

PMC-EF2a

20102

**U.S. DEPARTMENT OF ENERGY
EERE PROJECT MANAGEMENT CENTER
NEPA DETERMINATION**

**RECIPIENT:** Vermont Sustainable Jobs Fund, Inc.**STATE:** VT**PROJECT TITLE :** Central Vermont Recovered Biomass Facility

Funding Opportunity Announcement Number	Procurement Instrument Number	NEPA Control Number	CID Number
CDP	DE-FG36-08GO88079	GFO-GO88079-005	GO88079

Based on my review of the information concerning the proposed action, as NEPA Compliance Officer (authorized under DOE Order 451.1A), I have made the following determination:

CX, EA, EIS APPENDIX AND NUMBER:

Description:

B5.20 Biomass power plants The installation, modification, operation, and removal of small-scale biomass power plants (generally less than 10 megawatts), using commercially available technology (1) intended primarily to support operations in single facilities (such as a school and community center) or contiguous facilities (such as an office complex); (2) that would not affect the air quality attainment status of the area and would not have the potential to cause a significant increase in the quantity or rate of air emissions and would not have the potential to cause significant impacts to water resources; and (3) would be located within a previously disturbed or developed area. Covered actions would be in accordance with applicable requirements (such as local land use and zoning requirements) in the proposed project area and would incorporate appropriate control technologies and best management practices.

Rational for determination:

The U.S. Department of Energy (DOE) is proposing to provide federal funding to Vermont Sustainable Jobs Fund. Vermont Sustainable Jobs Fund is proposing to provide a portion of the federal funding to Vermont Technical College (VTC) to partially fund the construction of a biomass agricultural waste anaerobic digester (AD) facility with a 375 kW combined heat and power (CHP) generator. The AD facility at VTC would generate electricity and heat from biomass feedstock composed of agricultural crop waste, cow manure and pre-consumer food residuals. The facility would provide renewable energy via a Power Purchase Agreement under the State of Vermont's SPEED (Sustainably Process Energy Enterprise Development) program, provide heat to VTC's campus hot water heating system, provide a sustainable use for VTC's agricultural waste and provide animal bedding and fertilizer, from the process waste, to VTC's farms and local farms.

Previous DOE NEPA determinations for this award include: GFO-09-058 on 12/18/2008 (CX A9), GFO-09-058a on 1/14/2009 (CX A9), GFO-09-058b on 1/14/2009 (CX A9) and GFO-09-058c on 10/12/2011 (CX A.9 and CX B3.1). Previous NEPA determinations released funding for feedstock commitments, preliminary design, permitting and to allow education, outreach and project management activities. This NEPA determination applies to "Subtask D.3: Installation of the AD Facility" as summarized below.

Subtask D.3: Installation of the AD Facility

- D.3.i. – Purchase equipment and install AD facility at VTC and provide oversight and management of the construction process.
- D.3.ii. – Commissioning of the facility

The proposed project would be located on two sites at VTC.

The primary project site for the development of the AD facility would be located within the 544 acre VTC campus, located at 124 Admin Drive, Randolph Center, Orange County, Vermont. The western portion of the campus is located in the Randolph Center Historic District; however the proposed project site is on the northeast side of campus and not within the Historic District. The facility would be built in the northeast corner of campus (Latitude: 43.9408988; Longitude: -72.607603), on previously disturbed agricultural land adjacent to the campus central heating plant. The proposed site is surrounded by agricultural fields on the north, east and south sides. On the west side of the proposed site is a maintenance building, the campus central heating plant and a paved access road with a parking lot. VTC campus is located within a farming community in rural Vermont, and has an on-campus farm and an off-campus farmstead that would supply the majority of the feedstock for the proposed AD facility. The proposed facility would include a digester utility building designed to look similar to a barn and process tanks designed to look similar to silage and storage tanks as presently seen on many Vermont farms.

The proposed land disturbance associated with the construction of the AD facility and its associated infrastructure would be approximately two acres (90,000 sq. ft.). The proposed facility and its associated infrastructure would include a green, 40 ft. wide by 100 ft. long by 32 ft. tall wood frame/metal exterior one-story digester utility building with a standing seam metal pitched roof built on a concrete slab, housing process equipment and the 375 kW biogas combined heat and power (CHP) generator. There would be three (3) stand-alone silo-like above ground stainless steel process tanks with spiral-folded silo cylinder roof structures adjacent to the utility building (hydrolysis tank – 106,000 gallons: 26.25 ft. high and 29.5 ft. in diameter; digester reactor tank – 317,000 gallons: 49.75 ft. high and 49 ft. in diameter; liquid digestate tank – 111,500 gallon: 30.75 ft. high and 29.5 ft. in diameter), approximately 500 linear ft. of new paved access road (16 ft. wide) and a 100 ft. by 100 ft. (10,000 sq. ft.) paved apron (loading dock) in front of the digester utility building. The facility would include new stormwater management grading and infrastructure, including a stormwater retention pond and culverts, a new electrical utility connection via approximately 750 ft. of underground trench to a new power pole north of the site on Furnace Street and 60 ft. of new overhead line along Furnace Street. Approximately 60 ft. of trenching would be required for a new gas line to connect the digester to a 15 ft. tall enclosed gas flare and approximately 500 ft. of trenching would be dug for a new water line to connect to the existing on campus water system. The project has received approval to connect to the Town of Randolph water supply system via this connection. All ground disturbances would be on VTC property in either the previously disturbed agricultural fields or the adjacent existing campus grounds, with the exception of a power pole and interconnection facilities located on the north side of Furnace Street, within the Green Mountain Power right-of-way. The proposed AD facilities have been designed to be visually compatible with other nearby campus buildings and regional farm structures.

The secondary site is at the VTC farmstead, approximately 0.7 miles from the primary site. It is located at the west end of Water Street, in Randolph Center, Orange County, Vermont. At this site, a 2 million gallon NRCS (Natural Resources Conservation Service) designed liquid effluent storage pond would be constructed on agricultural land within the farmstead. The pond would cover approximately one acre. No new access roads would be needed at this proposed site.

The proposed anaerobic digester facility at VTC would generate electricity and heat from combusted biogas produced from biomass feedstock processed in the AD facility. Biomass feedstock would consist of agricultural crop waste, cow manure and pre-consumer food residuals from the VTC campus, VTC farm operations and other local farms. Approximately 8,850 gallons of mixed feedstock would be processed daily. The biogas produced from the process would be converted to electricity via a 375 kW biogas CHP generator, which would be grid-tied via Green Mountain Power's electric distribution system and sold via a signed Power Purchase Agreement under the State of Vermont's SPEED program. Green Mountain Power conducted a System Impact Study in regards to the grid-tied interconnection, and made design recommendations that have been integrated in to the project. Heat from CHP would be transferred to VTC's central hot water heating system and would be used to heat process tanks in the AD facility. The digestate by-product of the anaerobic digestion process would be separated into solids and liquids. Separated solids would be stored within the utility building. It is anticipated that solids would be transported to the VTC farm and area farms where they would be used as animal bedding. Liquids which are a fertilizer would be stored on site in the liquid digestate tank. They would be either transferred to the proposed liquid digestate pond during winter, or they would be directly applied as fertilizer on VTC farm fields or on fields of area farms, as part of a modification to VTC's current Vermont Agency of Agriculture approved comprehensive Nutrient Management Plan. Liquid stored in the digestate pond in winter would be field applied in warmer months.

The proposed project has gone through an extensive State of Vermont environmental review as it is subject to a Section 248 Certificate of Public Good. A petition for approval was submitted to the Public Service Board of the State of Vermont, and it is anticipated that the project will receive approval. The local planning commission; Two Rivers Ottauquechee Regional Commission has written a letter of support for the project. The Town of Randolph Select Board, the Town of Randolph Planning Commission and the Randolph Center Fire District have waived their 45-day notice requirement for filling a petition against this project.

Potential environmental impacts of the project and any pertinent permitting are discussed below.

- **Prime Farmland:** The proposed liquid effluent storage pond site at the VTC Farmstead would be located on approximately one acre of agricultural land rated by the Natural Resources Conservation Service (NRCS) as Prime Farmland and the majority of the proposed AD facility site on the VTC campus would be located on approximately two acres of Statewide Important Farmland as rated by the NRCS. DOE has determined this project would not have a significant negative impact on the approximately 289,000 acres of designated Prime Farmland and approximately 753,000 acres of designated Statewide Important Farmland because of the limited size, agricultural nature of the project and the ability to restore the pond to farmland.
- **Air quality:** The project would have minor emissions associated with the combustion of methane in the CHP and periodically in the enclosed flare. On 5/29/2012, after review of proposed engine and emissions data, the Vermont Agency of Natural Resources, Air Pollution Control Division (APCD) issued a Letter of Approval that determined the proposed project complies with 40 CFR Part 89 (Non-road Compression-Ignition Engines) and does not need a

separate Air Pollution Control Permit. VTC is required to annually register its air emissions with APCD.

- **Odor:** To mitigate any potential significant impacts associated with odor, feedstock would be pumped into airtight tanks and methane gas would pass through a scrubber before it is burned in the CHP or the enclosed flare. Trucks hauling feedstock to and liquid effluent from the facility would be closed container trucks.

- **Wastewater/Solid Waste:** No wastewater infrastructure is proposed as liquid by-product (effluent) would be stored on site in the liquid digestate tank and/or would be transferred to the proposed liquid digestate pond during the winter. In the proper season, it would be directly applied as fertilizer on VTC farm fields or on fields of area farms as stipulated under proposed modifications to VTC's current Vermont Agency of Agriculture approved comprehensive Nutrient Management Plan. Alternatively, liquids may be sold to commercial users as a liquid fertilizer. It is anticipated that solid waste (solids separated from the effluent) would be transported to the VTC Farmstead and other area farms where they would be used as animal bedding. No sanitary waste facilities would be installed at the facility.

- **Storm Water:** Vermont Agency of Natural Resources, Watershed Management Division (WMD) determined an Individual Stormwater Discharge Permit is not required as the project received an Agricultural Exemption; however, in conformance to the Vermont Stormwater Manual, extensive stormwater management infrastructure has been designed into the project to mitigate any adverse impacts to the land surrounding the proposed AD facility. WMD provided authorization for the project under the NPDES Statewide Construction General Permit for Discharge of Storm Water Associated with Construction Activities and VTC would implement Best Management Practices (BMPs) to reduce construction-related pollutants to storm water runoff.

- **Traffic:** It is anticipated there would be approximately three truck deliveries of feedstock to the facility per day and no more than one truck hauling liquid effluent from the digester per day. Presently, farm trucks from the VTC campus, farmstead and nearby farms routinely travel the local roads near the VTC campus. It is determined traffic impacts would be less than significant and would not have an adverse effect to local traffic and transportation routes.

- **Noise:** A Noise Impact Study assessment was completed for the project and evaluated the potential noise impacts by monitoring existing background sound levels and predicting project sound levels at surrounding locations. Background modeling was conducted, and sound modeling was performed according to ISO 9613-2 and the FHWA Traffic Noise Model methodology. Noise threshold limit goals were developed and designed into the facility through review of local, state, national, and World Health Organization (WHO) guidelines. The CHP generator would be inside the utility building, and would be contained within a sound-attenuating enclosure. The generator stack would be fitted with a high-grade silencer. While the assessment noted some truck traffic would take place at night without exceeding WHO sleep disturbance guidelines, external loader operations at the facility would be restricted to the daytime hours (7 am to 7 pm). After review of the Noise Impact Study, it is determined that the Noise threshold limits that would be developed and designed into the project would limit adverse impacts with regard to noise.

- **Biological Resources:** The U.S. Fish and Wildlife Service Endangered Species Program website did not identify federally listed threatened or endangered species within the vicinity of the project sites and identified one listed species within Orange County, the Dwarf wedgemussel (*Alasmidonta heterodon*). DOE has determined that this species would not be affected as the proposed project sites do not contain suitable habitat for this species. In a letter to VTC dated 4/23/2012, the Vermont Agency of Natural Resources, Fish and Wildlife Department issued a determination that there would be no apparent impacts to fish and wildlife habitat from this project and determined there are no known rare, threatened or endangered species in, or near, the proposed project sites.

- **Floodplains/Wetlands:** Per the USFWS National Wetlands Inventory, there are no known wetlands within the proposed project sites; however a freshwater emergent wetland is approximately 650 feet west of AD facility site. VTC performed a Wetland Delineation for the proposed project area and its surroundings as required under the Vermont's Wetland Regulations. A Vermont classified "Class III" wetland was delineated just west of the proposed project site; therefore, a 50 foot buffer between the "Class III" wetland and the AD facility site was designed in to the project site plan. The Vermont Agency of Natural Resources, Fish and Wildlife Department, Wetlands Program determined no Vermont Wetland permit is required for the project as there is no disturbance in the wetland or the wetland buffer. There are no floodplains in, or near, the proposed project sites and it is determined there would be no adverse impacts to wetlands or floodplains from this proposed project.

- **Cultural/Historical Resources:** The western portion of the campus is located in the Randolph Center Historic District; however the proposed AD facility site would be on the northeast side of campus and not within the Historic District. An Archaeological Resources Assessment for the proposed AD facility site was completed by the University of Vermont's Consulting Archaeology Program and concluded the probability of finding significant evidence of pre-contact Native American occupation within the project's Area of Potential Effect (APE) is relatively low. Furthermore, the assessment concluded that there is little likelihood that significant historic era archaeological resources are present within the area to be developed. The liquid effluent storage pond would be constructed in an area of agricultural land that is not archaeologically sensitive within the VTC farmstead. Because both proposed project sites would not be within Randolph Center Historic District, would not likely impact any archeological or historic properties, would occur on previously disturbed land and would have visual character compatible to the surrounding area, DOE has determined

that there would be no adverse effect associated with the proposed undertaking. The Vermont Division of Historical Resources (SHPO) concurred with the DOE's determination on 11/26/2012.

Based on the review of the project information and the above analysis, DOE has determined Subtask D.3, the installation the small-scale biomass anaerobic digester facility and combined heat and power generator on the VTC campus would not have a significant individual or cumulative impact to human health and/or environment. This activity are consistent with actions defined in DOE categorical exclusions B5.20 "installation of small-scale biomass power plants" and is categorically excluded from further NEPA review.

NEPA PROVISION

DOE has made a final NEPA determination for this award

Insert the following language in the award:

If you intend to make changes to the scope or objective of your project you are required to contact the Project Officer identified in Block 11 of the Notice of Financial Assistance Award before proceeding. You must receive notification of approval from the DOE Contracting Officer prior to commencing with work beyond that currently approved.

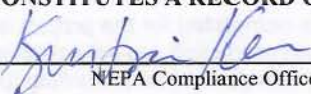
Note to Specialist :

Obadiah Broughton 10/27/2012

Total DOE and Cost-share Funding: \$3,448,750

SIGNATURE OF THIS MEMORANDUM CONSTITUTES A RECORD OF THIS DECISION.

NEPA Compliance Officer Signature: _____



NEPA Compliance Officer

Date: _____

11/28/2012

FIELD OFFICE MANAGER DETERMINATION

Field Office Manager review required

NCO REQUESTS THE FIELD OFFICE MANAGER REVIEW FOR THE FOLLOWING REASON:

- Proposed action fits within a categorical exclusion but involves a high profile or controversial issue that warrants Field Office Manager's attention.
- Proposed action falls within an EA or EIS category and therefore requires Field Office Manager's review and determination.

BASED ON MY REVIEW I CONCUR WITH THE DETERMINATION OF THE NCO :

Field Office Manager's Signature: _____

Field Office Manager

Date: _____