PMC-EF2a
(2.0.4.02)

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

RECIPIENT: WA Dept of Commerce **STATE:** WA

PROJECT TITLE : SEP ARRA - WSU Anaerobic Digester - Nutrient Recovery Technology

Funding Opportunity Announcement Number	Procurement Instrument Number	NEPA Control Number	CID Number
	EE0000139	GFO-0000139-022	EE139

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:

A9 Information gathering (including, but not limited to, literature surveys, inventories, audits), data analysis (including computer modeling), document preparation (such as conceptual design or feasibility studies, analytical energy supply and demand studies), and dissemination (including, but not limited to, document mailings, publication, and distribution; and classroom training and informational programs), but not including site characterization or environmental monitoring.

B1.7 Acquisition, installation, operation, and removal of communication systems, data processing equipment, and similar electronic equipment.

B5.1 Actions to conserve energy, demonstrate potential energy conservation, and promote energy-efficiency that do not increase the indoor concentrations of potentially harmful substances. These actions may involve financial and technical assistance to individuals (such as builders, owners, consultants, designers), organizations (such as utilities), and state and local governments. Covered actions include, but are not limited to: programmed lowering of thermostat settings, placement of timers on hot water heaters, installation of solar hot water systems, installation of efficient lighting, improvements in generator efficiency and appliance efficiency ratings, development of energy-efficient manufacturing or industrial practices, and small-scale conservation and renewable energy research and development and pilot projects. The actions could involve building renovations or new structures in commercial, residential, agricultural, or industrial sectors. These actions do not include rulemakings, standard-settings, or proposed DOE legislation.

Rational for determination:

DOE is proposing to provide $272,313 in SEP ARRA funding to the Washington Department of Commerce, sub-recipient Washington State University (WSU), to install and operate an integrated nutrient recovery system, a Class A fiber production process and an H2S scrubbing system, which works in series with dairy manure anaerobic digesters, at two dairies in Washington State. This NEPA review only applies to the Rainier Biogas Project.

After prior DOE NEPA review, the Rainier Biogas Project received funding from a US Department of Agriculture (USDA) Natural Resource Conservation Service (NRCS) Conservation Innovation grant and a DOE SEP ARRA grant. On 9.01.2010, USDA made a FONSI determination. DOE analyzed USDA's EA, conducted follow-on consultation, provided the EA for public comment, received no comments and determined the EA adequate and satisfactory in describing the proposed project and the potential environmental impacts. Accordingly, DOE adopted the USDA EA (DOE-EA 1832) on 9.30.2010.

The scope of the Rainier Biogas Project, located at 42231 208 Ave SE, Enumclaw, Washington, includes construction and installation of the Community Anaerobic Manure Digester (CAMD) facility, which would process up to 2,000 cows from 48 dairy farms and produce electrical power in Enumclaw, King County, Washington. The facility would include an anaerobic manure digester, a concrete receiving pit and a mechanical building with attached fiber storage area. The biogas produced would be burned in a generator to produce electricity for export to the grid. Recovered heat would be used for facility process heating. The Rainier Biogas Project components include a digester vessel, a mechanical building to house the 454 kW generator and equipment to store and transfer electricity and manure.

This NEPA review applies to a newly proposed nutrient recovery technology that would be installed as the final process of the anaerobic digester system to recover nutrients from the effluent and convert them into a saleable fertilizer.

The proposed site consists of 20 acres of land owned by Ritter Dairy LLC. The land is zoned Agricultural and Farm and is located in the King County Agricultural Production District. The USDA NRCS indicated the site is not prime farmland. Installation of the nutrient recovery equipment would require 4,000 square-feet (0.09 acres) and involve excavation and trenching, foundation and footer installation, equipment fabrication and installation, and electrical wiring. The equipment required as part of the nutrient technology would include: insulation, heat recovery/exchangers, tanks, pumps, casings, piping, nozzles, mist eliminators and sensors.

The nutrient recovery technology would be integrated into the anaerobic digester system. The nutrient recovery system would intercept the manure/liquid effluent immediately after leaving the digester. The digested effluent would be heated to 70o C for one hour, resulting in Class A solids, pathogen control and nutrient recovery. The only inputs would be waste engine heat, air, parasitic electricity from the digester, and sulfuric acid (H2S). The treated effluent would then be pumped through closed piping systems to the collection lagoon. After storage, lagoon water would be seasonally applied to fields as per standard practice and according to the nutrient management plans. The nutrient recovery system would not increase or decrease the overall flow of manure wastewater, but the nutrient content would be considerably reduced due to inclusion of the nutrient recovery system. The diverted bio-fertilizer products/nutrients would be sold off the farms for revenue.

By integrating the nutrient technology systems, the anaerobic digester process would recover 70-80% of total ammonia concentration in digester effluent and sequester it in the form of ammonia sulfate fertilizer, while 80% of total phosphorous would be recovered as organic solids for use and/or export off of the farm. This would reduce the amount of ammonia released.

Air quality would be improved because the trapped ammonia in the manure would no longer be released upon storage and application. By significantly reducing ammonia release to the air, odor concerns would be mitigated and potentially new farm-based ammonia standards and existing PM standards would be better met. In addition, as a refining step, the treated effluent would have raw biogas passed through it to return the pH back to neutral, while also absorbing H2S. The absorbance of some H2S would lead to less wear-and-tear on the engines and reductions in H2S releases from the engine. The sulfuric acid would be used during the process and would be stored and used on site.

The proposed project would result in improved water quality of the liquid waste effluent due to the reduced amount of pathogens in the manure. Therefore, the treated effluent would have a reduced nutrient concentrations applied to the fields resulting in a reduced threat of nutrient runoff to surface waters.

The attached EA analyzes the following resource areas: wetlands, floodplains, threatened and endangered species, cultural resources, air emissions, water quality, noise abatement and hazardous waste. Based on the results of this analysis, a FONSI was issued on 9.30.2011. The findings contained in the Final EA and FONSI are incorporated by reference.

Based on this information, DOE has determined that the work outlined is consistent with activities identified in Categorical Exclusion A9 (information gathering) B1.7 (acquisition and installation of data processing equipment and similar electronic equipment) and B5.1 (actions to conserve energy).

NEPA PROVISION

DOE has made a conditional NEPA determination for this award, and funding for certain tasks under this award is contingent upon the final NEPA determination.

Insert the following language in the award:

You are restricted from taking any action using federal funds, which would have an adverse affect on the environment or limit the choice of reasonable alternatives prior to DOE/NNSA providing either a NEPA clearance or a final NEPA decision regarding the project.

Prohibited actions include:
The Vander Haak Dairy Facility (FPE Renewables)
This restriction does not preclude you from:
The Rainier Biogas Project
If you move forward with activities that are not authorized for federal funding by the DOE Contracting Officer in advance of the final NEPA decision, you are doing so at risk of not receiving federal funding and such costs may not be recognized as allowable cost share.

Note to Specialist :

Cristina Tyler 9.22.2011

SIGNATURE OF THIS MEMORANDUM CONSTITUTES A RECORD OF THIS DECISION.

NEPA Compliance Officer Signature: _____ Date: 9/23/11

NEPA Compliance Officer