered into an agreement for goods or services with a related entity. For purposes of this agreement, a related entity is an entity that can control or significantly influence the management or operating policies of another entity to the extent one of the entities may be prevented from pursuing its own interests. To the extent such services are properly identified in the Project Budget and specifically approved in writing by MTC, Participant may use the Grant to pay for such goods or services.



## 8. Nondiscrimination

The Participant agrees to comply with all applicable Federal and State statutes, rules and regulations promoting fair employment practices or prohibiting employment discrimination and unfair labor practices and shall not discriminate in the hiring of any applicant for employment nor shall any qualified employee be demoted, discharged or otherwise subject to discrimination in the tenure, position, promotional opportunities, wages benefits or terms and conditions of their employment because of race, color, national origin, ancestry, age, sex, religion, disability, handicap, sexual orientation, or for exercising any rights afforded by law.

## 9. Indemnification

- a) To the fullest extent permitted by law, Participant shall indemnify and hold harmless the Commonwealth, MTC, and each of their respective agents, officers, directors and employees (together with the Commonwealth and MTC, the "Covered Persons") from and against any and all liability, loss, claims, damages, fines, penalties, costs and expenses (including reasonable attorney's fees), judgments and awards (collectively, "Damages") sustained, incurred or suffered by or imposed upon any Covered Person resulting from (i) any breach of this Agreement or false representation of Participant under this Agreement, or (ii) any negligent acts or omissions or reckless misconduct of Participant. Without limiting the foregoing, Participant shall indemnify and hold harmless each Covered Person against any and all Damages that may arise out of or are imposed because of the failure to comply with the provisions of applicable law by Participant or any of its agents, officers, directors, employees or subcontractors. The foregoing notwithstanding, Participant shall not be liable for (i) any Damages sustained, incurred or suffered by or imposed upon any Covered Person resulting from any negligent acts or omissions or reckless misconduct of MTC, and (ii) except for liability for death or personal injury caused by the negligence or willful misconduct of the Participant or for claims of infringement of a third party's intellectual property by Participant, the aggregate liability of Participant under this Agreement shall not exceed the greater of the amount of the Grant or the amount recovered under any applicable insurance coverage.
- b) In no event shall either party be liable for any indirect, incidental, special or consequential damages whatsoever (including but not limited to lost profits or interruption of business) arising out of or related to Participant's performance of the Project under this Agreement.

## 10. Public Records

As a public entity, MTC is subject to the Massachusetts Public Records Law (set forth at Massachusetts General Laws Chapter 66) and thus documents and other materials made or received by MTC and/or its employees are subject to public disclosure. All information received by MTC shall be deemed to be subject to public disclosure, except as otherwise provided in the procedures set forth in Attachment A hereto. By signing this Agreement, Participant acknowledges, understands and agrees that the procedures set forth in Attachment A are applicable to any documents submitted by Participant to MTC, including but not limited to any acknowledgements set forth therein, and that Participant shall be bound by these procedures.

## 11. Audit

MTC will have the right to audit Participant's or its other agents' records to confirm the use of the Grant proceeds at any time from the Effective Date of the applicable Task Order through the end of the Retention Period, as defined herein. If such audit reveals that any portion of the Grant was utilized for purposes not permitted under the applicable Task Order, then Participant shall refund to MTC the amount determined by such audit within thirty (30) days of Participant's receipt of such audit and demand. Participant shall maintain books, records, and other compilations of data pertaining to the Grant payments made under an applicable Task Order to the extent and in such detail as shall properly substantiate use of such payments. All such records shall be kept for a period of seven (7) years, starting on the first day after final payment under an applicable Task Order (the "Retention Period"). If any litigation, claim, negotiation, audit or other action involving the records is commenced prior to the expiration of the Retention Period, all records shall be retained until completion of the audit or other action and resolution of all issues resulting therefrom, or until the end of the Retention Period, whichever is later. MTC or the Commonwealth or any of their duly authorized representatives shall have the right at reasonable times and upon reasonable notice, to

examine and copy at reasonable expense, the books, records, and other compilations of data of the Participant which pertain to the provisions and requirements of this Grant. Such access may include on-site audits, review and copying of records.

**12. Conflict of Interest**

Participant acknowledges that all MTC employees are subject to the Massachusetts Conflict of Interest statute, located at Massachusetts General Laws Chapter 268A.

**13. Lobbying**

No Grant funds may be used to pay for or otherwise support any activities intended to influence any matter pending before the Massachusetts General Court or for activities covered by the law and regulations governing “legislative agents” or “executive agents” set forth in the Massachusetts Lobbying Law, M.G.L. c.3, §39.

**14. Choice of Law**

This Agreement shall be construed under, and governed by, the laws of the Commonwealth of Massachusetts, without giving effect to its conflict of laws principles. The Participant agrees to bring any Federal or State legal proceedings arising under this Grant in which the Commonwealth or MTC is a party in a court of competent jurisdiction within the Commonwealth of Massachusetts. This Section shall not be construed to limit any other legal rights of the parties.

**15. Force Majeure**

Neither party shall be liable to the other, or be deemed to be in breach of this Agreement for any failure or delay in rendering performance arising out of causes beyond its reasonable control and without its fault or negligence. Such causes may include, but are not limited to, acts of God or of a public enemy, fires, floods, epidemics, quarantine restrictions, strikes, freight embargoes, or unusually severe weather. Dates or times of performance including the Term of this Agreement may be extended to account for delays excused by this Section, provided that the party whose performance is affected notifies the other promptly of the existence and nature of such delay.

**16. Waivers**

Conditions, covenants, duties and obligations contained in this Agreement may be waived only by written agreement between the parties. Forbearance or indulgence in any form or manner by a party shall not be construed as a waiver, nor in any way limit the remedies available to that party.

**17. Notice**

All communications to MTC regarding legal issues shall be mailed or delivered to the following address, or sent by facsimile to the following number.

Massachusetts Technology Collaborative  
75 North Drive  
Westborough, MA 01581  
508/870-0312 (phone)  
508/898-2275 (fax)  
Attn: Matthew L. Schemmel, Senior Counsel

All communications to Participant shall be mailed or delivered to the address, or sent by facsimile to the number set forth in Section 18.

Any notice shall be deemed delivered and received when submitted in writing in person or when delivered by any other appropriate method evidencing actual receipt by MTC.

18. Amendments, Entire Agreement and Attachments

All conditions, covenants, duties and obligations contained in the Agreement may be amended only through a written amendment signed by the Participant and MTC unless otherwise specified in this Agreement. The parties understand and agree that this Agreement supersedes all other verbal and written agreements and negotiations by the parties regarding the matters contained herein. The following are attached and incorporated into this Agreement:

- i. Attachment A – MTC's Sensitive Information Policy and Procedures
- ii. Attachment B – Form of Task Order; and all Task Orders entered into in accordance with the terms of this Agreement and attached hereto

PARTICIPANT'S AUTHORIZED SIGNATORY: \_\_\_\_\_

  
(signature)

Print Name: John W. Colone

Title: Town Administrator

Date: November 13, 2009

(Check One): ☒ Organization ☐ Individual

Full Legal Organization or Individual Name: Town of Northborough

Doing Business As Name (If Different): \_\_\_\_\_

Tax Identification Number: \_\_\_\_\_

Address: 63 Main Street, Northborough, MA 01532

Telephone: 508-393-5040

FAX: 508-393-6996

E-Mail Address: townadmin@

URL: www.town.northborough.ma.us

town.northborough.ma.us

Attachment A

**THE MASSACHUSETTS TECHNOLOGY COLLABORATIVE  
POLICY AND PROCEDURES REGARDING SUBMISSION OF “SENSITIVE INFORMATION”**

The Massachusetts Technology Collaborative, the Massachusetts Renewable Energy Trust which it administers, and John Adams Innovation Institute (collectively referred to herein as “MTC”) are subject to the requirements concerning disclosure of public records under the Massachusetts Public Records Act, M.G.L. c. 66 (the “Public Records Act”), which governs the retention, disposition and archiving of public records. For purposes of the Public Records Act, “public records” include all books, papers, maps, photographs, recorded tapes, financial statements, statistical tabulations, or other documentary materials or data, regardless of physical form or characteristics, made or received by MTC. As a result, any information submitted to MTC by a grant applicant, recipient grantee, respondent to a request for response (including, but not limited to an RFQ, RFP and RFI), contractor, or any other party (collectively the “Submitting Party”) is subject to public disclosure as set forth in the Public Records Act.

The foregoing notwithstanding, “public records” do not include certain materials or data which fall within one of the specifically enumerated exemptions set forth in the Public Records Act or in other statutes, including MTC’s enabling act, M.G.L. Chapter 40J. One such exemption that may be applicable to documents submitted by a Submitting Party is for any documentary materials or data made or received by MTC that consists of trade secrets or commercial or financial information regarding the operation of any business conducted by the Submitting Party, or regarding the competitive position of such Submitting Party in a particular field of endeavor (the “Trade Secrets Exemption”).

***It is MTC’s expectation and belief that the overwhelming percentage of documents it receives from a Submitting Party does not contain any information that would warrant an assertion by MTC of an exemption from the Public Records Act. Submitting Parties should therefore take care in determining which documents they submit to MTC, and should assume that all documents submitted to MTC are subject to public disclosure without any prior notice to the Submitting Party and without resort to any formal public records request.***

In the event that a Submitting Party wishes to submit certain documents to MTC and believes such a document or documents may be proprietary in nature and may fall within the parameters of the Trade Secrets Exemption and/or some other applicable exemption, the following procedures shall apply:

1. At the time of the Submitting Party’s initial submission of documents to MTC, the Submitting Party must provide a cover letter, addressed to MTC’s General Counsel, indicating that it is submitting documents which it believes are exempt from public disclosure, including a description of the specific exemption(s) that the Submitting Party contends is/are applicable to the submitted materials, a precise description of the type and magnitude of harm that would result in the event of the documents’ disclosure, and a specific start date and end date within which the claimed exemption applies. If different exemptions, harms and/or dates apply to different documents, it is the Submitting Party’s responsibility and obligation to provide detailed explanations for each such document.
2. At the time of the Submitting Party’s initial submission of documents to MTC, the Submitting Party must also clearly and unambiguously identify each and every such document that it contends is subject to an exemption from public disclosure as “Sensitive Information.” It is the Submitting Party’s responsibility and obligation to ensure that all such documents are sufficiently identified as “Sensitive Information,” and Submitting Party’s designation must be placed in a prominent location on the face of each and every document that it contends is exempt from disclosure under the Public Records Act.

***Information submitted to MTC in any form other than a hard copy document will not be subject to the procedures set forth in this Attachment. For example, information submitted by e-mail, facsimile and/or verbally will not be subject to these procedures and may be disclosed at any time without notice to the Submitting Party.***

3. Documents that are not accompanied by the written notification to MTC’s General Counsel or are

not properly identified by the Submitting Party as "Sensitive Information" at the time of their initial submission to MTC are presumptively subject to disclosure under the Public Records Act, and the procedures for providing the Submitting Party with notice of any formal public records request for documents, as set forth below, shall be inapplicable.

4. At the time MTC receives documents from the Submitting Party, any such documents designated by Submitting Party as "Sensitive Information" shall be segregated and stored in a secure filing area when not being utilized by appropriate MTC staff. By submitting a grant application, request for response, or any other act that involves the submission of information to MTC, the Submitting Party certifies, acknowledges and agrees that (a) MTC's receipt, segregation and storage of documents designated by Submitting Party as "Sensitive Information" does not represent a finding by MTC that such documents fall within the Trade Secrets Exemption or any other exemption to the Public Records Act, or that the documents are otherwise exempt from disclosure under the Public Records Act, and (b) MTC is not liable under any circumstances for the subsequent disclosure of any information submitted to MTC by the Submitting Party, whether or not such documents are designated as "Sensitive Information" or MTC was negligent in disclosing such documents.
5. In the event that MTC receives an inquiry or request for information submitted by a Submitting Party, MTC shall produce all responsive information without notice to the Submitting Party. In the event that the inquiry or request entails documents that the Submitting Party has previously designated as "Sensitive Information" in strict accordance with this Policy, the inquiring party shall be notified in writing that one or more of the documents it has requested has been designated by the Submitting Party as "Sensitive Information", and, if not already submitted, that a formal, written public records request must be submitted by the requesting party to MTC's General Counsel for a determination of whether the subject documents are exempt from disclosure.
6. Upon the General Counsel's receipt of a formal, written public records request for information that encompass documents previously designated by Submitting Party as "Sensitive Information", the Submitting Party shall be notified in writing of MTC's receipt of the public records request, and MTC may, but shall not be required to provide Submitting Party an opportunity to present MTC with information and/or legal arguments concerning the applicability of the Trade Secrets Exemption or some other exemption to the subject documents.
7. The General Counsel shall review the subject documents, the Public Records Act and the exemption(s) claimed by the Submitting Party in making a determination concerning their potential disclosure.

***The General Counsel is the sole authority within MTC for making determinations on the applicability and/or assertion of an exemption to the Public Records Act. No employee of MTC other than the General Counsel has any authority to address issues concerning the status of "Sensitive Information" or to bind MTC in any manner concerning MTC's treatment and disclosure of such documents.***

***Furthermore, the potential applicability of an exemption to the disclosure of documents designated by the Submitting Party as "Sensitive Information" shall not require MTC to assert such an exemption. MTC's General Counsel retains the sole discretion and authority to assert an exemption, and he may decline to exert such an exemption if, within his discretion, the public interest is served by the disclosure of any documents submitted by the Submitting Party.***

8. MTC shall provide the requesting party and Submitting Party with written notice of its determination that the subject documents are either exempt or not exempt from disclosure.
9. In the event that MTC determines that the subject documents are exempt from disclosure, the requesting party may seek review of MTC's determination before the Supervisor of Public Records, and MTC shall notify the Submitting Party in writing in the event that the requesting party pursues a review of MTC's determination.

10. In the event the requesting party pursues a review of MTC's determination that the documents are exempt from disclosure and the Supervisor of Public Records concludes that the subject documents are not exempt from disclosure and orders MTC to disclose such documents to the requester, MTC shall notify the Submitting Party in writing prior to the disclosure of any such documents, and Submitting Party may pursue injunctive relief or any other course of action in its discretion.
11. In the event that MTC determines that the subject documents are not exempt from disclosure or the General Counsel determines that, under the circumstances and in his discretion, MTC shall not assert an exemption, MTC shall notify the Submitting Party in writing prior to the disclosure of any such documents, and Submitting Party may pursue injunctive relief or any other course of action in its discretion.

***The Submitting Party's submission of documentation to MTC shall require a signed certification that Submitting Party acknowledges, understands and agrees with the applicability of the foregoing procedures to any documents submitted to MTC by Submitting Party at any time, including but not limited to the acknowledgements set forth herein, and that Submitting Party shall be bound by these procedures.***

All documents submitted by Submitting Party, whether designated as "Sensitive Information" or not, are not returnable to Submitting Party.





APPENDIX C  
SITE OWNER COMMITMENT LETTER



## TOWN OF NORTHBOROUGH

Town Offices  
63 Main Street  
Northborough, MA 01532-1994  
(508) 393-5040 Phone  
(508) 393-6996 Fax

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November 12, 2009

Commonwealth Wind Incentive Program: Community Scale (Solicitation No. 2010-CWIPCS-01)

Massachusetts Renewable Energy Trust  
Innovation Center  
75 North Drive  
Westborough, MA 01581

To Whom It May Concern:

The Town of Northborough is pleased to submit this application to the MRET's Commonwealth Wind Incentive Program: Community Scale (Solicitation No. 2010-CWIPCS-01) to request wind power Feasibility Study funding for the Town. This letter will serve to commit the Town of Northborough to the completion of this study by Sustainable Energy Developments, Inc. Although as a public entity the Town is not required to provide a cost-share for the performance of this study, the Town is committed to seeking financial support for future development, based on the results of a feasibility study.

The Town of Northborough hopes that the development of a wind turbine will provide significant savings on electricity costs, as well as provide an educational resource for the community. The Town has a project payback requirement of 10 to 12 years and based on preliminary information this seems to be an attainable goal. The implications of the yet-to-be finalized net metering regulations will also have a great impact on this development and could open up opportunities for energy savings throughout Town-owned accounts.

The Town of Northborough has taken many steps to advance this development through the formation of a Wind Turbine Committee made up of members of the community and the performance of a site assessment investigating the potential for wind development within the Town by the University of Massachusetts Wind Energy Center. These actions demonstrate the support that exists among Town officials and the community itself to develop a wind energy project and the many benefits that it can provide. The Town also commits to share data collected through the installation of a wind resource measurement tower with the MRET, as well as other data that may be collected during the feasibility phase.



## TOWN OF NORTHBOROUGH

63 Main Street  
Northborough, MA 01532-1994  
(508) 393-5040 Phone  
(508) 393-6996 Fax

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We are confident that our assembled wind development team of Sustainable Energy Developments, Inc. can assess this project's feasibility and provide us with the substantive detail necessary to make an informed decision about pursuing Design & Construction phases.

Sincerely,

John W. Coderre  
Town Administrator

CC: Wind Committee  
Town Engineer  
Board of Selectmen



APPENDIX D  
SED COMMITMENT LETTER



**Corporate Headquarters**  
317 Route 104  
Ontario, NY 14519-8958  
Phone: (585) 265-2384  
Fax: (585) 265-1148

**Massachusetts Office**  
1 Bean Rd.  
Sterling, MA 01564  
Phone: (978) 422-7744

[www.sed-net.com](http://www.sed-net.com)  
[info@sed-net.com](mailto:info@sed-net.com)

**October 30, 2009**

Project Manager, Renewable Energy Trust  
Massachusetts Technology Collaborative  
75 North Drive  
Westborough, MA 01581

Re: Commonwealth Wind Block 2 Solicitation No. 2010-CWIPCS-01

Sustainable Energy Developments, Inc. (SED) is pleased to partner with the Town of Northborough to request funding for a wind turbine feasibility study from the Massachusetts Renewable Energy Trust (MRET) Commonwealth Wind Incentive program to investigate a wind project that will serve municipal loads and offset electrical utility expenses. SED, as a leading full-service developer and installer of community wind energy systems, with corporate headquarters in Ontario, NY and a regional office in Sterling, MA, has been responsible for the installation of 3,000kW of wind power capacity in Massachusetts to date. These projects include a 1.5MW at Jiminy Peak Mountain Resort, a 600kW at Holy Name Junior/Senior Central Catholic High School in Worcester, MA, and the Williams Stone Company, Inc. in East Otis, and three 100kW in the City of Medford, the Hyannis Country Garden and the Woods Hole Research Center on Cape Cod.

SED is a leader in the community wind industry that has taken a committed role in the development of a sustainable renewable energy marketplace in the Commonwealth of Massachusetts. SED has been actively supportive of and committed to achieving the goals of the MTC/MRET and demonstrates this through the installation of close to 40% of the total installed wind capacity in the State. SED has brought more projects from the initial feasibility phase through to design, construction and commissioning than any other firm and is committed to doing the same for the Town of Northborough. SED will work with the Town and the Wind Turbine Committee to develop a technical and economic business case for wind power that is grounded in the realities of the marketplace and will allow all stakeholders to make educated decisions regarding their investment. SED's intent is to not just complete a feasibility study but provide a clear pathway to the development of a high quality wind turbine project. SED's seven commercial scale wind turbine installations are the best proof that can be provided to the MRET to demonstrate our confidence in partnering with Northborough in the Town's pursuit for wind project funding.

Like the MRET, SED defines success through operational wind turbine projects and therefore we carefully



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Sterling, MA 01564  
Phone: (978) 422-7744

[www.sed-net.com](http://www.sed-net.com)  
[info@sed-net.com](mailto:info@sed-net.com)

choose our clients. SED only pursues projects that demonstrate a strong case to succeed and SED believes that to be the case with the Town of Northborough. The three sites that will be considered in the feasibility phase (Mt. Pisgah, Davidian Bros. Farm and Tougas Farm) have the developmental characteristics necessary for a quality wind energy development. The Town of Northborough has not only committed itself to a taking this project through to completion but has demonstrated its commitment to success through the large amount of pre-feasibility work performed by volunteers on behalf of the Town. The combination of strong development characteristics at the potential sites, the Town's current electrical expenditures, and the new regulations to be set forth by the Green Communities Act will ensure that this project has the capability to not only succeed, but to act as new model for community based wind energy development. This project's development will contribute to Massachusetts role as an innovator in the renewable energy marketplace and widespread deployment of clean energy technologies.

The time and energy that the Town is willing to commit to this project shows that wind power is being accepted as an economically viable solution to the growing challenges facing electricity users in Massachusetts. The assembled project team has the necessary experience - from developing similar wind projects; through a direct contribution to the crafting of net metering regulations; and in working with Town's to develop innovative wind power solutions to meet stakeholder needs - to assist Northborough in developing this project. We thank you for considering our team's application to the MRET solicitation and as always, look forward to working with you and your team.

Regards,

A handwritten signature in blue ink, reading 'Kevin M. Schulte'.

Kevin M. Schulte

Chief Executive Officer and Cofounder





APPENDIX E  
COPY OF ELECTRIC BILL(S)  
FOR LOAD INFORMATION



Page 1

Your Bill Account Number
52133-53000
Use when calling or writing

## Summary Page

For:  
NORTHBOROUGH PUBLIC SCHOOL  
26 JEFFERSON RD P 4  
NORTHBOROUGH MA 01532

Balance as of Mar 9, 2009 **\$2,035.82**

Charges:  
Total Constellation NewEnergy Charges **\$2,080.79**

**Total Charges** **\$2,080.79**

**Pay This Amount No Later than May 4, 2009** **\$4,116.61**

Account Balance **\$4,116.61**

Questions about  
this bill? Please  
contact us by May 4  
at 1-888-808-4234

or write to:  
Constellation NewEnergy  
P.O. Box 25225  
Lehigh Valley, PA  
18002-5225

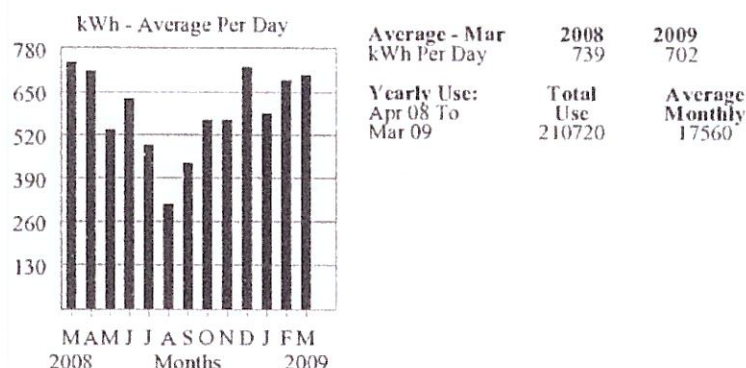
Internet:  
www.newenergy.com  
E-mail:  
NewEnergy.CustomerCare  
@pplweb.com

## Energy Usage History

This graph shows  
your electric use  
over the last 13  
months.

### Types of Meter Readings:

Actual   
Estimated



Other important information on back →

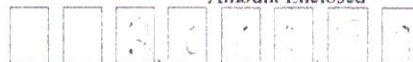
Return this part to address below with a check payable to Constellation NewEnergy

Your Bill Account Number
52133-53000

MB 01 000466 97458 B 5 A  
NORTHBOROUGH PUBLIC SCHOOLS  
53 PARKERVILLE ROAD  
SOUTHBOROUGH MA 01772-1516

Please Pay By	Pay This Amount
May 4, 2009	\$4,116.61

Amount Enclosed



Constellation NewEnergy  
P.O. BOX 25230  
LEHIGH VALLEY, PA 18002-5230



22 6400041166140004116612 5213353000

**Constellation  
NewEnergy.**A Member of the  
Constellation Energy Group

Page 3

Your Bill Account Number

52133-53000

Use when calling or writing

*Total from Last Bill**\$2,035.82***Billing Details**

For:

NORTHBOROUGH PUBLIC SCHOOL  
26 JEFFERSON RD P 4  
NORTHBOROUGH MA 01532**Amount You Still Owe as of Mar 9, 2009****\$2,035.82****Constellation NewEnergy**  
P.O. Box 25225  
Lehigh Valley, PA  
18002-5225  
1-888-808-4234**Current Charges****Charges for - Constellation NewEnergy**  
Billing Period for Feb 5, 2009 - Mar 6, 2009  
Energy 20360 kWh at \$0.1022 per kWh

2,080.79

**Total Constellation NewEnergy Charges****\$2,080.79****Internet:**

www.newenergy.com

**E-mail:**NewEnergy.CustomerCare  
@pplweb.com**Pay This Amount No Later Than May 4, 2009****\$4,116.61****Account Balance****\$4,116.61****General  
Information****For power outages  
and other electrical  
emergencies, call your  
electric distribution  
company:**Massachusetts Electric Company  
1-800-322-3223  
Account Number:  
6354480001

Your monthly charges from Constellation NewEnergy average 10.22¢ per kWh (Price to Compare). This average may include charges for more than one month and may not be indicative of your contracted rate.

**Meter data on back.**



**Constellation  
NewEnergy**

A Member of the  
Constellation Energy Group

Page 1

Your Bill Account Number

59878-33004

Use when calling or writing

## Summary Page

For:  
NORTHBOROUGH PUBLIC SCHOOL  
31 MAPLE ST P 7 2  
NORTHBOROUGH MA 01532

Balance as of Mar 9, 2009

\$2,035.82

Charges:

Total Constellation NewEnergy Charges

\$1,855.95

**Total Charges**

**\$1,855.95**

**Pay This Amount No Later than May 4, 2009**

**\$3,891.77**

Account Balance

\$3,891.77

Questions about  
this bill? Please  
contact us by May 4  
at 1-888-808-4234

or write to:  
Constellation NewEnergy  
P.O. Box 25225  
Lehigh Valley, PA  
18002-5225



Internet:  
www.newenergy.com

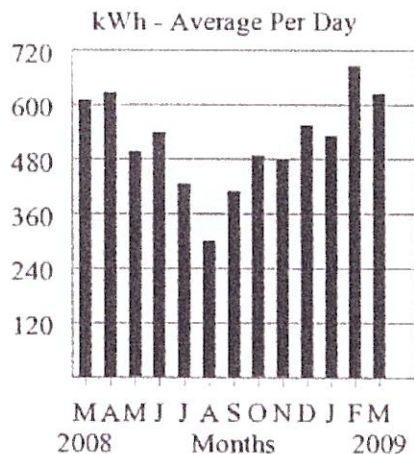
E-mail:  
NewEnergy.CustomerCare  
@pplweb.com

## Energy Usage History

This graph shows  
your electric use  
over the last 13  
months.

Types of  
Meter Readings:

Actual   
Estimated 



Average - Mar  
kWh Per Day

2008  
612

2009  
626

Yearly Use:  
Apr 08 To  
Mar 09

Total  
Use  
187120

Average  
Month  
1559

Other important information on back →

Return this part to address below with a check payable to Constellation NewEnergy

Your Bill Account Number

59878-33004

Please Pay By

May 4, 2009

Pay This Amount

\$3,891.77

MB 01 000468 97458 B 5 A  
NORTHBOROUGH PUBLIC SCHOOLS  
53 PARKERVILLE ROAD  
NORTHBOROUGH MA 01532 1516

Amount Enclosed

☐ ☐ ☐ 1 ☐ 8 ☐ 9 ☐ 1 ☐ 7 ☐



**Constellation  
NewEnergy.**A Member of the  
Constellation Energy Group

Page 3

Your Bill Account Number

59878-33004

Use when calling or writing

*Total from Last Bill*

\$2,035.82

**Billing Details**

For:

NORTHBOROUGH PUBLIC SCHOOL  
31 MAPLE ST P 7 2  
NORTHBOROUGH MA 01532**Amount You Still Owe as of Mar 9, 2009**

\$2,035.82

**Constellation NewEnergy**  
P.O. Box 25225  
Lehigh Valley, PA  
18002-5225  
1-888-808-4234**Internet:**

www.newenergy.com

**E-mail:**NewEnergy.CustomerCare  
@pplweb.com**Current Charges****Charges for - Constellation NewEnergy**

Billing Period for Feb 5, 2009 - Mar 6, 2009

Energy 18160 kWh at \$0.1022 per kWh

1,855.95

Total Constellation NewEnergy Charges

\$1,855.95

**Pay This Amount No Later Than May 4, 2009****\$3,891.77****Account Balance****\$3,891.77****General  
Information****For power outages  
and other electrical  
emergencies, call your  
electric distribution  
company:**Massachusetts Electric Company  
1-800-322-3223  
Account Number:  
3860750002

Your monthly charges from Constellation NewEnergy average 10.22¢ per kWh (Price to Compare). This average may include charges for more than one month and may not be indicative of your contracted rate.

**Meter data on back.**

nationalgrid

www.nationalgrid.com

NORTHBORO PUBLIC SCHOOLS  
DBA PROCTOR SCHOOL  
26 JEFFERSON RD POLE 4  
NORTHBOROUGH MA 01532

Feb 5, 2009 to Mar 6, 2009

ACCOUNT NUMBER  
63544-80001PLEASE PAY BY  
Apr 30, 2009AMOUNT DUE  
\$ 2,727.07

CUSTOMER SERVICE  
1-800-322-3223

CREDIT DEPARTMENT  
1-888-211-1313

POWER OUTAGE OR DOWNED LINE  
1-800-465-1212

EMAIL BILLING INQUIRES  
[customerservice@us.ngrid.com](mailto:customerservice@us.ngrid.com)

ADDRESS  
PO Box 960  
Northborough, MA 01532-0960

DATE BILL ISSUED  
Mar 6, 2009

**ACCOUNT BALANCE**

Previous Balance	1,810.79
Payment Received <i>No payments have been received during this billing period</i>	- 0.00
<b>Balance Forward</b>	<b>1,810.79</b>
<b>Current Charges</b>	<b>+ 916.26</b>
<b>Amount Due Now ▶</b>	<b>\$ 2,727.07</b>

To avoid late payment charges of 0.95%, your "Amount Due Now" must be received by Apr 30 2009.

➤ **GO WITH THE FLOE -- TAKE ACTION TO COMBAT CLIMATE CHANGE:** Join the Floe community and pledge today at [www.nationalgrid.com/floe](http://www.nationalgrid.com/floe) to reduce your energy use and help the environment.

**DETAIL OF CURRENT CHARGES****Delivery Services**

Type of Service	Current Reading	Previous Reading	Difference	Meter Multiplier	Total Usage
Energy	27118 Actual	26609 Actual	509	40	20360 kWh
				<b>Total Energy</b>	<b>20360 kWh</b>

**Demand-kW****Demand-kVA**

70.8 kW

73.2 kVA

**Billed Demand** 70.8 kW

METER NUMBER 96721271

NEXT SCHEDULED READ DATE Apr 7

SERVICE PERIOD Feb 5 - Mar 6

NUMBER OF DAYS IN PERIOD 29

RATE General Service - Demand G-2 VOLTAGE DELIVERY LEVEL 0 - 2.2 kv

**Enrollment Information**

To enroll with a supplier or change to another supplier, you will need the following information about your account:  
Loadzone: WCMA  
Acct No: 63544-80001 Cycle: 6, NORT

**Electric Usage History**

Month	kWh	Month	kWh
Mar 08	21440	Oct 08	15880
Apr 08	20720	Nov 08	18160
May 08	16720	Dec 08	22480
Jun 08	18960	Jan 09	19360
Jul 08	14240	Feb 09	19920
Aug 08	10360	Mar 09	20360
Sep 08	13560		

**Billed Demand Last 12 months**

Minimum	26.4
Maximum	72.8
Average	65.8333

KEEP THIS PORTION FOR YOUR RECORDS

RETURN THIS PORTION WITH YOUR PAYMENT

nationalgrid

ACCOUNT NUMBER  
63544-80001PLEASE PAY BY  
Apr 30, 2009AMOUNT DUE  
\$ 2,727.07

PO Box 960  
Northborough MA 01532-0960

ENTER AMOUNT ENCLOSED

\$

Write account number on check and make payable to National Grid.  
Please pay Gas & Electric bills separately

\*\*\*\*\*ALL FOR AADC 015  
NORTHBORO PUBLIC SCHOOLS  
DBA PROCTOR SCHOOL  
BUSINESS OFFICE  
53 PARKVILLE RD  
SOUTHBOROUGH MA 01772

01440

NATIONAL GRID  
PO BOX 1005  
WOBURN MA 01807-1005

000091626 63544800019000272707120

nationalgrid

SERVICE FOR  
NORTHBORO PUBLIC SCHOOLS  
DBA PROCTOR SCHOOL  
26 JEFFERSON RD POLE 4  
NORTHBOROUGH MA 01532

BILLING PERIOD  
Feb 5, 2009 to Mar 6, 2009

PAGE 2 of 2

ACCOUNT NUMBER PLEASE PAY BY  
63544-80001 Apr 30, 2009

AMOUNT DUE  
\$ 2,727.07

Customer Charge			16.36
Distribution Charge	0.00208757	x 20360 kWh	42.50
Transition Charge	0.00181688	x 20360 kWh	36.99
Transmission Charge	0.0139293	x 20360 kWh	283.60
Distribution Demand Chg	6.33862004	x 70.8 kW	448.77
Dem Side Mgmt Chg	0.0025	x 20360 kWh	50.90
Transition Demand Chg	0.26066963	x 70.8 kW	18.46
Renewable Energy Chg	0.0005	x 20360 kWh	10.18
<b>Total Delivery Services</b>			<b>\$ 907.76</b>

**Other Charges/Adjustments**

Late Payment Charges	8.52
<b>Total Other Charges/Adjustments</b>	<b>\$ 8.52</b>

**Explanation of General Billing Terms**

**KWH:** Kilowatt-hour, a basic unit of electricity used.  
**Off-Peak:** Period of time when the need or demand for electricity on the Company's system is low, such as late evenings, weekends and holidays.

**Peak:** Period of time when the need or demand for electricity on the Company's system is high, normally during the day, Monday through Friday, excluding holidays.

**Estimated Bill:** A bill which is calculated based on your typical monthly usage rather than on an actual meter reading. It is usually rendered when we are unable to read your meter.

**Meter Multiplier:** A number by which the usage on certain meters must be multiplied by to obtain the total usage.

**Demand Charge:** The cost of providing electrical transmission and distribution equipment to accommodate your largest electrical load.

**Supplier Service Charges are comprised of:**

**Generation Charge:** The charge(s) to provide electricity and other services to the customer by a supplier.

**Questions:**

If you have questions or complaints regarding this bill or National Grid's service quality, please contact Customer Service at 1-800-322-3223. You may also contact the Massachusetts Department of Public Utilities, Consumer Division at 617-305-3531 or toll free at 1-800-392-6066 or web site [www.mass.gov/dpu](http://www.mass.gov/dpu).

**Delivery Service Charges are comprised of:**

**Customer Charge:** The cost of providing customer related service such as metering, meter reading and billing. These fixed costs are unaffected by the actual amount of electricity you use.

**Distribution Charge:** The cost of delivering electricity from the beginning of the Company's distribution system to your home or business.

**Transition Charge:** Company payments to its wholesale supplier for terminating its wholesale arrangements.

**Transmission Charge:** The cost of delivering electricity from the generation company to the beginning of the Company's distribution system.

**Demand Side Management:** The cost of demand side management programs offered by the Company.

**Renewable Energy Charge:** A charge to fund initiatives for communicating the benefits of renewable energy and fostering formation, growth, expansion and retention of renewable energy and related enterprises.



APPENDIX F  
COMPLETED ATTACHMENT D-1:  
SITE ASSESSMENT DELIVERABLE



(1) Project Data

Site Information – Town of Northborough: Mt. Pisgah Wind Turbine Development	
Elevation (ft)	689
Annual Behind the Meter Electricity Consumption (kWh)	100% - Project will be net metered to other Town accounts
Property Owner	Town of Northborough
Project Contact Name	Fred Litchfield
Project Contact Phone #	508.393.5040
Project Contact Email	<a href="mailto:flitchfield@town.northborough.ma.us">flitchfield@town.northborough.ma.us</a>

(2) Site Description (1-2 Paragraphs – expand the boxes, as needed)

Provide a site description that includes a general property description, a summary of open spaces on site, description of buildings and trees, and summary of surrounding neighborhood.

The proposed turbine site is at Mount Pisgah in Northborough, MA. The site is an ideal location for the siting of a wind turbine of the size being considered with respect to setbacks from neighboring properties and the wind resource profile. The site itself is along a ridge and is made up of dense woodlands. During a feasibility study this entire property, as well as two other sites at Davidan Brothers Farm and Tougas Farm will be looked at to identify the most appropriate turbine location based on setbacks, wind resource, accessibility, interconnection and logistics.

(3) Wind Resource Assessment

Generate and attach the MRET Commonwealth Wind Site Resource Report from <http://cwest.cadmusweb.com/>

See next page

**MRET Commonwealth Wind Site Resource Report**

**Report Date:** 11/13/2009  
**Report Completed By:** Graham Saathoff  
**Site Name:** Town of Northborough, MA

**Site Information**

<b>Latitude (decimal degrees)</b>	42.36
<b>Longitude (decimal degrees)</b>	-71.66
<b>Elevation (m)</b>	209

Direction	Frequency	Obstacle Height (m)	Description
N	6.86%	12	Trees
NNE	6.20%	12	"
NE	3.43%	12	"
ENE	4.13%	12	"
E	3.29%	12	"
ESE	2.80%	12	"
SE	2.14%	12	"
SSE	1.86%	12	"
S	4.62%	12	"
SSW	8.51%	12	"
SW	10.99%	12	"
WSW	11.62%	12	"
W	8.37%	12	"
WNW	11.06%	12	"
NW	7.74%	12	"
NNW	6.37%	12	"
Avg Obstacle Height (m)		12	

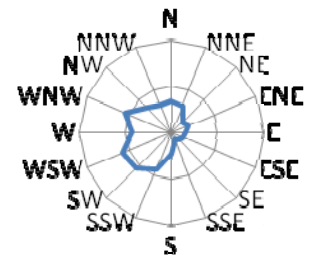
**Wind Resource Statistics**

Weibull k Value	2.25
Average Site Wind Shear Exponent	0.33

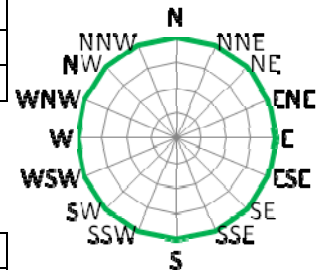
Wind Map Reference Height (m)	Wind Map Wind Speed (m/s)	Wind Speed Corrected for Site Factors (m/s)
30	5.6	5.0
50	6.1	5.7
70	6.4	6.2

**Note:** The average site wind shear exponent is based on empirical data for various terrain types and

**Site Wind Rose (5% frequency/division)**



**Obstacle Height (10 ft/division)**



is calculated based on user inputs. It is recommended that the user use this value to estimate hub height wind speeds, rather than calculating a wind shear exponent based upon the wind speeds from the wind map, as these values are based on large scale computer models and do not accurately account for micro-siting conditions. The wind shear exponent is a mathematical representation of terrain roughness and is used to calculate wind speed as a function of height.

*The data displayed in this report is intended for preliminary assessment purposes only and should be combined with an appropriate feasibility study to determine project viability. This tool has been developed by the Cadmus Group, Inc., on behalf of the Massachusetts Renewable Energy Trust. Wind resource data is derived from AWS Truewind New England Wind Map.*

[www.cadmusgroup.com](http://www.cadmusgroup.com)

Questions:

[pts@cadmusgroup.com](mailto:pts@cadmusgroup.com)

(4) Energy Production and Usage Estimate

Provide an energy production estimate for up to three of the turbine models being considered for the site. For each turbine size being considered, this should include the following:

Turbine Size	Hub Height – 75m / Rotor Diameter – 54m
Turbine Model	EWT 900kW
Wind Speed Estimate at 70 M	6.2 m/s
Wind Speed Translated to Hub Height	6.34 m/s
Estimated kWh Output	1,692,722
Estimated % Used Onsite	100% of production will be net metered to other Town electricity accounts.

(5) Aerial Site Map

Insert an aerial site map of the proposed turbine location that outlines the major property lines. Draw concentric rings on the aerial site map at 200 and 500, and 800 feet from the proposed turbine location.

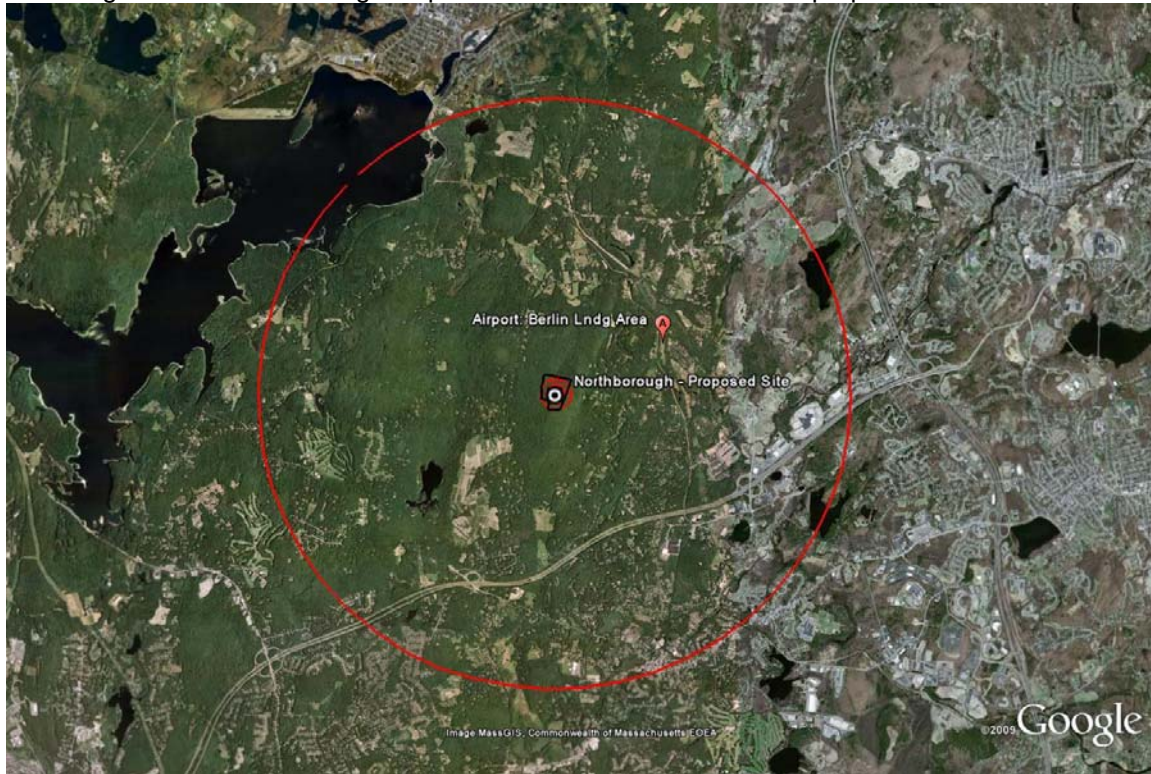




(6) Site Map (3 Mile Radius)

Insert an aerial site map indicating any airports within 3 miles of the property.

The image below shows a single airport within a 3 mile radius of the proposed site.



(7) Distance Reporting (Residences, Property Lines, etc...)

Provide the shortest distance, in feet, from the proposed turbine location to:

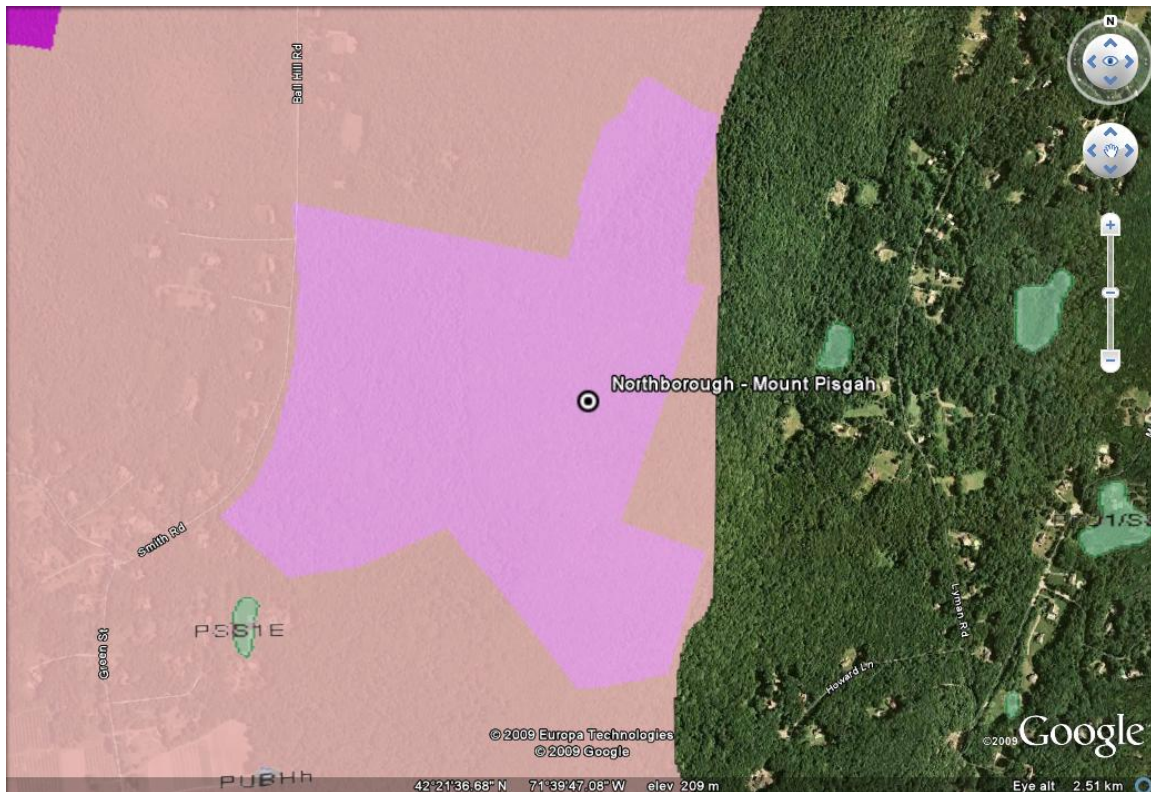
	Distance (ft. or miles)
Closest offsite neighboring residential structure	~1950 ft.
Closest property line	~410 ft.
Closest wetlands	~1750 ft.
Communication towers/microwave towers	~4.8 miles
Airports (miles)	Berlin Landing Area (1.21 mi. ENE), Marlborough Airport (7.85 mi. E)

(8) Environmental/Permitting

Insert aerial property maps with a GIS overlay of:

- ♦ Areas of Critical Environmental Concern
- ♦ National Wetlands Inventory
- ♦ Protected and Recreational Open Space
- ♦ Scenic Landscapes
- ♦ State Register of Historic Places

The image below shows wetlands (in light blue), streams and rivers (dark blue), protected open space (pink) and estimated habitats of rare wildlife (green) near the proposed turbine site. These layers were obtained from the Oliver mapping application provided by MassGIS. The nearest historic place recognized by the National Register of Historic Places is the Robin Hill Cemetery in Middlesex, MA. The Robin Hill Cemetery is approximately 3.5 miles east of the proposed turbine site. Layers showing areas of critical environmental concern and scenic landscapes were not available during the preparation of this application, but will be studied in detail in the feasibility study phase.



**Aerial property map with a GIS overlay of Areas of Critical Environmental Concern (ACEC), National Wetlands Inventory (NWI), Protected and Recreational Open Space, and Scenic Landscapes.**

Provide a commentary (1-2 paragraphs) on whether any of these items could be a fatal flaw to the project. In addition, summarize the Town's zoning ordinances, if applicable, including required heights, setbacks, and distances.

The proposed turbine site is located within the Mount Pisgah Conservation Area and a Scenic Landscape area. This should not present a fatal flaw for this project, however, as this is a locally designated conservation area steps will be taken to engage the community and local conservation groups to provide information regarding the development, should a project proceed at this location. Two other potential locations in Northborough will also be examined in a feasibility study and the costs/benefit analysis of each of these sites will be performed to determine the most logistically and economically viable location.

There is currently not a wind turbine ordinance in the Town of Northborough, so the standard local permitting process will be reviewed in the feasibility study for a recommended pathway. A building permit, site plan, zoning variance, and special use permit may apply.

(9) Fatal Flaws (1 Paragraph)

Summarize any potential project fatal flaws. For example, address the availability of 3 phase power or the transportation/site access potential, along with any other potentially relevant issues.

In this initial stage of the development, the contractor has not identified any fatal flaws to the project, but further investigation is required. Based on a review of information compiled in the UMASS site assessment, three phase power is available nearby. There will be significant costs associated with interconnection, as well as preparing the site for transport and construction of the wind turbine. These issues are developmental hurdles that will be better understood at the completion of the study, but are not considered to be fatal flaws.

(10) Recommendations (1 Paragraph)

Provide a summary of recommended turbine sizes, if any, that merit investigation in a feasibility study. Highlight any potential fatal flaws that need to be addressed early in the early stages of a feasibility study.

Based on the Town of Northborough's electricity requirements and the area available for construction of a wind turbine at Mount Pisgah, an EWT 900kW wind turbine seems the most appropriate technology for this project. Other turbines with outputs ranging from 600kW to 2MW will be considered during the feasibility study phase as well. The issues that will be addressed early on in this study are the appropriate siting of the wind turbine and the if there will be any issues relating to FAA approval, which at this point, does not seem to be the case.





# APPENDIX G

## SED RECOMMENDED SCOPE OF WORKS



Corporate Headquarters:  
317 Route 104  
Ontario, NY 14519  
Phone: (315) 524 9010  
Fax: (315) 524 9046

Massachusetts Office:  
1Bean Road  
Sterling, MA 01564

[www.sed-net.com](http://www.sed-net.com)

## ***Wind Energy Development ~ Town of Northborough Feasibility Study Scope of Services***

Sustainable Energy Developments, Inc. (SED) has designed the following scope of work to set the Town of Northborough on the path toward the development, construction, ownership and operation of the most economic wind energy generating system for their facility. The feasibility study will consist of the following tasks:

**1. Wind Resource Assessment:** SED will install a 50-meter NRG meteorological tower at the identified location for a period of 12+ months. Included in this option will be the cost of the met tower, cost of necessary wind measurement sensors, a logger to receive and record the data from the sensors, the labor to travel to and install the tower and the subsequent decommissioning of the tower whenever it is deemed appropriate. An analysis will be performed using the met tower data to extrapolate the met tower measurement period to an average annual period. SED will not be responsible for the actual labor related to site preparation including any clearing needed for access to the site or for the met tower site itself. Should the met tower installation require a permit for installation, SED will provide support regarding information related to the tower, but will not be the lead proponent in this process.

**2. Wind Resource Modeling–** SED will employ AWS Truewind LLC to perform a long-term correlation of the collected wind resource data after six months and again at 12 months to extrapolate the met tower measurement period to an average annual period. A long-term correlation of the data will also be performed utilizing existing data from nearby weather stations, other met towers and atmospheric data. Utilizing this data, SED's certified analyst will then generate a computer model using the industry recognized Wind Atlas Application and Analysis Program (WAsP) to identify the area's wind resource characteristics, including annual average wind speed, average wind power density wind rose and diurnal profile. Inputs into the model will include the validated wind data, topographical maps, roughness maps and area building sizes and locations. The obstructions and topographic profiled at the sites will be factored into the model using roughness maps generated by AWS and a detailed wind resource at the hub height of the prospective turbine(s). SED will then make determination of the development viability of each site from a wind resource perspective and make clear recommendations for additional monitoring, although based on the scale of the project envisioned, it is unlikely that any additional on-site data collection would be necessary.

**3. Wind Turbine Site Selection, Configuration and Production -** Setbacks will be mapped to determine the appropriate site(s) for the installation of a wind turbine within the identified property boundaries. This task will provide a general overview of the vicinity and a description of uses (e.g., residential, school, agriculture, and open-space) and identify areas that may be particularly sensitive to noise or shadow effects of a potential wind turbine. Manufacturer recommendations will be reviewed to determine the spatial requirements for siting the prospective turbine in relation to possible noise and shadow impact. The most suitable wind turbine technologies for this site will be identified and described. The selected wind turbines will be configured on the property to maximize the wind energy production potential, while

limiting project encroachment into sensitive habitats or residential areas. Up to three possible turbine configurations will be presented with one clear recommendation of the best for the project characteristics. The energy production from the prospective wind turbines in the proposed configuration(s) will be modeled. The availability of and schedules for delivery of selected wind turbines will be presented.

**5. Interconnection Investigation and Wind Generated Electricity Value:** SED will commission an engineering study that will investigate interconnection requirements and identify potential cost implications. The need for and cost of modifications, as well as associated wind turbine infrastructure, will be determined and a clear plan demonstrating how the system will be properly interconnected to the grid will be presented. A one-line diagram of the installation including all associated infrastructure needed to properly interconnect the wind turbine will also be presented. SED will also assess any opportunities for interconnecting the wind turbine directly to a Town owned facility, thereby offsetting electrical usage. SED will perform a detailed review of pertinent electric consumption and costs by gathering and reviewing historical rate information and the local utility's rate classifications. SED will calculate the value of wind generated electricity based on appropriate application of yet-to-be finalized net metering regulations governing the Green Communities Act. SED will perform a detailed review of the facility's annual electrical consumption and costs by gathering and reviewing historical rate information. The local utility's rate classifications will be used to determine the impact on the value of turbine generated electricity

**6. Buildability:** SED will provide a description of the various sites' physical characteristics, such as terrain, tree cover, land use and any existing infrastructure that would be utilized or impacted by the development such as utility lines or communications towers. SED will also evaluate each site for its ability to host a wind turbine based on safety considerations and ease of access for maintenance purposes. All available and pertinent site characteristics will be factored, including but not limited to tax maps, satellite photographs, existing structures, planned construction, existing land uses, site access, interconnection, buildability, nearby residences, property lines and airports. A detailed overview of the site will be performed which shall include a review of the energy infrastructure at the location, mapping of abutting property owners in relation to the tower's and local setback requirements, an environmental resource survey and the identification of stakeholders as the project moves forward. This review will include an assessment of ground conditions, ground cover and gradients and how these conditions will influence the transportation and installation of project equipment. A preliminary turbine foundation will be assumed and used to project this portion of construction costs. SED will also address transportation issues, which will include transport of heavy equipment and machinery to the selected site

**7. Wind Turbine Impact Assessment:** An evaluation of the impacts of the potential wind turbine configurations, in relation to environmentally sensitive areas, as well as noise and shadow implications will be performed. Designated Priority and Estimated Habitat Areas, as well as threatened or endangered species in the locale will be identified. All efforts will be taken to determine suitable turbine locations away from any of these sensitive habitats and minimize the environmental impact of the development.

**8. Regulatory Review and Public Outreach:** SED will review the permitting procedures at the federal, state and local levels, identifying all potential barriers to project development. A description of the

environmental and building permits necessary for development will be provided as well as a clear plan and schedule for satisfying regulatory requirements. The project team will perform a detailed review of the Town of Northborough's bylaws and present a course through the local permitting process for a wind turbine installation at any of the potential sites. The SED Project Manager will be available to assist the Town with any presentations to various committees or stakeholders in the community regarding a wind turbine development. SED will also identify all public-use airports within a 10 mile radius of the turbine sites and determine if an installation would impact airspace and potentially hinder further development. SED will also work with Town officials to determine the level of acceptance from the community in the area around the turbine sites, as well as the overall sentiment within the community regarding wind development on these lands with respect to presented turbine effects.

**9. Development Budget, Timeline and Total Capital Costs:** SED will outline a project development budget and timeline, identifying each development stage, its expected costs and anticipated duration. Total capital cost estimates will be made for prospective wind energy generating configuration and its associated infrastructure. SED will develop a detailed project schedule of the various development phases, which will be based on SED's wind turbine development experience and realistic timelines associated with permitting approval, design tasks, turbine procurement and delivery, and construction tasks

**10. Economic Analysis:** An economic analysis will be performed to clearly present the project's potential financial risks, impacts and benefits. The annual energy outputs from the WAsP model will be used along with value of either selling the electricity to the grid or net metering it towards other Town accounts, estimated capital costs (including operation and maintenance costs and responsibilities), Renewable Energy Credit/Green Tag value, other potential sources of revenue and available funding mechanism(s) to show the unlevered economics of the analyzed turbine at the selected location(s). SED will perform a sensitivity analysis to account for potential variations in factors such as energy escalation rates and wind turbine production.

**11. Financing, Ownership, Operations:** SED, in conjunction with the client will determine the appropriate financing, ownership, and operations structure. Risks and benefits will be examined, analyzed and explained in detail to ensure that all stakeholders' needs are fulfilled, that project risk is mitigated and economic benefit is maximized.

**12. Business Plan -** Upon the completion of the study and presentation of results, SED will work with the Town on the next steps for development, should the Town decide to proceed, including actions to obtain funding for the next stage of a project. SED will also work with the Town to develop a business plan built around the results of the completed study and will include information that will allow the Town and other project stakeholders to determine the most appropriate pathway forward. SED will layout options and recommendations for various development details including wind turbine configuration, a program for public procurement and how operations and management will be handled. For the purpose of the presentations and upon final selection of the wind plant configuration, SED will perform a visual assessment of the development from six viewpoints, selected by the Town and determined to be representative of the community at large.



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**13. Prepare an Executive Summary** – Results of this study will be presented in the form of a final report. Additionally, SED will offer recommendations for next steps in the process, which would likely include obtaining grants through the MRET Commonwealth Wind Program, as well as identifying any additional funding sources requiring action.

## COST

This study will be performed for a **Fixed Fee of \$85,000.**

*\*This technical assessment is eligible to be fully funded by the Massachusetts Renewable Energy Trust (MRET) Commonwealth Wind Incentive program.*

## RATES and COMPENSATION

All Services described above and performed by SED will be performed on a time and materials basis and include SED's RATES FOR SERVICES.

SED RATES FOR SERVICES		
Executive Developer	\$170.00	Per Hour
Project Manager	\$140.00	Per Hour
Development staff	\$110.00	Per Hour
Support/Technical Staff	\$90.00	Per Hour



APPENDIX H  
TOWN OF NORTHBOROUGH  
PRELIMINARY ANALYSIS

## Town of Northborough Wind Energy Analysis

Sustainable Energy Developments, Inc (SED) has utilized the preliminary electrical information for the Town of Northborough to assess the potential for a distributed wind power project. The analysis is based on preliminary information about the Town's electrical usage; examination of publicly available wind data; and wind industry best practices.

### **Recommended Wind Turbine: 1 - EWT Direct Wind 900kW (75-meter tower, 54-meter rotor diameter)**



#### **Project Inputs & Assumptions**

- *Wind Resource* - 6.2 meters per second at height of 75m
- *Total Installed Cost* - \$3,100,000
- *State Grant & Incentives* - \$570,000 through the MRET Commonwealth Wind Program
- *Average Electricity Rate* - \$0.130/kWh
- *Renewable Energy Credits* - \$0.03/kWh generated for 10 years.
- *Maintenance and Insurance* - Year 1: \$10,000 for Management, \$25,000 Capital Reserve, \$9,000 for Insurance. Year 5: \$63,000 Maintenance and Management, \$25,000 Capital Reserve Rising at 3% Standard Inflation

#### **Analysis Results**

- *Wind Turbine Production* - **1,692,722kWh Annually**
- *Net Installed Cost* - **\$2,530,000**
- *Year One Savings* - **\$242,103**
- *Internal Rate of Return and Payback Period*
  - 3.53% Energy Escalation ~ 8.13% and 10.3 year payback
  - 4.46% Energy Escalation ~ 8.29% and 9.6 year payback
  - 9% Energy Escalation ~ 14.69% and 7.9 year payback

