



## **E85 and the Iowa Economy**

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The most widely used blend of ethanol is E10 (90 percent gasoline and 10 percent ethanol). However E85, a blend consisting of up to 85 percent ethanol, is becoming more popular as the number of Flexible Fuel Vehicles (FFV) and retail outlets for E85 increases. According to the Iowa DNR, the volume of E85 sold in Iowa totaled 668,595 gallons, a nearly four fold increase from 2004. By December 2005 26 gasoline stations offered E85 throughout Iowa compared to 11 in early 2004. The availability of E85 fuel for consumers is viewed as one of the major constraints for increasing use.

Iowa is considering a State program that would provide \$5 million annually for a nine-year period to help fund the installation of E85 pumps throughout the State. This incentive would supplement the Federal tax credit for improvement of alternative fuels infrastructure provided by the Energy Policy Act of 2005. Currently there are about 30 E85 gas stations in Iowa that sell an estimated 6,000 gallons of E85 fuel per month. The proposed Iowa E85 grant program would provide \$25,000 per station for 200 stations to upgrade to E85. This would create 1,800 new E85 fueling stations over the nine-year period. The Iowa grant will leverage the \$10,000 federal tax credit and estimated \$5,000 direct expenses associated with pump installation.

The Iowa grant program will have two impacts on the Iowa economy. First, the \$8 million is annual spending associated with upgrading E85 infrastructure for 200 stations per year will circulate throughout the entire State economy several fold. This spending will stimulate aggregate demand, support the creation of new jobs, generate additional household income, and provide tax revenue for government at all levels. Secondly, increased use of E85 that



contains 85 percent ethanol produced in Iowa will displace gasoline refined out of State. When Iowans buy gasoline, aside from State taxes, the only money that stays in Iowa is the dealer margin that represents distribution and marketing costs, and profit. According to the Energy Information Administration this margin averages 12 percent of the retail price, or at current prices about 27 cents per gallon. When Iowans use E85 containing Iowa ethanol is purchased, ethanol displaces 85 percent of gasoline refined out-of-state. Consequently, instead of only the margin, more than two-thirds of the retail price (State taxes, margin, value of ethanol) stays in Iowa. This money will directly support the Iowa corn and ethanol industry.

The impact of the biodiesel industry on the Iowa economy was estimated by applying the appropriate final demand multipliers for output, earnings, and employment calculated by the U.S. Bureau of Economic Analysis (BEA) to the estimates of spending described above. The \$8 million in spending for E85 infrastructure improvement will stimulate the Iowa economy, increasing GSP \$9.5 million (2005 dollars) annually. By the end of the program, Iowa's Gross State Product will be nearly \$85.5 million (2005 dollars) larger than it would have been without the grant program.

The expansion of E85 fueling stations and increased supply of Flex Fuel Vehicles (FFV) is expected to increase Iowa E85 use from 9.5 million in 2006 to 357.6 million gallons by 2015. Over the next 9 years (2007 to 2015) Iowans will spend an estimated \$3.4 billion (2005 dollars) on E85, of this nearly \$1.9 billion will remain in Iowa. This spending will increase Iowa GSP \$1.82 billion (2005 dollars) by 2015 and put almost \$725 million (2005 dollars) over the next nine years. Finally, the increased economic activity generated by using Iowa ethanol to blend E85 will add as many as 3,950 new jobs in all sectors of the Iowa economy by 2015.

The combination of economic activity from construction and E85 expenditures kept in State will generate additional tax revenue from corporate profits, income, and sales and use taxes. The full impact of the expenditures leveraged by the Iowa E85 grant is expected to generate \$12.5 million



(2005 dollars) in additional corporate income taxes; \$35.9 million in personal income taxes, and \$27.5 million in sales and use taxes for a total impact of \$75 million (2005 dollars) between 2007 and 2015, far in excess of the projected \$45 million cost.

### **E85 and Consumer Gasoline Prices**

Blending ethanol with gasoline has resulted in savings to consumers for motor fuel. While ethanol typically is generally priced above gasoline at market, the 51 cent per gallon Federal Volumetric Ethanol Excise Tax Credits (VEETC) reduces the cost of ethanol to the blender who makes finished gasoline containing ethanol. The existence of State tax subsidies such as the 1.7 cent per gallon exemption from Iowa motor fuel excise taxes for ethanol blends provides further relief for consumers. Legislation has been introduced that would provide gasoline containing 85 percent ethanol (E85) with a 10 cent per gallon excise tax credit through 2020.

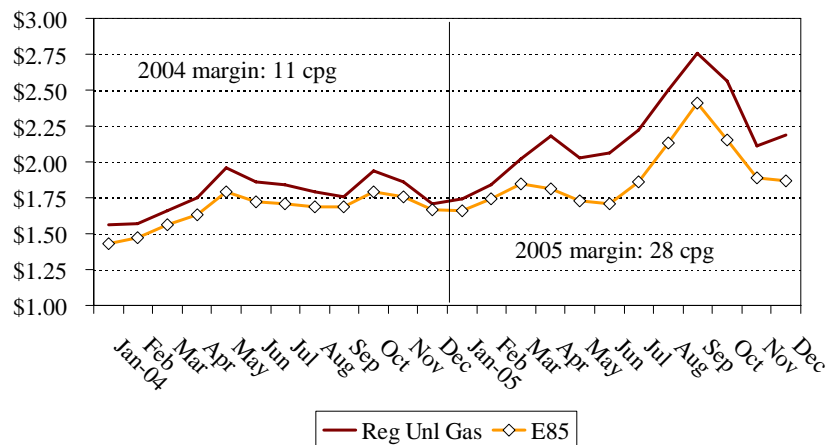
Increased use of E85 in Iowa will continue to save money for consumers. As shown in Figure 1, E85 was 11 cents per gallon less expensive at the pump than regular unleaded gasoline on a statewide basis in 2004 and 28 cents per gallon less expensive in 2005. The margin between gasoline and E85 widened in 2005 due to low ethanol prices early in the year. However, ethanol prices have increased substantially in recent months as demand has grown in anticipation of the May 2006 deadline for refiners to switch from blending MTBE to using ethanol in many areas of the country. While this increase is expected to be a short-term phenomenon as new ethanol production capacity comes on line, near-term ethanol prices are expected to remain relatively high. According to the Renewable Fuels Association 33 ethanol plants are under construction and eight existing plants are being expanded.<sup>1</sup> These plants will add more than two billion gallons of capacity over the next two years bringing total industry capacity to more than 6.4 billion gallons.<sup>2</sup>

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<sup>1</sup> Renewable Fuels Association. Data current as of March 3, 2006.  
<http://www.ethanolrfa.org/industry/locations/>

<sup>2</sup> By comparison, industry capacity at the end of 2004 was estimated at 3.7 billion gallons.

Figure 1  
Iowa Regular Unleaded Gasoline and E85 Prices

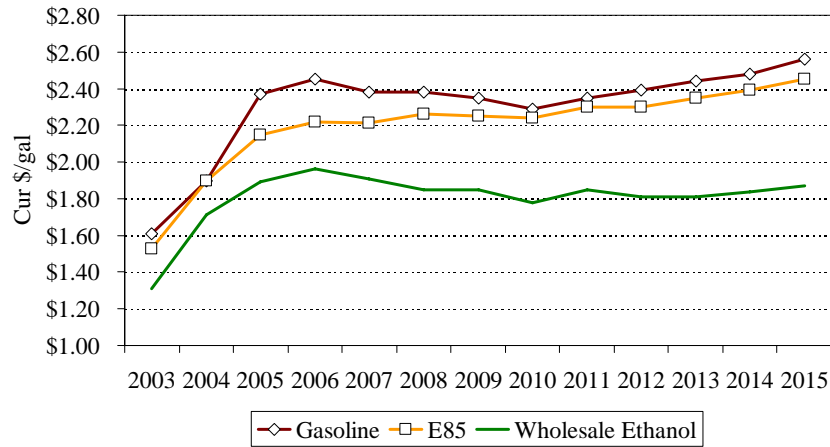


Source: Iowa DNR

Assuming that blenders and retailers pass along the proposed 10 cent per gallon State tax credit for E85, the savings for consumers who use E85 should average 20 to 25 cents per gallon. This margin is consistent with recent projections of nationwide average gasoline and E85 prices published by the EIA earlier this year. As shown in Figure 3, in its 2006 Annual Energy Outlook the EIA projects the average retail gasoline prices to average \$2.40 per gallon between 2007 and 2015 and the price of E85 to average \$2.30 per gallon.<sup>3</sup> When the Iowa tax credit is accounted for, the average margin between gasoline and E85 is about 20 cents per gallon.

<sup>3</sup> Energy Information Administration. Annual Energy Outlook 2006. Prices from Table 12 inflated using GDP deflator reported in Table 19. Gasoline price is a weighted average of all grades.

Figure 2  
Retail Gasoline and E85 Prices



Source: EIA AEO 2006, Table 12 inflated using GDP deflator from Table 19.

In an earlier study, we projected demand for E85 in Iowa under provisions of a proposal that would replace 25 percent of motor gasoline sold in Iowa with renewable fuels by 2015.<sup>4</sup> Under this proposal E85 use in Iowa would increase from 11.6 million gallons in 2007 to 357.6 million gallons in 2015. Assuming that E85 in Iowa is priced at between 20 to 25 cents per gallon below regular gasoline per gallon (consistent with the discussion above), Iowa consumers will save an average of \$38.8 to \$48.4 million annually between 2007 and 2015 compared to regular unleaded gasoline.

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<sup>4</sup> John M. Urbanchuk. Iowa Renewable Fuels: Expected Market Impact 2005-2015. December 29, 2005.