Bio-Digesters: A New solution for a New Era

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Animal farms stay viable because of the food that they produce, meat and dairy products being chief among them. But more and more farmers are discovering one more financial stream that is not only financially responsible, but sustainable too: gas.

Biodigesters are steadily becoming more commonplace on livestock farms, where they play a role in offsetting farm emissions, creating another revenue stream for farmers, and bringing sustainability to an industry in which green options can at times be limited. Public health in the surrounding community is also a benefactor, as is the public health of the world as every industry works to mitigate its effect on the changing climate.

From a financial perspective the use of bio-digesters can be a boon to farmers looking to receive state and federal aid or comply with emissions standards, but from a legal and logistical perspective they can be cumbersome and should be integrated into a farm and its business model thoughtfully and strategically.

When our agribusiness clients come to us when they are thinking through how to introduce biodigesters to their farms, below are some of the things we tell them first.

What problem do bio-digesters solve?

It is first important to know what bio-digesters are, and what they aren’t.

What they are is primarily a means to keep pollution from cattle or livestock at manageable levels. In the United States, farming and agriculture make up 10% of total greenhouse gas emissions. Cattle, both on factory farms and small farms, create 25% of those emissions, approximately 2.5% of total greenhouse gases, from the methane released from their digestion.

Manure from livestock and their swine and poultry counterparts is another culprit in greenhouse gas emissions, releasing nitrous oxide in addition to methane. Each farm treats their manure differently, and as a result, emits differently, but in total manure emissions account for 12% of agriculture emissions.

How do they solve it?

Put simply, anaerobic digestion takes all the pollution – manure, wastewater, and other waste – and turns it into usable energy. By putting large collection systems like water containers or air covers over the waste, the pollution – and its energy potential – can be directed into digesters, which convert it into biogas and coproducts.

The digestion process happens when bacteria process the waste and reduces the amount of solid waste and pathogens as a result. The biogas can be funneled directly into the natural gas system and be used for electricity, heat, and fuel. The coproducts, which can take the shape of a solid or a liquid, can be used for fertilizer, compost, or bedding.

Another funding source for the farm

The immediate perk of having a biodigester on a farm is having somewhere to put and treat an endless supply of waste that otherwise has nowhere to go. But more and more farmers have realized another benefit: money.

The biogas produced from the methane emitted by the waste is substantial, and under the right circumstances can power an entire small farm, effectively taking the farm off the grid and striking electricity costs, which can run high on a farm, from the budget. The remainder of the power can then be sold to the local energy grid for a profit. As a sustainability incentive, many state and local governments also mandate that power companies purchase clean energy at the same market rate as they purchase other energy supplies, ensuring a fair payout for farmers.

Government support

On farms stocked full of expensive equipment, biodigesters may be one of the priciest pieces on the property. Industrial-capacity systems for small to medium livestock farms will run north of $1 million, and installation and maintenance costs are high as well.

Luckily, federal, state, and local governments are wise to how smart of an investment that digesters are for both local farmers and the planet, and as a result have set up several generous incentive programs that subsidize biodigester costs for farmers that want to make the investment.

Through the USDA, the federal government offers the Value-Added Producer Grant and the Environmental Quality Incentives Program, both of which farms can apply for to help significantly offset the cost of anaerobic digesters. The department will also shoulder some of the cost of feasibility studies so farmers can see whether digesters work for them.

State governments and departments have also started to give generously to anaerobic digestion systems, which have held their interest not only because they are good for the environment, but also because it mitigates pollution that impacts people's lives daily. One example was in 2017, when Wisconsin spent $20 million on biodigester subsidies because excess manure was seeping into the water supply. The state of Massachusetts, where farms are common in the central and western parts of the state, has a funding matrix available to the public that directs farmers to funding sources for the systems.

Easing the tax burden

Direct payments are a boon to farmers, but state governments typically sweeten the deal by offering tax incentives via tax credits on digester-related construction or revenues, which retroactively support the farm at the end of the tax year.

One of the more common incentives is a property tax exemption for the farm or property where the digester sits, so long as the facility is generating energy-bound methane from waste. Another common incentive is states that waive sales taxes on materials used to construct and operate the machinery, which significantly reduces overall cost. Yet another common option is simply states that offer income tax credits to offset operational costs of digesters.

With significant differences in state-by-state incentive structures for anaerobic digesters, farmers should investigate what their state specifically offers. With more and more states seeing the good that comes from biodigesters, it is likely your state offers significant benefits.

Legal hurdles

While states have a lot of interest in incentivizing biodigesters and do so via grant and the tax code, they also have an interest in making sure that the facilities are implemented safely, effectively, and in the interest of the local community. Navigating the complex set of local, and state regulations is where farmers and business owners using or thinking about using biodigesters benefit from seeking legal help. The enhanced zoning and permitting processes are complicated, and to be approved timely and efficiently should be done by someone with expertise in the area.

In local government in particular, farmers customarily seek counsel to navigate local zoning regulations. As energy- and fuel-creating machinery, local ordinances typically only permit digesters in industrial zones, which are separate from farming facilities and come with their own codes. Legal counsel helps to overcome those common legal hurdles and others, so that digesters can be used on farms.

Facilities also need to be permitted for air, land, and water, and must be done so at each level of government. At the local level it could include zoning regulations and property restrictions, at the state level it includes waste management regulations, and at the federal level it includes air quality and emissions standards.

Another dimension of the process is that emissions and environmental laws are in a constant state of change because of their status as hot-button issues in the current policy environment. Agencies and regulators themselves even have a hard time keeping up in the quickly evolving environment. But just because regulators cannot keep up doesn't mean farms shouldn't either. Keeping abreast of permitting and regulatory changes – doing things the "right" way – will go a long way if enforcement and oversight ever does become stricter.

How to ensure long-term success

Digesters can last for decades on farms if they are used correctly, paying off their initial investment and generating long-lasting returns, even in bad crop years. But digesters – and the bacteria and microorganisms that make them work – are quite literally living things, and to give them long and fruitful lives, farm owners must put the necessary care and maintenance into them. We tell our clients that a recipe for success includes:

- **Studying the feasibility of a biodigester** before installing one. On most farms, a biodigester is a smart investment, but on others they could potentially not pay dividends. Understanding whether a digester will give returns to your farm, and how much, is important before installing.
- **Do a thorough job permitting** before and during the installation process. It is a huge burden, but the worst-case scenario is if you missed a permit, and after building a beautiful new digester you have to wait for a final permit to use it, or are told you cannot use it at all.
- **Maintain the equipment.** Biodigesters are unlike any other piece of equipment on a farm, and though their maintenance is not cumbersome, it does require specific knowledge of the piece of machinery to keep it performing at full capacity and giving the farmer full value. Understanding the equipment's needs is yet another reason why smart farmers consult advisors and people with experience in the sector before installing a biodigester. Doing so promises long-term return on investments, tax breaks, and alternate revenue streams.

As sustainability continues to be at the forefront of policy discussion, and margins for farmers are thinner than ever, biodigesters are a smart alternative that offers environmental relief and another source of income.

If your farm or property is considering anaerobic digestion as part of your business plan, a member of our agricultural law team would be happy to talk with you about how to make it a smart investment.