Ethanol Programs Bring Benefits, but Carry Notable Costs and Risks

SUMMARY

Minnesota has pursued a multifaceted strategy to promote the production and use of ethanol as an automotive fuel. Minnesota's level of effort exceeds that of other mid-western corn producing states (95 percent of ethanol is made from corn). According to our evaluation, the programs have largely succeeded, although they carry a significant price tag that includes not only the cost of public subsidies but higher consumer prices for gasoline.

Minnesota's programs include a producer payment, a tax credit, and subsidized loans to ethanol producers. Minnesota has also enacted a requirement to use oxygenated gasoline year-round in the Twin Cities area that becomes a statewide requirement this October.

Minnesota's ethanol industry has developed rapidly over the last decade. In fiscal year 1996, Minnesota's ethanol production was about 70 million gallons compared to 1 million gallons in 1987 when the producer payment began. Production is projected to exceed 90 million gallons in 1997. Minnesota now has eight ethanol plants, and additional plants are planned or under construction.

The producer payment of 20 cents a gallon cost the state $10.8 million in fiscal year 1996. Each ethanol company qualifies for up to $3 million per year on a maximum of 15 million gallons. Therefore, costs will continue to grow as the industry expands. Statewide, the program is capped at $30 million.

A highway tax credit of 5 cents per gallon of ethanol, called the blender's credit, is paid to gasoline distributors, but this credit is being phased out. In fiscal year 1994, the blender's credit totaled $24.6 million. In fiscal year 1995, the credits totaled $22.9 million and in fiscal year 1996, the amount was $13.7 million. This credit is scheduled to end in October 1997.

Based on an analysis of prices over several years, we estimate that oxygenated gasoline costs about 2 to 3 cents per gallon more than conventional gasoline. Currently, the 10 county Twin Cities area is required to use oxygenated fuel year round. We estimate these costs for fiscal year 1996 to be about $16.7 million. Starting in October 1997, this requirement will extend statewide. When the requirement is in effect statewide, we estimate the additional cost of the state's oxygenated fuel requirement (over the federal oxygenated fuel requirement) will be about $42 million per year to consumers.

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Key Findings

- Minnesota's programs to promote the production and use of ethanol as a motor fuel exceed the efforts of other states, and have been instrumental in establishing a sizable ethanol industry.
- The state's support of the ethanol industry has significant costs, but produces net economic benefits.
- It is not clear that the use of oxygenated gasoline can be linked to a significant reduction in atmospheric carbon monoxide.
- The future viability of ethanol production in Minnesota is at risk from the possibility of high corn prices and/or low ethanol prices in the future, the possible loss of state or federal subsidies, and competition from larger, more efficient producers.

For copies of either the full report or summary, call 612/296-4708.

We estimate that in fiscal year 1996, the cost of the three major programs together was about $41.2 million. Between 1997 and 1999, the annual cost of the three major programs together will be about $67 million per year.

Minnesota's ethanol programs have brought significant benefits to the communities in which the plants are located, and the benefits of the ethanol industry extend statewide.

We estimate the ethanol industry will generate a net economic benefits of between $109 and $260 million per year statewide at an annual production level of 99 million gallons. In addition, we estimate a one-time benefit of $174 to $261 million from plant construction.

Ethanol is one of two oxygenates commonly in use nationwide designed to lower carbon monoxide (CO) emissions from cars and reduce atmospheric levels of CO. The Twin Cities area is a federally designated CO "non-attainment" area and federal regulations require the use oxygenated fuel between October 1 and January 31 each year. According to the National Research Council, an arm of the National Academy of Sciences, oxygenated gasoline has little potential for reducing atmospheric carbon monoxide now that automobiles carry oxygen sensors and other emission control equipment.

While Minnesota's ethanol industry is growing, there are identifiable risks to future profitability that policy makers need to consider. Ethanol production may not be profitable at future prices for corn and ethanol. Over the last two years, there were nine months during which we estimate production was not profitable at prevailing prices, although the industry was profitable at average prices during this period. Nationally, ethanol production is concentrated in a few large companies. Minnesota producers face a challenge from larger, more efficient factories, and from plants that can produce a wider range of products than most Minnesota ethanol plants.

The ethanol industry depends on continuation of the federal ethanol subsidy of 54 cents per gallon. Without this subsidy, ethanol production would fall to near-zero in Minnesota and the nation. The scheduled phase-out of the producer payment needs to be considered also, because this will narrow the range of corn and ethanol prices at which profitable production can be sustained. Without the producer payment, we estimate that the typical Minnesota plant would have lost money in 17 months out of the 24 months ending October 1996.

The report does not contain specific recommendations, although it suggests that policy makers should examine both the benefits and costs of Minnesota's ethanol programs and the risks to future profitability for the industry.

Copies of the report, *Ethanol Programs*, may be obtained from the Office of the Legislative Auditor. A summary may be found on the World Wide Web at http://www.auditor.leg.state.mn.us/pe9704.htm. For further information, contact Elliot Long or Roger Brooks at the Office of the Legislative Auditor (612/296-4708).