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BILL ANALYSIS

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Senate Bill 953 (Substitute S-1 as passed by the Senate)
Senate Bill 955 (Substitute S-2 as passed by the Senate)
Sponsor: Senator Cameron S. Brown
Committee: Agriculture, Forestry and Tourism

Date Completed: 8-11-04

RATIONALE

Recent developments in the Middle East, an increasing awareness of the environmental impacts of burning fossil fuels, and the continuing struggle of the small farmer have renewed interested in a class of alternative fuels known as "biofuels". Biofuels are produced from renewable agricultural by-products such as manure, corn, soy, and wood and wood waste. Biofuel proponents assert that these organic, domestic waste products could reduce the country's dependence on foreign oil, improve the quality of air and water in the State, and provide a value-added market for agricultural products. It has been suggested that loan programs and tax incentives be extended to farm operations that use equipment to generate energy from biomass.

CONTENT

Senate Bill 953 (S-1) would amend Public Act 105 of 1855, which regulates the disposition of surplus State funds, to permit the State Treasurer to invest up to $25 million in certificates of deposit (or other instruments of qualified financial institutions) for the purpose of facilitating loans of up to $5 million to eligible farmers for the construction and operation of agricultural ethanol plants, methane digesters, and other equipment used to generate electricity from agricultural biomass.

Senate Bill 955 (S-2) would amend the General Property Tax Act to exempt from taxation methane digesters and other thermal decomposing systems used in agricultural operations.

The bills are described in more detail below.

Senate Bill 953 (S-1)

Investment & Loan Authorization

Public Act 105 of 1855 permits the State Treasurer to invest surplus funds to facilitate loans to farmers adversely affected by agricultural disasters; to local units of government to promote solid waste management; and to brownfield redevelopment authorities to facilitate clearing titles on tax-reverted lands, among other purposes. The bill would permit the Treasurer also to invest in financial institutions for the purpose of providing "qualified agricultural energy production loans", which the bill would define as loans to eligible farmers for the construction and operation of qualified agricultural ethanol plants or qualified agricultural energy production systems.

The State Treasurer would have to endeavor to make investments so that qualified agricultural energy production loans would be conveniently available in all geographic regions in the State. The Treasurer could take any action necessary to ensure the successful operation of the bill's provisions, including making investments with financial institutions to cover the administrative and risk-related costs associated with the loans.

The bill states that an investment made for qualified agricultural energy production

loans "is found and declared to be for a valid public purpose".

The bill would define "eligible farmer" as a natural or corporate person who was engaged as an owner-operator of a farm in the production of agricultural goods, as defined in the Single Business Tax Act. An eligible farmer would not include a person who had been found guilty of a criminal violation under, or a person who had been determined responsible for a civil violation under, Part 31 (Water Resources Protection) of the Natural Resources and Environmental Protection Act within a one-year period immediately preceding the date of application for the qualified agricultural energy production loan.

A "qualified agricultural ethanol plant" would be a facility that produces ethanol that meets all of the specifications of the American Society for Testing and Materials, specification D 4806-88, and is denatured to make it unfit for human consumption and is produced from the fermentation of agricultural biomass. "Agricultural biomass" would mean agricultural crops, residue and waste generated from the production and processing of agricultural products, animal wastes, or food processing wastes.

"Qualified agricultural energy production system" would mean the structures, equipment, and apparatus necessary to produce a gaseous fuel from the noncombustive decomposition of agricultural biomass and the apparatus and equipment used to generate electricity or heat from the gaseous fuel, or store the gaseous fuel for future generation of electricity or heat. A qualified system would include, but would not be limited to, a methane digester, biomass gasification technology, and thermal depolymerization technology.

Investment Agreement

The State Treasurer could enter into an investment agreement with a financial institution to provide for qualified agricultural energy production loans to eligible farmers. The investment agreement would have to contain the term of the investment, which could not exceed 15 years, and require that a qualified agricultural energy production loan made by the financial institution attributable to the investment be issued at an interest rate established in the investment agreement, and for a repayment period of not more than 15 years; be made within five years after the bill's effective date; not exceed $5 million per applicant; and not be released by the institution unless the applicant had certified that it was an eligible farmer.

The agreement also would have to require that the interest accruing on the investment not be more than the interest earned by the financial institution on qualified agricultural energy production loans made after the date of the investment. The agreement would have to require the financial institution to provide good and ample security as the State Treasurer required, and identify the qualified agricultural energy production loans and the terms and conditions of those loans made after the date of the investment that were attributable to that investment, together with other information required by the Act.

To the extent the financial institution had not made qualified agricultural energy production loans in an amount at least equal to the amount of the investment within 90 days after the investment, the agreement would have to require that the interest rate payable on that portion of the outstanding investment be increased to a rate provided in the agreement, with the increase applied retroactively to the date on which the Treasurer made the investment.

In addition, the investment agreement would have to contain incentives for the early repayment of the investment and for the acceleration of payments, in the event of a State cash shortfall as prescribed by the agreement, if required by the Treasurer. The agreement also could contain other terms as prescribed by the Treasurer.

Annually, each financial institution in which the Treasurer had made an investment for qualified agricultural energy production loans would have to file an affidavit, signed by a senior executive officer of the financial institution, stating that the financial institution was in compliance with the terms of the investment agreement.

General Fund

Earnings from an investment made under the bill that were in excess of the average rate of interest earned during the same

period on other surplus funds, except surplus funds invested for emergency municipal loans (under Section 1 of the Act), would have to be credited to the General Fund. If interest from an investment made for qualified agricultural energy production loans were below the average interest rate earned during the same period on other surplus funds (except surplus funds invested for emergency municipal loans), the General Fund would have to be reduced by the amount of the deficiency on an amortized basis over the remaining term of the investment. A loss of principal from an investment made under the bill would have to reduce the earnings of the General Fund by the amount of that loss on an amortized basis over the remaining term of the investment.

Report to Legislature

Annually, the State Treasurer would have to prepare and submit to the Legislature a report regarding the disposition of money invested for purposes of facilitating qualified agricultural energy production loans. The report would have to include all of the following information: 1) the total number of eligible farmers who had received a qualified agricultural energy production loan; 2) by county, the total number and amounts of the qualified agricultural energy production loans that were issued; and 3) the name of each financial institution participating in the energy production loan program and the amount invested in each financial institution for purposes of the loan program.

Senate Bill 955 (S-2)

The General Property Tax Act exempts from taxation property actually used in agricultural operations and farm implements held for sale or resale by retail servicing dealers for use in agricultural production. The bill would include a methane digester, a methane digester electric generating system, a biomass gasification system, and a thermal depolymerization system as property used in agricultural operations.

A person claiming an exemption for a methane digester or a methane digester electric generating system would have to submit an affidavit to the local tax collecting unit, attesting that he or she had not been found guilty of a criminal violation under, or found responsible for a civil violation under, Part 31 of the Natural Resources and Environmental Protection Act within a one-year period immediately preceding the date the affidavit was submitted to the local tax collecting unit.

"Methane digester" would be defined as a system designed to facilitate the production, recovery, and storage of biogas from the anaerobic microbial digestion of animal or food waste. "Biogas" would mean a mixture of gases composed primarily of methane and carbon dioxide. "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.

"Biomass gasification system" would be defined as apparatus and equipment that thermally decomposes agricultural, food, or animal waste at high temperatures and in an oxygen-free or a controlled oxygen-restricted environment into a gaseous fuel, and the equipment used to generate electricity or heat from the gaseous fuel or store the gaseous fuel for future generation of electricity or heat. "Thermal depolymerization system" would mean apparatus and equipment that use heat to break down natural and synthetic polymers and that can accept mixed wastes including, but not limited to, plastics, tires, and organic waste.

Presently, property used in agricultural operations includes machinery used to prepare the crop for market that is operated incidental to a farming operation that does not substantially alter the form, shape, or substance of the crop, and is limited to cleaning, cooling, washing, pitting, grading, sizing, sorting, drying, bagging, boxing, crating, and handling, if at least 33% of the volume of the crops processed in the year ending on the applicable tax day, or in at least three of the immediately preceding five years, were grown by a Michigan farmer who owns or used the crop processing machinery.

Proposed MCL 21.142g (S.B. 953)
MCL 211.9 (S.B. 955)

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

Senate Bills 953 (S-1) and 955 (S-2) would provide for loans and tax incentives to farmers interested in building and operating methane digesters. Methane digesters 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 biogass produced by a methane digester may generate enough electricity to cover a farm's electrical needs or even be sold back to the 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. 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 nearly eliminates the bacteria and odor found in manure. Using the methane for energy eliminates an additional pollutant.

Although methane digesters have been in existence since the 1970s, no functioning digesters exist in the Michigan. This is due in part to the digester's expensive start-up costs. Senate Bill 953 (S-1) would enable the State to loan eligible farmers some or all of the money necessary to invest in a technology that is used successfully on large farming operations in other states and throughout Europe. Senate Bill 955 (S-2) would provide a small tax break to farmers with methane digesters, making their continued operation more economically possible.

Supporting Argument

While methane digesters generally only accept organic waste, a fledgling technology called "thermal depolymerization" (TDP) can accept mixed waste, including plastics, tires, and organic waste, and convert it into energy. In a TDP system, waste is cycled through various temperatures and pressures for varying times to produce gases (including methane), high quality oils, water, and minerals. Typically, TDP systems are not economically viable because they require more energy than they produce. One company, however, claims to have modified a TDP system so that its energy input to output ratio is financially feasible. Although no TDP systems operate in Michigan at this time, Senate Bill 955 (S-2) would provide a tax incentive to farmers or agricultural operators who may choose to invest in a technology with great promise for reducing solid waste while producing energy.

Supporting Argument

Senate Bill 953 (S-1) could result in the building of additional ethanol plants in Michigan. Despite the fact that Michigan is considered part of the Corn Belt, the State contains only one ethanol plant. Additional ethanol plants would provide a significant market for local corn and other starch crops, create jobs, provide a clean-burning, renewable transportation fuel to consumers, reduce pollution in the groundwater, and decrease the country's dependence on foreign oil.

Ethanol is likely the most well-known and longest-used type of biomass fuel. It is produced by fermenting and distilling starch crops, usually corn, that have been converted into simple sugars. Since the 1970s, ethanol has been used as a fuel extender when blended with petroleum to create what was once known as "gasohol". More recently, ethanol has been used to increase octane and improve the emissions quality of gasoline. Due to the Federal Clean Air Act, demand for ethanol has increased because of its ability to decrease carbon dioxide emissions in gasoline-burning cars. That Act mandated that areas with severe ozone pollution use reformulated gasoline, and that areas with high carbon monoxide pollution use oxygenated fuels during the winter months. The most commonly used additives for oxygenated and reformulated fuels are ethanol and Methyl Tertiary Butyl Ether (MTBE). The

latter, however, has been discovered to contaminate groundwater and has been banned in 12 states, including Michigan. This has led to the increased use of ethanol as an additive.

Most gas that consumers purchase at the pump contains a blend of 5% to 10% ethanol. Since the mid-1990s, auto manufacturers have produced vehicles capable of running on a blend of 85% ethanol and 15% petroleum (E85 fuel) or pure petroleum. These vehicles are known as flexible fuel vehicles (FFVs) and are more common than most realize. Further, under the Federal Energy Policy Act of 1992, state governments must acquire vehicles that run on alternative fuels; FFVs meet this requirement. Nevertheless, many consumers are not aware of their vehicle's ability to run on E85 fuel, and most state-owned FFVs operate on gasoline because of the lack of gas stations that sell E85 fuel (which number only three in Michigan). Expanding the number of ethanol plants in the State would encourage the expansion of the ethanol fueling infrastructure, thus increasing the use of ethanol as a transportation fuel.

Opposing Argument

Despite the promise of methane digesters, there is a reason why no functional methane digesters operate in Michigan. They are expensive to install and maintain, and most require at least 300 cows or 2,000 swine in order to become cost effective. Many 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 use State funding 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.

While methane digesters could help CAFOs 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 the greenhouse effect, they can increase the amount of ammonia emissions, another greenhouse gas. With or without methane digesters, CAFOs face the fundamental problem of disposing of vast amounts of manure on a limited land area.

Furthermore, the failure rate for methane digesters is poor, averaging about 50%, according to a 1998 study by the National Renewable Energy Laboratory. It would be irresponsible to provide State funding for technology with such a high failure rate. When and if surplus State funds are available, as Senate Bill 953 (S-1) would require before methane digester loans could be offered, those funds should be put toward providing loans for energy-efficient agricultural technology. Loans for this purpose would be lower risk and more readily available, and would provide a faster pay-back rate to the State.

Response: Methane digester technology is continually improving. Both bills would ensure that incentives were in place when and if digesters become more practical and cost-effective for the average farmer.

Legislative Analyst: Claire Layman

FISCAL IMPACT

Senate Bill 953 (S-1)

The bill would have a negative impact on the State's ability to earn higher returns on its cash investments, by authorizing the deposit of up to $25 million into financial institutions for up to 15 years. It is assumed that the State would have to accept below-market interest rates on its investments in order to encourage financial institutions to participate in the agricultural energy production loan program. The financial institutions then would be required (within 90 days of accepting the State investment) to make the funding available to eligible farmers as loans. The actual fiscal impact would be contingent on the term (number of years) of the investments made by the State with participating financial institutions, the interest rate received by the State on those investments, the total value of the loans made to farmers, and the interest rate that the State would receive on its cash reserves

in the absence of the loan program. Assuming that the entire $25 million would be deposited in financial institutions with equal repayments each year for 15 years, it is estimated that the State would realize lost interest earnings of $1.6 million over the 15-year investment period.

In addition, the Michigan Department of Treasury would experience increased administrative costs associated with the proposed loan program. These costs would have to be covered by existing appropriations available to the Department.

As a point of reference, the General Fund has realized negative interest earnings for eight of the last nine quarters, suggesting a need for the General Fund to borrow from other State funds to meet its cash flow requirements over this period. It is unknown at this time whether the State would have the $25 million in "surplus funds" available to invest in financial institutions, as the bill would allow.

Senate Bill 955 (S-2)

This 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. There could be a fiscal impact in future years if technological improvements make the operation of these systems more efficient and less costly in terms of start-up capital costs. While there is no way to make a reasonable estimate on future use of these systems at this time, the fiscal impact of this bill would probably remain very small for the next few years.

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