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STATE OF VERMONT
JOINT FISCAL OFFICE

MEMORANDUM

To: Joint Fiscal Committee Members

From: Nathan Lavery, Fiscal Analyst

Date: July 1, 2014

Subject: Grant Request #2687, #2688

Enclosed please find two (2) items that the Joint Fiscal Office has received from the administration. One limited service position is associated with this requests.

JFO #2687 – One (1) limited service position in the Department of Public Safety. This Program Coordinator position will support the Governor's Highway Safety Grant Program, including responsibility for developing data systems to evaluate program activities, financial management of sub-grantees, and preparation of the annual Highway Safety Plan. The position is 100% federally funded.
[*JFO received 06/20/14*]

JFO #2688 – $62,000 grant from the Vermont Low Income Trust for Electricity, Inc., to the Vermont Agency of Agriculture, Food and Markets. These funds will be used to study the animal and human health risks of using post-digester solids as bedding for cows, and also to determine the best locations for new farm-based digesters.
[*JFO received 06/28/14*]

Please review the enclosed materials and notify the Joint Fiscal Office (Nathan Lavery at (802) 828-1488; nlavery@leg.state.vt.us) if you have questions or would like an item held for legislative review. Unless we hear from you to the contrary by July 15 we will assume that you agree to consider as final the Governor's acceptance of these requests.

VERMONT

State of Vermont
Department of Finance & Management
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Agency of Administration

JFO 2688

STATE OF VERMONT
FINANCE & MANAGEMENT GRANT REVIEW FORM

Grant Summary:	This grant will be used to study the animal-health risks of using post-digester solids as bedding for cows and to determine the best locations for new farm-based digesters based on electrical distrubution infrastructure and sources of food waste.
Date:	6/20/2014
Department:	Agency of Agriculture, Food & Markets
Legal Title of Grant:	Geo-targeting Farm-based Digesters to Strengthen the Electrical System and Stabilize Electricity Rates
Federal Catalog #:	N/A
Grant/Donor Name and Address:	Vermont Low Income Trust for Electricity, Inc. c/o Paul Craven 6 Sugar Tree Lane, B3, Essex Junction, VT 05452
Grant Period:	**From:** 7/1/2014 **To:** 6/30/2015
Grant/Donation	$62,000

	SFY 1	SFY 2	SFY 3	Total	Comments
Grant Amount:	$62,000	$	$	$62,000	

	# Positions	Explanation/Comments
Position Information:	0	

Additional Comments: .

Has Vantage budget detail been reviewed and reconciled? ☐ Yes ☒ No HC (Analyst Initial)

Department of Finance & Management	6/20/14	(Initial)
Secretary of Administration	6/20/14	(Initial)
Sent To Joint Fiscal Office	6/24/14	**Date**

RECEIVED
JUN 28 2014
JOINT FISCAL OFFICE

STATE OF VERMONT REQUEST FOR GRANT (*) ACCEPTANCE (Form AA-1)

[redacted]C [redacted]

1. Agency:	Vermont Agency of Agriculture, Food and Markets
2. Department:	Agricultural Development Division
3. Program:	(Agricultural Development Division)
4. Legal Title of Grant:	Geo-targeting Farm-based Digesters to Strengthen the Electrical System and Stabilize Electricity Rates
5. Federal Catalog #:	N/A

6. Grant/Donor Name and Address:
Vermont Low Income Trust for Electricity, Inc.
c/o Paul Craven
6 Sugar Tree Lane, B3, Essex Junction, VT 05452

7. Grant Period:	**From:**	7/1/2014	**To:**	6/30/2015	

8. Purpose of Grant:
Determine select risks to cow and human health of using solids from a manure digester as bedding for cows, when the digester inputs include food residuals (food waste other than from a food-processing facility); determine best places for new manure digesters based on sources of food waste and where the power is needed; publish results generally and approach specific farmers in the best locations to encourage them to install a manure digester.

9. Impact on existing program if grant is not Accepted:
No or few new manure digesters, thus underutilizing manure for energy, and emitting more greenhouse gas than by using a digester; continued uncertainty about the health risks of using solids from a manure digester, when that digester is taking food residuals.

[redacted]

	SFY 1	SFY 2	SFY 3	Comments
Expenditures:	**FY 2015**	**FY**	**FY**	
Personal Services	$5,000	$	$	
Operating Expenses	$1,000	$	$	
Grants	$56,000	$	$	
Total	$62,000	$	$	
Revenues:				
State Funds:	$	$	$	
Cash	$	$	$	
In-Kind	$54,000	$	$	
Federal Funds:	$	$	$	
(Direct Costs)	$	$	$	
(Statewide Indirect)	$	$	$	
(Departmental Indirect)	$	$	$	
Other Funds:	$	$	$	
Grant (source)	$	$	$	
Total	$116,000	$	$	

Appropriation No:	2200030000	**Amount:**	$62,000

STATE OF VERMONT REQUEST FOR GRANT (*) ACCEPTANCE (Form AA-1)

			$
			$
			$
			$
			$
			$
		Total	$

Has current fiscal year budget detail been entered into Vantage? ☐ Yes ☒ No

[redacted]N

11. Will monies from this grant be used to fund one or more Personal Service Contracts? ☐ Yes ☒ No
If "Yes", appointing authority must initial here to indicate intent to follow current competitive bidding process/policy.

Appointing Authority Name: Diane Bothfeld Agreed by: _____ (initial)

12. Limited Service Position Information:	**# Positions**	**Title**
Total Positions		

12a. Equipment and space for these positions: ☐ Is presently available. ☐ Can be obtained with available funds.

13. AU[redacted]**T**

I/we certify that no funds beyond basic application preparation and filing costs have been expended or committed in anticipation of Joint Fiscal Committee approval of this grant, unless previous notification was made on Form AA-1PN (if applicable):	Signature:	Date:
	Title:	
	Signature: Diane Bothfeld	Date: 6/16/14
	Title: Deputy Secretary	

[redacted]**OF A**[redacted]

☒ Approved:	(Secretary or designee signature)	Date: 06/20/14

15. ACTION BY GOVERNOR

☒ Check One Box: Accepted		6/24/14
☐ Rejected	(Governor's signature)	Date:

[redacted]**D**

Required GRANT Documentation

☐ Request Memo	☐ Notice of Donation (if any)
☐ Dept. project approval (if applicable)	☐ Grant (Project) Timeline (if applicable)
☐ Notice of Award	☐ Request for Extension (if applicable)
☐ Grant Agreement	☐ Form AA-1PN attached (if applicable)
☐ Grant Budget	

Attachment B
Background Information on the
Geo-targeting of Farm-Based Digesters to Strengthen the Electrical System and Stabilize Electricity Rates

Leverage to Achieve a Vision

The Vision

Existing farms that host manure digesters continue to operate profitably. Farms contribute to "closing the loop," keeping biodegradable materials out of our landfills. Existing waste-hauling companies pre-process and "commoditize" the organic materials and deliver it as a liquid to the farm for the digester.

Practices that protect animal health on farms are known and followed – the digester is operated, and materials are pre-treated and or post-treated in ways that ensure that animals benefit from the bedding produced by the digester.

New digesters on medium-sized farms are targeted for locations where the electricity is needed and where the electricity supports the local electrical infrastructure.

Farm digesters are a mainstream technology option for medium and large farms, and the dispersed projects support the electrical system, increase reliability and resilience, and stabilize electricity rates. Farms are operating profitably and protecting the economic base of Vermont's rural communities.

Leverage for the vision

Right now, about ten percent of the manure from dairy cows goes through a digester. In the next phase of development, supporting the electrical system and stabilizing electrical rates, partly by using pre-processed food waste, three activities are fundamental.

- **Animal and human health – study and test.** Decide what is necessary to reduce any risks to animal and human health. Determine the state of the art and test the pathogens and their destruction. Find out what is necessary, and verify the solution with testing.
- **Decide where the next digesters should be built.** Target digesters where they are likely to be able to access pre-processed organic materials, and where the electrical output is needed.
- **Connect, collaborate, share, and implement.** Mobilize the key and diverse players to take part in the above two activities. Share the results widely. Move to implementation: best practices are known and practical, and the best locations for the next "crop" of digesters are available to all.

These activities are the leverage that will enable Vermont to support farms into the future, and to reach the potential that is represented by the 90% of dairy-cow manure that is not yet going through a manure digester.

Why food waste? Why now? What are the animal health concerns?

Right now many of Vermont's farm-based digesters get "…bio substrates from other manufacturing processes…" (to quote the Comprehensive Energy Plan) from southern New England. This source of rich, low-cost material is likely to become expensive or unavailable in

Vermont because entrepreneurs in Massachusetts, Maine, Connecticut, and Rhode Island are building non-farm digesters to process food waste.

Luckily, opportunity is knocking here in Vermont, as we open the door to the universal recycling law (Act 148). Food waste that might have gone to a landfill, from restaurants, food service companies, and supermarkets, among others, will be slowly banned from landfills. That food waste can generate biogas very effectively in manure digesters.

As it turns out, getting reliable, high-quality, peat-moss-like solids from the digester, for use as bedding for cows, has similar financial value to the farmer as does the sale of electricity. Knowing it is safe for the cows, and that they are comfortable, gives farmers peace of mind in one important area of their operation.

But is the bedding still safe if food wastes, especially *post*-consumer food wastes, are added? The question has not been clearly answered because, outside of Vermont, one of the following is true:

1. Farms with manure digesters that take food waste *and* recover the solids for cow bedding are operating "under the radar," in states that still allow food waste to be landfilled, and where it is a rare exception to have a manure digester and even rarer to have one that accepts food waste, or
2. The farms don't attempt to recover bedding for cows.

Collaboration and Vermont's 2011 Comprehensive Energy Plan

Volume 1 of the plan highlights agricultural energy.

> "On the renewable electricity front, the farm energy strategy should focus on expansion of Vermont's already significant use of bio-digesters, which create energy through the production and burning of methane gases. Integrating other energy amendments, such as food wastes, on-farm crop wastes, and bio substrates from other manufacturing processes, would amplify the production and efficiency of this technology." (page 13, "Highlight: Renewable Energy and the Agricultural Sector")

This work necessarily crosses disciplines and involves a wide assortment of entities. The various responsible parties and their roles are listed in the table "Work Items, Responsible Parties, and Partners." In brief, they are:

- **Composters and composting consultants** – for understanding pathogen destruction and the particulars of hauling waste and how to use the post-digested solids in composting. Additionally, we will likely have to engage with waste haulers to understand sources, quality, and likely cost and availability of food wastes.
- **University of Vermont** animal health experts – to build on previous work in the health of cows bedded on post-digested manure solids (Barlow, et a), using state-of-the-art genome mapping of microbes.
- **Vermont Technical College**, and/or another partnership of farm and a digester developer.
- As stated in previous material provided, this proposal assumes **Green Mountain Power**'s intimate involvement with the geo-targeting of

potential projects to support the electrical system. Staff from the utility have verbally committed to helping fund that portion of the project, as an in-kind contribution of labor and associated resources.

- **State of Vermont Agency of Natural Resources** – to continue our collaboration with regard to diverting waste streams away from landfills into beneficial uses. See appended example of a guideline drafted jointly by the two agencies, to explain to farmers how to contract for and receive *pre*-consumer, food-processing waste.
- **United States Environmental Protection Agency's AgSTAR Program** – this program, for which the Agency of Agriculture is the state partner, provides technical resources, and acts as a referral service among state agencies. They will participate in the Task Force for this project, providing guidance and helping to distribute the results.

All this work builds on and is related to work by Vermont Technical College, the Renewable and Clean Energy Development Funds, Vermont Department of Environmental Conservation (Solid Waste Management Division), The Working Lands Enterprise Initiative, Highfields Center for Composting, and others.

A Closing Thought: Vermont leads the nation, per capita, in manure digesters. With diligent planning and support, all of the second generation of digesters, 2006-present, is still operating, despite an immature digester industry, nationwide. We have some work in front of us, especially on making food waste safe in digesters, in order to make the next generation of digesters be successful as well.

Geo-targeting of Farm-Based Digesters to Strengthen the Electrical System and Stabilize Electricity Rates – Schedule

ACTIVITY	DATE
Draft RFPs for Animal and Human Health Study Make initial inquiries for Marketing Personnel Contact and make initial explanation to potential members of an Advisory Group Make initial contact with Green Mountain Power (GMP) to scope the GIS portion of the project	July, 2014
Convene Advisory Group (Project kick-off meeting) Issue RFP for Animal and Human Health Study Choose and contract with Marketing Personnel Draft and issue RFP for GIS specialist, based on scoping meeting with GMP Draft RFP for Collection of Digester Test Data First report to VLITE	August to September, 2014
Choose contractor for Animal and Human Health Study Choose contractor for GIS work Choose contractor for Collection of Digester Test Data Second meeting of Advisory Group	October 2014
Establish marketing plan (Audience, messages, and distribution channels) Announce multi-pronged effort via multiple professional channels (summary version only) Create timeline of all project parameters and contractual deadlines First report from three non-marketing contracts First payments to contractors Second report to VLITE	November, 2014
Preliminary results shared with stakeholders Third meeting of Advisory Group Third report to VLITE	February 2015
Draft final reports or outlines of final reports due from all contractors Second payments to contractors Revisit and prepare to launch main marketing effort Fourth meeting of Advisory Group	May 2015
Announce and publish all reports, within marketing plan Final program reporting to VLITE Final payments to contractors	June 2015

Project Budget

Budget category	Amount
Salary, including benefits and indirect charges	$5,000
Travel expenses	$1,000
Subcontractors	$56,000
Approved grant amount	$62,000
In-kind contribution (salary, benefits, overhead, fringe, travel – any category) of project partner	$54,000
TOTAL PROJECT BUDGET	$116,000

VERMONT

Agency of Agriculture Food & Markets
116 State Street
Montpelier, VT 05620-2901
www.VermontAgriculture.com
(802)-828-2430

MEMORANDUM

TO: Jeb Spaulding, Secretary, Vermont Agency of Administration

FROM: For Chuck Ross, Jr., Secretary, Vermont Agency of Agriculture, Food & Markets — Deputy Secretary

DATE: June 12, 2012

SUBJECT: **Geo-targeting of Farm-Based Digesters to Strengthen the Electrical System and Stabilize Electricity Rates**

Through this initiative, which would be funded in part by the Vermont Low-Income Trust for Electricity ($62,000) and in part by services provided by Green Mountain Power (approximately $54,000), two key pieces of the "Cow Power 2.0" puzzle would be put into place:

1.) Study the animal-health risks of using post-digester solids as bedding for cows, in cases where food waste is a small input into the digester, and
2.) Determine the best location(s) for the next "crop" of farm-based digesters, based on electrical distribution infrastructure and on sources of food waste.

As configured, the scope of work involves the key stakeholders in the public and non-profit sectors, as part of an advisory team:

- US EPA AgSTAR
- Vermont Sustainable Jobs Fund
- Vermont DEC
- Highfields Center for Composting, Vermont Composting Association
- Vermont Technical College
- University of Vermont
- Vermont Center for Geographical Information

These stakeholders and for-profit stakeholders (farmers, food-waste haulers, and GMP) will work as small teams to help with the various aspects of the funded work. At key junctures during the project, the full Advisory Team will be convened to review work products and give direction.

Finally, there is a strong outreach component to this work, with an intended audience of regulators, waste handlers, and farmers.