2016

Improving Project Outcomes & Growing the Anaerobic Digestion Industry

ANAEROBIC DIGESTION OMBUDSMAN PROGRAM

Introduction

The past decade has seen significant growth in the use of anaerobic digestion (AD) to treat organic wastes and manure to produce biogas. While progress in the industry has been steady, there is room for expanded growth. Currently, 247 digesters operate at farms and over 1,200 at Water Resource Recovery Facilities (WWRFs). The Environmental Protection Agency (EPA) estimates that over 10,000 additional digesters are possible in these two sectors alone.[1] Municipal Solid Waste (MSW) facilities are also looking to anaerobic digestion systems to divert food waste and other organics from landfills. Anaerobic digestion systems can be a valuable asset for communities to help manage organic wastes; however, they can be challenging to develop.

In Vermont and New York, energy leaders created anaerobic digestion ombudsman programs to overcome the challenges of developing anaerobic digestion systems. An ombudsman is an independent and neutral resource that helps individuals solve problems. Many industries including healthcare, government and universities have ombudsmen to help people explore options and determine what the path forward is. An AD ombudsman helps to solve problems through all stages of anaerobic digester development. In New York and Vermont, the AD ombudsmen deliver third-party technical assistance to farmers and project developers at no cost. The AD ombudsmen increase efficiency of AD project development, improve the long-term sustainability of projects, and help grow the industry.

An AD ombudsman program is a great opportunity for states to expand the anaerobic digester industry and meet environmental goals. AD systems can help states meet Renewable Portfolio Standards (RPS) goals, improve local water and air quality and support local communities. While the ombudsman programs in New York and Vermont focus primarily on farm digesters and manure management, there is great opportunity for AD ombudsmen to expand beyond farms into food waste and organics diversion in other sectors. The ombudsman program is adoptable by state agencies, non-profits, cooperatives or any organization with the goal of assisting and growing the AD industry.

This report summarizes the successes of the ombudsman programs in New York and Vermont and provides guidance for other states to set up their own AD ombudsman program. The U.S. EPA AgSTAR Program encourages more states to implement similar programs to support and grow the anaerobic digester industry.[2]

Need for Anaerobic Digestion Ombudsman Programs

Farmers and developers face many challenges when constructing anaerobic digestion systems. Inherently, the systems are complex and require technical expertise to construct and maintain. There are many factors to consider when building and operating digesters including permitting, utility interconnection, financing, operations and maintenance. Construction and operation requirements also vary state to state and community to community, which can be a difficult and costly process to navigate. For a farmer, these steps are often out of their realm of expertise and can take significant time to understand and perform. Since farmers' time is already at a premium with other commitments, often these complexities cause AD projects to stall or never go through.

[1] Biogas Opportunities Roadmap. http://www.usda.gov/oce/reports/energy/Biogas_Opportunities_Roadmap_8-1-14.pdf.

[2] U.S. EPA AgSTAR is a voluntary program that supports farmers and industry in the development and adoption of anaerobic digester systems.

Third-party assistance from an ombudsman can streamline these processes and overcome challenges facing farmers and developers. The ombudsman programs in New York and Vermont have spurred growth in the AD industry and have provided much needed technical assistance to the industry.

How Can Anaerobic Digestion Ombudsmen Help Projects?

> *"I cannot overstate the fact that without [the ombudsman] I wouldn't have my anaerobic digester. I would have been too overwhelmed with the process. [The ombudsman] provided guidance that was vital to getting my anaerobic digester."*
>
> – Reg Chaput,
> Chaput Family Farms

The AD ombudsman can help the AD industry in many ways, including project development, digester sustainability and industry advancement. The following are examples of ways in which the ombudsmen assisted the farm sector.

Project Development. The AD ombudsman is a resource to help guide farmers through all stages of developing AD projects. The ombudsman understands project development and utility interconnection and can help streamline the process. The ombudsman can help with the following tasks:

- Identify candidate farms for AD systems
- Educate farmers about AD technologies
- Assist with feasibility studies and cost and performance estimates including:
    - Conduct group net-meter analyses
    - Conduct rate tariff analyses
    - Explore available grants and funding sources
- Help with interconnection applications
- Review utility line studies and interconnection agreements
- Assist with bid evaluations and vendor selection

Anaerobic Digester Sustainability. The AD ombudsman can also help projects throughout their operational life. The ombudsman can help operators solve challenging operational problems and explore additional income generating opportunities. The ombudsman can improve the sustainability of projects through the following tasks:

- Maintain contact with digester operators to monitor system performance
- Provide digester technical and trouble-shooting assistance
- Facilitate sale of RECs (Renewable Energy Certificates)
- Connect digester owners with food waste generators
- Negotiate organics collection contracts

While some AD developers and vendors provide technical assistance to operating digesters, these companies are often located in another state and may charge fees. The ombudsman is a local resource that can provide hands on technical assistance at no cost to users.

Industry Advancement. Beyond project specific help, the ombudsman can provide a voice to the AD industry to lower market barriers. The ombudsman can help advance the AD industry through the following tasks:

- Identify critical market barriers and propose solutions to overcome barriers
- Present at conferences to raise awareness of barriers facing industry
- Advocate in state and local legislature for favorable farm digester policies
- Build confidence in the lending community for AD financial support
- Negotiate with utilities to streamline interconnection processes
- Participate in statewide AD workgroups

Value of the Anaerobic Digestion Ombudsman Program

The ombudsman programs in New York and Vermont bring great value to farmers and the AD industry. For farmers, the ombudsman services are free. For the host organizations, or organization that funds the position, the ombudsman services are relatively inexpensive. In both states, the ombudsmen work on average 20-25 hours per week. Ombudsman services are consistent with professional labor rates ranging between $85/hour and $115/hour or $85,000 and $115,000 annually. The ombudsman program in New York is funded by the New York Power Authority (NYPA) and New York State Energy Research and Development Authority (NYSERDA) and the Vermont program is funded through the Green Mountain Power Renewable Development Fund.

Enhance the Value of Grants. Many times, AD projects will receive large sums of grant funding with little help to facilitate projects. The ombudsman program is a great opportunity to enhance the value of grants. A survey of Vermont farmers found that the "technical assistance provided by [the ombudsman] was equal, if not of greater value than…grants."[4] On a per project basis, ombudsman service costs averaged $2,500 - $6,500 per farm per year. Comparatively, grants awarded to projects in Vermont totaled over $700,000 per project. Assuming farmers value the ombudsman services and grants equally, the AD ombudsman is a great investment.

Emerging Trend: Food Waste Diversion

Food waste sent to landfills is a current focus of sustainability efforts in the United States. EPA and USDA recently set a goal to reduce food waste sent to landfills in the U.S. by 50% by 2030.[3] Organics diversion and recycling can achieve multiple sustainability goals. Organics diversion reduces landfill's greenhouse gas (GHG) emissions and extends the life of landfills by reducing the volume of materials added. Organics diversion can also improve the sustainability of AD projects by providing additional income to digester owners from the increase in biogas production and tipping fees associated with collecting the waste. As more AD system operators consider adding organic materials and as more states pass organic diversion policies, there will be a greater need for an ombudsman to bridge the gap between organic materials suppliers and potential AD systems owners.

[3] USDA "USDA and EPA Join with Private Sector, Charitable Organizations to Set Nation's First Food Waste Reduction Goals". http://www.usda.gov/wps/portal/usda/usdahome?contentid=2015/09/0257.xml, (11/1/2015).
[4] CVPS Renewable Development Fund: Progress Report June 30, 2011. http://www.vtenergyatlas-info.com/wp-content/uploads/2010/02/RDF-Progress-rpt.pdf, (8/12/2015).

Ombudsman programs can provide services of comparable value to grants at a fraction of the cost. Coupling grants with ombudsman services can not only improve the establishment of AD systems, it can ensure the systems are successful over the long-term, which will help guarantee the value of financial investments are fully realized.

Increase Implementation of Anaerobic Digestion Systems. In Vermont, the ombudsman helped grow the AD industry. In 2005 when Vermont's AD ombudsman program began there was only one operating digester. Over the next decade, Vermont outpaced the rest of the country with the help of the ombudsman. In 2014, Vermont had 16 operating digesters which was double the national average of 8. Vermont now has one of the highest usage rates of anaerobic digesters in the country; approximately 10% of Vermont's dairy manure is going through an anaerobic digester.[5,6]

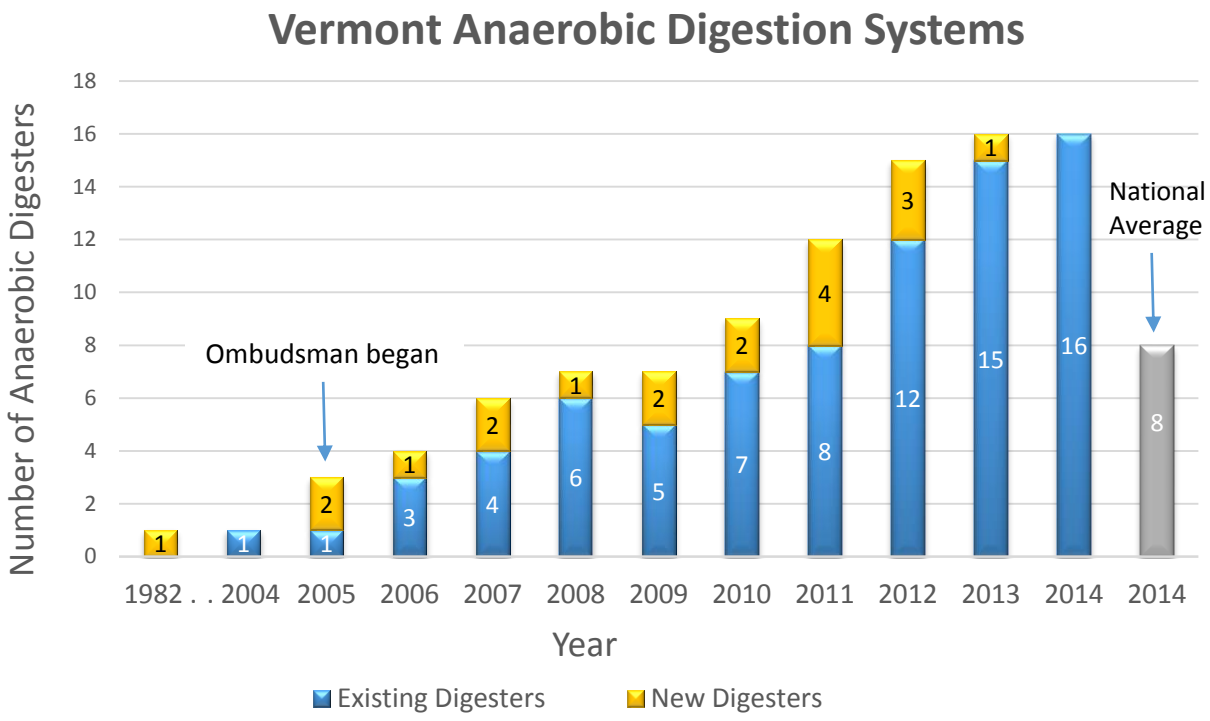


Figure 1: Vermont livestock anaerobic digestion systems 1982-2014.

Benefit States and Utilities. States and utilities looking to add renewable energy to their portfolio can benefit from ombudsman services. Biogas systems provide many co-benefits including creating clean renewable energy, supporting local communities, and enhancing nutrient management, which can lead to improved water quality. The ombudsman can continue to help states and utilities comply with renewable energy generation and greenhouse gas mitigation policies such as the EPA's Clean Power Plan.

The ombudsman can also streamline communication between developers and utilities. Historically, interconnection of AD projects has involved a great deal of back and forth between the farmer and utility. For example, New York farmers often faced confusing requirements related to cost estimates and responsibility assignments throughout the application process. The ombudsman was able to negotiate

[5] USDA Census of Agriculture, 2012 Census Volume 1, Chapter 1: State Level Data, Vermont. http://www.agcensus.usda.gov/Publications/2012/Full_Report/Volume_1,_Chapter_1_State_Level/Vermont/st50_1_017_019.pdf, (9/29/2015).

[6] AgSTAR Project Database. http://www2.epa.gov/agstar/livestock-anaerobic-digester-database, (9/29/2015).

with the utilities to provide this information upfront, as response to an email inquiry, rather than waiting for a full application. This saved farmers thousands of dollars in application fees and reduced the number of application revisions throughout the process.

Factors to Consider When Implementing an Anaerobic Digestion Ombudsman Program

Establish Program Roles. An ombudsman program can be hosted by a number of organizations. State agencies, non-profits or cooperatives are best suited to host the ombudsman. The most important aspect of a successful AD ombudsman program is ensuring the ombudsman remains an independent and neutral resource for the AD industry. Hosting the ombudsman by a third-party can increase buy-in from the farmers by ensuring there are no material conflicts of interest and avoiding the appearance of potential conflicts of interest.

Design a Statement of Work. The statement of work should address the needs of your organization, state, and community. The ombudsman's scope of work should allow for flexibility to adapt to changing industry needs. Both New York and Vermont found that flexibility was key to the ombudsman's success. For example, Vermont's program did not originally consider codigestion opportunities, but as more projects began to consider adding outside food wastes, the ombudsman's statement of work was expanded to include sourcing these materials. Once the statement of work is completed, a request for proposals (RFP) should be issued. An RFP can be issued to seek competitive bids, which can maximize expertise and minimize costs.

Select the Right Candidate(s). The ombudsman position requires a specialized skillset. Depending on the level of service the organization wishes to provide to the AD industry, the ombudsman can be an individual or a committee. In Vermont, the ombudsman was an individual. In New York, the ombudsman program was comprised of a team of experts. The selected ombudsmen should have demonstrated:

- Experience working with industry (Farms, MSW facilities, and/or WRRFs)
- Strong project management skills
- An understanding of AD technology and electricity generation
- Experience managing and securing incentives, grants, or other types of funding
- Experience with permitting and regulations related to AD systems
- Familiarity with nutrient management planning and renewable energy credits
- Public engagement skills

Build Connections with Relevant Stakeholders. Building connections with different groups and organizations is important to the success of the ombudsman. A successful ombudsman will know who to talk to and when to talk to them to streamline project development. This requires building up a network of contacts that the ombudsman can rely on for advice and guidance. In conjunction with hiring an ombudsman, the host organization should consider creating a committee or workgroup with stakeholders from key government agencies, non-profits, and industry. New York and Vermont ombudsman programs include a committee of relevant stakeholders that provide support to the ombudsman. The AD industry will advance best when a united front solves problems.

Ensure Continuity of the Program. Continuity of the ombudsman program is important to ensure the momentum created by the ombudsman program will continue. Both New York and Vermont ombudsman programs incurred lapses in services, which slowed momentum and required projects to find their own way forward. Long-term guarantee of funding can help avoid gaps in service. Due to the value of benefits provided by the program, New York and Vermont plan to fund the program for at least the next two years.

Vermont Anaerobic Digestion Ombudsman Program at a Glance

Vermont's AD ombudsman program has had tremendous success growing the anaerobic digester industry and assisting farmers with project development. The success is due largely to the way in which the ombudsman program is organized. Vermont designed the program with an executive committee comprised of key industry stakeholders that provides guidance and assistance to the ombudsman. The program is funded through Green Mountain Power utility's Renewable Development Fund. Together, the ombudsman and executive committee have helped over 20 projects in Vermont.

Renewable Development Fund

In 2004, the Vermont legislature approved the formation of the Green Mountain Power Renewable Development Fund (GMP RDF). The GMP RDF was established to provide farmers financial incentives to overcome barriers to developing anaerobic digesters. The RDF is funded through insurance credits, tariff collections, and contributions from companies and individuals. Since 2004, the RDF has spent over $2.25 million to help grow the AD industry in Vermont.

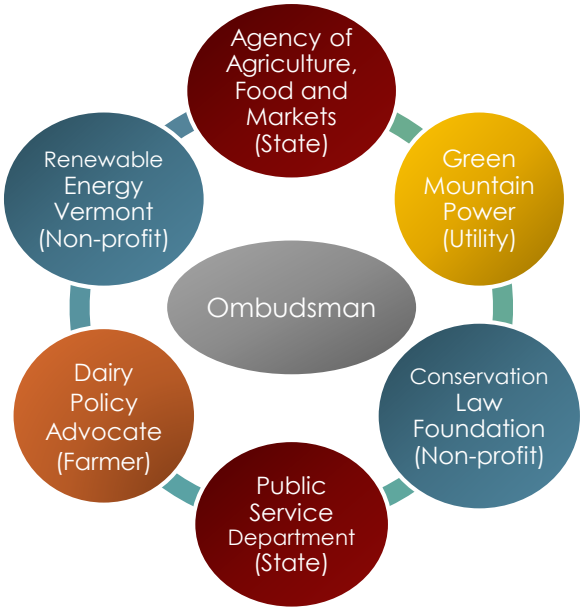
Executive Committee and Ombudsman

The RDF is managed by an executive committee, comprised of stakeholders from government, non-profits, a utility, and a dairy industry representative. The formation of the executive committee brings together representatives from key industries to provide diverse perspectives and expertise on AD. This holistic approach allows the group to solve problems efficiently and best meet the needs of farmers. The committee also agreed that no one organization should take the lead on implementing the program, so they created the ombudsman position to coordinate the effort.

The ombudsman is an independent consultant with experience with Vermont farms, AD systems and the AD regulatory process. The ombudsman coordinated all on-the-ground efforts to assist farmers with project development and grow the industry.

The beauty of the program's design is that the ombudsman serves as an independent and neutral resource available to help farmers, yet draws from the expertise of the executive committee to solve problems. The ombudsman meets with the executive committee monthly to discuss progress of projects, advances made in in the industry, and to receive guidance.

Vermont Anaerobic Digestion Ombudsman Program



Recommendations and Summary

Anaerobic digestion ombudsman programs can improve anaerobic digester project outcomes and grow the AD industry. At no cost to users, AD ombudsmen help overcome many barriers facing projects. Additionally, ombudsman programs are relatively inexpensive for organizations to implement. The ombudsman can be an effective asset and prudent investment for organizations looking to grow the AD industry in their state.

The most effective design of an ombudsman program would include a committee of key stakeholders and a host organization that ensures the ombudsman remains a neutral and independent resource. The committee would complement the ombudsman's efforts by providing support to solve the many challenges facing the industry. State agencies, non-profits or cooperatives are ideal organizations to host the ombudsman. These organizations' goals can align with the efforts of the ombudsman to accomplish environmental sustainability and renewable energy objectives.

As states increasingly look to organics diversion to meet environmental and renewable energy generation goals, there will be an increased need for AD ombudsman services. A key area for ombudsman services is building connections between farmers, food waste generators, MSW facilities and WRRFs. Anaerobic digester adoption is growing in these sectors, yet the connections between these entities are not well established. The ombudsman can help draw the connections between these entities to further expand biogas development and organics recycling.

While progress is being made to overcome barriers to implementation, the U.S. is still in its infancy with anaerobic digestion adoption. Growth for the industry will require breaking down barriers and providing sustained technical assistance to the industry. States that are committed to anaerobic digestion will find great value in the AD ombudsman. The AD ombudsman can be a catalyst to improving project outcomes and growing the AD industry.

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