Commonwealth of Massachusetts
Executive Office of Environmental Affairs ■ MEPA Office

ENF Environmental Notification Form

For Office Use Only
Executive Office of Environmental Affairs
EOEA No.: 13992
MEPA Analyst: Holly Johnson
Phone: 617-626-1023

The information requested on this form must be completed to begin MEPA Review in accordance with the provisions of the Massachusetts Environmental Policy Act, 301 CMR 11.00.

Project Name: **Town of Orleans Wind Energy Project**		
Street: Gould Pond Road & Cliff Pond Road		
Municipality: Orleans (South Orleans) 02662	Watershed: Monomoy Lens, Orleans	
~~Universal Transverse Mercator Coordinates~~: Massachusetts State Plane Coordinate System	~~Lat~~. **Site 1**: N 2741345.71 E 1067396.67 ~~Lon~~: **Site 5**: N 2742655.18 E 1067557.04	
Estimated commencement date: Winter 2007	Estimated completion date: Spring 2008	
Approximate cost: ~$7,150,000	Status of project design: ~25% complete	
Proponent: Massachusetts Technology Collaborative, Renewable Energy Trust		
Street: 75 North Drive		
Municipality: Westborough	State: MA	Zip Code: 01581
Name of Contact Person From Whom Copies of this ENF May Be Obtained: Paul D. Cleri		
Firm/Agency: R. W. Beck, Inc.	Street: 550 Cochituate Road, 4-East	
Municipality: Framingham	State: MA	Zip Code: 01701-9344
Phone: 508-935-1600	Fax: 508-935-1888	E-mail: pcleri@rwbeck.com

Does this project meet or exceed a mandatory EIR threshold (see 301 CMR 11.03)? ☐Yes ☒No

Has this project been filed with MEPA before? ☐Yes (EOEA No._____) ☒No

Has any project on this site been filed with MEPA before? ☐Yes (EOEA No._____) ☒No

Is this an Expanded ENF (see 301 CMR 11.05(7)) requesting:

a Single EIR? (see 301 CMR 11.06(8))	☐Yes	☒No
a Special Review Procedure? (see 301CMR 11.09)	☐Yes	☒No
a Waiver of mandatory EIR? (see 301 CMR 11.11)	☐Yes	☒No
a Phase I Waiver? (see 301 CMR 11.11)	☐Yes	☒No

Identify any financial assistance or land transfer from an agency of the Commonwealth, including the agency name and the amount of funding or land area (in acres): Development assistance for Project by Massachusetts Technology Collaborative (MTC).

Are you requesting coordinated review with any other federal, state, regional, or local agency? ☐Yes(Specify_____) ☒No

List Local or Federal Permits and Approvals: (a) USFAA Aeronautical Clearance; (b) Town of Orleans Board of Water Commissioners and Board of Selectmen Approval; (c) Town of Orleans Special Permit.

Which ENF or EIR review threshold(s) does the project meet or exceed (see 301 CMR 11.03):

☐ ~~Land~~	☐ ~~Rare Species~~	☐ ~~Wetlands, Waterways, & Tidelands~~
☐ ~~Water~~	☐ ~~Wastewater~~	☐ ~~Transportation~~
☐ ~~Energy~~	☐ ~~Air~~	☐ ~~Solid & Hazardous Waste~~
☐ ~~ACEC~~	☐ ~~Regulations~~	☐ ~~Historical & Archaeological Resources~~

Summary of Project Size & Environmental Impacts	Existing	Change	Total	State Permits & Approvals
LAND				☐ Order of Conditions ☐ Superseding Order of Conditions ☐ Chapter 91 License ☐ 401 Water Quality Certification ☐ MHD or MDC Access Permit ☐ Water Management Act Permit ☐ New Source Approval ☐ DEP or MWRA Sewer Connection/ Extension Permit ☒ Other Permits (*including Legislative Approvals*) – Specify: ▪ Article 97 Approval for "change in control" for lease of land to private developer ▪ MaDEP NPDES Stormwater/NOI ▪ No other state permits identified at this time.
Total site acreage	~500			
New acres of land altered		~ 4		
Acres of impervious area	~1.5	negligible	~1.5	
Square feet of new bordering vegetated wetlands alteration		not applicable		
Square feet of new other wetland alteration		not applicable		
Acres of new non-water dependent use of tidelands or waterways		not applicable		
STRUCTURES				
Gross square footage	~21,000	~400	~21,400	
Number of housing units	none	none	none	
Maximum height (in feet)	116	281	397	
TRANSPORTATION				
Vehicle trips per day	~25	0	~25	
Parking spaces	~10	0	~10	
WATER/WASTEWATER				
Gallons/day (GPD) of water use	0	0	0	
GPD water withdrawal	~989,000 (annual average)	0	~989,000 (annual average)	
GPD wastewater generation/ treatment	0	0	0	
Length of water/~~sewer~~ mains (in miles)	~2 miles water only; no sewer	0	~2 miles water only; no sewer	

CONSERVATION LAND: Will the project involve the conversion of public parkland or other Article 97 public natural resources to any purpose not in accordance with Article 97?

☐Yes (Specify:) ☒No

(NOTE: Change in land control; but, not a "change in use" under Article 97. Refer to detail elsewhere in ENF.)

Will it involve the release of any conservation restriction, preservation restriction, agricultural preservation restriction, or watershed preservation restriction?

☐Yes (Specify_____) ☒No

RARE SPECIES: Does the project site include Estimated Habitat of Rare Species, Vernal Pools, Priority Sites of Rare Species, or Exemplary Natural Communities?

☐Yes (Specify_____) ☒No

HISTORICAL /ARCHAEOLOGICAL RESOURCES: Does the project site include any structure, site or district listed in the State Register of Historic Place or the inventory of Historic and Archaeological Assets of the Commonwealth?

☐Yes (Specify_____) ☒No

If yes, does the project involve any demolition or destruction of any listed or inventoried historic or archaeological resources?

☐Yes (Specify_____) ☒No

AREAS OF CRITICAL ENVIRONMENTAL CONCERN: Is the project in or adjacent to an Area of Critical Environmental Concern?

☐Yes (Specify_____) ☒No

PROJECT DESCRIPTION: The project description should include **(a)** a description of the project site, **(b)** a description of both on-site and off-site alternatives and the impacts associated with each alternative, and **(c)** potential on-site and off-site mitigation measures for each alternative.

Project Background

MTC and the Town of Orleans ("Town") propose the installation of two wind turbines on the Town's public watershed (the "Watershed") to provide electric power in support of Watershed activities and the supply and treatment of potable water for the residents of the Town (the "Project"). The wind turbines will also serve to demonstrate the use of renewable wind energy, increase public awareness of the viability of renewable energy, and provide economic benefits to the Town in the form of lower electricity prices. MTC, with significant input from the Town, has been responsible for overall management of the development process to date. Through a public bidding process, the Town, with significant input from MTC, plans to select a private entity to construct, own and operate the Project. The Town would lease the Project site to the private entity and the private entity would supply power for on-site use by the Town.

Project Site and Description

The Project will be built within the Watershed, which occupies approximately 500 acres of primarily wooded land located in the triangular area between U.S. Route 6, Massachusetts Route 28, and Route 6A. The Watershed contains six groundwater wells (Town Wells Nos. 1-6) that pump water from the Monomoy Lens. Several buildings and structures are scattered across the Watershed; these are devoted to pumping, maintenance, water treatment, and other water supply-related activities. These buildings include the iron and manganese removal treatment plant (the "I&M Plant"), which has the greatest electric load in the immediate vicinity.

The Project will be comprised of two 1.65-megawatt turbines. Turbine No. 1 (Site 1) will be situated on a hill approximately 900 feet north-northwest of the I&M Plant. An area approximately 250 feet in diameter has already been cleared at this location. Turbine No. 2 (Site 5) will be situated on a hill approximately 1,300 feet due-north of Site 1, which is approximately 400 feet northwest of the existing 116-foot high Town water tower. The surrounding coniferous trees are on average approximately 40 feet tall and the deciduous trees are on average approximately 30 feet tall.

The electrical output from both turbines will provide power for the I&M Plant and other watershed uses. Power in excess of the Watershed's needs will be sold into the wholesale power market. It is expected that the Project will generate net energy of approximately 7,600,000 kilowatt-hours of electricity on an annual basis.

On-Site and Off-Site Alternatives and Impacts

Energy and Air Quality

The Project will promote the general energy and environmental objectives articulated by Governor Patrick, as well as the goals articulated in former Governor Romney's recent report on Massachusetts' Energy Future, by providing 3.3 MW of renewable, zero-emissions electric capacity for use by the Town and the New England electric grid. When operating, the wind turbines will offset emissions from other, primarily fossil-fueled, New England generators.

Watershed Impacts

The Town's primary concern throughout the Projeet's development process has been to minimize and mitigate impacts on the Watershed. The initial Project design presented to the Town Board of Water Commissioners (the "Commissioners") had two wind turbines separated by nearly a mile to maximize generation, with an underground connector running between the

two, creating the potential for a new, undesired "motorbike track" within the Watershed. Following discussions with the Commissioners and other stakeholders, the Project has been redesigned with the turbines significantly closer together. In addition, the Project makes better use of existing dirt roads for access and interconnection. Land disturbance associated with the construction of the Project has been reduced from approximately ten acres to approximately six acres. No wetlands will be disturbed. The area to be used for construction and operation of the Project has been minimized to the maximum extent practicable.

Management and protection of the Watershed has been entrusted to the Commissioners. As part of their review of the Project, the Commissioners have drafted a set of protective conditions covering the construction and operation of the wind turbines (the "Protective Conditions"). These conditions have been designed to ensure that the Project would not adversely impact the Watershed or any unique or significant resource areas and would be fully compatible with the use of the Watershed for the production of potable water. Project developers will be required to construct and operate the Project in strict conformance with the Protective Conditions. The Protective Conditions are attached to this ENF as Appendix E.

In addition, it should be noted that the Project site falls within a local Groundwater Protection District under Section 164-17 of the Town Zoning Bylaw. Accordingly, construction and operation of the Project will be required to comply fully with the applicable provisions of that bylaw

Noise and Visual Impacts

The principal impacts of the Project include potential views of the turbines from locations on and off the Watershed, throughout the Town, and possibly from the sea. The area topography is generally hilly and densely forested, providing good cover and visual impact mitigation for the proposed wind turbines at least during the seasons when one would expect leaf density to be greatest. A significant amount of forestation appears to be coniferous suggesting good leaf density and visual impact mitigation throughout the year, as well as noise mitigation. Photographic simulations of the wind turbines as seen from several viewpoints throughout the Town under summer and winter conditions are attached as Appendix G.

The hilly, densely forested area also is expected to mitigate potential noise impacts. The nearest receptors would be residential neighbors which are at least a quarter mile away from the turbine sites. The nearest property line to the wind turbine sites would be the Mid-Cape Highway (U.S. Route 6) to the west and several undeveloped parcels of land. The town of Brewster is a Watershed abutter. During off-peak, mid-day hours, noise from the Mid-Cape Highway is noticeable and pervasive along the western areas of the Watershed; however, such noise is not apparent at the two turbine sites, which suggests that potential noise from the turbines would be appreciably mitigated by the local forestation and shrub cover. Given the low density of commercial activity in the immediate area, it would be reasonable to assume that noise from the Mid-Cape highway will continue to dominate the area after the Project is complete. Detailed noise studies may be required prior to approval of the Project by the Town's Zoning Board of Appeals.

Avian Assessments

MTC has conducted a Phase I Avian Radar Assessment followed by spring and autumn migration (radar) assessments at the Watershed. The Phase 1 study is attached to this ENF as Appendix H; the radar studies are attaehed as Appendix I. The Phase 1 study concluded that the Project would pose low risk to birds and resident bats, while an analysis of the radar data concluded that the Project would pose a low mortality risk to birds. The Phase 1 study also offered a number of recommendations to reduce risk to birds and bats, including the use of underground electrical lines, minimum navigational safety lighting, avoidance of support ladders or other features that birds could roost on, and allowing the woodland to regenerate as closely as possible to the turbines, roads, and other infrastructure to avoid habitat fragmentation. The Project as planned will comply with these recommendations. As such, post-construction monitoring at this site is not proposed.

Alternative Sites

During Project development, MTC and the Town examined multiple potential turbine, connector line, and access road locations throughout the Watershed, to find a configuration that minimizes disturbance to the Watershed while avoiding wetland impacts. This was an iterative process that involved physical inspection of the Watershed, preliminary selection of approximately six potential turbines sites, detailed analysis of the land impacts to the Watershed of these potential sites, a narrowing of the potential sites, and further detailed analysis to identify the two best loeations. The detailed analysis that was performed inclnded calculation of potential land impacts, tree cuts, erosion, cleared space, and revegetation. Iu addition potential impacts to existing water supply infrastructure were also considered. The conclusions of this iterative process resulted in the selection of the two proposed turbine locations so as to minimize potential land impacts to the Watershed as well as to avoid wetlands impacts.

Off-site alternative locations were not considered because the energy generated from the turbines will be used to support Watershed operations, including the I&M plant. Additionally, the Town originally seleeted the Watershed as a likely site for the Project because the large, wooded parcel provides an extensive buffer between the turbine and potential receptors which would not be available in other locations; and, the visual, noise and land use impacts of the Projeet would likely be greater at a different site.

Electrical Interconnection

The electrical interconnection point for the two turbines will be at the Town's I&M Plant utilizing existing infrastructure.

Accordingly, there are no new major electrical facilities required.

Groundwater Protection Zones

Each of the Town wells in the Watershed has an approximately 400-foot radius groundwater protection zone around the wellhead, which represents an area around the wellhead of approximately 11.54 acres. Neither of the turbines will be located within a groundwater protection zone. Further, none of the access roadways and associated construction activities will be located within a groundwater protection zone.

Other On-Site and Off-Site Mitigation Measures

MTC and the Town have developed a comprehensive schedule of stakeholders, which they will use during the development phase of the Project to identify concerns that need to be addressed during Project implementation. The Town's Special Permit approval process will involve an additional number of potential stakeholders which will provide an additional degree of stakeholder involvement. As discussed above, Project impact mitigation is provided primarily by the extensive buffer zone provided by the watershed lands surrounding the turbine sites, the generally hilly topography in South Orleans, and the heavily forested surroundings.

Required Setbacks

To avoid undesirable visual and noise impacts, wind turbines should be located at a reasonable distance from residences, other buildings, sensitive areas, and roadways. The Town has addressed this issue by promulgating a Commercial and Non-Commercial Wind Facilities Bylaw. The bylaw includes height restrictions, noise limits, and setback criteria. Specifically, the bylaw requires that wind projects be set back from roads and property lines by the maximum tip height (*i.e.*, the "fall zone") plus 100 feet. The Project will be in full compliance with the bylaw.

Watershed Protective Conditions

As discussed above, the Project will be required to be constructed in strict conformance with the Protective Conditions to ensure that the Project will not adversely impact the Watershed or any unique or significant resource areas, and will be fully compatible with the use of the Watershed for the production of potable water.

Article 97 Applicability

The Watershed was taken by the Town in March 1962 for the purpose of supplying water to the Town's residents. As such, activities involving a change in use or change in control of any land in the Watershed are subject to the requirements of Amendment Article 97 of the Massachusetts Constitution.

Article 97 requires that a municipality obtain two-thirds (⅔) approval of each branch of the Massachusetts General Court prior to engaging in a "disposition" of any interest in Article 97 land. For the purposes of Article 97, a "disposition" is defined as either (a) any transfer or conveyance of ownership or other interest, or any change in physical or legal control, of the land (a "change in control"); and (c) any change in use of Article 97 land or an interest in Article 97 land, whether by deed, easement, lease, or any other instrument (a "change in use").

Change in Use

The construction and operation of the Project would not constitute a change in use of the Watershed for the purposes of Article 97, as the operation of the Project would be consistent with and directly support the primary use of the Watershed – namely, the production and supply of potable water to the residents of Orleans. Specifically, a portion of the electric power generated by the Project would be supplied at below market rates to the Town for the purpose of operating some of the groundwater production wells located in the Watershed, as well as the I&M Plant that recently was constructed by the Town in the Watershed for the purpose of producing potable water.

In addition, the Project would, as compensation for its use of a portion of the Watershed property, make a substantial annual payment to the Town's Water Reserve Account. This payment, in combination with the savings provided by the provision of below market rate power to the Town, would help defray the cost of providing potable water to the residents of Orleans.

Finally, the construction and operation of the Project would be required to be conducted in strict accordance with a detailed set of Protective Conditions that have been developed by the Commissioners. The Protective Conditions are designed to ensure that any environmental or other impacts to Watershed are minimized or eliminated to the maximum extent practicable, and that any impacts that do occur are mitigated. In the event that the Protective Conditions are violated, the Town will have the right to terminate the Project's use of the Watershed.

Change in Control

The Project would be constructed, owned and operated by an entity other than the Town pursuant to the provisions of a long-term ground lease. The issuance of such a lease would constitute a change in control that triggers the procedural requirements of Article 97. Alternatives to the issuance of a ground lease by the Town have been examined, but it was determined that (a) it is not clear that the provisions of Chapter 164 of the Massachusetts General Laws will allow the Town to own and operate the Project unless the Town establishes a municipal light department, (b) the Town is not in favor of assuming the commercial and liability risks involved in directly owning and operating the Project, and (c) a private entity would not be willing to own and operate the Project pursuant to a series of short-term (that is, less than five years in length) fully revocable licenses. Although the Town reserves the right to facilitate the construction of the Project through the

issuance of a short-term revocable license, it proposes to seek the required legislative authorization under Article 97 to issue a long-term ground lease to the Project.

On February 19, 1998, the Massachusetts Executive Office of Environmental Affairs ("EOEA") released its Article 97 Land Disposition Policy (the "Policy"), which set forth a process that any state agency must comply with prior to engaging in a change in use or a change in control of any land subject to Article 97. As discussed below, the Project would comply with the provisions of the Policy to the extent that they are applicable to municipalities such as the Town.

In developing the Project, the Town worked extensively with MTC to evaluate potential locations within the Town that were suitable for the siting of the Project. The proposed location for the Project was determined to be superior in that the location (a) provides the space and wind conditions that are necessary for the construction and operation of the Project, (b) is in close proximity to the Town's I&M Plant, and (c) minimizes impacts. In this regard, it should be noted that if the Project were located outside the Watershed, the provisions of Chapter 164 of the Massachusetts General Laws might prohibit the Project from supplying electric power to the I&M Plant directly as opposed to indirectly through the utility-owned distribution grid, and that the supply of power through the distribution grid would erase some of the financial benefits that accrue from on-site generation and use of electricity. Since the Town's initial approval of the Project, the Town, the Commissioners and MTC have expended considerable effort in refining the proposed locations for the individual turbines, associated access roads, and electric transmission lines in an effort to minimize any disturbance to the Watershed to the maximum extent practicable.

In addition, the Project will be required to be constructed in strict conformance with the Protective Conditions and will support, and be fully compatible with, the use of the Watershed for the production of potable water. The operation of the Project (both directly through the supply of electric power and indirectly through the supply of lease revenues) will support the existing use of the Watershed for water supply production purposes. Finally, the use of the Watershed for the Project has been approved by a more than two-thirds (⅔) vote of the Town Meeting, and any specific lease or license issued for the construction of or operation of the Project will be subject to the approval of the Town's Board of Selectmen and Commissioners.

Town Approvals

Votes affirming the Project by Town voters, through actions taken at Town Meeting, have taken place as follows: Wind Energy Bylaw, funding, lease locations, and Article 97 (May 2005); amended lease locations (May 2006); and amended lease locations (October 2006). A May 7, 2007 Town Meeting will vote on confirming approval of the lease of Site 2, which had not been subject to prior Town Meeting votes.

LAND SECTION – all proponents must fill out this section

I. Thresholds / Permits

A. Does the project meet or exceed any review thresholds related to **land** (see 301 CMR 11.03(1)
☐Yes ☒No; if yes, specify each threshold:

(NOTE: Change in land control; but, not a "change in use" under Article 97. Refer to detail elsewhere in ENF.)

II. Impacts and Permits

A. Describe, in acres, the current and proposed character of the project site, as follows:

	Existing	Change	Total
Footprint of buildings	<1	0	<1
Roadways, parking, other paved areas	<2	0	<2
Other altered areas (describe)	0	4	4
Undeveloped areas	497	-4	493
Totals	**500**	**0**	**500**

"Other altered areas" consist of cleared areas for the two turbines, and some minimal widening of existing roads at the watershed.

B. Has any part of the project site been in active agricultural use in the last three years?
☐Yes ☒No; if yes, how many acres of land in agricultural use (with agricultural soils) will be converted to nonagricultural use?

C. Is any part of the project site currently or proposed to be in active forestry use?
☐Yes ☒No; if yes, please describe current and proposed forestry activities and indicate whether any part of the site is the subject of a DEM-approved forest management plan:

D. Does any part of the project involve conversion of land held for natural resources purposes in accordance with Article 97 of the Amendments to the Constitution of the Commonwealth to any