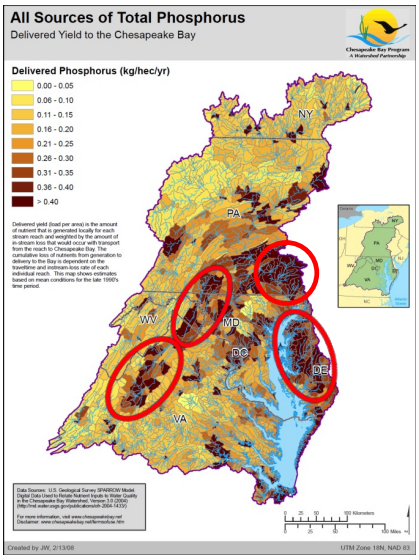
Farm Manure to Energy Initiative

Request for Information
Manure to Energy Technology Vendors

January 30th, 2012

Project Partners: National Fish and Wildlife Foundation, Chesapeake Bay Funders Network, Farm Pilot Project, Inc., University of Maryland Center for Environmental Science, University of Maryland Finance Center, Virginia Cooperative Extension, Lancaster County Conservation District, and Sustainable Chesapeake.

Background: The Farm Manure to Energy Initiative was launched to evaluate and encourage the widespread adoption of appropriate manure to energy technologies as an alternative to land application of excess manure and poultry litter in nutrient saturated regions of the watershed. To achieve this goal, the project partners will work to identify, demonstrate and evaluate manure to energy technologies capable of converting excess manure and poultry litter to energy, while also providing alternatives to land application and additional revenue streams for farms. Technologies will be demonstrated on 4-6 farms located in manure "hotspots" in the Chesapeake Bay region (see Figure 1) including: the Delmarva Peninsula, the Shenandoah Valley (VA), the Western Potomac River (WVA), and Lancaster County (PA). Partners will also work to increase technical assistance, information, and financing options available to farmers.



Host farms and technology vendors for demonstrations in the Shenandoah Valley, the Virginia Eastern Shore, and Delaware, have already been selected. **We are currently seeking information from technology vendors interested in participating in farm demonstrations in the West Potomac region of West Virginia, the Maryland Eastern Shore, and the Lancaster County region of Pennsylvania.**

Because there are more technology vendors than can be demonstrated by this project on farms, as well as a lack of objective information resources regarding manure to energy technologies that provide alternatives to land application, project partners are also working to develop a web-based clearinghouse of information that farmers and conservation professionals can use to learn about manure to energy technology options. Technology vendors will also be invited to submit information to be included in the clearinghouse.

On-farm demonstration projects will be supervised by Farm Pilot Project Coordination, Inc. (FPPC), a non-profit organization designated by Congress to develop manure management solutions for animal feeding operations (see www.fppcinc.org. for more information).

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Evaluation Criteria: Proposed Demonstration Projects submitted for consideration will be evaluated based on criteria including but not limited to, the following:

1. Proven on-farm project history/experience.
2. Ability to replicate/adapt the technology to other farms/facilities, within the Chesapeake Bay watershed.
3. Cost-effectiveness of the technology system, including construction, implementation, operation and maintenance.
4. The likelihood that if widely adopted, the proposed technology/project will facilitate the transport of manure or poultry litter nutrients out of nutrient-saturated regions and/or provide alternatives to land application of excess manure and poultry litter nutrients.
5. Ability to meet all applicable federal, state and local permitting and certification requirements. We are specifically looking for technologies with verified emissions data demonstrating that they fall below the emissions permitting thresholds for criteria pollutants and hazardous air pollutants (note data on uncontrolled air emissions using EPA-approved methodology is necessary to make this determination).
6. The technology provides a value-added coproduct that is recognized economically by the marketplace.
7. Environmental benefits derived from the technology are quantifiable.
8. The vendor is willing to share environmental, economic, and technical performance data and results of the farm demonstration with farmers, conservation professionals and other stakeholders engaged in the project, and specifically, to allow information about the technology performance and cost to be included in the web-based clearinghouse of information being developed by project partners.
9. The vendor is willing to contribute funding and technical resources to the farm demonstration project.
10. The vendor is willing to work collaboratively with the farm operation to prepare a business plan for the technology demonstration project.

Specific information requested is outlined on pages 3 and 4 of this document. Please limit your responses to 20 pages. Additional information may be solicited following initial evaluation. Please note that the following questions are similar (and in many cases identical) to the request for information released by the Chesapeake Bay Commission in advance of the September 2011 Manure to Energy Summit. **At this time, please DO NOT send information about a technology or system that is of a proprietary or protected nature.** Also note that a separate RFI has been released seeking farmers interested in hosting technology demonstrations. See www.fppcinc.org for more information.

Deadline for Submission: Proposals must be received no later than March 15, 2012. Interested technology providers should reply to:

Kristen Hughes Evans, Director, Sustainable Chesapeake
3607 E. Marshall St., Richmond, VA 23223
Kristen@sustainablechesapeake.org; 804-477-7683

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Specific Information Requested

A. BASIC INFORMATION (Company name, contact information, name of technology and description of technology)

B. TECHNICAL FEASIBILITY

1. Is the technology commercially available now? If not, when is it expected to be commercially available?

2. Has the technology been previously deployed or demonstrated on a farm? If yes:
   a. At what scale was it operated and what is its capacity? (please note that we are interested in technologies that propose to operate at the farm as well as the community scale).
   b. What type of manure did it treat?
   c. How much manure did it treat? How much manure is needed to maintain year-round operations?
   d. Were any environmental permits required/obtained? If yes, please list the types of permits.
   e. If the technology produced energy or heat, how much did it produce? Specifically:
      i. What was the total annual wattage capacity and/or BTUs produced?
      ii. How was the energy/heat captured or used?

3. Is it operable by a farmer or best operated by a trained professional?
   a. If the farmer can operate the equipment, what tasks and time would be required on a daily, monthly and annual basis?
      i. Daily:
      ii. Monthly:
      iii. Annually:

C. ECONOMIC FEASIBILITY

2. How much does the technology cost? Specifically, what is the:
   a. Total cost:
   b. Annualized capital equipment costs: cost and operating life
   c. Operation costs (annual):
   d. Maintenance cost (annual):
   e. Cost per ton of manure processed:

3. What are the saleable products?
   a. If heat/energy is a coproduct, how much is produced per year and what is the cost per unit of electricity and/or heat produced?
   b. If coproducts suitable as a fertilizer are produced, please describe, including:
      - The estimated amount of total and plant-available N-P-K content.
      - The estimated market value.

c. Are there other, residual coproducts that need market development and/or disposal?

4. Would the technology be expected to generate environmental credits (ex. carbon, renewable energy, and nutrient)? If so, please describe, including the number of credits and estimated market value.

5. Has a business model for the technology been demonstrated and/or written? If yes, is it available for review?

6. What sources of financing are currently available? What sources of financing are needed?

D. ENVIRONMENTAL IMPACT

1. What is the ultimate fate (i.e. mass balance) of the manure nutrients?

2. Does the technology facilitate transport of nutrients out of high-density manure/poultry litter production areas? If so, please explain.

3. What data on air emissions are available? Specifically, what are the emissions of criteria air pollutants and hazardous air pollutants (collected using EPA-approved methodology) per ton of manure processed or per energy unit?

4. Is there an established market for any nutrient-rich coproduct that could result in documentation of export out of high-density animal production regions? If yes, please describe.

5. Are there other characteristics of the technology or product(s) that would result in reduced N and P loading to surface waters? If yes, please describe:

E. OTHER INFORMATION

Is there any other information you wish to share with us about the technology and its potential?