

Renewable Energy Assessment for Massachusetts Energy Management Pilot July 15, 2008

(1) Summary

The Lee Water Treatment Facility at 309 Reservoir Rd has potential for onsite renewable energy generation based on available data. In particular, the biggest opportunity lies with hydroelectric energy, with an estimated potential kW capacity of up to 15 kW which could offset an estimated 65,000 kWh each year. There is also space to install both roof and ground mounted solar panels to generate electricity onsite.



Figure 1 - Facility Satellite View

(2) Site Data

This facility is located in a remote section of Lee, nearly 1,200 feet from significant residential areas. The facility averages roughly 800,000 GPD of flow, with capacity for expanded water processing, which could mean future onsite electricity consumption increases. The site also has ground space available for operational expansion.

Summary Information	
Project Title	Lee Water Treatment
Address	309 Reservoir Rd
City	Lee
Zip	01238
Contact Name	Michael Towler
Contact Phone	413-243-5526
Contact Email	



Wind Potential Information	
Latitude	42 19'30.84
Longitude	73 13'34.12
Latitude (NAD83)	42.3252
Longitude (NAD83)	73.2261
Elevation (ft)	350
Wind Speed	
m/s at 30 M	4
m/s at 65 M	4.7
mph at 100 ft	8.9
mph at 165 ft	10.5
Hydro Potential Information	
Flow Rate (GPD)	800000.0
Water Flow Rate (cfs)	1.5
Water Flow Rate (m3/s)	0.0
Water Head (ft)	340.0
Water Head (m)	103.7
Estimated Capacity (kW)	32.4
Solar Potential Information	
Estimated Roof Space	4,800
Estimated Ground Space	6,400
Estimated Capacity (kW)	89.6

Table 1 - Project Summary Data

(3) Electrical Load

The facility uses nearly 200,000 kWh of electricity each year. The electricity is supplied by Western Mass. Electric Company. The estimated kWh production available from onsite generation would be ~165,000 kWh, or just over 75% of the total onsite electricity consumption. 65,000 kWh may be able to be obtained from a hydro facility, with an estimated 100,000 kWh coming from a solar electric system.

(4) Solar Potential

Roof Mounted System

Nearly half of the solar potential could come from a roof mounted photovoltaic, or PV, system. Based on the available roof space of ~4,800 sq. ft, roughly 40 kW of PV could be roof mounted.

Ground Mounted System

Depending on space availability and planned expansions, the spaces immediately adjacent to the existing facility represent an opportunity for the installation of ground mounted PV. A preliminary estimate of 50 kW of PV could be installed in the fields surrounding the main facility.



Third Party Ownership and Financing

Though the technical aspects of installing and operating PV systems are fairly simple, public facilities often face significant challenges installing PV. The greatest challenge facing the installation and operation of PV is the high cost associated with the solar materials.

One possible solution to the funding challenges for solar is called third party ownership. In this scenario, some outside, third party entity would install, own, and operate PV at no cost the site owner. In return, that entity would take the rebates available through the State's Commonwealth Solar Program, would take the federal tax credits, accelerated depreciation, and other financial benefits available in the marketplace. In return, the host site would sign a power purchase agreement which mandates some fixed cost for the electricity generated by the system for some fixed period of time. For example, the host site could invest no capital up front, and sign an agreement to purchase electricity at \$0.22/kWh for 20 years.

This funding structure relies on the federal, solar investment tax credit which is currently only available at its current levels through 2008. More information about Commonwealth Solar is online at:

http://www.masstech.org/renewableenergy/commonwealth_solar/index.html

Solar electricity may be worth investigating at this site given the availability of space and high electrical consumption, but will be contingent on the availability of outside sources of revenue beyond Commonwealth Solar. Also, typical third party owners are interested in solar projects of 100 kW or more, so the capacity of generation at this facility may require further investigation.

(5) Wind Potential

Wind Regime

The estimated wind speed for the Lee location was taken from data provided by AWS True Winds, which are outlined in greater detail at:

http://www.mtpc.org/renewableenergy/community_wind/atlas.htm

A detailed version of the data used to create these maps was used to analyze the estimated wind speeds particular to this location. The estimated wind speed at a height of 165 feet is 10.5 mph. The Community Wind Collaborative, through which MTC works with communities looking to develop wind projects, typically requires a minimum of 14.5 mph in order to support a the development of a wind



project. Although there are potentially good locations for wind projects in Lee, the resource at this site is not recommended for further investigation.

Proximity to Neighbors

The installation of a wind turbine should meet recommended siting guidelines, as the closest residence is nearly 1,200 feet away.

Available Space

There is a large enough footprint onsite to allow for the erection and operation of one or more large scale wind turbines, though their erection and operation would require some tree clearing and removal.

Based on the data outlined above, a wind project is not recommended for this site. Despite the advantageous onsite siting conditions, the estimated wind speed is significantly less than typical wind projects need to be economically viable.

(6) Hydroelectric Potential

Hydroelectricity relies on the unobstructed flow and drop of water through some existing infrastructure, such as through over existing dam or through some intake or outflow piping system. From a purely technical perspective, hydroelectric potential is calculated based on the height of the existing drop and the rate of flow of water through some contained infrastructure.

There is roughly 30 kW of hydroelectric opportunity that could be utilized based on the height and flow of water onsite at this facility, though this potential would need further investigation to determine technical feasibility. Because there is already onsite generation utilizing a portion of this 30 kW potential, a subsequent project would likely be in the 10-15 kW range. The MTC provides funding for small hydro projects (funding applies to first 10 kW) through the Small Renewables Initiative, at:

http://masstech.org/renewableenergy/small_renewables.htm

Attachment A includes a list of potential consultants who may be willing to work with the facility in developing a hydro project. Attachment B includes a sample renewable energy RFP that could be used to select a team (as applicable).

(7) Biomass Potential

Biomass energy is broad and generic category that typically relates to Combined Heat and Power (CHP) technologies that utilize organic materials, such as wood or wastewater, as a feedstock for combustion. Wastewater facilities offer potentially good



opportunities to use organic materials for this purpose, though drinking water facilities don't typically have the necessary feedstock.

Many biomass technologies are still in development and/or are not yet commercially available, meaning they are built and customized for specific locations and project sites. One of the Pilot sites completed a feasibility study which determined that no "commercially available" biomass was suitable for their site, and that a customized biomass CHP unit would be too costly. However, three others Pilot sites are now performing similar investigations through the Large Onsite Renewables Initiative.

Biomass CHP is not recommended for this site given the lack of onsite organic materials and the low electric consumption onsite.

(8) Fuel Cells

The fuel cell market is constantly moving and improving to meet the demands of its customers. However, fuel cell technology remains fairly expensive for most applications, and is reliant on the cost of natural gas a feedstock. MTC has only funded the installation of one fuel cell in Massachusetts, which has since been decommissioned. A few additional projects are now under development, but given the rate at which fuel cell technologies have continued develop, few currently available technologies have significant operational histories.

For this location, natural gas is not available, so a fuel cell project would require investments not only to fuel cell hardware, but also to natural gas delivery infrastructure. As a result, natural gas fired fuel cells are not recommended for this project.

(9) Next Steps

Funding for the hydro facility is available through the Small Renewables Initiative, which allows for the submission of non-competitive rebate applications on a rolling basis.. It is recommended that Lee pursue funding for a hydro facility through this initiative.

For a possible PV project, the website for Commonwealth Solar has a plethora of background information on solar technologies, as well as contact information for technical experts who can walk customers through the opportunities for third party ownership.

(10) Clean Energy Choice[®]

MTC's Clean Energy Choice[®] program allows consumers to purchase electricity from renewable sources, which, in turn, generates matching grants for their communities. Your town or city can receive up to one dollar in funding for each dollar residents spend on clean energy. This money can be used to fund clean energy projects. Towns can use Clean Energy Choice matching grants in combination with rebates from the Small



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Renewables Initiative (see above) for renewable energy projects. It pays to encourage residents to choose clean energy. More information can be found online at:

<http://www.masstech.org/CleanEnergyOrg/index.htm>

As of May 31st, 2008, Lee has earned \$0.00 through Clean Energy Choice.



Attachment A

LORI Potential Hydro Consultants					
Organization Name	Contact	Contact Email	Telephone	Website	
Beals & Thomas, Inc.	John E. Thomas	jthomas@btweb.com	(508) 366-0560	www.bealsandthomas.com	
Boreal Renewable Energy Development	Tom Michelman	tmichelman@boreal-renewable.com	(978) 580-6190	www.boreal-renewable.com	
Energy & Resource Solutions	Gary Epstein	gepstein@ers-inc.com	(978) 521-4588	www.ers-inc.com	
Fay Engineering Services	William K. Fay	wfay@frenchriverland.com	(413) 427-2665		
GZA GeoEnvironmental, Inc.	Chad W. Cox	ccox@gza.com	(781) 278-5787	www.gza.com	
Kenneth Clarke	Kenneth Clarke	clarkehouse3@aol.com	(603) 801-0123		
Zapotec Energy, Inc.	Paul Lyons	Lyons@ZapotecEnergy.com	(617) 868-1964	www.zapotecenergy.com	

Disclaimer: The Massachusetts Technology Collaborative (MTC) has not investigated, and expressly disclaims any duty to investigate, any company, product, service, process, procedure, design, or the like which may be presented in this spreadsheet. The presentation of these potential consultants does not constitute endorsement, warranty, or guaranty by MTC of any company, product, service, process, procedure, design, or the like. The entire risk of use of any information presented is assumed by the user.



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Attachment B – Sample RFP

TOWN OF HANOVER, MASSACHUSETTS NOTICE TO PROSPECTIVE ENGINEERING/WIND ENERGY CONSULTANTS REQUEST FOR PROPOSAL

Wind Power Feasibility Study

The Town of Hanover is soliciting proposals from professional architectural/wind energy firms to aid in providing professional services for a wind power feasibility study for wind-powered generators for the Town of Hanover. Sealed proposals for furnishing the Town of Hanover, Massachusetts with results of this study as required in accordance with all terms and specifications contained herein will be received in the Selectmen's Office, Town Hall, 550 Hanover Street, Hanover, MA, until:

Two (2) o'clock PM, Local Time – January 18, 2007

Proposals must be submitted in a sealed outer package addressed to the Selectmen's Office, Town Hall, 550 Hanover Street, Hanover, MA 02339. The original copy should contain one complete copy of this request for proposals. Enclosed within each envelope or package will be a cover letter with the signature, name and title of the offeror's person authorized to commit the offeror to the terms of the proposal.

The **study (non-price) proposal** (3 hard copies and one CD-ROM in Adobe Acrobat (pdf) format) shall be placed in a separate package marked with your *company name*, and plainly marked in the lower left hand corner, "**Wind Power Feasibility Study Non-Cost Proposal - Hold for Opening**".

The **Price proposal** (1 hard copies and one CD-ROM in Adobe Acrobat (pdf) format) shall be placed within the outer package, in a separate sealed envelope marked with your *company name* and "**Wind Power Feasibility Study Cost Proposal - Hold for Post Evaluation**".

A **Mandatory Pre-Bid** meeting will commence on **January 11, 2007 at 1:00 PM** at the Hanover Town Hall, 550 Hanover St Hanover, MA. Only offerors attending this meeting will be permitted to submit proposals. Following the Pre-Bid Meeting, non-mandatory tours of the Sites will be offered. It is the prospective offeror's responsibility to see that the proposal is delivered within the time and at the place prescribed. Proposals received prior to the time of opening will be kept, unopened. Proposals may be withdrawn upon written request (on the letterhead of the prospective consultant and signed by the person signing the proposal) and must be received prior to the time fixed for opening. Proposals may be modified in the same manner. No proposal or modification thereof received after the time set for opening will be considered. All proposals should be written in ink or typed. If there is a correction with whiteout, the prospective consultant must initial the change.

The consultant will not discriminate against any employee or applicant for employment because of a physical or mental handicap for any position for which the employee or applicant is



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qualified and that, in the event of noncompliance, the Town may declare the consultant in breach and take any necessary legal recourse including termination or cancellation of the contract. A prospective consultant filing a proposal thereby certifies that no officer, agent, or employee of the Town has a pecuniary interest in the proposal or has participated in contract negotiations on the part of the Town, that the proposal is made in good faith without fraud, collusion, or connection of any kind with any other prospective consultant for the same call for proposals, and that the prospective consultant is competing solely in his/her own behalf without connection with, or obligation to, any undisclosed person or firm. The right is reserved, as the interest of the Town may require, to reject any or all proposals, to waive any technical defect or informality in proposals received, and to accept or reject any proposal or portion thereof.

All questions pertaining to these specifications should be referred to Stephen Rollins; voice 781-826-2261; e-mail: selectmen@hanovermass.com prior to 12:00 noon on **January 12, 2007**. One copy of this request for proposals will be furnished to bidders on request. One complete copy must be attached to an original proposal if a proposal is tendered. It is the proposer's responsibility to check prior to the opening for any updates issued as a result of questions or changes needed in this RFP.

Board of Selectmen
Hanover, Ma



General Terms and Conditions to Bidders

1. Receipt and Opening of Bid

Sealed bids/proposals will be accepted in the Office of the Selectmen, Town of Hanover, Ma. until the time indicated on the advertisement for bids for the services designated in the specifications and will then be publicly opened and read.

2. Form of Bid

Bids must be submitted on and in accordance with the forms attached hereto. No change shall be made in the phraseology of the form or in the item or items mentioned herein. The bid must contain the name and proper address of the bidding firm and be signed by a responsible member of the firm with his/her signature and official title. Bids that are incomplete, contain any omissions, erasures, alterations, additions or irregularities of any kind may be rejected.

3. Submission of Bids

- a. Packages containing bids must be sealed and addressed as specified on the first page of this proposal.
- b. The Town decides when the specified time has arrived to open bids and no bid received thereafter will be considered.
- c. Any bidder may withdraw or modify his bid by written request at any time prior to the advertised time for opening. Telephonic bids, amendments or withdrawals will not be accepted.
- d. Unless otherwise specified, no bid may be withdrawn for a period of sixty (60) days from the date of bid opening. Negligence on the part of the bidder in preparing the bid confers no rights for the withdrawal of the bid after it has been opened.
- e. Bids received prior to the time of opening will be securely kept unopened. No responsibility will attach to an officer or person for the premature opening of a bid not properly addressed and identified.
- f. Any deviation from the specifications must be noted in writing and attached as a part of the bid. The bidder shall indicate the item or part with the deviation and indicate how the bid will deviate from specifications.
- g. Any bidder taking exception to, or questioning any of the provisions, procedures, conditions or specifications herein stated should make such exceptions known to the undersigned, in writing, by **noon January 12 , 2007**
- h. Any change or interpretation made as a result thereof will be mailed or emailed to all prospective bidders. Should a bidder still not be satisfied, he may, in the bid, set out and stipulate the exception, with enough explanation to be understood by the Town and, within the stipulation, the INCREASE or DECREASE in the bid price because of the exception shall be stated. The Town may, at its discretion, accept or reject any or all exceptions

4. Prices



Bidders shall state the proposed price in the manner as designated in the Bid Form. In the event there is a discrepancy between the price written in words and written in figures, the prices written in words shall govern.

5. Terms

Discounts for a period less than thirty (30) days may not be considered.

6. Massachusetts Sales Tax

The Town is exempt from the payment of Ma Sales Tax

7. Federal Excise Taxes

The Town is exempt from the payment of any excise or federal transportation taxes. The price bid must be exclusive of taxes and will be so construed.

8. Award and Contract

Unless otherwise specified, the Town reserves the Right to make award by Task or by total, as may be in the best interest of the Town. A written award (or acceptance of bid) mailed (or otherwise furnished) to the successful bidder shall, unless otherwise specified, be deemed to constitute a binding contract without further action by either party. The Town of Hanover will utilize an evaluation system and will decide on a preferred Consultant. All proposals will be reviewed and rated based upon a combination of factors regarding the proposal submitted and the evaluation criteria set forth in this proposal.

The process will rank proposers by qualifications, not the lowest proposed price. It is the responsibility of the Consultant to provide information, evidence or exhibits that clearly demonstrate the ability to satisfactorily respond to project requirements and the factors listed on the proposal forms.

Each firm who responds will be ranked on capability and. The Town will negotiate relative to scope, services fee and payment schedules. If an agreement cannot be reached with the top ranked firm, those negotiations will be ended and negotiations will be undertaken with the second ranked firm, and so on down the list until an agreement is reached.

Each proposal submitted in response to this RFP is subject to all of the contract terms and any contract awarded will incorporate all of these contract terms.

A responsible contractor is a contractor that demonstrably possesses the skill, ability, financial resources, and integrity necessary to faithfully perform the work called for in this procurement. Each responsive proposal from a responsible contractor will be evaluated solely according to the criteria set forth in this RFP. Each non-price proposal will be assigned a rating of *highly advantageous*, *advantageous*, *not advantageous*, or *unacceptable* with respect to each criterion, and the reasons for each rating will be set forth in writing or by checklist. A composite rating for each non-price proposal will be set forth in writing, along with the reasons for the rating. The evaluation committee will determine the most advantageous proposal from a responsible and responsive offeror, taking into consideration the non-price proposal ratings and proposal price. If the contract is awarded to an offeror that did not submit the lowest price, the evaluation committee will set forth a written explanation of the reasons for the award.

Proposals will be opened in the presence of one or more witnesses at the time stated. At the opening of proposals, shall prepare a register of proposals for public inspection. An offeror may correct, modify, or withdraw a proposal by written notice received in the office designated herein for proposal submission prior to the time set for the opening of proposals. After the opening, a contractor may not change the price or any other provision of the proposal in a manner prejudicial to the interest of, or to, fair competition. The Town may waive minor informalities or allow the offeror to correct them. The Selectmen may permit an offeror to withdraw an offer if a



mistake is evident on the face of the document but the intended correct offer is not similarly evident. The Selectmen reserve the right to cancel this procurement at any time before a contract is executed and approved, in which event will reject all proposals received in response to this RFP. The Selectmen shall award a contract by written notice to the selected offeror as soon as possible after the opening, unless the time for contract award is extended by mutual agreement between the Selectmen and the selected offeror. All substantive inquiries from prospective offerors concerning this RFP must be submitted in writing and may be shared with other prospective offerors. All responses to substantive questions shall be in writing, will be simultaneously distributed to all recipients of the RFP, and will be made available to all interested parties.

Every proposal must be in two parts, submitted in separate, clearly marked, sealed envelopes: 1) non-price proposal and 2)price proposal.

The **non-price proposal** must consist of the following documents:

1. Eligibility to perform the tasks required.
2. Contractor Update Statement, if applicable.
3. Certification of financial interest disclosure and of non-collusion, signed and submitted on Form provided. Certification of compliance with state tax laws, reporting of employees and contractors, and withholding and remitting of child support, as required by M.G.L.c. 62C, §49A, signed and submitted on Form appended to this RFP. Letter of transmittal, signed by an individual authorized to bind the offeror contractually, certifying that the offeror will, if accepted for a contract award execute a contract in accordance with the terms of this proposals within 5 working days of the notice of award. Certification that the offeror, if awarded a contract, will guarantee completion of all work required within due dates or the time periods needed. Any other documents required, but not included in the Price Proposal.

The **price proposal** must consist of the following documents:

1. A price that includes the furnishing of all materials, services, labor, performance and payment bonds, insurance, and other costs incurred in the performance the contract, signed by an individual authorized to bind the offeror contractually, and submitted on the Form provided in this RFP.

After a composite rating has been assigned for each proposal on the basis of the evaluation criteria in this section, the evaluation committee shall review the price proposals and determine the most advantageous proposal, taking into consideration the non-price proposal ratings and the price. If the evaluation committee selects a proposal other than the lowest-priced proposal, the evaluation committee shall explain in writing why the added benefits of the proposal justify its higher price. The award of a contract to any offeror whose non-price-proposal was rated *unacceptable* with respect to one or more criteria will be conditioned on the negotiation of the revisions recommended by the evaluation committee at no increase in the proposed price. Based upon the results of this review and interview process (if applicable), a ranking recommendation will be submitted to the Selectmen for approval. The top-ranked firm(s) from the list approved by the Selectmen will be contacted for an agreement. If an agreement cannot be reached, negotiations with other firms, in order of their Selectmen



ranking, will be conducted until an agreement can be reached. The Town reserves the right to waive any and all informalities and to award the proposal on the basis of the above procedures to the firm it deems most qualified.

Submission of a proposal shall be conclusive evidence that this Proposer has examined the site and the contract documents and is familiar with all the conditions of the project. Upon finding any omissions or discrepancy in the proposal documents, Proposer shall notify the Town immediately so that any necessary addenda may be issued. Failure of the Proposer to completely investigate the site and/or to be thoroughly familiar with the contract documents (including plans, specifications and all addend) shall in no way relieve him or her from any obligation with respect to the proposal.

9. Any firm providing services to or doing business with the Town of Hanover, shall be an Equal Employment Employer.

10. The Town reserves the Right to reject any and all bids, to waive any technical defect or informality in the bids received and to accept the bid deemed to be most favorable to the best interests of the Town. The Town reserves the right to cancel the contract at any time should key personnel or sub-consultants presented in the proposal or subsequent written or oral representations as assigned a significant percentage of their time, not actually be doing work as represented.. Upon satisfactory notice, the Town may, at its option, accept replacement persons or sub-consultants.

11. For construction projects in excess of \$50,000, the successful bidder will be required to provide a surety bond equal to 50% of the contract price.

12. Prevailing Wages: The successful contractor and sub-contractor(s) shall comply with the provisions of Massachusetts General Laws, pertaining to the "Prevailing Wage Laws" for all municipal funded projects. As required, the successful contractor and/or sub-contractor(s) must certify and submit weekly payroll forms to the Accountant's Office.

13. None of the services covered by the contract shall be assigned in full or in part, or sub-contracted without the prior approval of the Town. If any work is to be subcontracted, a subcontracting plan must be submitted as part of the proposal.

14. This contract will be for the services described below; however, this agreement should not be considered exclusive. As deemed necessary, the Town reserves the Right to obtain these services from any other vendor.

15. Unless otherwise specified all costs listed are firm for the term of the contract.

16. Neither party shall be liable for any inability to perform its obligations under any subsequent agreement due to war, riot, insurrection, civil commotion, fire, flood, earthquake, storm or other act of God.

The selected firm(s) shall be required to provide the Town of Hanover with proof of insurance submitted to the Selectmen's office as follows:

- a. General Liability Insurance in the amount of One/three Million Dollars each occurrence.
- b. Automobile Liability Insurance in the amount of One/three Million Dollars combined single limit.
- c. Massachusetts Worker's Compensation Insurance in the amount of statutory limits.
- d. Professional Liability Insurance in the amount of One/three Million Dollars.
- e. The Town of Hanover must be named as an additional insured.

17. The Contractor shall hold harmless, defend, and indemnify the Town and its officers,



agents and employees against all claims, demands, actions and suits (including all attorney fees and costs) brought against any of them arising from the Contractor's work or any subcontractor's work under the contract.

18. Notification of the parties shall be considered to have been constructively received when it is mailed via the United States Postal Service or delivered in hand to the parties as stated in the contract, or emailed, which shall be presumed by the Town to be successfully delivered unless a notice of failure to deliver is received back to the Town.

19. If any of the GENERAL TERMS AND CONDITIONS is held to be invalid or unenforceable, it will be construed to have the broadest interpretation which would make it valid and enforceable under such holding. Invalidity or unenforceability of a term or condition will not affect any of the other GENERAL TERMS AND CONDITIONS.

20. Each and every provision and clause required by law to be inserted in any subsequent Contract shall be deemed to be inserted herein and the Contract shall be read and enforced as though it were included herein, and if through mistake or otherwise any such provision is not inserted, or is not correctly inserted, then upon the application of either party, the Contract shall forthwith be physically amended to make such insertion or correction.

21. Bid shall also mean quotation, bid, offer, qualification/experience statement, and services. Bidders shall also mean vendors, offerors, bidders, or any person or firm responding to a request for proposals.

22. All contracts entered into by the Town of Hanover shall be governed by the Laws of the State of Massachusetts. Any disputes shall be resolved within the venue of the State of Massachusetts.

23. The contractor will comply with all Federal, State and Municipal Laws, ordinances, rules and/or regulations including Labor Laws and those against discrimination.

24. The bid should be inclusive of all costs including overhead, travel, local transportation, supplies and materials.



PURPOSE

The purpose of this study is to determine the feasibility of erecting and operating wind turbines at Town facilities. This study will include site selection for the first town-sponsored wind projects and will collect information needed to implement this.

SCOPE OF WORK TO BE ADDRESSED - Wind Feasibility Study

1. Select best site based on a forthcoming UMASS audit of Town Wind locations, the Town's Municipal Wind Turbine site survey application, and other pertinent information.
 - a. Collect site plans: building, electrical, plot, septic, confirm ownership structure
 - b. Detailed site walk, the focus will be on four areas, 1) electrical systems, both in-house, and utility owned, and 2) identification of sensitive environmental resources (e.g. wetlands etc.) if any and 3) scoping a preliminary location(s) for a wind turbine, exact locations will be detailed via GPS, 4) neighboring properties
 - c. Collect latest electric billing data
 - d. Relate changes in operations that may change electric consumption. (e.g., equipment additions, multiple shifts)
 - e. Memo summarizing kick-off meeting, effect on project scope of work and schedule and recommended best site.
2. Prepare and submit an MTC LORI grant application for **wind study feasibility funding**. The successful proposer will prepare any information needed to apply for, pursue, and be responsible for the successful submission of this grant. Grant requirements are detailed at:
http://www.masstech.org/RenewableEnergy/large_renewables.htm
3. Prepare Feasibility Study based on Massachusetts Technology Collaborative recommended scope of work:
 - a. Perform Technical Feasibility Analysis
 - i. Erect meteorological tower and install datalogger and anemometer
 - ii. Site Evaluation
 1. Description of current energy infrastructure will include electrical transformers, electric panels, wiring configuration.
 2. Site ownership will look at abutting properties and the potential of placing a turbine in the fall zone of an abutter.
 3. Environmental resource survey
 4. Stakeholder identification
 - iii. Analyze Energy Use Opportunities:
 1. Collect data. Monthly consumption data for the past five years is available and will be processed.
 2. Data will be incorporated into the pro-forma tool for analysis
 - iv. Create Base Concept Cases (e.g., scenarios) for Different Technology:



1. Given the energy consumption and wind resources, choose wind turbine systems over 500 kW and where at least 60% of the production is consumed on-site as the systems to analyze more closely. Various manufacturer tower heights will be analyzed.
 - v. Perform Environmental Impact Analysis
 1. Perform avian study
 2. Perform visualization study
 3. Perform preliminary noise study
 4. Analyze potential impacts, their severity, with mitigation options
 5. Analyze required environmental approvals and permits, processes and procedures and timeframes
 - vi. Analyze Engineering and Interconnection Requirements.
 1. Analyze engineering requirements
 - a. Geotechnical. While no borings will be completed, assess the likely geological characteristics of the site (in all likelihood terminal moraine), and its affect on foundation design and wiring runs.
 - b. Electrical. Analyze the electrical interconnection requirements of the supplying electric utility and specify the characteristics of the required wire runs, protective relays, transformers, and metering.
 - c. Staging / Erection. Appropriate staging areas will be assessed. Erection needs, including crane capacities will be determined.
 2. Analyze required building approvals and permits, processes and procedures and timeframes
 - vii. Write up findings into Technical Analysis
- b. Perform Economic Feasibility Analysis
- i. Collect for major scenarios major costs. Estimated costs will be collected in parallel to the technical analysis. Major costs (e.g., turbine, tower, transformer, construction) will be estimated for each wind turbine system
 - ii. Perform Wind Resource Assessment.
 1. Review existing site-specific anemometers data
 2. Gather, correlate and analyze wind resources from other local data sources
 - iii. Research different financing options
 1. Hosts financial strengths, weaknesses and preferences.
 2. Potential financing options to match host
 3. Private funding sources for multi-use tower/space options
 4. Public financing via Federal Clean Renewable Energy Bonds (CREBs), or other programs
 - iv. Investigate potential and need for long-term contracts, and likely price points.
 1. Inquiries will be made to RECs wholesalers on the availability, interest and price of long-term contracts.



2. For third party ownership options, price points and terms of power purchase agreements
 - v. Project Costs and Revenues for combination of development, financing, and revenue scenarios
 1. Create analysis of third-party ownership of turbine
 2. Run numerous scenarios investigating financial reward in terms IRR, NPV, and years to positive cash flow. Scenarios will be run varying numerous aspects, including financing options, and system configurations.
 3. Run sensitivity analysis for variation in major factors, including wind resources, cost of avoided generation, REC and LMP revenue, construction costs, interest and inflation rates, etc.
 - vi. Provide project pro-forma(s) for recommended or alternative structures. Provide detailed cash flows for selected primary alternatives.
 - vii. Write up findings into Economic Analysis. Model details and assumptions, charts and tables will make clear the potential project financial impacts.
 - c. Prepare recommended next steps for further development of the wind project.
4. Package Findings and Analysis into Feasibility Study with Recommendations
 - a. Draft Final Report
 - b. Final Report
5. Presentation of Feasibility Study to Decision Makers
 - a. Prepare a presentation intended for a public audience. At minimum, attendance at 3 public Board meetings should be expected to complete this task.
 - b. Prepare a separate presentation appropriate to be submitted by the Hanover School Building Committee to the SBA relative to the “green” advantages of the Wind turbine to maximize the reimbursement points in the State Aid formula.
6. (If applicable) Prepare and submit an MTC LORI grant application for wind **design and construction** funding. The successful proposer will prepare any information needed to apply for, pursue, and be responsible for the successful submission of this grant. Grant requirements are detailed at:
http://www.masstech.org/RenewableEnergy/large_renewables.htm
 - a. Prepare a scope of work for design and construction of a wind project
 - b. At minimum, attendance at 3 public Board meetings should be expected to complete this task.



Minimum Evaluation Criteria

At a minimum, provide the following information with your firm's response. (Some of these criteria are expanded upon and can be included as part of your Evaluation criteria.)

1. Timely submission of proposal.
2. Correctly following the terms and conditions of this RFP.
3. A Letter of Transmittal signed by the individual authorized to negotiate for and to submit a proposal, and any related votes of the corporation or Board of Directors as necessary as proof of authorization.
5. Completed disclosure of beneficial interest in real property transaction as required
- 6 Fully executed forms as provided in this RFP (proposal, non collusion certificate, etc.)
7. A copy of the appropriate licenses required by Federal, State, and/or local authorities.
8. A statement that your firm is not debarred, suspended or otherwise prohibited from practice by any Federal, State, or local agency.



Comparative Evaluation Criteria and Proposals

Proposals will be evaluated by the Town, using comparative criteria set forth as follows:

NON-Price Proposal

APPROACH AND SCHEDULE

Proposal shall include an explanation of how the firm will approach the various tasks, including scheduling, methods and sources.

- a. Unacceptable
No proposal
- b. Not Advantageous
Incomplete proposal
- c. Advantageous
Complete proposal.
- d. Highly Advantageous:
Most extensive and clear proposal

Company Qualifications and Experience

Specialized experience is required in a series of work areas. Proposals must clearly demonstrate full knowledge, understanding, and experience in the methods, techniques and guidelines required for the performance of the required work. All elements within this factor are of equal importance. Capacity and capability of the firm to perform the work on schedule should be clear. Responsiveness to Town's concerns (Town may evaluate firm's ability to form successful working relationships and communications with the Town.)

- a. Unacceptable
No proposal
- b. Not Advantageous
Incomplete proposal
- c. Advantageous
Complete proposal.
- d. Highly Advantageous:
Most extensive and clear proposal



Personnel Qualifications and Availability

Specialized experience is required of the proposed project personnel to undertake the work assignments. Proposal must clearly demonstrate the capability, academic background, training, certifications and experience of the proposed personnel (not just of the firm). The availability of the proposed staff is also of crucial importance and must be demonstrated. Specific project responsibility of staff to be assigned to this project must be included. Professional background and caliber of previous experience of key persons within your firm and of each of your consultants to be assigned to this project.

If sub-consultants will be employed, similar information must be provided and the portions to be sub-consulted must be identified. (There is no penalty for use of sub-consultants; the qualifications of the entire team will be evaluated.)

- a. Unacceptable
No proposal
- b. Not Advantageous
Incomplete proposal
- c. Advantageous
Complete proposal.
- d. Highly Advantageous:
Most extensive and clear proposal

Performance Record of Firm

A list of references of at least three (3) recent contracting officers on projects of a similar nature, magnitude and complexity; references must include telephone number and affiliation, as well as a brief explanation of referenced work. Indicate the individuals on your staff who had responsibility for each project and whether or not these people are still with your firm.

- a. Unacceptable
No proposal
- b. Not Advantageous
Incomplete proposal
- c. Advantageous
Complete proposal.
- d. Highly Advantageous:



Most extensive and clear proposal

Project Understanding

The Consultant must demonstrate a comprehension of the role and function of this contract in meeting the needs of the Town of Hanover.

In addition to the understanding of the scope and approach, the Consultant must demonstrate the following, which will be considered in the selection:

1. Knowledge of current issues and state-of-the-art technologies.
2. Experience demonstrated on similar projects.
3. Working knowledge of the geographic area as evidenced by prior work experience in the region.
4. A demonstrated expertise and ability for rapid turnaround and flexibility on short-term projects.
5. The capability to effectively direct multiple simultaneous work assignments.
6. An ability to integrate and utilize interdisciplinary study teams effectively on assignments requiring a variety of skills and expertise from in-house resources.
7. The ability to provide the necessary skills and expertise from in-house resources.

- a. Unacceptable
No proposal
- b. Not Advantageous
Incomplete proposal
- c. Advantageous
Complete proposal.
- d. Highly Advantageous:
Most extensive and clear proposal

Proposal

1. Thoroughness of Proposal

- a. Unacceptable
No proposal
- b. Not Advantageous
Incomplete proposal
- c. Advantageous
Complete proposal.
- d. Highly Advantageous:
Most extensive and clear proposal



6. Other Relevant Issues (Town may evaluate importance of other relevant issues presented **by the firm.**)

- a. Unacceptable
There is no Unacceptable category here
- b. Not Advantageous
Self serving presentations that do not improve and advance the goals of this RFP
- c. Advantageous
Presentations that do improve and advance the goals of this RFP
- d. Highly Advantageous:
Presentations that significantly improve and advance the goals of this RFP



Price Proposal

1. A flat fee, or hourly rates with a not to exceed total cost, for a complete proposal under section 5 c of the Scope of work (MTC proposal).

- a. Unacceptable
no price proposal
- b. Non advantageous
hourly rate without a not to exceed cap
- c. Advantageous
flat fee
- d. Highly Advantageous
hourly rates with a not to exceed total cost

PROPOSAL

Attach calculations.

\$ _____

Price Proposal

2. A flat fee, or hourly rates with a not to exceed total cost, for the Scope of work not including section 5 c (MTC proposal).

- a. Unacceptable
no price proposal
- b. Non advantageous
hourly rate without a not to exceed cap
- c. Advantageous
flat fee
- d. Highly Advantageous
hourly rates with a not to exceed total cost

PROPOSAL

Attach calculations.

\$ _____



MASSACHUSETTS
TECHNOLOGY
COLLABORATIVE

HARNESSING THE POWER OF INNOVATION

75 NORTH DRIVE
WESTBOROUGH, MA 01581
TEL: 508 870 0312
FAX: 508 898 2275
WWW.MASSTECH.ORG

TO: TOWN OF HANOVER
BOARD OF SELECTMEN
550 Hanover Street
Hanover, Ma. 02339

The undersigned has read the Request for Proposals (RFP) and has carefully examined all specifications/evaluation criteria therein. The undersigned certifies that he/she has visited the site and that there are no known obstacles to prevent the execution of an agreement with the. The undersigned acknowledges that the Town may reject all proposals, or waive portions of the RFP for all proposals, if it deems it in its best interest.

Signature_____

1. Proposer information

Name:
Address:
Role with the Organization:
Organization Address:

2. Attestation

Pursuant to M.G.L. c.62C, §49A, I certify under the penalties of perjury that the undersigned bidder, to the best of his/her knowledge and belief, has filed all state tax returns and paid all state taxes required under law.

Social Security Number or
Federal Identification Number

Signature of Individual or Officer

Date

Name of Corporation



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75 NORTH DRIVE
WESTBOROUGH, MA 01581
TEL: 508 870 0312
FAX: 508 898 2275
WWW.MASSTECH.ORG

All proposers must submit, together with it's proposal, a signed certification of non-collusion. Said certification is attached hereto and incorporated herein.

CERTIFICATE OF NON-COLLUSION

The undersigned certifies, under penalties of perjury, that this bid or proposal has been made and submitted in good faith and without collusion or fraud with any other person. As used in this certification, the word "person" shall mean any natural person, business, partnership, corporation, union, committee, club or other organization, entity, or group of individuals.

(Signature)

(Name of person signing proposal)

(Name of business)