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.: 14388
MEPA Analyst: Nick Zavolas
Phone: 617-626-1030

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: Pioneer Renewable Energy		
Street: 37 Butternut Street		
Municipality: Greenfield	Watershed: Connecticut and Deerfield River	
Universal Tranverse Mercator Coordinates:	Latitude: 42° 37' 21" N	
UTM (Zone 18) 700.6 , 4721.8	Longitude: 72° 33' 13" W	
Estimated commencement date: 1/2011	Estimated completion date 7/2013	
Approximate cost: $250 million	Status of project design: 10 % complete	
Proponent: Pioneer Renewable Energy, LLC c/o Madera Energy, Inc.		
Street: 89 Thorndike Street		
Municipality: Cambridge	State: MA	Zip Code: 02141
Name of Contact Person From Whom Copies of this ENF May Be Obtained: Corinne Snowdon		
Firm/Agency: Epsilon Associates, Inc.	Street: 3 Clock Tower Place, Suite 250	
Municipality: Maynard	State: MA	Zip Code: 01754
Phone: 978-897-7100	Fax: 978-897-0099	E-mail: csnowdon@epsilonassociates.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):

MTC pre-development loan ($250,000). This loan is only for development-related activities. It cannot be used for any construction or operation-related costs.

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

List Local or Federal Permits and Approvals: FAA Notice of Proposed Construction or Alteration, coverage under the EPA NPDES General Stormwater Permit for Construction, City of Greenfield Special Permit including Site Plan Review, and Building Permit, Street Opening Permit, RDA for wetlands buffer zone (reclaimed water pipeline).

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

- ☒ Land (ENF, >25 acres)
- ☐ Water
- ☒ Energy (ENF, >25 MW)
- ☐ ACEC
- ☐ Rare Species
- ☒ Wastewater (ENF)
- ☒ Air (ENF)
- ☐ Regulations
- ☐ Wetlands, Waterways, & Tidelands
- ☐ Transportation
- ☐ Solid & Hazardous Waste
- ☐ Historical & Archaeological Resources

Summary of Project Size & Environmental Impacts	Existing	Change	Total
LAND			
Total site acreage	71.5*		
New acres of land altered		29.5*	
Acres of impervious area	6.52**	8	14.5
Square feet of new bordering vegetated wetlands alteration		0.0***	
Square feet of new other wetland alteration		0.0	
Acres of new non-water dependent use of tidelands or waterways		0.0	
STRUCTURES			
Gross square footage (*buildings*)	800	30,510	31,310
Number of housing units	0	0	0
Maximum height (in feet)	0	120 boiler bldg	120 boiler
		250 stack	250 stack
TRANSPORTATION			
Vehicle trips per day (operational phase)	265	+230	495****
Parking spaces	0	+34	34
WATER/WASTEWATER			
Gallons/day (GPD) of water use	0	+881,458 (max)*****	881,458
Gallons/day water withdrawal	0	+49,221 (onsite well)	49,221
GPD wastewater generation/ treatment	0	+161,260 (sewer, max)	161,260
Length of water/sewer mains (in miles)	0	5.11 miles (reclaimed water), 0.14 mi water and sewer ext.	5.11 miles (reclaimed water); 0.14 water and sewer ext.

State Permits & Approvals

- ☐ 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:

Mass DEP Major Comprehensive Air Plan Approval; **Mass DEP** Reclaimed Water Permit

Mass DEP Cross Connection Permit; **Mass DPS** Storage Tank Permit(s); MassHighway Access Permit for crossing under Rt 2 with reclaimed water pipeline, and for pipeline within MassHighway ROW.

*includes regrading of site, new impervious area including buildings, and new impervious area on Butternut Street extension, and reclaimed water line (no alteration since already impervious). **reclaimed water line area under existing roadways that will be cut and repaved;***none on the power plant project site affects BVW (per RDA attached in Appendix J). Portions of the reclaimed water line route will be located in buffer zone, to be field delineated in the Spring, but no alteration of bordering vegetated wetlands expected. **** Assumes adjacent use of gravel pit by Mackin Construction for several years (short term condition) until the pit is exhausted, after which total trips/day will be reduced to 230.; *****maximum summer conditions, cooling water is reclaimed grey water from WPCP (830,097 gpd); boiler makeup from groundwater well on site (49,921 gpd), and city water for potable uses (1,440 gpd). Annual average reclaimed water is 640,323 gpd, and wastewater is 129,625 gpd.

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

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_____) ☒

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 (*You may attach one additional page, if necessary.*)

The proposed *Pioneer Renewable Energy* project is a 47 MW (net) renewable biomass energy plant using clean wood in a state-of-the-art advanced stoker boiler. The plant will be located on land that is currently an operating gravel pit near the Interstate 91 Industrial Park in Greenfield, MA, owned by Mackin Construction, Inc. Approximately 28.5 acres of the existing 64 acre site will be dedicated to the PRE project. See USGS Map, Figure 1; Orthophoto (aerial), Figure 2.

The project's principal source of wood fuel will be ***clean*** forest management residue, generated primarily within an approximate 50-mile radius of the facility. No painted or treated wood will be accepted. The wood fuel supply is more completely discussed in Appendix D.

Wood fuel will be delivered to the site by tractor trailer trucks, carrying loads of 25 to 30 tons, up to seven days per week between the hours of 6 AM and 8 PM. Trucks carrying wood chips will be unloaded using moving floor trailers or hydraulic truck dumpers. Front end loaders will reclaim wood fuel as needed via conveyor to a fuel processing building where the wood chips are screened and any oversized material is reduced in size by a grinder. From here, the wood is either conveyed to a fuel metering bin at the boiler, or

diverted by conveyor to the processed fuel storage area. Wood may also arrive in unprocessed form such as logs (round wood), pallets, or stumps (total unprocessed fuel expected to be approximately 15% of total fuel on annual basis). Round wood will be stored in an area northeast of the main truck dumpers. Pallets and stumps will be stored in an area east of the boiler building near the site drainage retention area. Round wood, pallets and stumps will be chipped on site with portable equipment as necessary. Small amounts of wood may also arrive as bark, shavings or sawdust to be mixed into the wood chips. See Process Diagram – Wood Handling System (Figure 5).

The project plans to use an advanced stoker boiler to be housed in an acoustically treated building. The boiler will be fed at an annual average rate of 1500 tons per day (tpd) of clean wood fuel. Steam from the boiler will feed a steam turbine to generate 47 MW (net) of electricity. The plant will be equipped with a wet mechanical cooling tower to dissipate the waste heat generated by the steam turbine. Exhaust from the boiler will be ducted to an electrostatic precipitator, oxidation catalyst and Selective Catalytic Reduction (SCR) system and then to a 250 foot tall stack, as described further below (Mitigation) and in Appendix B. Other ancilliary equipment will include a double walled aqueous ammonia (dilute 19% solution) tank for the SCR, and a 10,000 gallon fuel oil storage tank for boiler startup and front end loaders. The oil tank will be surrounded by a dike, and a Spill Prevention and Control Plan (SPCP) will be developed and implemented. See Site Plan (Figure 3) and Process Flow Diagram (Figure 4).

Electricity from the plant will be fed to the transmission network via a new connection with one of two existing National Grid 115-kV transmission lines immediately south of the project site. An Interconnection Request was submitted to ISO-NE on October 15, 2008. A Feasibility Study has commenced and is expected to be completed in August 2009.

Project Site Description

The project site comprises 28.5 acres of a 64 acre site, currently occupied by Mackin Construction, for a gravel mining and crushing operation. Another 3 acres of land will be graded and 1 acre paved to create an extension of Butternut Street to access the site. The site is bounded by a transmission easement and the Route 91 Industrial Park to the south, Adams Road to the west, additional land owned by Mackin Construction to the north and the Fall River to the east. The site will be accessed by Butternut Street off Adams Road. Adams Road intersects MA Route 2/2A to the south. Route 2/2A is a two-lane road running in a generally east-west direction towards Interstate 91 to the west and Orange, MA to the east. An aerial photograph of the surrounding vicinity (Figure 2) shows predominantly undeveloped land with sparse residential, industrial, and commercial land uses. Some light industrial/commercial buildings are located immediately to the south of the project site. These buildings are part of the Interstate 91 Industrial Park. The site is zoned Planned Industrial which allows for the construction of power plants with the issuance of a Special Permit from the City of Greenfield Zoning Board of Appeals.

Need and Alternatives

For discussion of Need and Alternatives considered, please see Appendix A.

Project Benefits

The proposed project will result in important benefits for the Commonwealth, western Massachusetts and the City of Greenfield, including the following:

- Help to satisfy the Commonwealth's Renewable Portfolio Standard (RPS) goals using an indigenous fuel resource.
- Supply enough renewable, reliable, base-load energy to power the equivalent of 45,000 homes.
- Significantly increase the industrial tax base of the City of Greenfield.
- Create substantial new employment opportunities in the construction, operation, and procurement of fuel for the facility.

- Increase the diversity of the Commonwealth's energy supply.
- Productively use clean waste wood, reducing the demand for landfill space.
- Encourage sound forest management and improve forest health by providing a suitable method of disposal for low-grade, storm-damaged, diseased, and invasive biomass material.
- Substantially lower levels of sulfur dioxide, particulate matter and nitrogen oxides emissions relative to oil and coal-fired power plants.
- Help combat global climate change as a carbon neutral energy source.

Environmental Justice

The project is subject to the Environmental Justice Policy of the Executive Office of Environmental Affairs (the "Policy") as a project that exceeds the ENF threshold for air and is within one mile of an Environmental Justice Population in Montague, based on low-income, southeast of the site. As such, the project is required to provide for enhanced public participation as it undergoes MEPA review. The project will provide enhanced public participation by circulating the ENF to libraries in Greenfield and Montague, establishing a website that will include the ENF, publishing the public notice in both Greenfield and Montague newspapers, and holding a public meeting to answer questions on the project. Because the project does not exceed the mandatory EIR threshold for air, solid and hazardous waste, or wastewater and sewage sludge treatment and disposal, the project does not require enhanced analysis of impacts and mitigation under the Policy.

Mitigation Measures

The proposed project will include measures to reduce air quality impacts, noise, water use, wastewater impacts, stormwater runoff, traffic and visual impacts.

To minimize air quality impacts, the proposed project will employ a full array of emission controls to meet Best Available Control Technology (BACT) and Lowest Achievable Emissions Rate (LAER) requirements. This includes an Electrostatic Precipitator (ESP) to control particulate matter (PM-10 and PM-2.5) and a Selective Catalytic Reduction (SCR) system for NOx control with an Oxidation Catalyst for the control of CO, VOC and organic hazardous air pollutants (HAPs). These measures are discussed in Appendix B, Air Quality. The air permit will require routine inspections and periodic sampling and monitoring of the fuel and ash to ensure it meets the fuel specification, and continuous emission monitoring systems (CEMS) on the exhaust gases for CO, NOx and opacity (surrogate for PM as well as annual stack tests. The Air Quality study in Appendix B includes dispersion modeling to demonstrate the facility will meet National Ambient Air Quality Standards (NAAQS) and MassDEP "air toxic ambient limits." Furthermore, the emissions from the stack will result in air quality impacts for criteria pollutants below Significant Impact Levels (SIL) such that air quality, with or without the project, will essentially remain unchanged.

Reclaimed water from the Greenfield water pollution control plant will meet Class A standards of the Reclaimed Water Permit (313 CMR 20) and will be used as make-up to the wet-mechanical cooling tower. This avoids the use of City water, groundwater, or river water for cooling purposes. Plant water supply (boiler makeup), in smaller quantities, will be supplied from an onsite groundwater well. Potable water for domestic purposes will be supplied from the City's water system. A de-mineralizer system will be used to provide the very high quality water required for use in the boiler. PRE will discharge its wastewater (boiler and cooling tower blowdown, process and potable uses) to the Greenfield sewer system. A complete discussion of the water supply aspects of the project can be found in Appendix F, Water Supply.

Clean stormwater runoff from impervious surfaces (roofs and paved roadways) as well as the wood chip storage areas will be directed to on-site infiltration basins. The system will comply with the MassDEP Stormwater Management Standards to the maximum extent practicable (see Appendix J).

The boiler is designed to operate continuously, though the facility will be down at least twice per year for operations and maintenance. Annual uptime is expected to be 92%, allowing for approximately one month of outages each year. Fuel deliveries will be accepted generally between the hours of 6 AM and 8 PM, up to seven days per week. A traffic study has been completed (Appendix G) and indicates the site has good access to well established truck routes. The study recommends that Butternut St. be widened to 30 ft near its intersection with Adams Rd, and that the curb radii be adjusted to better accommodate the large trucks. It further suggests that a small amount of vegetation be trimmed at this same intersection to improve site lines, and additional "Trucks Entering" signage be added. Project-generated trips are not projected to materially impact traffic operations at any of the nearby intersections.

Noise and visual impacts will be minimized by the site layout. The outdoor operations (wood handling, chipping, front end loaders) are located in the middle part of the site, screened by the elevation change and vegetation. The stack is also located in the center of the site. The stack will be visible from some vantage points around the site but is compatible with the viewshed which includes commercial and industrial structures such as electric transmission towers and a communication tower on Mackin Construction's site that is 150' taller than the proposed stack. Noise will also be mitigated by use of acoustic treatment as needed to limit noise increases below thresholds defined by MassDEP and the City of Greenfield Ordinance. (see Appendix H for noise study, and Appendix I for visual study).

Please also see Appendix C, Mitigation.

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 _X_ No; if yes, specify each threshold:

II. Impacts and Permits

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

	Existing	Change	Total
Footprint of buildings	0.02	+0.70	0.72
Roadways, parking, and other paved areas	6.5	+7.28	13.78
Other Altered Areas (non-impervious landscaping, etc.)	21.5	+21.5*	43
Undeveloped Areas	14	0	14

*** Includes re-grading of 21.5 acres of previously disturbed area on project site and 2 acres for Butternut Street extension. Post development condition of 64 acre power plant site will consist of 14 undeveloped acres, 7 acres of impervious area, and 43 acres of other altered areas (21.5 acres of which will be re-graded for proposed project).**

B. Has any part of the project site been in active agricultural use in the last three years?
___ Yes **X** 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 **X** 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 purpose not in accordance with Article 97? ___ Yes **X** No; if yes, describe: