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BILL ANALYSIS

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House Bill 5033 (Substitute H-8 as reported without amendment)
Sponsor: Representative Richard Ball
House Committee: Agriculture
Senate Committee: Agriculture, Forestry and Tourism

Date Completed: 12-4-06

RATIONALE

Some people believe that the State should encourage the use of methane digesters. These are concrete tanks or covered lagoons that take advantage of a natural process called anaerobic digestion, in which bacteria feed on manure in an oxygen-free environment. This process produces two products: biogas, which is a mixture of methane and carbon dioxide and may be burned off or used to generate heat or electricity; and compost, which is less odorous and without most of the pathogens found in raw manure. While the biogas produced by a methane digester may generate enough electricity to cover a farm's electrical needs or even be sold to an electric company for a small profit, the primary purpose of digesters is to manage manure odor and pathogens. Because a single dairy cow produces about 120 pounds of wet manure a day, managing it is a significant part of farming.

Methane digesters have been in existence since the 1970s but no functioning digesters exist in Michigan (although one dairy farm near Elsie is in the process of constructing a digester). This is due in part to the digester's high start-up costs. Depending on the scope of the system and the number of animals, a digester reportedly can cost between $200,000 and $2 million. Some believe that methane digesters and other technologies that convert farm waste products into energy have the potential to reduce the State's dependence on foreign oil while reducing the environmental impact of farming operations. To encourage more farmers to implement such systems, it has been suggested that methane digesters and other equipment for generating alternative energy from agricultural waste should be exempt from property taxes.

CONTENT

The bill would amend the General Property Tax Act to exempt from taxation a biomass gasification system, a thermal depolymerization system, and a methane digester and methane digester electric generating system, under certain conditions.

The Act exempts from taxation property actually used in agricultural operations. That property includes machinery used to prepare a crop for market that is operated incidental to a farming operation, if a certain percentage of the volume of the crops were grown by the farmer in Michigan who is the owner or user of the crop processing machinery.

The bill also would include as property used in agricultural operations a methane digester and a methane digester electric generating system. "Methane digester" would mean a system designed to facilitate the production, recovery, and storage of biogas from the anaerobic microbial digestion of animal or food waste. "Methane digester electric generating system" would mean a methane digester and the apparatus and equipment used to generate electricity or heat from biogas or to store biogas for the future generation of electricity or heat.

After the construction of the methane digester or the methane digester electric generating system was completed, the person claiming the exemption would have

to submit to the local tax collecting unit an application for the exemption and a copy of certification from the Michigan Department of Agriculture (MDA) that it had verified that the farm operation on which the methane digester or methane digester electric generating system was located was in compliance during the previous year with the appropriate system of the Michigan Agriculture Environmental Assurance Program (MAEAP). (This is a voluntary program that offers farmers environmental guidelines emphasizing effective agricultural practices that reduce the risks of pollution or other environmental hazards. For more information on MAEAP, please see **BACKGROUND**.)

The application would have to be in a form prescribed by the Department of Treasury and would have to be provided to the person claiming the exemption by the local tax collecting unit.

Three years after an application for an exemption was approved and every three years thereafter, the person claiming the exemption would have to submit to the local tax collecting unit an affidavit attesting that the MDA had verified that the farm operation on which the digester was located was in compliance with the appropriate system of MAEAP.

In addition, when the application was submitted to the local tax collecting unit, the person claiming the exemption would have to submit certification provided by the Department of Environmental Quality (DEQ) that he or she currently was not being investigated for a violation of Part 31 (Water Resources Protection) of the Natural Resources and Environmental Protection Act (NREPA), that within a three-year period immediately preceding the date the application was submitted, he or she had not been found guilty of a criminal violation under Part 31, and that within a one-year period immediately preceding the date the application was submitted, he or she had not been found responsible for a civil violation that resulted in a civil fine of $10,000 or more under Part 31. (Part 31 establishes civil fines for discharging prohibited substances into waters of the State or other violations of the part.)

The person claiming the exemption also would have to cooperate by allowing access for up to two universities to collect information regarding the effectiveness of the methane digester and the methane digester electric generating system in generating electricity and processing animal waste and production area waste. Information collected under this provision could not be provided to the public in a manner that would identify the owner of the digester or the farm operation on which it was located. The identity of the owner and the location of the farm operation would be exempt from disclosure under the Freedom of Information Act.

Also, the person claiming an exemption would have to ensure that the methane digester and methane digester electric generating system were operated under the specific supervision and control of people who were certified by the MDA as qualified to operate that equipment, along with related waste management and control facilities. The MDA would have to consult with the DEQ and the Michigan State University cooperative extension service in developing the operator certification program.

In addition, the bill would include a biomass gasification system and a thermal depolymerization system as property used in agricultural operations. "Biomass gasification system" would mean apparatus and equipment that thermally decompresses agricultural, food, or animal waste at high temperatures or in an oxygen-free or oxygen-restricted environment, into a gaseous fuel, and the equipment used to generate electricity or heat from the gaseous fuel or store the fuel for future generation of electricity or heat. "Thermal depolymerization system" would mean apparatus and equipment that uses heat to break down natural and synthetic polymers and that can accept only organic waste.

MCL 211.9

BACKGROUND

MAEAP

The Michigan Agriculture Environmental Assessment Program was established in 1998 by a coalition of agricultural producers, commodity groups, State agencies, and conservation and environmental interests. According to its website, MAEAP "is an

innovative, proactive program that helps farms of all sizes and all commodities voluntarily prevent or minimize agricultural pollution risks. MAEAP teaches farmers how to identify and prevent environmental risks and comply with state and federal environmental regulations."

The website describes three phases of MAEAP. Phase I, education, is designed to raise awareness of practices that may prevent or reduce on-farm legal and environmental risks. Phase II, on-farm assessment, focuses on assessing the environmental risks on a farm and developing a farm-specific plan to address identified risks. During this phase, a comprehensive nutrient management plan (CNMP) is written, and a timeline for implementing changes is developed.

Phase III, third-party verification, allows producers to request third-party verification from the Michigan Department of Agriculture after they have developed a CNMP and are following their schedule of implemented practices or improvements. To maintain verification, producers must request an MDA visit every three years.

Previous Legislation

Senate Bill 955 of 2003-04 proposed a sales tax exemption for methane digesters, methane digester electric generating systems, biomass gasification systems, and thermal depolymerization systems. The bill was approved by the Senate and House of Representatives but vetoed by Governor Granholm. According to the Governor's veto message, "…this exemption would provide financial rewards for generators of high volumes of manure, such as factory farms, including violators of environmental protection laws, while failing to address the threat to our groundwater posed by the nitrates and other pollutants that are the byproducts of high concentrations of manure."

Senate Bill 251, introduced in February 2005, also would establish a sales tax exemption for a methane digester, a biomass gasification system, and a thermal depolymerization system. That bill, as passed by the Senate, would exclude a person who had been convicted of a criminal violation or who had been found responsible for a civil violation resulting in a civil fine of $10,000 or more under NREPA within the past three years. To qualify for the exemption, Senate Bill 251 would require the digester to be located on property verified under MAEAP. The bill was passed by the Senate in June 2005, but has not been taken up in the House.

Public Act 254 of 2006 (Senate Bill 538) allows qualified agricultural energy production systems, including a methane digester, biomass gasification technology, or thermal depolymerization technology, to qualify for loans under the Small Business Pollution Prevention program. The bill took effect on July 7, 2006.

ARGUMENTS

(Please note: The arguments contained in this analysis originate from sources outside the Senate Fiscal Agency. The Senate Fiscal Agency neither supports nor opposes legislation.)

Supporting Argument

Most farmers apply manure to fertilize their fields, but doing so can result in strong odors that bother neighboring residents. In addition, spreading raw manure can cause pathogens like *E. coli* to be flushed into waterways. A certain amount of methane and ammonia, both greenhouse gases, escapes into the atmosphere when manure is spread. Spreading the compost from a methane digester, however, nearly eliminates the bacteria and odor found in manure. Using the methane for energy eliminates an additional pollutant. Also, the liquid and solid byproducts from methane digestion can be used as fertilizer, and the solids can be put to other uses, such as livestock bedding. The quality of the fertilizer also is enhanced, since plants can use the mineralized form of nitrogen more quickly than they use untreated manure. In addition, methane digesters offer economic savings from the production of renewable energy, which also can be sold. Thus, digesters not only reduce pollution but create value-added products.

The proposed property tax exemption could encourage more farmers to consider building and operating methane digesters and other energy production systems that use agricultural biomass. Although the long-term benefits of these technologies is great, the cost of the equipment is very high and the immediate payoff is uncertain. Under

the bill, farmers would not have to pay the property tax on this expensive equipment, reducing the cost somewhat. This could encourage more rapid adoption of these technologies, spurring greater innovations, energy savings, and environmental benefits for the State as a whole. The bill would offer the exemption only to a farmer without a recent history of environmental violations, and the farm would have to be verified under the Michigan Agriculture Environmental Assurance Program. These provisions would prevent chronic polluters from taking advantage of the credit, while providing an incentive to farmers to gain MAEAP certification, so that they could qualify for a property tax exemption under the bill.

If a person received the exemption, he or she would have to ensure that the operators of the equipment were certified by the MDA, providing added protection against mishandling of the waste or improper operation of the equipment. Reportedly, a methane digester must be maintained within a very narrow temperature range to function correctly. If the digester is only a few degrees too cool, it will not kill enough of the bacteria, leaving the manure a potential health hazard. With the proper training required under the bill, operators would be more likely to avoid such errors.

Opposing Argument

Although medium-sized farms might find methane digesters attractive and need the most economic assistance to obtain them, the cost of the digesters and the volume of waste required make them economically feasible only for the largest livestock producers. The operations large enough to use a methane digester are multimillion-dollar concentrated animal feeding operations (CAFOs), which can afford to buy digesters without government subsidies. It would be inappropriate to give State tax breaks to encourage CAFO proliferation when these huge farms are in part responsible for putting small and mid-size farms out of business, and when many have contaminated the air, water, and soil with their manure management practices. A study by the Sierra Club indicated that all of the CAFOs it examined were guilty of some violations, in some cases emptying raw sewage into drainage ditches that connected to open waters of the State. As the governor stated in vetoing earlier similar legislation, the State should not reward or subsidize chronic polluters, and should not be in the position of paying large farmers not to pollute. Particularly at a time when the budget is so tight, the State should not be using its limited resources to benefit operations that are acting against the public interest.

Although it has been suggested that small or mid-size farms could combine their manure in order to make a methane digester affordable, doing so would require the transport of large quantities of animal waste, and the fuel consumed in transport would be greater than the methane captured by the digester, negating any energy benefits. Moving such large quantities of manure to a central digester also would create another potential environmental hazard.

Response: The bill would not subsidize any farming operations or CAFOs; it merely would provide a tax exemption for a methane digester or other biomass conversion system, if the owner met certain criteria. The bill would encourage farmers to implement these technologies without reducing State revenue, since no digesters currently are operating in the State and none are being taxed. The bill could help to address two problems at once: the need for energy and the management of the large amounts of animal waste produced on modern farms.

Opposing Argument

While methane digesters and other similar processes have great potential and should be explored, these technologies may not offer as many benefits as proponents have suggested. Although the concept of converting manure into liquid fuel has been around for several decades, doing so in a cost-effective manner has proved elusive, which partly explains why there are no working methane digesters in the State. Reportedly, some studies of energy inputs and outputs indicate that the digesters could require almost as much energy to operate as they produced in methane.

In addition, while methane digesters could help farms better manage manure, they would not eliminate the farms' manure problems. Compost produced from digesters still contains high levels of phosphorus and nitrogen which, when spread on fields, can seep into groundwater

or run off into surface water. Excess nutrients in the water lead to low dissolved oxygen levels in lakes and streams, which can kill fish and destroy the natural habitat. Although methane digesters may reduce some of the methane that contributes to global warming, they can increase the emission of ammonia, another greenhouse gas.

Also, it is not clear that methane digesters would reduce odors from animal waste. Methane is an odorless gas, and removing methane from the waste alone would do nothing to alleviate the smell. Nitrous oxide and ammonia are the most noxious components of manure, and digesters do not remove or neutralize those compounds. In fact, because digesters must heat the waste in order to create the right conditions for microbial digestion, some studies have suggested that they may increase unpleasant odors.

Opposing Argument

The bill is similar to a 2003-04 proposal that Governor Granholm vetoed, Senate Bill 955. Although that bill did not require MAEAP verification, it did include a requirement that a person claiming a sales tax exemption for a methane digester not have been convicted of a criminal violation, or found responsible for a civil violation, under Part 31 of NREPA. Nevertheless, the Governor vetoed the bill on the ground that it would provide financial rewards for generators of high volumes of manure, including violators of environmental pollution laws. Another similar bill, Senate Bill 251, failed to gain approval in the House in 2005.

Response: Many of the concerns with those previous bills have been addressed in the current legislation, which is the product of extensive negotiation and compromise. By limiting the exemption to those operations that are MAEAP-certified, House Bill 5033 (H-8) would encourage responsible farming practices and reduce environmental risks in those operations. The bill also would allow universities to conduct additional research on the digesters and other equipment, which could lead to further technological advancements, as well as giving researchers the chance to understand the technical aspects of implementing these technologies in the field. The new technology is promising, but further study will help to refine the processes and produce more efficient, cleaner digesters in the future.

The bill also would require those operating the digesters to be trained and certified, alleviating concerns about improper operation that could result in spills or environmental contamination. These improvements and safeguards would help to ensure that those who benefited from the bill operated in a responsible manner.

Opposing Argument

Although the bill would attempt to limit the property tax exemption to farmers without a recent history of NREPA violations, the DEQ simply does not have the resources or the regulatory framework to monitor violations or enforce environmental laws, and few discharges actually are recorded as violations. Furthermore, since compliance with MAEAP is voluntary, verification under that program does not necessarily mean that a farm is in compliance with environmental laws.

Legislative Analyst: Curtis Walker

FISCAL IMPACT

The bill would have no fiscal impact on State or local government at the present time, because there are currently no methane digester electric generating, biomass gasification, or thermal depolymerization systems in Michigan. The bill could reduce revenue from what it otherwise will be in future years to the extent that any such systems would be built absent the bill. While there is no way to make a reasonable estimate on future use of these systems at this time, the fiscal impact of the bill probably would remain very small for the next few years.

To the extent that it prevented local units from receiving more revenue for school operating mills, the bill also would prevent the reduction of expenses from the School Aid Fund that would occur as local units generated more revenue locally to meet their guaranteed per-pupil funding amount.

Fiscal Analyst: David Zin

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