IOWA Department of REVENUE

Iowa's Biofuel Retailers' Tax Credits

Tax Credits Program Evaluation Study

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Preface

During the 2005 Legislative Session the Iowa Department of Revenue received an appropriation to establish the Tax Credits Tracking and Analysis Program to track tax credit awards and claims. In addition, the Department was directed to perform periodic evaluations of tax credit programs. The evaluation of the State's Biofuel Retailers' Tax Credits represents the third of these studies.

As part of the evaluation, an advisory committee was convened to provide input and advice on the study's scope and analysis. We wish to thank the members of the panel: Dr. Dan Otto of Iowa State University, Lihong Lu McPhail of Iowa State University, Monte Shaw of the Iowa Renewable Fuels Association, Dawn Carlson of the Petroleum Marketers and Convenience Stores of Iowa, Tim Johnson of the Iowa Farm Bureau Federation, Lane Palmer and Amy Johnson from the Iowa Department of Economic Development, and Dale Thede of the Iowa Department of Revenue. (The assistance of an advisory committee implies no responsibility on members for the final product.) The Department would also like to thank Dr. Chad Hart of Iowa State University for helpful comments on the economic analysis section of the study.

This study and other evaluations of Iowa tax credits can be found on the Tax Credits Tracking and Analysis Program web page on the Iowa Department of Revenue web site located at: **http://www.state.ia.us/tax/taxlaw/creditstudy.html.**

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Executive Summary

Iowa introduced the first biofuel retailers' tax credit in 2002 with the Ethanol Blended Gasoline Tax Credit (EBGC). The EBGC allows retailers to claim a refundable credit equal to 2.5 cents per gallon of ethanol-blended gasoline, or gasohol, sold in excess of 60 percent of total gasoline sales at each location. In 2006, two additional biofuel retailers' tax credits were added, the E85 Gasoline Promotion Tax Credit (E85GC) and the Biodiesel Blended Fuel Tax Credit (BBFC). The E85GC allows retailers of E85 to claim a credit of $0.25 for each gallon sold; the BBFC allows retailers where biodiesel comprises more than 50 percent of diesel sales to claim a $0.03 credit for each gallon of biodiesel sold. At the same time, the Ethanol Promotion Tax Credit (EPTC) was created to replace the EBGC beginning with the 2009 tax year. All three credits were established to help the State of Iowa meet a goal to replace 25 percent of all petroleum used in the formulation of gasoline sold within Iowa with biofuels by 2020.

The major findings of the study are these:

Tax Credits, Mandates, and Incentives for Biofuel Retailers Across the United States

- Eight states offer tax credits for retailers based on biofuel sales, although Iowa is only one of two states to include ethanol blends less than E85 as eligible for such tax credits and the only state to offer a refundable credit. The federal government does offer refundable tax credits for blenders of biofuels.

- Iowa currently offers the largest per gallon tax credit for E85 sales and is the only state to include sales of less than five percent biodiesel blends as eligible for a tax credit.

- Additional incentives offered by many states, including Iowa, are lower motor fuel tax rates on gasohol and grants to help fund biofuel infrastructure investments.

- Two of Iowa's neighbors, Minnesota and Missouri, mandate that all gasoline sales include ten percent ethanol instead of offering any retailer incentives.

Gasohol Sales in Iowa and Neighboring States

- The gasohol share of sales in most Midwestern states, including Iowa has risen over time to well above 50 percent. In Iowa, the rise in the gasohol share of sales matches the path of the growing price gap between gasoline and gasohol.

- In 2007, Iowa had the highest per capita gasohol consumption among Midwestern states, excluding Minnesota and Missouri, and the second highest gasohol share of sales. Iowa's gasohol share in calendar 2007 was 74 percent compared to 90 percent in Illinois and 65 percent in Nebraska.

Biofuel Retailers' Tax Credit Claims

- For tax year 2006, 1,749 retailers reported EBGC claims totaling $6.4 million on 252 million gallons of eligible gasohol. Those same retailers sold over 1.0 billion gallons of gasohol, thus the average credit per gallon of total gasohol sold was $0.006.

- Actual credits paid to taxpayers for tax year 2006 were $6.3 million, based on claims reported on the IA 148 Tax Credits Schedule, where the difference reflects a failure to file claims by

some shareholders in retailers organized as S-corporations, limited liability companies, and partnerships.

- For tax year 2006, retailers made E85GC claims on 2.1 million gallons of E85 sales, for a total of $535 thousand in credits, and BBFC claims on 86.5 million gallons of biodiesel blended fuel, for a total of $2.6 million in credits.

Evaluation of Biofuel Retailers' Tax Credit Incentives

- Retailers that offer both gasoline and gasohol face substantial uncertainty regarding the average credit per gallon of total gasohol sold they will receive under the EBGC, with a range from $0.0004 to $0.01 per gallon of gasohol, which makes it unlikely retailers would pass on any of the credit to consumers.

- Under the E85GC and the BBFC there is much less uncertainty regarding the per gallon credit; however, the time-value of money discourages retailers from passing on these credits to consumers, where for retailers making credit claims the average lag between the start of a tax year and receipt of the tax credit is 18 months.

Tallying and Explaining Retailers' Biofuel Sales in Iowa

- Respondents to the 2007 Retailers Motor Fuel Gallons Annual Report reported nearly 110 million gallons in pure ethanol sales and 17.5 million gallons of pure biodiesel which suggests the state's biofuel percentage was 9.2 percent in 2007.

- An analysis of the variation in gasohol demand across Iowa counties suggests that the presence of an interstate through a county lowers the gasohol share of sales while the share of retailers selling only gasohol increases the gasohol share of sales. Counties with a higher concentration of total gasoline sales at large retailers also have a higher gasohol share on average. The share of stations within a county claiming the EBGC did not have a significant impact on the share of gasohol sales.

The Future of Biofuel Retailers' Tax Credits in Iowa

- A forecast of retail sales in 2009 was used to estimate tax credit claims under the expired EBGC and the new EPTC. Estimated tax year 2009 total claims under the EPTC are $6.7 million compared to $10.3 million under the EBGC, although many gasohol retailers who also sell E85 and biodiesel will receive a higher credit under the EPTC.

- An historic tally and forecast of all biofuel retailers' tax credits over the 2001 through 2020 period suggests the State may see over $142 million in total claims. Actual claims through tax year 2006 have totaled $29.5 million, while forty percent of the total forecasted claims will be paid under the new EPTC, reflecting the steady phase-down of the E85GC and the expiration of the BBFC in tax year 2012. The highest estimated claims in any one tax year are $15.0 million expected for tax year 2008, which will be processed during fiscal years 2009 and 2010.

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Comments from the Biofuel Tax Credits Evaluation Study Advisory Committee Meeting
Friday, January 23, 2009, 2:00-4:00 pm

The following is a discussion of several issues raised regarding the final draft of the Iowa Biofuel Retailers' Tax Credits Evaluation Study by advisory committee members. These comments have been approved by the committee as a fair representation of issues that were discussed during the meeting. *The comments were amended February 13, 2009 to reflect additional feedback from committee members.*

Several members of the committee offered additional insight into the potential impact of the introduction of the Ethanol Blended Gasoline Tax Credit (EBGC) on retailers in Iowa. Based on institutional knowledge, they noted that prior to the credit's enactment in 2002 many retailers did not favor ethanol blends, and often disregarded differences in wholesale prices for those ethanol blends in pricing decisions. Because adding ethanol increases the octane-rating of gasoline, retailers often would price the ethanol blended gasoline, or gasohol, at a premium even though the wholesale cost of the blend was below the wholesale price of the lower-octane gasoline. With the credit, retailers had an incentive to rethink how they priced ethanol blended gasoline, particularly the large retailers who calculated the potential for a $0.025 credit on gasohol sales above 60 percent to add up to large income tax credit claims. As one or two large retailers moved to pricing gasohol based on the lower wholesale price, they created a two cent or greater price gap between the higher-octane gasohol and the lower-octane gasoline, which through competition encouraged other retailers to move in the same direction. Thus retailers were not necessarily passing on the credit to consumers through lower prices, but the credit did encourage a change in retailers' mindset as to how to price gasohol relative to gasoline.

However, one member noted that it cannot be assumed that the wholesale price of ethanol is or has been customarily lower than the wholesale price of regular gasoline. The relative prices are driven in large part by changing federal incentives. When it is the case that wholesale gasoline prices are lower than wholesale ethanol prices, petroleum retailers can choose to change retail prices accordingly or continue to price ethanol attractively to encourage demand for the product.

Another point that the members raised was based on the logistics of retail sales. A shift in marketing strategies toward favoring ethanol blends and the rising price gap encouraged consumers to increase demand for ethanol blends relative to the higher-priced gasoline. As a response, retailers moved their ethanol blend into the larger tanks at stations in anticipation of the higher relative demand for that fuel. Thus even if the wholesale price gap between gasohol and gasoline experiences a temporary decrease, those retailers have an incentive to maintain the gasohol retail price gap in order to maintain the expected demand between the fuel types given the logistical difficulties that would result if consumers quickly shifted demand toward gasoline.

These committee members suggested that the introduction of the EBGC did play a role in changing the mindset of retailers in a positive direction toward the sales of gasohol. Without such a change, it is hard to predict what the gasohol share in Iowa would be today, although it likely would be lower. Unfortunately, without retail-level pricing data over the time of the credit's enactment it is impossible for statistical techniques to measure the magnitude of this mindset change on prices and resulting gasohol demand in Iowa.

I. Introduction

Iowa has been in the forefront of ethanol production and consumption for many years. With an abundance of corn and farmers eager to increase its demand and value, ethanol has been a logical value-added product for the state. Biodiesel, with soybean oil as one potential feedstock, has likewise been a valued addition to the Iowa economy. Although produced and sold by private companies, biofuels have received public support through various avenues. The State has charged a lower motor fuel excise tax per gallon of ethanol-blended fuel since the 1990s. In 2001, an income tax credit was enacted for retailers selling gasohol, gasoline mixed with a minimum of ten percent ethanol, when the biofuel comprised at least 60 percent of gasoline sales. Since at least 2003, the State of Iowa and many local governments have offered various tax credits, tax abatements, and other support for ethanol producers locating and expanding in the state.[1] In 2006, the State established a goal that biofuels would replace 25 percent of all petroleum used in the formulation of gasoline sold within Iowa by January 1, 2020.[2] In an attempt to meet that goal, three additional biofuel retailers' tax credits were established.

This study is an evaluation of Iowa's three biofuel retailers' tax credits in effect through tax year 2008 and a peek ahead at the new credit that replaced one of the existing credits in tax year 2009. One purpose of this evaluation study is to ask the questions, have the tax credits accomplished what they were intended to, raise biofuel consumption in Iowa, and going forward, are the tax credits still needed?

The study describes the credits in Iowa, discusses public support for biofuel retailers across the country, reviews the related literature, raises motivations for public support of biofuel sales, and compares biofuel sales across the Midwest. The analysis then turns to the tax credits claim data, presenting details on the characteristics of claimants and the dollars the State has spent in support of biofuel sales since 2002. Retail data from the first Retailers Annual Motor Fuel Report are tallied and used to analyze the variation in gasohol demand across the state. Finally, expected changes in incentives and claims from the 2009 credit change are presented along with forecasts for future biofuel retailers' tax credit claims including an estimate of how the state will progress toward achieving the state's biofuel usage goal.

II. Iowa Retailers Tax Credits for Biofuels

In tax year 2008, the Iowa income tax included three tax credits for retailers who sell biofuels in Iowa including the Ethanol Blended Gasoline Tax Credit (EBGC), the E85 Gasoline Promotion Tax Credit (E85GC), and the Biodiesel Blended Fuel Tax Credit (BBFC). In 2009, the EBGC expired and was replaced by the Ethanol Promotion Tax Credit (EPTC). The latter three credits were passed during the 2006 Legislative session in support of the goal that biofuels replace 25 percent of all petroleum used in the formulation of gasoline within the state by 2020.

All four credits are refundable and automatic, that is any retailer that meets the sales requirement is eligible to make a claim. In addition to being refundable, eligible taxpayers can choose to carry forward any unused credit amount to the following tax year. The credits can be claimed against the corporate income tax or the individual income tax. Businesses that are organized as partnerships, S-corporations, limited liability companies (LLC), estates, or trusts must allocate the credit to the individual owners in the ratio of each owner's share of the entity's total earnings. Additional details about each of the four credits are presented below.

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[1] The Iowa Department of Revenue (IDR) is currently completing an evaluation study on the tax incentive programs offered to biofuel producers in Iowa. It will be released in the early part of 2009.

[2] House File 2754, GA 81, was signed by Governor Tom Vilsack on May 30, 2006.

A. Ethanol Blended Gasoline Tax Credit
For tax years 2002 through 2008, motor fuel retailers reporting more than 60 percent of total gasoline sales as ethanol-blended gasoline, including gasohol and E85, could claim the Ethanol Blended Gasoline Tax Credit (EBGC). The credit equaled two and a half cents ($0.025) for each gallon of ethanol blended gasoline sold in excess of 60 percent of total gasoline sales. In the case of companies with more than one retail location, the credit requirements applied separately to each retail motor fuel site. Taxpayers making EBGC claims must file Iowa tax form IA 6478, and starting with Tax Year 2006, Iowa tax form IA 148 (see Appendix A for examples of these tax forms).

The EBGC was replaced with the EPTC in tax year 2009. A retailer whose tax year ends prior to December 31, 2008 can continue to claim the tax credit in the following tax year for any ethanol-blended gasoline sold through December 31, 2008. A retailer could claim the EBGC even if the dealer claims an E85GC for the same tax year for the same ethanol-blended gallons sold.

B. E85 Gasoline Promotion Tax Credit
Starting with tax year 2006, retail dealers of motor fuel that sell E85 gasoline can claim the E85 Gasoline Promotion Tax Credit (E85GC). E85 is a blend of gasoline that contains between 70 and 85 percent ethanol. The tax credit rate is $0.25 for each gallon sold during calendar years 2006 through 2008. The credit rate declines between 2009 and 2020 and is completely phased out in 2021 (see Table 1). A retailer whose tax year ends prior to December 31, 2020 can continue to claim the tax credit in the following tax year for any E85 sold through December 31, 2020.

A retailer can claim the E85GC even if the dealer claims an EBGC for the same tax year for the same E85 gallons sold, or starting after January 1, 2009, even if the dealer claims an EPTC for the same tax year for the same E85 gallons sold. This overlap on credit claims is explicitly acknowledged in the legislation creating the credit. Taxpayers making E85GC claims must file Iowa tax form IA 135 and the IA 148 (see Appendix A).

C. Biodiesel Blended Fuel Tax Credit
Starting with tax year 2006, retail dealers of motor fuel that sell biodiesel blended fuel can claim the Biodiesel Blended Fuel Tax Credit (BBFC). To be eligible, at least 50 percent of total diesel gallons sold must be biodiesel blended fuel, where the fuel must be formulated with a minimum of two percent biodiesel by volume. The tax credit is $0.03 for each gallon sold during calendar years 2006 through 2011. The credit expires on January 1, 2012. A retailer whose tax year ends prior to December 31, 2011 can continue to claim the tax credit in the following tax year for any biodiesel blended fuel sold through December 31, 2011.

At initial enactment, companies with multiple retail locations were required to meet the 50 percent sales threshold based on total diesel and biodiesel gallons sold at all locations. An amendment passed during the 2008 Legislative session designated that the credit should be calculated separately for each retail location. Therefore, for tax years 2009 and later, the 50 percent biodiesel sales requirement for credit eligibility will apply separately at each location. Taxpayers making BBFC claims must file Iowa tax form IA 8864 and the IA 148 (see Appendix A).

D. Ethanol Promotion Tax Credit
Starting with tax year 2009, the Ethanol Promotion Tax Credit (EPTC) replaced the EBGC for retail dealers of motor fuel that sell ethanol blended gasoline. Eligibility for the credit requires the attainment of a threshold of biofuel sales which differs depending on the gallons of motor fuel sold by the retail dealer during the year (see Table 2). At the lowest threshold, retail dealers are eligible for a $0.025 credit for each gallon of pure ethanol sold, where a ten gallon sale of gasohol equals a one gallon sale of pure ethanol. Retail dealers with a biofuel percentage between the highest threshold and the middle threshold are eligible for a $0.045 cent credit per gallon of pure ethanol sold, while

retail dealers meeting or exceeding the highest threshold percentage are eligible for a $0.065 cent credit. The biofuel percentage is computed by summing the pure ethanol and pure biodiesel gallons sold and dividing by the total gallons of gasoline (not including diesel) sold during the calendar year. A retailer can claim the EPTC even if the dealer claims an E85GC for the same tax year for the same E85 gallons sold. In the case of companies with more than one retail location, the designation as a large or small retailer, the biofuel percentage calculation, and the resulting credit rate are based on the combined sales at all retail locations; however, a credit claim is computed separately for each retail motor fuel site based on pure ethanol sales at that location.

Taxpayers making EPTC claims are required to file Iowa tax form IA 137 and the IA 148 (see Appendix A). The EPTC is available from tax year 2009 through tax year 2020.

III. Tax Credits, Mandates, and Incentives for Biofuel Retailers Across the United States

Along with Iowa, seven other states offer tax credits for retailers based on the amount of biofuels sold through their facilities (see Table 3). The federal government and twelve states have a mandate or explicit goal for biofuel usage in the near future. Twelve states, not including Iowa, and the federal government currently offer tax credits for retailers based on investment made in the infrastructure necessary to sell biofuels. Additionally, fifteen states, including Iowa, offer some other type of incentive, such as a grant or tax deduction, for investment in biofuel retail infrastructure. Thirteen states offer a tax deduction or excise tax exemption for sales of biofuels. These incentives for biofuel retailers are briefly discussed below.

A. Retailer Investment Tax Credits

The federal government offers tax credits for investment in the infrastructure required for the sale of biofuels. The Alternative Fuel Infrastructure Tax Credit was passed as part of the Energy Policy Act of 2005, offering a 30 percent income tax credit up to $30,000 for businesses making purchases of alternative refueling property (see Table 4). Alternative fuels that qualify include E85 and biodiesel mixtures of B20 or higher. Individuals who purchase residential refueling equipment can receive a tax credit for $1,000. These credits expire at the end of tax year 2009.

Twelve states offer some type of tax credit for investment in biofuel infrastructure by retailers; three additional states had credits that recently expired. State tax credits for biofuel infrastructure investment range from six percent (Idaho) to 75 percent (Florida) of the cost of construction or equipment for alternative fuel filling stations (see Table 4). Florida's credit has a $6.5 million statewide cap while Oregon limits its 25 percent credit to $750 per fueling station. All of these credits are non-refundable with carry forward periods ranging from three to 100 years. Neither Iowa nor any of its immediate neighbors offer such tax credits.

B. Retailer Sales Tax Credits

While the biofuel sales tax credits in Iowa are claimed by the retailers, the federal government offers tax credits to biofuel blenders to encourage the use of biofuels (see Table 5). Although these credits do not directly benefit retailers, they are included here because the credits lower the cost of biofuels, and thus likely influence the price at which retailers sell biofuels. Between tax years 2005 and 2008, the federal tax credit program, called the Volumetric Ethanol Excise Tax Credit (VEETC), awarded $0.51 per pure gallon of ethanol or $0.0051 per percentage point of ethanol blended with gasoline. As part of the 2008 farm bill, VEETC was lowered to $0.45 per pure gallon starting in tax year 2009, as long as at least 7.5 million gallons of ethanol is produced nationwide. The federal credit is set to expire at the end of 2010. The federal government offers diesel blenders the Volumetric Biodiesel Excise Tax Credit (VBETC) equal to $1.00 per pure gallon of biodiesel, or $0.01 per percentage point

of biodiesel used. The VBETC is set to expire at the end of 2009. These federal credits are refundable.

Eight states have established tax credit programs for ethanol sales (see Table 5). Iowa offers the only refundable credits to retailers for biofuel sales. Only Iowa and Oklahoma offer a credit for ethanol blends less than E85. Iowa's $0.025 per gallon Ethanol Blended Gasoline Tax Credit exceeds Oklahoma's $0.016 credit per gallon, which is administered through the motor fuel tax. Oklahoma explicitly requires retailers to pass the entire credit onto consumers, but does not have any threshold of sales to be eligible for the credit. For eligible retailers selling E85, Iowa's E85GC $0.25 credit rate through tax year 2008 and $0.20 credit rate in tax year 2009 is the highest currently offered. Indiana has the second highest credit rate of $0.18 per gallon for E85, with a cap of $1 million for all retailers over the programs' 13 year life. In Ohio, the state offered $0.15 per gallon of E85 in 2008, which dropped to $0.13 per gallon in 2009. Among Iowa's neighbor states, South Dakota is the only other state with a tax credit for ethanol, although like the federal credit, it is claimed by blenders rather than retailers. The South Dakota credit applies to the motor fuel tax because South Dakota has no income tax. However, the credit equals the amount that the tax rate for gasoline, $0.22 per gallon, exceeds the tax rate for E85, $0.10 per gallon, and is more like a rebate of excess taxes paid than a tax credit.

For eligible biodiesel retailers, Iowa's $0.03 per gallon is also higher than most other states, where Iowa only requires a two percent biodiesel blend to qualify. In Ohio, the state offers $0.15 per gallon in 2008 and $0.13 per gallon in 2009 but the blend must be at least 20 percent biodiesel. In North Dakota, the rate is $0.05 per gallon but the blend must be at least five percent biodiesel. New Mexico and South Carolina administer their biodiesel credits through the motor fuel tax system rather than through the income tax system as in Iowa. None of Iowa's immediate neighbors have similar tax credits for sales of biodiesel, although Illinois does offer a sales tax reduction for biofuels which will be discussed in the next section.

The federal government estimates the cost of its alcohol fuel tax credits as $40 to $50 million dollars per year in reduced individual and corporate income tax revenues for fiscal years 2008 through 2010 (OMB, 2008). In addition, it is estimated the federal alcohol fuel credits will reduce federal excise tax collections by $5.1 billion in 2009. The federal biodiesel tax credit is estimated to reduce federal income tax revenues by $30 million in 2009, a drop from the $200 million estimated cost in fiscal year 2008. A presentation of historic tax year revenue reductions due to the credits and a forecast of future claims for Iowa's credits will be discussed in Section X. Tax expenditure estimates for these biofuel retailers' tax credits from other states are not available.

C. Mandates and Other Incentive Programs

The federal Energy Independence and Security Act of 2007, signed into law on December 19, 2007, increased and extended the previous renewable fuels standard (RFS) minimum annual goal for renewable fuel use from 5.4 billion gallons to 9.0 billion gallons in 2008 and 36 billion by 2022. Starting in 2016 all of the fuel increases in the RFS target must be met by advanced biofuels, defined as fuels derived from a feedstock other than corn starch.

Seven states have existing mandates for biofuel sales, although only four of those mandates are effective (see Table 6). The mandates in the other three states (Louisiana, Montana, and Washington) only become effective once the state meets a specified biofuel production level. Since 2003, Minnesota has required that all gasoline offered for sale in the state contain at least ten percent ethanol by volume. In addition, all diesel fuel sold or offered for sale in Minnesota for use in internal combustion engines must contain at least two percent biodiesel fuel by volume, rising to five percent blends in May 2009. Beginning in 2006, Hawaii required that at least 85 percent of unleaded gasoline must be gasohol. Starting in 2008, Missouri required all gasoline sales to be gasohol. Oregon enacted its ethanol mandate during 2008, but it is not clear whether the biodiesel mandate has yet to

be enforced. Many other states have requirements that state vehicles use alternative fuels; those mandates were not included in Table 6. In addition, four states, including Iowa, have specified goals for the consumption of biofuels. Only Arkansas's goal deadline has passed, and it appears to have been met.

Fifteen states offer other incentive programs established to encourage investment in alternative fuel filling stations (see middle column of Table 6). Iowa has the Renewable Fuel Infrastructure Program, through the Iowa Department of Economic Development, that provides cost sharing for retailers or terminals that install, replace, or convert motor fuel storage or dispensing infrastructure to expand consumer access to E85 or biodiesel (IDED, 2008). As of December 2008, over $6.3 million of the $13 million in funds available have been allocated to 222 fueling locations. Illinois provides up to 50 percent of the cost of converting an existing fuel station to dispense E85 or up to 30 percent of the cost of constructing a new station. Minnesota also has grants to support retail conversion to E85, while Nebraska offers low-cost loans.

Thirteen states and the federal government offer additional incentives to encourage the sales of biofuels. The federal motor fuel tax on gasohol is $0.133 per gallon compared to $0.184 per gallon for gasoline. Effective fiscal year 2009, the motor fuel excise tax in Iowa for gasohol and E85 is $0.02 per gallon lower than the rate on gasoline. The gasohol/gasoline excise tax gap changes each fiscal year based on the gasohol share of fuel distributions for the prior calendar year as reported by the Iowa Department of Revenue (IDR).[3] Similarly, South Dakota's excise tax is $0.02 per gallon lower for gasohol and Idaho's is $0.025 lower. As noted above, South Dakota's excise tax for E85 is $0.12 lower. Hawaii exempts gasohol from the motor fuel sales tax. Illinois reduces the 6.25 percent sales tax on gasohol by twenty percent, which reduces the final per gallon cost of gasohol by $0.025 when prices are $2.00 per gallon, and completely exempts E85 and diesel blends with at least ten percent biodiesel from the sales tax, which reduces the final per gallon cost of E85 or B11 and greater blends by $0.125 when prices are $2.00 per gallon. Oregon offers an income tax credit directly to consumers of E85 and B99.

[3] IDR administrative rule 63.2(2) states that the rate of the excise tax shall be based on the number of gallons of ethanol blended gasoline that is distributed in this state as expressed as a percentage of the number of total gallons of motor fuel distributed in this state. The number of gallons of ethanol blended gasoline and motor fuel distributed in this state shall be based on the total taxable gallons of ethanol blended gasoline and motor fuel as shown on the fuel tax monthly reports issued by the department for January through December for each determination period. The rate for the excise tax shall apply for the period beginning July 1 and ending June 30 following the end of the determination period. The rate for the excise tax shall be as follows:

Ethanol-Blended Percentage	Gasohol Tax in Cents	Gasoline Tax in Cents
0 – 50%	19.0	20.0
50.1 – 55%	19.0	20.1
55.1 – 60%	19.0	20.3
60.1 – 65%	19.0	20.5
65.1 – 70%	19.0	20.7
70.1 – 75%	19.0	21.0
75.1 – 80%	19.3	20.8
80.1 – 85%	19.5	20.7
85.1 – 90%	19.7	20.4
90.1 – 95%	19.9	20.1
95.1 – 100%	20.0	20.0

Except as otherwise provided in this subrule, after June 30, 2012, an excise tax of 20 cents is imposed on each gallon of motor fuel.

IV. Literature Review

Little research has been done to measure the effectiveness of state tax credits, in particular, tax credits related to biofuel retailers. Some analysis is available on the impact of biofuels on the pricing of motor fuels. Additional research has estimated the price elasticity of gasoline taking advantage of temporary sales tax reductions on gasoline or has considered the impact of unit taxation on demand for different qualities of motor fuel.

The Energy Information Administration (2008a) estimated that for the average gallon of regular gasoline purchased in 2007 in the U.S., 58 percent of the price reflected the cost of crude oil, 17 percent reflected refining costs and profits, 10 percent covered distribution, marketing, retailer costs, and retailer profits, and the final 15 percent covered federal and state taxes. Similar breakdowns for biofuels are not available, in most part because the sale of a pure biofuel is rare. The major costs of ethanol include the feedstock, mostly corn, and the cost of operating the ethanol production facility. In 2002, corn feedstock made up nearly 57 percent of the total production cost of ethanol (EIA, 2007). Distribution, marketing, and retailer costs should be equivalent as they would be incurred after the blending of ethanol into gasoline. Because the existing federal blender's credit exceeds the sum of Iowa and federal motor fuel taxes, net taxes on a gallon of pure ethanol in Iowa are actually a subsidy. If feedstock and production costs of ethanol in conjunction with the government subsidy are lower than the crude oil and refining costs of gasoline, the act of blending ethanol with gasoline should reduce its per gallon cost.

Du and Hayes (2008) attempted to measure the impact of ethanol on motor fuel prices. The authors estimated that the growth in ethanol production over the last decade has lowered retail gasoline prices between $0.29 and $0.40 per gallon, with the Midwest region seeing the biggest estimated benefit with an average $0.39 per gallon price reduction. Urbanchuk (2008) used gasoline prices posted by refiners, or rack prices, and producers' prices for ethanol to estimate per gallon savings in South Dakota. He estimated that drivers choosing gasohol saved $0.11 per gallon during 2007 and the first part of 2008.

The goal of this study is to consider the impact of retailers biofuels tax credits on ethanol and biodiesel supply and demand. Other literature has focused on the role of taxes in gasoline markets. Doyle and Samphantharak (2008) present a thorough analysis of the effects of Illinois' and Indiana's moratoriums on the state sales tax charged on gasoline. The states, two of seven that charge sales tax on gasoline purchases, temporarily suspended the collection of gasoline sales taxes in response to high prices during 2000.[4] The authors estimated that 70 percent of the sales tax reduction was passed on to consumers while prices reflected 80 to 100 percent of the sales tax increase when the tax was reinstated. These estimates reflect a fairly inelastic short-run demand and short-run supply for gasoline given that the tax reductions were for six months, at most. These estimates may not be applicable for the case of possible price changes induced by tax credits that will be in effect for several years.

Nesbit (2007) estimated the impact of uniform gasoline excise tax rates on demand for different types of fuel. He showed that the market share of premium-grade gasoline increases in response to unit taxation because the unit tax makes the higher quality gasoline relatively cheaper than the lower quality gasoline. Under a tax credit for only one type of gasoline supplied by retailers, the different grades of fuel are no longer subject to effective uniform taxation. However, Nesbit's results suggest that a tax credit should induce consumers to increase demand for the subsidized fuel, especially given

[4] The seven states that apply the state sales tax rate to gasoline purchases are California, Georgia, Hawaii, Illinois, Indiana, Michigan, and New York.

that gasohol has a higher octane blend than regular unleaded gasoline and thus is considered of higher quality.

V. Motivation for Public Support of Biofuel Sales

There are numerous motivations behind public support of biofuels. At the retail level, state governments in the Midwest support consumption of biofuels because they are value-added products for farmers and are produced locally. The Iowa Corn Web site notes that "a healthy demand for ethanol could add up to 25-50 cents to the value of every bushel of corn grown" (2008). Public support for the sale of biofuels may be necessary to push retailers to make investments in the equipment necessary to sell those fuels and to create economies of scale for biofuel retailers. EIA estimates that the cost of retrofitting an existing fuel pump to dispense E85 ranges from $22,000 to $80,000 in 2005 dollars (EIA, 2007). Public support for E85 infrastructure is an attempt to create a supply of the biofuel to encourage a growth in demand through increased purchases of flexible fuel vehicles (FFVs), those vehicles capable of using E85.

Public support for biofuel sales may also be an attempt to induce changes in consumer preferences and habits that will lead to increased demand well into the future, helping the State of Iowa reach its goal of 25 percent renewable fuel consumption by 2020. Some consumers may believe that gasohol could hurt their cars, even though gasohol is approved for use in all car and light trucks built for the U.S. market since the late 1970's (EIA, 2007). One article quotes a consumer complaining that using gasoline with ten percent ethanol "makes my 2001 Chevy truck limp along … leading eventually to a high-priced mechanic," (WSJ, 2008).

An additional reason consumers may need a price incentive to purchase biofuels is that the fuels have been shown to have a lower energy content than conventional fossil fuels. Gasohol has an estimated 3.3 percent less energy content per gallon than gasoline, while E85 has an estimated 24.7 percent less energy content, based on an assumed average blend of 74 percent ethanol (EIA, 2007).[5] This means that 1.03 gallons of gasohol or 1.33 gallons of E85 are needed for a vehicle to travel the same distance as using one gallon of conventional gasoline. Similarly, biodiesel has lower energy content than conventional diesel, although the energy loss is not as large as for ethanol. Given the lower energy content, the price of gasohol, E85, or biodiesel must be lower to offer a competitive value for the consumer. The Des Moines Register Web site contains an "ethanol calculator" that provides a competitive, energy equivalent price for gasohol and E85 based on the price of conventional gasoline and a "biodiesel calculator" that provides a competitive, energy equivalent price for B20 and B100 biodiesel blends based on the price of conventional diesel (DMR, 2009a and 2009b). For example, if gasoline is selling for $2.00 per gallon, the site reports gasohol should be $1.93 or less per gallon while E85 should be $1.42 or less per gallon. However, the latter calculation assumes a 29 percent lower energy content for E85, a greater reduction than that estimated by the EIA even assuming an average blend of 85 percent ethanol. Using EIA numbers for energy content and the IDR assumption of 79 percent average blend, the E85 energy equivalent price for $2.00 gasoline is $1.47 per gallon. If diesel is selling for $2 per gallon, the Web site reports B20 should be $1.97 or less and B100 should be $1.83 or less. The Iowa biofuel retailers' tax credits in effect during tax year 2008, $0.025 per gallon of gasohol and $0.25 per gallon of E85, were only able to cover a portion of this lower energy content price gap if gasoline was selling for $2 per gallon. However, the $0.03 credit per gallon of biodiesel was just sufficient under this scenario, for any blend of 20 percent biodiesel or less.

[5] Because ethanol can react differently that gasoline in cold weather, the share of ethanol included in E85 blends is reduced during the winter to around 70 percent. Thus the annual average blend of E85 is below 85 percent; IDR assumes an average annual ethanol blend of 79 percent.

VI. Gasohol Sales in Iowa and Neighboring States

The amount of gasohol sold in a State could be influenced by the various tax credits, incentives, and mandates discussed above. In order to compare Iowa's gasohol sales with sales in neighboring states, monthly data for gasoline and gasohol sales as far back as January 1999 were collected for Iowa, Illinois, Indiana, Kansas, Nebraska, North Dakota, South Dakota, and Wisconsin.[6] Annual sales data were available for Minnesota.[7] The data were made available by the department responsible for collecting the motor fuel taxes for the state either on their Web site or through e-mail contact.[8]

The data on gasoline and gasohol sales are collected by state agencies from motor fuel tax returns and do not reflect actual purchases by consumers. States apply motor fuel taxes at different levels in the distribution chain. Iowa, as well as Wisconsin, Missouri, and South Dakota, levy the motor fuel tax at the level of the terminal, a business that stores and distributes motor fuel to distributors and retailers. Thus, for Iowa, gallons reported reflect the taxable distributions of motor fuel made during the previous month by fuel suppliers via the roughly 20 terminals located in the state (plus some out-of-state terminals close to the border). Other states such as Illinois, Kansas, and Nebraska, levy the motor fuel tax at the distributor level, those buying the fuel from suppliers via the terminals, which increases the number of taxpayers and motor fuel tax returns.

For Iowa, and likely most other states, monthly tallies include distributions made through the terminals by suppliers and reported on the suppliers' monthly tax returns, as well as any amended returns, changes due to audits, and distributions reported by late or early filers received by IDR during the month. Although those latter information sources most likely include distributions that occurred in previous months, or in some cases years, the distributions are reported in the month in which the tax payment was received. This can lead to numbers that do not accurately reflect activity at the pumps and that are quite volatile across months.

The Iowa monthly fuel tax reports include the number of gallons of gasoline, gasohol, E85, and diesel for which motor fuel tax was remitted in the current month, reflecting, for the most part, gallons shipped in the previous month by fuel suppliers. Because the gallons reported are those distributed by suppliers, there are two cases which cause the gallons of gasoline reported to exceed the amount actually consumed in the state. First, suppliers distribute gasoline, taxed at the higher gasoline tax rate, to blenders who then blend it with ethanol to create gasohol. These blenders can apply for a refund of the excess motor fuel tax paid on those gallons of gasoline, where the excess reflects the per gallon difference in the gasoline versus gasohol motor fuel tax rates. As gasohol consumption in the state has increased, the refunds for excess tax paid on gasoline blended into gasohol increased from $290 thousand in 2002 to $920 thousand in 2007. Second, ethanol producers purchase gasoline to denature the pure ethanol they produce in order to make it non-potable. These producers can apply for a full refund of the gasoline motor fuel tax because the gasoline was used to create denatured ethanol that will be taxed at a later point. As the amount of ethanol production in Iowa increased over the past few years, the amount of denatured ethanol refunds rose from $4 million in 2002 to over $11 million in 2007 (IDR, "Iowa Motor Fuel Tax Monthly Reports").

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[6] Missouri does not collect separate data on gasohol and gasoline sales, its ethanol mandate did not become effective until 2008.

[7] Minnesota does not publish monthly totals nor splits between gasohol and gasoline, although the mandate that all gasoline sales contain at least ten percent ethanol went into effect during 2003.

[8] Web site references for data are available for the states of Illinois, Iowa, Kansas, Minnesota, and Nebraska. The remainder of the data was received through e-mail contact. The Iowa Department of Revenue would like to thank those individuals from Indiana, North Dakota, South Dakota, and Wisconsin for sharing the data. Illinois historical numbers not available on the Web were also received through e-mail contact.

If reported taxable gasoline gallons are too high, then the estimated gasohol share of fuel consumption in the state will be understated. Adjusting gasohol shares to account for the overstated gasoline numbers raises the average monthly gasohol share by almost five percent. However, because IDR relies on the unadjusted numbers to set motor fuel tax rates and because potential equivalent adjustments for other state data are not available, unadjusted total taxable gallons are used for the remaining analysis.

From 1999 through 2001, suppliers in Iowa reported roughly equal distributions of taxable gasoline and gasohol gallons (see Figure 1). Since mid-2002, taxable gasohol gallons have significantly exceeded gasoline gallons in all but one month, August 2006. This reflects a shift in relative price that will be discussed further below. Recall that the Ethanol Blended Gasoline Tax Credit was introduced January 2002. However, as will be seen below, many other states experienced increases in gasohol sales around this same time and 2002 was also the beginning of the recent boom in Iowa's ethanol production.

In 2000, South Dakota and Iowa led the way in per capita gasohol sales reporting 274 and 266 gallons per capita (see Figure 2). Minnesota likely had a higher value, but data are not available until 2004. Iowa pulled ahead of South Dakota in 2001 and has since reported the highest per capita gasohol sales of all Midwestern states, excluding Minnesota and Missouri. Despite Iowa's lead in per capita sales, total gasohol sold in Iowa is dwarfed by sales in Illinois (see Figure 3). This reflects the much larger population of Iowa's neighbor (12.9 million versus 3.0 million in 2007). Minnesota sales are also much higher than Iowa's while Wisconsin's and Indiana's total sales have bounced around at a level equal to Iowa's total.

Although absolute gasohol sales are interesting to compare, a more telling measure of changing demand for ethanol is the path of gasohol shares in each state (see Figure 4).[9] In January 2000, all states reported that gasohol's share of total gasoline sales was less than 50 percent. The shares in Illinois and Iowa moved above 50 percent by June 2000, followed by South Dakota in April 2002. Nebraska crossed the 50 percent gasohol threshold in January 2005 and Wisconsin, in September 2005, while North Dakota and Kansas did not reach that point until late in 2007. The gasohol share has been rising over time for nearly all states except for Indiana with its share flat around 42 percent.

Between 2002 and 2007, Illinois experienced the largest percentage point change in its annual gasohol share with a 30.4 percentage point increase from 59.2 percent to 89.6 percent (see Table 7). North Dakota experienced the largest percentage change in annual gasohol share, rising nearly 200 percent between 2002 and 2007, although its share remained below 50 percent in 2007 at 47.9 percent. Iowa's gasohol share increased from 55.5 percent in 2002 to 73.9 percent in 2007. However, Iowa's percentage point change was just above the Midwestern state average and its percentage change was below the Midwestern state average. Despite the slower percentage growth, Iowa maintained its rank of the second highest gasohol share after Illinois.[10]

Can tax policy explain the differences in gasohol shares across the states? Illinois credits its high gasohol share in part to the lower state sales tax on gasohol (currently 5 percent versus 6.25 percent on gasoline) and to the influence of the nation's largest ethanol producer, Archer-Daniels Midland headquartered in Illinois (Knoles, 2008). In addition to the EBGC offered in Iowa, Iowa and South Dakota are two of only three states to levy a lower motor fuel tax on gasohol than on gasoline (see Table 8). Until November 2006, these three states had the highest gasohol shares in the Midwest

[9] As noted above, monthly data are subject to a lot of volatility in reporting, therefore Figure 4 plots a 12-month centered moving average of gasohol shares for each state.
[10] The ranking excludes Minnesota which instituted a gasohol mandate in 2003.

(ignoring Minnesota with its gasohol mandate). This correlation does not indicate causality, nor can any tax factors explain the rise of gasohol shares in Nebraska and Wisconsin.

One driving factor in the choice between gasoline and gasohol is likely the relative price of the two fuels. In 2000 and 2001 when prices between gasohol and gasoline were roughly equivalent in Iowa, gasohol represented roughly 50 percent of sales in the state (see Figure 5). As the gap between the per gallon price of gasohol and gasoline rose, the gasohol share rose correspondingly.[11] The impact of price on consumption decisions is starkly apparent in mid 2006. In July 2006, the gasohol price jumped from two cents below the gasoline price the previous month to six cents above the gasoline price.[12] The July sales reported on returns filed in August 2006 showed a gasohol share of 38 percent compared to 73 percent in June. The price relationship returned to a negative one cent gap in August and the gasohol share returned to 71 percent. It is possible the price link has weakened some in recent months as the gasohol/gasoline price gap went positive again in August 2007 but the gasohol share did not dip in response.[13]

VII. Biofuel Retailers' Tax Credit Claims

Although the State of Iowa has offered at least one biofuel retailers' tax credit since 2002, prior to this study, only data on aggregate tax credit claims have been available, provided in the quarterly IDR "Contingent Liability Reports." The following provides a more detailed analysis of the credit claims for each of the three tax credits that have been claimed through the 2007 tax year.

Prior to tax year 2006, information regarding Ethanol Blended Gasoline Tax Credit (EBGC) claims by individual taxpayers was limited because claims were lumped with all other refundable credit claims on the "other refundable credits" line on the individual income tax return (IA 1040). Therefore, before the introduction of the IA 148 Tax Credits Schedule in tax year 2006, the only way to discern whether a taxpayer claimed this credit was to look at the paper return to see if the taxpayer filed the IA 6478. Although EBGC claims were listed separately on the credit schedule for the corporate income tax return (IA 1120), the claim amounts or IA 6478 data were not keyed into the IDR electronic database.[14] However, as part of the Tax Credits Tracking and Analysis Program, initiated by IDR during fiscal year 2006, a special effort was made to review tax returns and capture information from the IA 6478 for returns filed in tax years 2002 and later. Data capture from E85 Gasoline Promotion Tax Credit (E85GC) claims on the IA 135 and Biodiesel Blended Fuel Tax Credit (BBFC) claims on the IA 8864 for tax years 2005 and later was carried out by the author as a part of this study.

For tax years 2006 and later, the new IA 148 Tax Credits Schedule is a valuable source for tracking individual taxpayer claims to the biofuel retailers' tax credits. Taxpayers with any claim considered an "other nonrefundable" or "other refundable" tax credit on the individual or corporate income tax return are required to complete the IA 148. Using the IA 148 tax credit claim data, an attempt was made to review the corresponding IA 6478 when an EBGC claim was reported by a taxpayer. Likewise,

[11] IDR was only able to access historic price data for gasohol and gasoline in Iowa.
[12] The rise in gasohol prices reflected the tight supply of ethanol several months earlier that sent pure ethanol prices rocketing from under $3/gallon to as high as $5/gallon, mostly due to a sudden demand for ethanol as a replacement for methyl tertiary butyl ether (MTBE), used as an oxygenate and to raise the octane number of gasoline, that fell out of favor in 2006 over health and environmental concerns.
[13] Because the monthly price gap is based on prices observed one day in the month rather than an average over the month, it is possible this August 2007 number was a very isolated jump in gasohol prices that was not sufficient to trigger any change in purchasing behavior unlike the sustained jump in prices experienced in 2006.
[14] Starting in tax year 2006, all corporate tax credits other than the motor fuel credit are claimed on the IA 1120 as either refundable or non-refundable. Corporations now provide specific information about credit claims by completing the IA 148.

returns reporting E85GC and BBFC claims were pulled to gather data from the IA 135 and IA 8864. The IA 148 was particularly helpful in identifying individual taxpayers who are direct owners or shareholders in eligible retail locations. For tax year 2006, IA 148 data collected from individual and corporate income tax returns have gone through a verification process that allows IDR to have reasonable confidence that it accurately represents credit claims by taxpayers. For tax year 2007, most individual income tax data and some corporate income tax data have been collected, but little has been verified. However, data from both tax years are presented where tax year 2007 is noted as being incomplete and unverified.

A final means for capturing biofuel retailers' tax credit claims was provided as part of 2006 legislation. The Iowa Department of Revenue is now required to annually collect motor fuel sales information from retailers that will allow the State to monitor progress toward its goal that alternative fuels replace 25 percent of all gasoline used in Iowa by January 1, 2020. The Retailers Motor Fuel Gallons Annual Report was first collected for the 2007 calendar year. Data includes name, address, and taxpayer identification numbers for over 2,200 retailers across Iowa. By reviewing tax returns for taxpayers listed as owners of reporting retail locations, many additional EBGC, E85GC, and BBFC claims, particularly for corporate-owned retail locations, were identified.

A. Ethanol Blended Gasoline Tax Credit Claims

Between January 1, 2002 and December 31, 2008, retailers with ethanol-blended gasoline, or gasohol, comprising 60 percent or more of total gasoline sales were eligible to claim the Ethanol Blended Gasoline Tax Credit equal to $0.025 per gallon of gasohol sold above 60 percent of total gasoline sales. E85 sales also qualify for the credit, so for this discussion, the term gasohol is used to refer to all qualifying sales. The credit threshold is computed separately for each retail location, thus the IA 6478 form to claim the EBGC includes information on total gasoline and gasohol sales to consumers at each retail location, as well as total sales for all qualifying retail locations owned by the taxpayer (see Appendix A for the 2008 tax form). A credit claim can be made against the corporate or individual income tax, depending on the ownership structure of the retailer.

The data collected from the IA 6478 and IA 148 regarding EBGC claims can be analyzed in three different ways.[15] The first analysis identifies the unique retailers making claims for the credit. This gives a tally of gasohol sales made by retailers who are aware of the credit. The second analysis identifies the eligible business entities making EBGC claims such as C-corporations, S-corporations,

[15] Many tax returns and IA 6478 forms were reviewed as part of the data collection for the EBGC. The following includes some details on what was observed on those returns. Because the EBGC was available for tax years beginning on or after January 1, 2002, many taxpayers filed amended returns for the 2001 and 2002 tax years in order to make claims that were missed at the time of initial filing. Some taxpayers made errors in the calculation of the credit such as including diesel gallons when calculating the share of gasohol sold. This increased the denominator in the ratio of gasohol to total fuel gallons, thus making it appear as if those retail locations did not meet the 60 percent threshold even though gasohol sales did make up more than 60 percent of total gasoline sold. Some nonresident taxpayers reduced their claim based on their nonresident share of income when statute allows for a full claim of any qualified gasohol gallon sold in the state regardless of the residency of the taxpayer. Other taxpayers made no claims for the credit during the 2006 tax year even though data reported in the 2007 Retailers Motor Fuel Annual Report suggests the retail locations owned by the taxpayers would be eligible to claim the credit. Failure to claim the credit was a particular problem for out-of-state C-corporations. Data collection from individual shareholders often captured misleading information because shareholders only reported the sales and credit which was apportioned to them, thus one retail location would have several small, potentially different claims instead of the same large claim on multiple returns. Many taxpayers failed to complete the second column on the IA 6478, often because they only owned one retail location. Others included sales from non-eligible retailers in their totals. Therefore it was necessary to make edits to the data to complete missing values or correct existing values before making the tallies presented below.

LLCs, partnerships, or sole proprietors. This analysis focuses on aggregate claims covering multiple retail locations in many cases. C-corporations are subject to the corporate income tax while all other entities pass through credits to shareholders that are ultimately claimed on individual income tax returns. Therefore C-corporations are considered separately from all other entities. The third analysis uses claim information from the IA 148 to identify the taxpayers who actually made claims against the General Fund. This analysis reveals that some shareholders fail to make claims, or make claims for incorrect amounts. Claims made against the corporate income tax and individual income tax were considered separately.

1. Retailer EBGC Claims

The IA 6478 was filed by over 1,100 unique retailers for tax years 2002 through 2006 (see Table 9).[16,17] In addition, there were 328 EBGC claims for sales made during the 2002 calendar year but credited in the 2001 tax year; many businesses operate on a fiscal year basis and thus their tax year has periods in two different calendar years.[18] In addition, 528 tax year 2007 claims have also been identified, although many corporate claims have yet to be filed. Gallons of gasoline and gasohol sales are reported on a tax year basis and not a calendar year basis.

Although most taxpayers only submitted sales data for retailers with gasohol sales meeting the 60 percent threshold, and thus eligible for the credit, some businesses with multiple locations also provided sales information for locations that did not qualify. All locations are considered in Table 9. Average total gasoline sales at reporting retailers, including pure gasoline and all ethanol blends, bounced between 700 and 780 thousand gallons in tax years 2002 through 2006. Average gasohol sales rose from 532 thousand in 2002 to 618 thousand in 2005. Thus the gasohol share at reporting retailers rose steadily from just 72.0 percent in 2002 to 83.1 percent in 2005. The dip in the 2006 gasohol share to 80.3 percent reflects the one month jump in the gasohol price above the gasoline price, driving down gasohol demand.

Retailers completing the IA 6478 that are eligible to claim the EBGC report claims totaling $24.8 million since the credit was introduced (see Table 10). Recall that many of these credits will be passed-through to shareholders who often fail to claim them, thus the total credits may exceed the total claims made by taxpayers. The average credit claim is $3,300, exceeding the median claim of just $2,300 which suggests there are a handful of large claims pushing the average claim well above the claims made by 50 percent of retailers. Not surprisingly the average gasohol share for these eligible retailers is higher than for all retailers seen in Table 9, but the change in those shares exhibits the same pattern.

As noted in the discussion about Figure 5, the rising gasohol share in Iowa matches the rising price gap between gasoline and gasohol. Although it is possible that the EBGC could explain part of that price gap, a closer look at the credit structure suggests that is unlikely. The EBGC provides a $0.025 credit for every gallon of gasohol sold above 60 percent of total sales. For retail locations offering both gasohol and gasoline, the gasohol share is determined by consumers and thus it is impossible for the retailer to know the amount of credit it will receive until after the close of the tax year. This is true for the total credit amount and the per gallon credit amount. For example, an average gasohol retailer with 625,000 gallons of total gasoline sales can receive from $1 to $6,250 in credit (see Figure

[16] Each IA 6478 captured does not necessarily represent a unique retailer when that retailer is owned by an S-corporation or LLC because multiple shareholders should have filed the same form. Duplicate forms were identified based on retailer name, zip code, and the amount of the credit claimed in a given tax year.

[17] Although data collection was attempted for the entire life of the credit, efforts were focused on returns filed for the 2005 and 2006 tax years.

[18] In Iowa, the tax year is based on the calendar year in which the corporation's fiscal year begins. Therefore a retailer with a fiscal year beginning September 1, 2001 would file a tax year 2001 return covering activity that extends through August 31, 2002.

6). Although the credit is fixed for each eligible gallon of gasohol sold above the 60 percent threshold, the credit amount per gallon of total gasohol sold including gallons below the 60 percent threshold can range from $0.0004 (for stations with 61 percent gasohol sales) to as high as $0.01 (for stations with 100 percent gasohol sales). Since the inception of the EBGC, a claim to the $0.025 per gallon credit has been made for over 969 million gallons of the 4.2 billion gallons in gasohol sales reported by eligible retailers (see Table 11). These claims translate into an average credit of $0.0059 per gallon of total gasohol sold by participating retailers.

The retailer data presented above includes all locations reporting a credit claim in every tax year. Although the average gasohol share of eligible stations presented in Table 10 shows growth each year between 2002 and 2005, as new stations meet the 60 percent threshold and begin making EBGC claims, the additional stations included in later tax years could pull down the average gasohol share of eligible stations, and thus pull down the reported growth in gasohol shares over time. One way to remove that potential downward bias is to focus on a balanced panel of retail locations with sales data available in all tax years 2002 through 2006 (see Table 12). Sales data were available for all five tax years for only 594 retailers, one-third of stations reporting EBGC claims in tax year 2006. Although gasohol shares in the balanced panel were similar to those seen in Table 10 for 2002 and 2003, shares are higher in 2004 and later. Thus the average annual growth in the gasohol share between 2002 and 2005 is larger for the balanced panel than for all eligible stations, 4.7 percent compared to 3.8 percent. For the panel, as seen with all retail locations, the gasohol share fell in 2006. Note that at least one of the stations in the panel was not eligible for the credit each tax year, explaining the minimum gasohol share below the 60 percent credit threshold. Over time, the standard deviation of the gasohol share has fallen, indicating that sales at all the stations are moving closer to the average gasohol share.

A final way to consider retail sales data is to group the retail locations by ownership structure. As noted above, gasoline retailers in Iowa are owned by C-corporations, S-corporations, LLCs, partnerships, and sole proprietors.[19] Because individual income tax returns are not retained as long as corporate income tax returns, only corporate 2001 tax credit claims were able to be collected. For tax years 2002 through 2006, over 50 percent of the retail locations, gallons sold, and credits claimed can be attributed to C-corporations (see Table 13). This is not the case for data collected for 2007 because many corporations have yet to file a return for the 2007 tax year. Although C-corporations account for the majority of gasohol gallons and credit dollars, S-corporations appear to own, on average, larger stations given the larger average gallons of sales in 2002 through 2005. However, the credits for which S-corporations are eligible are claimed on the tax returns of the shareholders, not the S-corporation itself.

2. Entity EBGC Claims

In Iowa, only two entities pay income taxes, C-corporations and individuals. Although retailers can be owned by other entities such as S-corporations or LLCs, any tax liability or tax credit claim that arises from the economic activity of those entities is passed through to the entity's individual shareholders. Therefore, for this section, aggregate EBGC claims made by taxpayers are considered separately for C-corporations and for all other ownership entities.

C-Corporation Entities:

For tax year 2006, the most recent year for which all returns should be filed, 153 corporations submitted claims for the EBGC covering single or multiple retail locations (see Table 14). Those corporations claimed sales of 612 million gallons of gasohol and $4.0 million in credits with an

[19] Because shareholders make the actual claim for the EBGC, it is likely that some of the retail locations attributed to individuals, and thus grouped under the final tax type, should actually be included in the S-corporation numbers.

average claim of $26,000. A few of these corporations are shareholders in other entities, and thus the total claims here exceed those shown in the retailers' entity table (compare Tables 13 and 14). Since the inception of the EBGC, $15.4 million in claims (62 percent of total identified claims) have been made by C-corporations.

The EBGC is a refundable credit, which means a taxpayer can take advantage of the full credit even if it exceeds their tax liability for the tax year. For tax year 2006, 47.0 percent of corporate claimants received a full or partial refund of their EBGC claim, comprising 61.3 percent of the total amount of claims, or $2.4 million (see Table 15). Since the inception of the EBGC, $9.6 million in claims have been paid as refunds to C-corporations.

Although the count of corporate claimants is fairly small, the concentration of claims and refunds is quite high. For tax year 2006, the top ten EBGC corporate claimants comprised 81.0 percent of all corporate credit claims, accounting for 79.8 percent of corporate gasoline sales and 79.9 percent of corporate gasohol sales (see Table 16). The top ten EBGC refunds paid on corporate claims comprised 92.2 percent of all EBGC refunds paid.

A complete understanding of the EBGC program requires an analysis of how claims in a given tax year impact General Fund receipts over the following few fiscal years. While the vast majority of individual income taxpayers have a tax year that coincides with the calendar year and thus face an April 30 tax due date, C-corporations have varying tax years and thus tax due dates. With automatic six-month extensions, an option chosen more by corporations than individual taxpayers, some C-corporations may not file a tax return until nearly two calendar years after the end of the tax year. For tax year 2006, 96.3 percent of corporate EBGC claims impacted State fiscal year 2008 revenues (see Table 17). On average, 3.9 percent of claims impacted revenues in the fiscal year following the tax year of the claim, 95.3 percent in the fiscal year two years after the tax year, and the remaining 0.7 percent in the fiscal year three years after the tax year.

Other Entities:
To consider entity-level data for other ownership structures, care was taken that a particular claim was only included one time. When the parent entity claim was available, all shareholder claims were disregarded. When the parent entity claim was not available, efforts were made to keep only one instance of each claim.

For tax year 2006, 336 entities reported claims for the EBGC (see Table 18). Those entities claimed sales of 431 million gallons of gasohol and $2.4 million in credits with an average claim of $7,200. Since the inception of the EBGC, $9.7 million in claims have been reported by other entities.

Although there is a much larger number of claims reported by other owner entities than by C-corporations, the concentration of gallons and claims within the top 10 claimants is still over 60 percent (see Table 19). Keep in mind that this concentration does not represent the concentration of actual claims given that the credits reported by most of these entities are passed through to the shareholders of the corresponding S-corporation, LLC, or partnership.

3. Taxpayer EBGC Claims
EBGC claims by corporations reported on the IA 148 are nearly equivalent to the C-corporation entity data presented above because a corporation filing an IA 6478 would, on that same tax return, claim the entire amount of the credit against tax liability. The same would be true for a sole proprietor filing an individual income tax return. However, for S-corporations, LLCs, and partnerships, claim data provided on the IA 6478 does not necessarily equal the claims made by shareholders against their individual income tax liability. Because some shareholders in these retailers fail to make claims for their portion of the credit, or fail to indicate on an IA 148 form which tax credit type they are making a

claim for, the total claims paid to taxpayers for tax year 2006 are nearly $100 thousand less than reported by eligible retailers (compare Tables 13 and 20). As noted above, prior to the 2006 tax year and the introduction of the IA 148, any individual claim for an EBGC would have been lumped together with all other refundable tax credit claims on a tax return and thus could not be separately identified.

For tax year 2006, corporations made $3.9 million in EBGC claims while individuals made $2.4 million in claims (see Table 20). The average corporate claim was $24,600 while the average individual claim was just $3,000. This average individual claim is less than half of the average claim reported by other entities (see Table 14). This reflects the likelihood that many individual taxpayers are making claims as shareholders, and thus can only claim a fraction of the EBGC claim reported by the entity. To-date, 2007 tax year claims total $526 thousand for corporations and $1.7 million for individuals which reflects the fact that most individual returns have been filed, while at the time of this analysis 30 percent of corporate returns for tax year 2007 have yet to filed.

For tax year 2006, the top ten corporate taxpayer claims equaled 80.8 percent of total corporate claims, similar to the 81.0 percent seen for C-corporate entities (compare Table 21 to Table 16). However, the top ten individual taxpayer claims were only 52.1 percent of total claims, lower than the 61.6 percent seen for the other entity claims (compare Table 21 to Table 19). This follows from the fact that many individual taxpayers are only claiming a small portion of the claim submitted by the entity in which they own a share.

B. E85 Gasoline Promotion Tax Credit Claims

Starting January 1, 2006, the E85 Gasoline Promotion Tax Credit provided a $0.25 credit for each gallon of E85 sold by a retailer during the tax year, where the amount phases down to zero beginning in tax year 2009 (see Table 1). Because the credit does not require any threshold of sales to qualify, the only information reported on the IA 135 to claim the credit is taxpayer's sales of E85 (see Appendix A). The tax form does not require that those sales be broken down to the retailer level, so there are only two ways to tally the claim data, entity level and taxpayer level. Credit claims are made against the corporate or individual income tax, depending on the ownership structure of the retailer.

Although the E85GC did not become effective until 2006, retailers with tax years that overlap calendar years were able to make claims for the E85GC on tax year 2005 returns for any sales made during 2006. Claim data are based on information collected from the IA 135 or, for tax years 2006 and later, the IA 148.

E85 is a relatively new fuel, with only 141,000 gallons sold in Iowa during 2004 (Iowa Renewable Fuels Association, 2008a). IDR data on E85 sales show that sales in Iowa increased dramatically between 2006 and the first three quarters of 2008. Second and third quarter 2008 sales, each at over 2.2 million gallons, exceeded total sales in all of 2006 and equaled 65 percent of total 2007 sales. However, even with that growth, E85 sales through the first three quarters of 2008 still comprised less than 0.5 percent of total gasoline sales in the state. E85 requires dedicated pumps and can only be used in flexible-fuel vehicles (FFVs), thus growth in E85 consumption will require both the expansion of E85 retail locations and the willingness of consumers to purchase FFVs. As of early 2008, roughly 1,400 fueling stations nationwide offered E85, which is less than one percent of the total 170,000 gasoline stations, and there were more than six million FFVs on the road (Renewable Fuels Association, 2008b). In Iowa, the number of E85 stations rose from just ten in 2004 to 90 in the third quarter of 2008 (see Figure 7 and Table 22). Iowa's E85 availability lags that in Minnesota, Wisconsin, and Illinois which have more than 100 stations each, although per capita coverage in Iowa is greater. The Iowa Renewable Fuels Association estimated, as of January 2008, that over 75,000 FFVs were registered in Iowa with the number increasing over 14,000 during 2007 alone (Iowa Renewable Fuels Association, 2008b).

Starting in 2006, every gallon of E85 sold in Iowa was eligible for the E85GC, although credit claims were only made for an estimated 89.7 percent of sales during the 2006 calendar year (see Table 23). Claim coverage less than 100 percent likely reflects imperfect taxpayer knowledge about the credit or a failure to identify credit claims by taxpayers.

1. Entity E85GC Claims

For the 2005 tax year, nine of the 12 E85GC claims were made by C-corporations, reflecting the higher likelihood of having a tax year that extends into the following calendar year (see Table 24). For tax year 2006, C-corporations again dominated the E85GC claims making 26 of 39 claims for over $349 thousand on 1.4 million gallons of E85 sales. As more corporate tax year 2007 returns are filed, the share of E85GC claims, in total and on average, will likely rise to match or exceed those seen for 2006.

2. Taxpayer E85GC Claims

Taxpayer E85GC claims are based on data from the IA 148, first available in tax year 2006. For tax year 2006, C-corporations made over $366 thousand in E85GC claims while individual taxpayers made over $157 thousand in claims (see Table 25). The corporate claims on the IA 148 exceed the count and total under the entity claim data because multiple corporations are shareholders in other entities. The average corporate claim was $11,800 while the average individual claim was just $2,000. To-date, 2007 tax year claims total $123 thousand for corporate and $166 thousand for individual taxpayers.

C. Biodiesel Blended Fuel Tax Credit Claims

Starting January 1, 2006, the Biodiesel Blended Fuel Tax Credit provides a $0.03 credit for each gallon of biodiesel sold by a retailer when biodiesel sales comprise at least 50 percent of total diesel sales during the tax year. Prior to tax year 2009, the credit was computed based on total sales by the taxpayer, therefore the information reported on the IA 8864 includes total diesel sales and total biodiesel sales by the entity filing the return with no sales broken out at the retailer level (see Appendix A). This leaves only two ways to analyze the BBFC claim data, entity level and taxpayer level. Credit claims are made against the corporate or individual income tax, depending on the ownership structure of the retailer.

Although the BBFC did not become effective until 2006, retailers with tax years that overlap calendar years were able to make claims for the BBFC on tax year 2005 returns for any sales made during 2006. Claims data are based on information collected from the IA 8864 or, for tax years 2006 and later, the IA 148.[20]

Biodiesel is an alternative fuel produced from vegetable oils or animal fats. In Iowa, a common feedstock is soybean oil. Blends of biodiesel can range from one percent to 99 percent. Common blends used in Iowa are B2, B5, B10, and B20. Biodiesel blends up to 20 percent can be used by any diesel vehicle while higher biodiesel blends require engine modifications as well as special dispensing equipment at the retailer. As of 2007, approximately one-third of retailers in Iowa that offer diesel fuel also offer some biodiesel blend.

[20] It appears that several taxpayers incorrectly made claims to the BBFC when they assumed the federal small-producers biodiesel tax credit, claimed on federal form 8864, was the same as the Iowa biodiesel retailers' tax credit. IDR is currently pursuing more information from these taxpayers to determine whether the credit claims should be honored.

1. Entity BBFC Claims

For tax year 2005, eight of ten BBFC claims were made by C-corporations, reflecting the higher likelihood of having a tax year that extends into the following calendar year (see Table 26). For tax year 2006, C-corporations again dominated the BBFC claims making 27 of 48 claims for nearly $1.3 million on 42.7 million gallons of biodiesel sales. For tax year 2007, other entities reported the majority of biodiesel sales and thus qualified for greater BBFC claims in total and on average, however, as more tax year 2007 returns are filed, corporate claims will likely surpass those made by other entities.

2. Taxpayer BBFC Claims

As with the other credits, the earliest available data on taxpayer claims for BBFC is for tax year 2006 when the IA 148 was introduced. For tax year 2006, corporations made $1.3 million in BBFC claims while individual taxpayers made $340 thousand in claims (see Table 27). The average corporate claim was $45,300 while the average individual claim was $8,100. To-date, 2007 tax year claims total $98 thousand for corporate and $868 thousand for individual taxpayers.

VIII. Evaluation of Biofuel Retailers' Tax Credit Incentives

With the stipulation that only gasohol sales above 60 percent of total gasoline sales qualify for the EBGC, a retailer cannot know the per gallon credit it will receive until after the close of the tax year, unless all gasoline sales are gasohol. As noted in Section VII, an average gasohol retailer in 2007 with 625,000 gallons of total gasoline sales who anticipates being eligible for the EBGC could receive a credit per gallon of total gasohol sold that ranges from $0.0004 to $0.01 as its gasohol share increases from 60 to 100 percent (see Figure 6). Without knowing in advance the size of the per gallon credit, any attempt by the retailer to reduce the price of gasohol in anticipation of the eventual per gallon subsidy creates a risk of guessing too high and losing money. Therefore, it is unlikely this small, uncertain per gallon tax credit would induce a retailer to lower pump prices. Rather it probably serves as a windfall to the retailer at the time the tax return is filed.

The E85GC provides a $0.25 credit for every gallon of E85 sold regardless of the level of sales. Therefore retailers know the per gallon credit they will receive at the time of sale, making it likely that retailers could pass some or all of the credit to consumers. For example, for an average gasohol retailer in 2007 with 625,000 gallons of total gasoline sales, as E85 sales range from just above zero to 20 percent, the total E85GC claim rises from $1 to $37,500 (see Figure 8). Note that the total credit rises with E85 sales, but the credit amount per gallon of gasohol is always $0.25. The share of the credit passed to consumers would depend on the price elasticity of demand and supply for the fuel; that is, how responsive demand or supply is to changes in prices. Given that most FFVs can use E85, gasohol, or gasoline, consumers are likely to switch away from E85 if its price rises relative to gasohol or gasoline suggesting the price elasticity of demand for E85 is likely greater than for gasoline. Conversely, because retailers must invest in special equipment to sell E85, they need to recoup the cost of that investment and thus will continue to supply E85 even if its price drops. This suggests the price elasticity of supply for E85 is likely low because once the equipment is installed the marginal cost of selling an additional gallon of E85 is very small. Under these assumptions, most of the benefit from the tax credit should go to the consumer, although the share cannot be estimated without estimates of the respective elasticities, which are not available.

However, an additional constraint to retailers in passing on this credit to the consumer is the time-value of money. If the retailer pays $2.50 for a gallon of E85, in the absence of the credit, the retailer would charge the consumer $2.75 per gallon including a ten percent mark-up to cover overhead costs (the average cost of distribution, marketing, and retail costs estimated by EIA for gasoline). Can the retailer afford to sell E85 at $0.25 or even $0.01 below cost for the entire tax year only to receive the

credit from the State of Iowa after the tax return has been filed? For retailers who claimed the E85GC in tax year 2006, the average lag between the start of their fiscal year and the processing of their tax credit claim was 18 months. This is a long time for retailers to cover any discount that the state tax credit could induce. Therefore the consumer may not be benefiting from this credit because the credit is administered through the income tax system that leads to long lags in payments. If the credit were administered in such a way that allowed for monthly checks to be sent to retailers, the likelihood that the retailer could pass some of the subsidy to the consumer would increase. Rather, retailers may view the E85GC as one avenue for the State to subsidize the infrastructure costs of converting equipment to allow for E85 sales.

The BBFC provides a $0.03 credit for every gallon of biodiesel sold as long as biodiesel sales comprise at least 50 percent of total diesel sales. For example, for an average diesel retailer in 2007 with 575,000 gallons of total diesel sales, as biodiesel sales range from zero to 100 percent of diesel sales the total BBFC claim rises from $0 to $17,250 (see Figure 9). Note that the total credit rises gradually as the biodiesel share rises above 50 percent while the per gallon credit jumps from zero to $0.03 at the 50 percent threshold. Therefore a retailer that expects biodiesel sales to be around 50 percent faces a broad range of potential per gallon credits while a retailer that has a high certainty of biodiesel sales coming in above 50 percent would expect a $0.03 credit on each gallon sold. The latter retailer would be more likely to pass the credit onto consumers than the former retailer. The same time-value of money issue discussed above also applies to retailers claiming the BBFC.

IX. Tallying and Explaining Retailers' Biofuel Sales in Iowa

During the 2006 Legislative session a goal was established for the state to replace 25 percent of all petroleum used in the formulation of gasoline with biofuels by January 1, 2020. In January 2007, all motor fuel retailers were requested to complete the 2007 Retailers Motor Fuel Gallons Annual Report which included information on their sales of gasoline, gasohol, E85, diesel, and various blends of biodiesel. The purpose of the report is to gather information to monitor progress toward meeting the state's biofuel usage goal. Toward that end, this section attempts to use the data collected in the report, combined with tax return data when helpful, to assess the state's current biofuel usage and to examine what characteristics explain variations in biofuel demand across the state.

A. Current Biofuel Usage in Iowa

Of the over 2,500 retailers contacted regarding the report, 2,286 returned the report.[21] An additional 265 were filed by wholesalers. IDR did some verification of the reported data by comparing reported annual E85 gallons against the station sales data separately collected on a quarterly basis, and by comparing reported total ethanol sales against sales claimed on the 2006 or 2007 tax year return for stations claiming the EBGC. Report data was altered for six stations making E85 claims. Retailers who reported zero gasohol sales on their report but made EBGC claims on their most recently-filed tax return were contacted to clear up the discrepancy. As a result, ethanol sales data were altered for an additional 62 stations.

For the 2,222 stations that reported gasoline sales, 2,084 stations reported a total of 1.07 billion gallons of gasohol sales and 86 stations reported a total of 3.4 million of E85 sales (see Table 28). Together, those sales represent nearly 110 million gallons in pure ethanol sales. For the 1,198 stations that reported diesel sales, 327 reported a total of 160 million gallons of biodiesel sales.

[21] Sales reported by cities, airports, and marinas were removed from all analysis, eliminating 61 reports totaling 578,000 in gasoline, 63,000 gallons of gasohol, and 257,000 gallons of diesel. Some additional reports were removed because they indicated zero gallons of fuel sales, leaving reports from 2,328 retailers.

Based on reported biodiesel blends, those sales represent 17.5 million gallons of pure biodiesel.[22] Together, the retailers reported over 127 million gallons of pure biofuels which equals 9.2 percent of total gasoline sold in 2007. Note that ten percent of retailers failed to file the annual report (IDR, 2008). One assumption might be that non-filers chose not to file because they sell little to no biofuels, but because several retailers who made claims to the EBGC in tax year 2006 or 2007 were among the non-filers, it is assumed the missing retailers are on average the same as the 90 percent of retailers that did file.

For all retailers reporting gasoline sales, the average share of gasohol sales is 75.7 percent while the average share of E85 sales is just 0.3 percent (see Table 29). For retailers reporting at least some gasohol sales, the average share of gasohol sales is 80.8 percent. For retailers reporting E85 sales, the average share of E85 sales is 8.0 percent. Considering gasohol and E85 together, the 2,088 retailers with some sale of ethanol blended gasoline reported an average share of pure ethanol sales of 8.3 percent. For all retailers reporting diesel sales, the average share of biodiesel sales is 14.3 percent. For retailers reporting at least some biodiesel sales, the average share of biodiesel sales is 52.4 percent while the average share of pure biodiesel sales is 4.4 percent. Note that some retailers only reported pure biodiesel purchases, and thus without the blending details it was not possible to determine the actual gallons of biodiesel sales. These retailers only are included in the calculation of pure biodiesel sales, hence the higher count of stations.

Based on the data supplied by retailers for calendar year 2007, the state-wide biofuel percentage, calculated as total biofuel sales divided by total gasoline sales, was 9.2 percent. Looking forward, in order for Iowa to meet its 25 percent goal, the biofuel percentage would have to increase roughly 1.2 percentage points each year between 2007 and 2020. With just one point of data that captures sales of gasohol, E85, and biodiesel, the historic rate of change in the biofuel percentage is unknown. However, historic changes in ethanol sales can be gleaned from the motor fuel sales data collected by IDR (see Table 30).[23] Using data limited to only ethanol sales, the biofuel percentage is estimated to have risen from 7.1 percent in 2006 to 7.5 percent in 2007 to 7.9 percent for the first three-quarters of 2008. This suggests a 0.4 percentage point increase each year, just one-third of the 1.2 percentage point increase required to meet the state's biofuel goal. A better assessment will be possible once data are available from the 2008 Retailers Motor Fuel Gallons Annual Report, due January 31, 2009.

B. Explaining Variations in Ethanol Demand Across Iowa Counties

In 2007, according to data collected through the administration of the motor fuel tax, the gasohol share of total gasoline sold in the state at the terminal level was between 73.9 and 79.5 percent, where the latter number includes adjustments for motor fuel tax refunds for after-terminal blending of gasohol discussed in Section IV. Summing over retail station sales data, the gasohol share of state-wide total gasoline sales at the retail level is 78.2 percent. However, sales by county reveal that the gasohol share of sales is far from uniform across the state with a range from 53 to 91 percent (see Figure 10). Central Iowa has the bulk of the counties with gasohol shares closest to the state average. The counties with the lowest gasohol shares are along the border, with the exception of Poweshiek, which sits to the north of Mahaska County which has the highest share. This section attempts to explain these differences in gasohol demand using observable county characteristics.

[22] The report asked retailers to split biodiesel sales into B2, B5, B10, B20, and other. Of the 404 retailers reporting biodiesel sales, 282 split all sales between the specific blends with an average of 3.95 percent biodiesel. When retailers reported all sales as other, it was assumed the average biodiesel content of those sales equaled 3.95 percent. When retailers reported some sales in the specific blends and some as other, it was assumed those gallons had a higher content, 25 percent, than the listed options.

[23] These calculations are limited to only ethanol sales because motor fuel tax returns do not separate biodiesel sales from diesel sales as both are taxed at the same rate. Also diesel fuel is sold as dyed and undyed where only the undyed is subject to Iowa fuel tax. No regular reports on undyed diesel are received.

The analysis of demand differences across Iowa uses data on gasohol sales from the 2007 Retailers Motor Fuel Gallons Annual Report and 2006 and 2007 EBGC tax credit claims.[24] Retail locations were assigned to the 99 counties based on the zip code reported for each retail location. The average county has 26 retail locations with gasohol sales comprising 79.6 percent of total fuel sold in the county (see Table 31).[25] Taking the average of gasohol shares across the reporting stations within a county gives a slightly lower average gasohol share of 78.0 percent, reflecting the higher weight given to stations with zero gasohol sales under this calculation. On average 94.8 percent of stations within each county offered gasohol, with a county low of 79.3 percent (Clayton) up to a high of 100 percent (Emmet). The mean share of stations offering only gasohol within a county is 12.7 percent, with a low of zero percent (Adams, Cherokee, Davis, Dickinson, Fremont, Hancock, Keokuk, Lucas, Lyon, Monona, Monroe, Montgomery, Page, and Worth) and a high of 40 percent (Decatur).

The decision of whether to sell gasohol and how much promotion to give to those sales must be made by the retailer. For stations owned by sole proprietors, that decision would impact only one or two stations. However, there are several large retailers in the state for which those decisions would impact numerous stations across many counties. The eight largest retailers in the state, those businesses with at least 25 locations and at least 1.5 percent of state-wide total gasoline sales, operate 30.1 percent of retail stations, account for 46.2 percent of total gasoline sales, and 49.6 percent of gasohol sales. It is possible, therefore, that counties where a higher concentration of gasoline is sold by large retailers would have higher gasohol shares, driven by state-wide retailing and marketing decisions. On average, 40.9 percent of gasoline in a county is sold by one of these large retailers, with a range of 5.1 percent (Jackson) to 85.4 percent (Adair).

It is possible that the availability of biofuel retailers' tax credits could also influence retailers' and consumers' decisions about gasohol sales. On average 70.4 percent of stations claimed the EBGC in the most recent tax year for which they have filed a return, with a low of 36.4 percent making claims (Clarke) to a high of 100 percent (Boone, Madison, and Monroe). Although some of the stations without EBGC claims do not meet the 60 percent gasohol sales threshold to qualify for the credit, it is also likely that some stations were simply not aware of the credit. Indeed, the mean gasohol share for the stations with no EBGC claim is 74.2 percent, compared to 83.4 percent for stations with a claim.

As the ethanol industry expands in Iowa, production facilities have been built in many counties across the state. In 2006 there were 28 facilities in operation, located in 26 counties, with varying levels of production capacity measured by millions of gallons per year (MGY) (see Figure 10). It is possible that the presence of an ethanol production facility could impact retail demand for ethanol if residents believe the facility is a benefit to their community and thus want to support the sales of the product, or are simply more aware of ethanol's existence. Because some facilities are located close to county borders, an additional 15 counties that closely neighbor a production facility were also identified. However, Figure 9 does not suggest an obvious relationship between production facilities and gasohol demand. What does appear is that counties along the border of the state and counties along the interstate highways (including I-80 cutting horizontally across the center of the state, I-35 cutting

[24] The gasohol sales data include retailer data from 2,328 stations that filed the 2007 Retailers Motor Fuel Report and 444 other stations that made EBGC claims in the latest tax year (2006 or 2007). In addition, some data for stations erroneously reporting zero gasohol sales on the Retailers Motor Fuel Report were adjusted to reflect gasohol sales reported on the most recent tax return filed for that retailer. Only retailers reporting more than 100 gallons of gasoline and a zip code were included in the data, leaving sales information for 2,596 retailers. Although it is likely some stations are missing, based on IDR records of retail and wholesale locations, the data appear to be relatively comprehensive.

[25] Because one source of the retailer data was EBGC claims, which would be limited to the population of retailers with at least 60 percent gasohol sales, it is reasonable to argue that the gasohol share in the data is biased up above the true share for the entire state. However, removing the 445 stations from the tax data lowers the mean gasohol share by only 0.3 percent.

vertically through the center of the state, and I-29 along the bottom two-thirds of the western border) have lower gasohol shares. It is possible that nonresidents who drive into or through the state and purchase gas have a lower demand for gasohol. For example, Minnesota residents may drive into the northern counties of Iowa to purchase gasoline to circumvent that state's gasohol mandate.

Demographic and economic characteristics for the 99 counties within Iowa do differ, with much of the variation driven by the location of metro areas.[26] Mean county population in 2006 was 30,122 with a range from 4,192 (Adams) to 408,888 (Polk). Mean population density was 52 people per square mile with a range from 10 (Ringgold) to 718 (Polk). Iowa remains a largely rural state with an average 87.9 percent of land in each county designated as farmland. In the average county the mean age for the head of household is 47.4 years, 50.0 percent of households are married, 49.6 percent of individuals are males, 17.5 percent were aged 65 and older, and 12.0 percent of households reported some farm income in 2006, used to compute the share of farmers. While 68.4 percent of adults aged 25 and older reported educational attainment of high school graduate or some college in the average county in 2000, just 16.3 percent reported a college degree or higher. Mean gross household income, as reported on individual income tax returns in 2006, is $45,542 with a range of $34,562 (Decatur) to $74,460 (Dallas).

Variation in the share of gasohol purchased in each county is modeled using characteristics about Iowa counties including:

- presence of an ethanol production facility
- gasohol availability
- retailer concentration
- share of stations claiming the EBGC
- gasoline gallons sold per capita
- a border county indicator
- an interstate county indicator
- share of farmers
- educational attainment
- share of males
- share aged 65 and older
- household income

One obvious missing variable is some measure of the relative price of gasohol and gasoline across the counties. Unfortunately, only state-wide price differential data are available.[27]

As noted above, the location of an ethanol production facility in the county or a neighboring county could increase demand for gasohol. If instead, retail gasohol demand is influenced by consumer's knowledge of ethanol, then the share of farmers in a county should have a positive relationship to demand or, similarly, the share who are college educated. A higher share of cross-border or interstate sales to nonresidents with less interest in gasohol could also explain differences in gasohol shares. Likewise, high gasoline sales per capita could indicate high purchases by non-local drivers (for example, casino traffic) with less interest in gasohol. The availability of gasohol could also impact demand, measured here as the share of stations offering gasohol, the share offering only gasohol, and the number of stations offering gasohol per square mile in the county. The concentration of sales made by large retailers could also influence the overall county gasohol share. Models explaining

[26] Demographic and economic characteristics were taken from U.S. Census data or aggregated from the 2006 individual income tax return data.

[27] One potential proxy for price would be the terminal servicing the counties' stations. Unfortunately, terminals have information on the retailers who purchase their fuel, but not the specific locations of the retailers. Also some terminals sell to bulk retailers who then distribute the fuel to numerous retailers.

demand for different qualities of gasoline have found that the percent of male licensed drivers in a state has a positive impact on the demand for premium gasoline while the share of older licensed drivers has a negative impact (Nesbit, 2007). Nesbit also found a positive relationship between per capita income and demand for premium gasoline. It is not clear how income will impact demand for gasohol because the product has a higher octane rating, and thus could be considered higher quality, but gasohol also has a lower price than gasoline. Finally, if retailers who claim the EBGC take additional steps to encourage gasohol sales, possibly through lower prices, then the share of stations within a county claiming the EBGC should have a positive impact on gasohol demand.

Results for an estimate of how the above characteristics can explain differences in county gasohol shares can be seen in Table 32. The presence of an ethanol production facility in a county or along a neighboring county's border cannot explain variation in ethanol demand as both the coefficients are not statistically significant. However, the presence of an interstate through a county lowers the gasohol share by 4.6 percent on average, suggesting motorists driving through a county are more likely to purchase gasoline than residents of the county. Similarly, a one hundred gallon increase in gasoline purchases per capita (just under the standard deviation) explains a 1.0 percent reduction in average gasohol share, suggesting non-local drivers also are more likely to choose gasoline over gasohol.

All three variables attempting to measure availability of gasohol, share of retail stations selling gasohol, share of retail stations selling only gasohol, and the count of retail stations offering gasohol per square mile, show a positive relationship with demand, although only the share selling only gasohol is statistically significant. For every ten percentage point increase in the share offering only gasohol in a county, the gasohol share rises by 1.8 percentage points.

Counties with a higher concentration of total gasoline sales at large retailers also have a higher gasohol share on average. For every ten percentage point increase in the share of total gasoline purchased at one of the eight large retailers in the state, the share of gasohol in the county rises 0.8 percentage points. This suggests that large retailers may be doing more to encourage gasohol consumption or simply that residents who buy gasohol happen to do so at one of those large retailers.

Differences in demographic characteristics across the counties explain very little of the variation in gasohol demand. Higher shares of households reporting farm income and higher educational attainment show some positive correlation with gasohol demand, but none of the coefficients on these variables attempting to explain ethanol awareness are statistically significant. The coefficient on the share aged 65 and older is negative and statistically significant; a ten percentage point increase in the share aged 65 and older reduces gasohol demand by 0.7 percent. This relationship may reflect unfamiliarity with ethanol or ownership of older cars for which they are reluctant to make the switch to gasohol. Average household income shows a negative but statistically insignificant relationship with average gasohol demand across the counties. Finally, the share of stations making an EBGC claim in the most recent tax year shows a positive but statistically insignificant relationship with gasohol demand.

The model explains just one-third of the variation in gasohol demand across counties, suggesting that much of the variation is because of differences between the counties that cannot easily be observed or for which data does not exist, such as relative fuel prices. Although the EBGC does appear to have a slight positive relationship to gasohol demand, the path of that influence is not clear. Are consumers more willing to purchase gasohol because the retailers are passing on the average $0.006 credit through lower gasohol prices relative to gasoline, or do more retailers qualify for the credit due to higher demand in their county related to some unobservable characteristics about the residents? There is a high positive correlation between the share of total gasoline sold by large retailers and the share of retail locations claiming the EBGC, suggesting that the large retailers are more likely aware

of the credit's existence which could, in turn, impact retailing and marketing decisions. The negative relationship between an interstate and gasohol demand suggests that nonresidents are choosing to pay more to use gasoline over gasohol, likely reflecting a lack of understanding about ethanol or a bias against it. The positive relationship between gasohol sales and the share of stations offering only gasohol suggests another route by which the State could increase gasohol sales, by mandating gasohol like neighboring states Minnesota and Missouri.

X. The Future of Biofuel Retailers' Tax Credit Claims

A. Forecast of the Ethanol Promotion Tax Credit

As noted above, in tax year 2009, the EBGC was replaced with the EPTC. The change in biofuel retailers' tax credits is one tool the State is relying on to increase biofuel sales as retailers are required to raise biofuel sale concentrations to maintain the same credit rates over time (see Table 2). The EPTC has several mechanisms to create incentives for higher biofuel sales. One mechanism is the biofuel thresholds necessary to qualify that rise over time; the other is the use of pure ethanol gallons to calculate the credit. When computing credit amounts, the EBGC treats the sale of a gallon of E85 equivalent to a gallon of gasohol while the EPTC weights a sale of a gallon of E85 by 8.5 times a sale of a gallon of gasohol, thus rewarding retailers who move into E85. In addition, the EPTC includes biodiesel sales in computing the credit rate while biodiesel sales did not enter the calculation of the EBGC. All of these differences create an incentive to expand biofuel sales beyond gasohol. As the biofuel percentage necessary to qualify for the maximum EPTC rises above ten percent, simply selling 100 percent gasohol will not be sufficient for a retailer to maximize credit claims after 2009 for large retailers and after 2011 for all retailers.

How is the change from the EBGC to the EPTC expected to alter credit claims for tax year 2009? One way to measure the potential impact from the change is to estimate the EBGC and EPTC each retailer would be eligible to claim based on retailers' reported sales for 2007 forecasted to 2009. The data set including sales information from the Retailers Motor Fuel Gallons Annual Report and 2006 and 2007 EBGC tax credit claims can be used to estimate these expected claims. Forecasted growth in gasoline and biofuel sales are based on reported E85 sales for the first three quarters of 2008 and motor fuel consumption forecasts from the Energy Information Administration (2008) (see Appendix B for more details on the forecast assumptions). For this analysis, a simplifying assumption is made that tax year credit claims can be computed using the forecasted calendar year motor fuel sales for each retailer, even though in reality retailers use fiscal year sales to compute such claims.

For each of the 2,665 retailers with 2007 sales data available, forecasted 2009 sales were used to calculate both a hypothetical EBGC using tax year 2008 rules and an estimated EPTC claim under tax year 2009 parameters.[28] A total of 248 retailers could make a claim under both credits but would receive a higher credit under the EPTC than the EBGC, with an average increase of $1,011 (see Table 33). These retailers report high E85 and some biodiesel sales (recall that these retailers are eligible to claim the E85GC as well although the per gallon credit rate begins to fall in 2009). 74 retailers would be eligible for an average EPTC credit of $669 but no EBGC credit, where high biodiesel sales pushed them above the required biofuel threshold for the EPTC while they would not meet the 60 percent threshold for gasohol sales for the EBGC. Over 81 percent of retailers, 2,161 would receive a lower credit under the EPTC than the EBGC with an average reduction of $1,823. These retailers have higher average gasohol sales, but lower E85 and biodiesel sales. Five retailers would not be eligible for the EPTC, losing an average $587 credit that they could have claimed under

[28] The count of retailers for this analysis is higher than the county-level analysis in the previous section because stations without a county location are included. However, for both analyses, stations had to have reported at least 100 gallons of total gasoline sales.

the EBGC. These stations have some E85 sales but almost no biodiesel sales. The remaining 177 retailers are ineligible to make a claim under either tax credit. Total EPTC claims are estimated to be $6.7 million compared to $10.3 million under the EBGC. This suggests that the State will reduce credit payouts under the change while targeting credits toward retailers who have moved into E85 and biodiesel sales.

Over time, the biofuel sales requirements necessary to achieve the various EPTC rates increase (see Table 2). Not surprisingly, as this increase phases in, the distribution of both large and small retailers shifts from the higher tax credit rates toward ineligibility (see Table 34). While an estimated 94 percent of retailers would be eligible for some credit in 2009, when the highest biofuel percentages are 6 percent for small retailers and 10 percent for large retailers, just 11.5 percent are estimated to be eligible for some credit in 2020, when the highest biofuel percentage for all retailers is 25 percent. Not surprisingly, total forecasted claims steadily fall from $6.7 million in claims for tax year 2009 to $2.5 million in claims for tax year 2015. For the last five years of the credit, forecasted claims bounce between $2.9 and $2.0 million as the threshold requirements flatten for the large retailers and jump for the small retailers.

The final column of Table 34 provides the projected state-wide biofuel threshold percentage. The forecasts have the state's biofuel percentage moving steadily upward, with an average increase of 0.6 percentage points per year, but falling short of the 25 percent goal by 2020. Keep in mind that the growth in retailers' sales are based on EIA forecasts which only take federal renewable fuel standards into account, not any potential responses of Iowa retailers to the State tax credits. The forecast does assume that all Iowa stations begin selling gasohol by 2014, twenty new stations add E85 pumps each year through 2020, and ten stations introduce biodiesel each year.

Despite the apparent increase in efficiency of the EPTC with a greater share of credits going toward stations with higher biofuel sales, the EPTC will face a similar limitation as the EBGC in creating an incentive to pass the credit on to the consumer. The actual claim amount will not be known until the end of the tax season. In fact, the uncertainty is greater under the EPTC because the retailer is subject to three possible credit rates based on the biofuel percentage achieved, which depends not only on gasohol sales, but also on E85 and biodiesel sales, if applicable. For example, for an average gasohol retailer in 2007 with 625,000 gallons of total gasoline sales, 1,700 gallons of E85 sales, and 77,000 of biodiesel sales, a gasohol share ranging from 52 to 100 percent in 2009 will increase the per gallon credit from $0.0025 to $0.0065 (see Figure 11). As the gasohol share changes, the EPTC per gallon of E85 also changes from $0.0213 to $0.0553. Recall that although biodiesel sales count toward the biofuel threshold, biodiesel gallons are not eligible for credits under the EPTC.

B. Forecast of All Biofuel Retailers' Tax Credit Claims

A stopping point for this evaluation of Iowa's biofuel retailers' tax credits is a tally of the claims seen to date and a forecast of claims expected until the expiration of all credits at the end of tax year 2020 (see Table 35). Stretching over a twenty year period, these claims are forecasted to total over $142 million. Actual claims through tax year 2006 have totaled $29.5 million, with the bulk going to gasohol retailers under the EBGC, the only credit in existence prior to tax year 2006 (recall that filers with fiscal years that stretch into the following calendar year were able to make E85GC and BBFC claims on 2005 returns). Forty percent of the forecasted claims will be paid under the new EPTC, reflecting the steady phase-out of the E85GC and the expiration of the BBFC in tax year 2012. The highest estimated claims in any one tax year are $15.0 million expected in 2008. Of course, all of the forecasts rely on the reasonableness of the assumptions made about the growth of biofuel sales at retailers through 2020 (see Appendix B).

XI. Conclusions and Future Work

Although biofuel consumption in Iowa has increased steadily since 2002, this study found no overwhelming evidence that the current biofuel retailers' tax credits have played a major ongoing role in that increase. Minnesota and Missouri have achieved higher sales through gasohol mandates and Illinois has a higher gasohol share than Iowa with its twenty percent break in the sales tax rate. Counties within Iowa reporting a higher share of retailers claiming the current EBGC credit did not have a significantly higher share of gasohol sales. However, that analysis relied on a single year of less-than-complete retailers' sales data. The analysis should be revisited once information collected from retailers through the 2008 Retailers Motor Fuel Gallons Annual Report is available, particularly if response rates are higher or the quality of the data appears to be better. Because retailers face no penalty for not filing the report, IDR continues to rely on voluntary compliance by respondents.

The structures of the biofuel retailers' tax credits are such that very little of the benefit is likely passed on to the consumer, either because there exists so much uncertainty as to what credit amount the retailer will receive per gallon of biofuel sales or there exists such a long lag between the time of sale of the fuel and the receipt of the credit that the retailer would have a hard time affording passing on the credit through lower sales prices. Credits administered through the motor fuel tax system rather than the income tax system, as done in New Mexico, Oklahoma, South Carolina, and South Dakota, could possibly address the timing problem that currently exists. It will be interesting to watch if retailers' behavior changes as the EBGC is replaced with the EPTC this year given the more complex structure of the latter credit, but potentially higher credit rate for biofuel sales, and as the E85GC begins its slow phase-down.

Using national biofuel growth assumptions made by the Energy Information Administration, the study forecasts that 16.5 percent of Iowa's petroleum consumption will be replaced by biofuels in 2020. That number falls short of the Legislative goal of 25 percent. Based on the analysis in this study, it was assumed that the existence of the biofuel retailers' tax credits would not lead biofuel consumption in Iowa to grow more quickly relative to that expected at a national level. It seems reasonable that as energy technology changes over the next few years, the Legislature may want to reassess that goal and the tax credits created to meet it.

References

Des Moines Register, "Biodiesel Calculator," accessed at http://data.desmoinesregister.com/fuelcalculator/biodieselcalculator.php on January 5, 2009a.

Des Moines Register, "Ethanol Calculator," accessed at http://data.desmoinesregister.com/fuelcalculator/ethanolcalculator.php on January 5, 2009b.

Doyle, Joseph J. and Krislert Samphantharak, "$2.00 Gas! Studying the Effects of a Gas Tax Moratorium," *Journal of Public Economics*, Vol. 92, April 2008, pp. 869-884.

Du, Xiaodong and Dermot J. Hayes, "The Impact of Ethanol Production on U.S. and Regional Gasoline Prices and on the Profitability of the U.S. Oil Refinery Industry, " Working Paper 08-WP 467, Iowa State University, April 2008.

Energy Information Association, "Biofuels in the U.S. Transportation Sector," Washington, DC, February 2007.

Energy Information Association, "A Primer on Gasoline Prices," Washington, DC, May 2008a.

Energy Information Association, *Annual Energy Outlook 2008,* Washington, DC, June 2008b.

Energy Information Association, "Short-Term Energy Outlook 2008," Washington, DC, December 9 2008c.

Illinois Department of Revenue, "Motor Fuel Tax Gasoline and Gasohol Taxable Gallons Reported 2005-2007," accessible at http://www.revenue.state.il.us/Motorfuel/MFT/gasgallonage.pdf.

Iowa Corn, "Ethanol Facts," accessed at http://www.iowacorn.org/ethanol/ethanol_3a.html on July 17, 2008.

Iowa Department of Revenue, "Iowa Tax Incentive Programs Used by Biofuel Producers Tax Credits Program Evaluation Study," forthcoming.

Iowa Department of Revenue, "Contingent Liabilities Reports," accessible at http://www.state.ia.us/tax/taxlaw/creditstudy.html#Con.

Iowa Department of Revenue, "Iowa Motor Fuel Tax Monthly Reports," accessible at http://www.state.ia.us/tax/forms/motor.html#Monthly.

Iowa Department of Revenue, *2007 Iowa Renewable Fuels Report*, April 2008a.

Iowa Department of Revenue, *Tax Credits User's Manual: A Descriptive Guide to Iowa's State Tax Credits*, June 2008b, accessible at http://www.state.ia.us/tax/taxlaw/IDRTaxCreditsUsersManual.pdf.

Iowa Department of Economic Development, "Renewable Fuel Infrastructure Program," accessed at http://www.iowalifechanging.com/business/renewablefuels.html on January 26, 2009.

Iowa Department of Natural Resources, "Archived Fuel Price Surveys," accessible at http://www.iowadnr.com/news/fuel.html.

Iowa Renewable Fuels Association, “Iowa E85 Sales,” accessed at http://www.iowarfa.org/PDF/resources_statistics/2004-2005_E85_Sales.pdf on June 27, 2008a.

Iowa Renewable Fuels Association, “Iowa Flexible Fuel Vehicle (FFV) Fleet Increased 23 Percent in 2007,” accessed at http://www.iowarfa.org/nr080122.php on July 21, 2008b.

Kansas Department of Revenue, “Motor Fuel Statistics: Motor Fuel Activity Reports,” accessible at http://www.ksrevenue.org/mfstats.htm.

Knoles, Trent, Illinois Department of Revenue analyst, conversation held on June 17, 2008.

Minnesota Department of Revenue, “Petroleum Tax Reports,” accessible at http://www.taxes.state.mn.us/taxes/petroleum/publications/reports/petroleum_reports.shtml.

Nebraska Department of Revenue, “Motor Fuel Statistics: Monthly Comparison of Gallons,” accessed at http://www.revenue.ne.gov/fuels/gallons.htm.

Nesbit, Todd, “Excise Taxation and Product Quality: The Gasoline Market,” *Economic Issues*, Vol. 12, Part 2, September 2007, pp. 1-14.

Office of Management and Budget, “Analytical Perspectives: The Budget of the United States Government Fiscal Year 2009,” U.S. Government Printing Office, Washington DC, 2008, pp. 287-314. accessed at http://www.whitehouse.gov/omb/budget/fy2009/pdf/spec.pdf.

Renewable Fuels Association, ”Changing the Climate: Ethanol Industry Outlook 2008,” February 2008a.

Renewable Fuels Association, “E85,” accessed at http://www.ethanolrfa.org/resource/e85/ on June 17, 2008b.

Spokesman, “Higher Ethanol Blends May Provide Better Mileage,” Iowa Farm Bureau, January 9, 2008a, p. 8.

Spokesman, “Higher Ethanol Blends Pass Government Test,” Iowa Farm Bureau, October 15, 2008a, p. 8.

TaxCreditResearch.com, Outlaw Consulting, accessed at http://www.taxcreditresearch.com/.

Urbanchuk, John M. “Impact of Ethanol on Retail Gasoline Prices in South Dakota,” LECG LLC, June 26, 2008, accessed at http://www.mocorn.org/news/2008/LECG_MO_E10_Analysis.pdf, July 22, 2008.

U.S. Department of Energy, Alternative Fuels and Advanced Vehicles Data Center, “Ethanol Incentives and Laws” and “Biodiesel Incentives and Laws,” accessed at http://www.eere.energy.gov/afdc/.

Wall Street Journal, “Inflation and the Bush Legacy,” July 17, 2008, p. A15.

Iowa's Biofuel Retailers' Tax Credits
Tax Credits Program Evaluation Study

Tables and Figures

Table 1. Rate Schedule for E85 Gasoline Promotion Tax Credit

Calendar Year of Sales	Credit Per Gallon Sold
2006	$0.25
2007	$0.25
2008	$0.25
2009	$0.20
2010	$0.20
2011	$0.10
2012	$0.09
2013	$0.08
2014	$0.07
2015	$0.06
2016	$0.05
2017	$0.04
2018	$0.03
2019	$0.02
2020	$0.01
2021 and later	NA

Source: Iowa Department of Revenue, *Tax Credits User's Manual*, June 2008.
Note: The credit expires on January 1, 2021.

Table 2. Rate Schedule for the Ethanol Promotion Tax Credit

	Biofuel Threshold Percentages and Applicable Credit Rates					
	Retail Dealers Selling 200,000 or Fewer Gallons Per Year			Retail Dealers Selling More than 200,000 Gallons Per Year		
	Credit Per Gallon of Pure Ethanol Sold			Credit Per Gallon of Pure Ethanol Sold		
Calendar Year of Sales	$0.065	$0.045	$0.025	$0.065	$0.045	$0.025
2009	6%	4%	2%	10%	8%	6%
2010	6%	4%	2%	11%	9%	7%
2011	10%	8%	6%	12%	10%	8%
2012	11%	9%	7%	13%	11%	9%
2013	12%	10%	8%	14%	12%	10%
2014	13%	11%	9%	15%	13%	11%
2015	14%	12%	10%	17%	15%	13%
2016	15%	13%	11%	19%	17%	15%
2017	17%	15%	13%	21%	19%	17%
2018	19%	17%	15%	23%	21%	19%
2019	21%	19%	17%	25%	23%	21%
2020	25%	23%	21%	25%	23%	21%
2021 and later	NA	NA	NA	NA	NA	NA

Source: Iowa Department of Revenue, *Tax Credits User's Manual*, June 2008.
Note: Retail dealers can claim the highest credit rate for which they are eligible based on the taxpayer's total sales and biofuel threshold percentage. The credit expires on January 1, 2021.

Table 3. Summary of Federal and State Tax Credits, Mandates, and Incentives for Biofuel Retailer

Government	Tax Credit		Mandate/Goal	Other Incentive	
	Investment	Sales		Investment	Sales
Federal	Yes	Yes	Yes		Yes
Arkansas	Yes/Expired		Yes	Yes	
Colorado	Yes			Yes	
Florida	Yes				
Hawaii			Yes		Yes
Idaho	Yes			Yes	Yes
Illinois			Yes	Yes	Yes
Indiana		Yes		Yes	
Iowa		Yes	Yes	Yes	Yes
Kansas	Yes				Yes
Louisiana	Yes		Yes		
Maine	Yes/Expired				
Michigan				Yes	
Minnesota			Yes	Yes	
Missouri			Yes		Yes
Montana	Yes	Yes	Yes		Yes
Nebraska				Yes	
New Mexico		Yes			
New York	Yes			Yes	
North Carolina	Yes				Yes
North Dakota	Yes	Yes		Yes	Yes
Ohio		Yes		Yes	
Oklahoma	Yes	Yes			
Oregon	Yes		Yes	Yes	Yes
Pennsylvania			Yes		
Rhode Island	Yes/Expired				
South Carolina	Yes				
South Dakota		Yes			Yes
Tennessee				Yes	
Texas					Yes
Washington			Yes	Yes	Yes
Wisconsin			Yes		

Source: U.S. Department of Energy, Alternative Fuels and Advanced Vehicles Data Center, http://www.eere.energy.gov/afdc/, accessed April 14, 2008, and TaxCreditResearch.com, http://www.taxcreditresearch.com/, accessed March 2008 and January 2009.

Table 4. Federal and State Comparison of Tax Credits for Investments in Biofuel Infrastructure by Retailers

Government	Credit Name	Eligible Investments	Tax Type	Rate	Cap	Refundable	Carry Forward	Dates Applicable
Federal	Alternative Fuel Infrastructure Tax Credit	Cost of alternative refueling property for dispensing at least 85% ethanol or 2% biodiesel fuel blends	Corporate or individual income tax, can be passed back to equipment seller for non-taxpaying entities	30%	$30,000 for commercial facilities, $1,000 for buyers of residential refueling equipment	No	20 years for business credit, None for individual credit	January 1, 2006 through December 31,2009
Arkansas (Expired)	Biodiesel Incentive Act Credit	Costs of the facilities and equipment used in the wholesale or retail distribution of biodiesel fuels	Income tax	5%	NA	No	3 years	2003 through June 30, 2007
Colorado	Alternative Fuel Tax Credits	Cost of construction or acquisition of a clean fuel refueling station (also applies to purchase of a clean fuel vehicle)	Income tax	50% for tax years prior to 2006, 35% for tax years 2006 through 2008, 20% for tax years 2009 through 2010; credit is increased by 25% if at least 70% of the fuel is derived from renewable energy sources for 10 years, or the facility is accessible to others than the credit claimant	$400,000 in any consecutive five-year period for each refueling facility	No	5 years	September 2003 through December 31, 2010
Florida	Renewable Energy Technologies Investment Tax Credit	Costs incurred in the production, storage, and distribution of biodiesel and ethanol (also applies to hydrogen fuel cells or hydrogen-powered vehicles and fueling stations)	Corporate income tax	75% of all capital costs, operation and maintenance costs, and research and development costs	$6.5 million statewide cap per fiscal year for the production, storage, and distribution of biodiesel and ethanol	No	through 2012	July 1, 2006 through June 30, 2010
Idaho	Capital Investment in Biofuel Infrastructure Credit	Investments made in new fueling infrastructure used to sell biofuel or upgrades of existing fueling infrastructure that is not compatible with biofuel	Income tax or property tax	6% of the qualified investment; in lieu of the general 3% investment tax credit	50% of the income tax liability of the taxpayer	No	5 years	July 1, 2007 through December 31, 2011
Kansas	Alternative Fuel Tax Credit	Expenditures for alternative fueling stations (incluces puchase of alternative fuel vehicles)	Income tax	40% of expenditures up to a maximum amount; 50% of expenditures prior to January 1, 2005	$200,000 per refueling station before January 1, 2005; $160,000 per refueling station between January 1, 2005 and January 1, 2009; $100,000 after January 1, 2009	No	3 years through 2008; 4 years in 2009 or later	January 1, 1996 to present
Louisiana	Credit for Converting Vehicles to Alternative Fuel Usage	Costs of qualified clean-burning motor vehicle fuel property (includes refueling stations and vehicles)	Income tax	20% of costs of qualified property located in the state	NA	No	3 years	1991 to present

Table 4 (cont). Federal and State Comparison of Tax Credits for Investments in Biofuel Infrastructure by Retailers

Government	Credit Name	Eligible Investments	Tax Type	Rate	Cap	Refundable	Carry Forward	Dates Applicable
Maine (Expired)	Clean Fuel Credit	Costs to construct, install or improve a filling or charging station for the purposes of providing clean fuels to the public for use in motor vehicles	Income tax	50% of expenditures from 1999 through 2001; 25% of expenditures from 2002 through 2008	Credit may not exceed the income tax generated by the sales of clean fuels for use in motor vehicles	No	99 years	January 1, 1999 through December 31, 2008
Montana	Biodiesel Blending and Storage Credit	Investment made in storage and blending equipment used to blend biodiesel made from Montana-based feedstocks where by the end of the third year, biodiesel sales will at least total 2% of diesel sales	Income tax	15% of the equipment costs incurred the year blending begins	$52,500 cap per retailer, $7,500 cap per owner or operator of a motor fuel outlet	No	7 years	2005 to present
New York	Alternative Fuels Credit	Expenses incurred for alternative fuel vehicle refueling property	Income tax	50% of the property cost	NA	No	100 years	January 1, 1997 through December 31, 2010
North Carolina	Renewable Fuel Facilities Credit	Cost of construction or installation of a facility for dispensing biodiesel or 70% or more ethanol mixes	Franchise or income tax	15% of costs for dispensing facilities; 35% for projects exceeding $400 million in costs	50% of franchise or income tax liability, credit must be claimed over seven years beginning the year after costs incurred	No	5 years	2005 to December 31, 2010
North Dakota	Biodiesel Fuel Sales Equipment Credit	Cost to adapt or add equipment that enables a facility to sell at least 2% biodiesel blends	Income tax	10% of direct costs	$50,000 cumulative credit claims per taxpayer for all taxable years, credit is allowed in each of five taxable years beginning the year biodiesel sales begin	No	5 years	January 1, 2005 to present
Oklahoma	Alternative Clean Fuel/ Electric Vehicle Credit	Cost of property which is directly related to the delivery of certain types of alternative fuels into the fuel tank of a motor vehicle propelled by such fuel	Income tax	50% of cost of property	NA	No	3 years	1990 through January 1, 2010
Oregon	Alternative Fuel Vehicle Fueling Station Credit	Cost of construction or installation of a alternative fuel refilling station	Excise tax	25% of the qualified costs for the fueling facility	$750 per fueling station	No	5 years	January 1, 1998 to present
Rhode Island (Expired)	Alternative Fueled Vehicle and Filling Station Credit	Costs incurred to construct or improve a filling station to sell alternative fuels at retail (also applies to puchase of alternative fuel vehicles)	Income tax	50% of eligible costs	NA	No	5 years	1998 through January 1, 2008
South Carolina	Renewable Fuels Credit	Cost of purchase or construction of commercial facilities that distribute renewable fuel	Income tax	25% of the qualified costs for the fueling facility including pumps, storage tanks, and related equipment taken in three equal annual installments	NA	No	10 years	January 1, 2007 through December 31, 2010

Source: U.S. Department of Energy, Alternative Fuels and Advanced Vehicles Data Center, http://www.eere.energy.gov/afdc/, accessed April 14, 2008, and TaxCreditResearch.com, http://www.taxcreditresearch.com/, accessed March 2008 and January 2009

Table 5. Federal and State Comparison of Tax Credits for Biofuel Sales by Retailers and Blenders

Government	Credit Name	Tax Type	Rate	Cap	Refundable	Carry Forward	Dates Applicable
Federal	Volumetric Ethanol Excise Tax Credit (VEETC)	Excise tax (refund against the $0.184 excise tax per gallon of motor fuel)	$0.51 per pure gallon of ethanol blended through 2008, $0.45 per pure gallon in 2009 (only blenders are eligible)	NA	Yes	NA	January 1, 2005 through December 31, 2010
	Volumetric Biodiesel Excise Tax Credit (VBETC)	Excise tax (refund against the $0.184 excise tax per gallon of motor fuel) or Income tax	$1.00 per pure gallon of biodiesel (only blenders are eligible)	NA	Yes	NA	January 1, 2005 through December 31, 2009
Indiana	E85 Fuel Retailer Tax Credit	Sales tax	$0.18 per gallon of E85 sold	$1 million for all retail merchants in all reporting periods	NA	NA	January 1, 2007 through June 30, 2020
	Blended Biodiesel Retailer Tax Credit	Sales, income, insurance premium, and financial institutions tax	$0.01 per gallon of blended biodiesel sold, credit contingent upon funding	$1 million for all retail merchants in all reporting periods	No	6 years	January 1, 2003 through December 31, 2010
Iowa	Ethanol Blended Gasoline Tax Credit	Income tax	$0.025 per gallon of E10 above 60% of total gasoline sales per retailer	NA	Yes	NA	January 1, 2002 through December 31, 2008
	E85 Gasoline Promotion Tax Credit	Income tax	$0.25 per gallon, declining over time	NA	Yes	NA	January 1, 2006 through December 31, 2020
	Biodiesel Blended Fuel Tax Credit	Income tax	$0.03 per gallon of B2, when at least 50% of diesel sales at a retailer are biodiesel	NA	Yes	NA	January 1, 2006 through December 31, 2011
	Ethanol Promotion Tax Credit	Income tax	$0.025 per gallon pure ethanol with lowest threshold biofuels sales, $0.045 per gallon with middle threshold, $0.065 per gallon with highest threshold	NA	Yes	NA	January 1, 2009 through December 31, 2020
Montana	Biodiesel Tax Credit	Special fuel tax	$0.02 per gallon refund of taxes paid by licensed distributors on biodiesel produced entirely from Montana components; $0.01 per gallon refund of taxes paid by retailers on biodiesel produced entirely from Montana components	NA	NA	NA	NA

Table 5 (cont). Federal and State Comparison of Tax Credits for Biofuel Sales by Retailers and Blenders

Government	Credit Name	Tax Type	Rate	Cap	Refundable	Carry Forward	Dates Applicable
New Mexico	Blended Biodiesel Fuel Credit	Excise tax	$0.03 per gallon for tax years 2007 through 2010; $0.02 per gallon for tax year 2011; $0.01 per gallon for tax year 2012	NA	No	5 years	January 1, 2007 through December 31, 2012
North Dakota	Biodiesel Fuel Blending Credit	Income tax	$0.05 per gallon of at least 5% blend biodiesel (B5) can be claimed by a blender	NA	No	5 years	January 1, 2005 to present
Ohio	Biofuels Retail Tax Credit	Corporate income tax	$0.15 per gallon in 2008 and $0.13 per gallon in 2009 of E85 or at least a 20 percent biodiesel blend	NA	No	No	January 1, 2008 through December 31, 2009
Oklahoma	Ethanol Fuel Retailer Tax Credit	Motor fuel tax	$0.016 for each gallon of ethanol blend sold if retailer provides price reduction of equal amount	NA	No	No	January 1, 2006 to present
South Dakota	Ethanol and Methanol Tax Report Credit	Motor fuel tax	Equals the $0.12 differential in per gallon taxes on gasoline versus E85 (only blenders are eligible)	NA	No	NA	NA

Source: U.S. Department of Energy, Alternative Fuels and Advanced Vehicles Data Center, http://www.eere.energy.gov/afdc/, accessed April 14, 2008, and TaxCreditResearch.com, http://www.taxcreditresearch.com/, accessed March 2008 and January 2009

Table 6. Federal and State Biofuels Mandates or Goals and Other Investment or Sales Incentive Programs

Government	Mandate/Goal	Incentive for Investment	Incentive for Sales
Federal	*Effective Mandate* - In 2008, 9 billion gallons of renewable fuel must be used, increasing to 36 billion gallons per year by 2022. Beginning in 2013, a certain percentage of the renewable fuels must be advanced and/or cellulosic based biofuels and biomass-based diesel, pending final rulemaking by EPA.		The excise tax for E10 is $.053 cents per gallon lower than for gasoine.
Arkansas	*Goal* - Arkansas Alternative Fuels Development Act establishes an annual goal of 50 million gallons of alternative fuels produced at production facilities in the state by October 6, 2008.	Alternative fuel distributors can receive $50,000 to assist with the distribution and storage of alternative fuels or alternative fuels mixture at distribution facilities that are located and operated in Arkansas. Funding is available between January 1, 2007 through July 1, 2009.	
Colorado		For tax years beginning prior to January 1, 2011, the Colorado Department of Revenue offers an income tax credit for the cost of construction, reconstruction, or acquisition of an alternative fuel fueling facility that is directly attributable to the storage, compression, charging, or dispensing of alternative fuels to motor vehicles. The credit value is 35% for tax years 2006 through 2008 and 20% for tax years 2009 and 2010. For an alternative fuel refueling facility that will be generally accessible for use by the public, in addition to the person claiming the credit, the percentages specified above will be multiplied by 1.25.	
Hawaii	*Effective Mandate* -Beginning April 2, 2006, at least 85% of Hawaii's unleaded gasoline must be fuel blends containing at least 10% ethanol (E10).		Ethanol blends with 10% or higher are exempt from the state fuel sales tax.
Idaho		For taxable years beginning on or after January 1, 2007, and before December 31, 2011, qualified fueling infrastructure is eligible for up to a 6% tax credit against individual or coporate income taxes. The allowable credit cannot exceed 50% of the income tax liability of the taxpayer. The Rural Idaho Economic Development Biofuel Infrastructure Matching Grant Fund is established to provide grants for up to 50% of the cost of installing new fueling infrastructure dedicated to offering biofuels for retail sale, or for upgrading existing fueling infrastructure in order to be compatible with biofuels for the purpose of offering biofuels for sale.	Idaho offers a tax deduction to licensed motor fuel distributors based on the renewable content of the fuel. Motor fuel excise taxes on E10 are $0.025 lower per gallon than on gasoline.

Table 6 (cont). Federal and State Biofuels Mandates or Goals and Other Investment or Sales Incentive Programs

Government	Mandate/Goal	Incentive for Investment	Incentive for Sales
Illinois	*Goal* - The Governor of Illinois developed an energy independence plan that sets a goal of replacing 50% of the state's energy supply with homegrown fuels by 2017. Specifically, in relation to biofuels, the plan will: 1) invest in renewable biofuels by providing financial incentives to build up to 20 new ethanol plants and five new biodiesel plants; and 2) increase the number of gasoline stations that sell biofuels, to ensure that all gasoline stations in the state offer E85 by 2017, and to help the auto industry increase the number of flexible fuel vehicles they produce and increase public awareness about E85.	The Illinois E85 Clean Energy Infrastructure Development Program has $500,000 in funding available to establish new E85 fueling stations at retail gasoline facilities in Illinois. The program will provide up to 50% of the total cost for converting an existing facility to dispense E85 (with a maximum grant of $3,000 per fueling station), or up to 30% of the cost to construct a new E85 fueling station or for a major modification to an existing fueling station (with a maximum grant of up to $30,000 per facility).	Sales and use taxes do not apply to ethanol-blended fuels containing between 70% and 90% ethanol sold between July 1, 2003, and December 31, 2013. Sales and use taxes do not apply to the proceeds from the sale of biodiesel blends containing more than 10% biodiesel prior to December 31, 2013. Ethanol with a 10% blend fuel faces a 5% sales and use tax compared to 6.25% for gasoline.
Indiana		E85 Fueling Station Grant Program has grants of up to $5,000 available toward the purchase of new E85 refueling equipment or the conversion of existing equipment to allow for E85 refueling in Indiana, although the total amount of grants awarded for all fiscal years may not exceed $1 million.	
Iowa	*Goal* - The goal of the Iowa RFS is to replace 25% of gasoline in the state with biofuels (ethanol or biodiesel) by January 1, 2020.	A state cost-share program allows grants under a three-year agreement of either 50% or up to $30,000 or under a five-year agreement of either 70% or up to $50,000 to apply toward the costs of installing or converting E85 or biodiesel refueling infrastructure. This program began May 2008. A similar cost-share program, with a maximum expenditure of $325,000 annually, existed between July 1, 2005, and ending June 30, 2008.	Motor fuel tax rate on E10 and E85 is $.02 lower than the tax rate on gasoline for July 1, 2008 through June 30, 2009. The motor fuel tax rate on E10 and gasoline is readjusted every fiscal year depending on the gasohol share of sales in the prior calendar year. Starting in FY 2013, the tax rate will be $0.20 per gallon on both gasohol and gasoline.
Kansas			Beginning January 1, 2009, a licensed retail motor fuel dealer may receive a quarterly incentive for selling and dispensing renewable fuels, including biodiesel. Qualified motor fuel dealers are eligible for up to $0.065 for every gallon of renewable fuel sold and up to $0.03 for every gallon of biodiesel sold, if the required threshold percentage is met. The threshold percentage for the incentive payment will increase on an annual basis from 10% for renewable fuel and 2% for biodiesel in 2009 to 25% beginning on January 1, 2024.

Table 6 (cont). Federal and State Biofuels Mandates or Goals and Other Investment or Sales Incentive Programs

Government	Mandate/Goal	Incentive for Investment	Incentive for Sales
Lousiana	*Mandate* - Within six months following the point at which cumulative monthly production of denatured ethanol produced in the state equals or exceeds an annual production volume of at least 50 million gallons, 2% of the total gasoline sold by volume in the state must be denatured ethanol produced from domestically grown feedstock or other biomass materials. Within six months following the point at which cumulative monthly production of biodiesel produced in the state equals or exceeds an annual production volume of 10 million gallons, 2% of the total diesel sold by volume in the state must be biodiesel produced from domestically grown feedstock.		
Michigan		Ethanol and Biodiesel Matching Grant Program provides incentives to owners and operators of service stations to convert existing and install new fuel delivery systems designed to provide E85 and biodiesel blends. Grants may not exceed 75% of the costs to convert existing fueling infrastructure, up to $3,000 per facility. Grants may not exceed 50% of the new construction costs to install new fueling infrastructure, up to $12,000 per facility for E85 and $4,000 per facility for biodiesel blends.	
Minnesota	*Effective Mandate* - All gasoline sold or offered for sale in the state must contain at least 10% ethanol by volume (E10). Some exemptions apply. Effective August 30, 2013, all gasoline sold or offered for sale in the state must contain at least 20% ethanol by volume (E20), unless ethanol has already replaced 20% of all motor vehicle fuel sold in the state by December 31, 2010, or federal approval has not been granted for the use of E20. All diesel fuel sold or offered for sale in the state for use in internal combustion engines must contain at least 2 percent biodiesel fuel by volume, rising to 5 percent May 5, 2009. The mandate will rise to B10 in May 2012 and B20 in May 2015 for non-winter months following a review that increasing to a higher blend ratio does not cause economic or environmental harm, and that the supply will be available. Additionally, at least half of the biodiesel must be produced within the state.	Grants administered by the Minnesota E85 Team are available to service stations installing equipment or converting existing equipment for dispensing E85 fuel to flexible fuel vehicles. Cost eligibility and grant amounts vary according to grant sponsorship.	
Missouri	*Effective Mandate* - Missouri Renewable Fuel Standard requires that, after January 1, 2008, all gasoline sold or offered for sale at retail stations within the state must contain 10% ethanol. This requirement is waived only if a distributor is unable to purchase ethanol or ethanol-blended gasoline at the same or lower price as unblended gasoline. Premium gasoline is exempt from this requirement.		The $0.17 per gallon motor fuel tax does not apply to passenger motor vehicles, certain buses, or commercial motor vehicles that are powered by an alternative fuel. Instead, the owners or operators of such vehicles are required to pay an annual alternative fuel decal fee ranging from $75 to $1,000.

Table 6 (cont). Federal and State Biofuels Mandates or Goals and Other Investment or Sales Incentive Programs

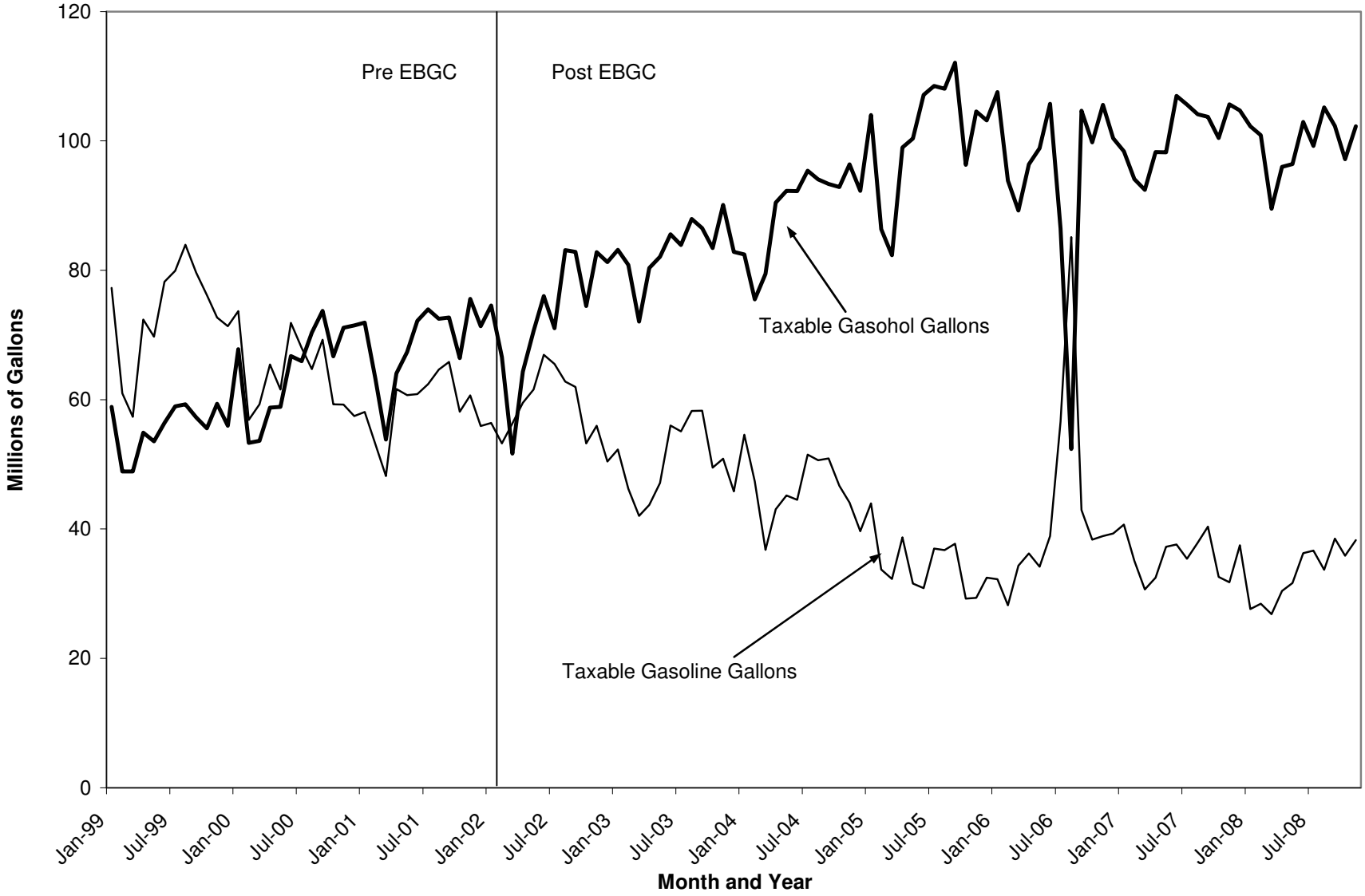
Government	Mandate/Goal	Incentive for Investment	Incentive for Sales
Montana	*Mandate* - All gasoline sold to consumers for use in motor vehicles operating on public roads must be blended with 10%, by volume, of agriculturally derived, denatured ethanol, within one year after the Montana Department of Transportation has certified that the state has produced 40 million gallons of ethanol and has maintained that level of production on an annualized basis for at least 3 months.		A state road tax reduction of 15%, as compared to the tax on gasoline, is available to consumers for using ethanol-blended fuel. This incentive will be available until the Montana renewable fuels standard is in effect.
Nebraska		Nebraska Energy Office administers the Dollar and Energy Saving Loans Program which makes low-cost loans available for the construction or purchase of a refueling station or equipment. The maximum loan amount is $150,000 per borrower, and the interest rate is 5% or less.	
New York		Biofuel Station Initiative Program (Program) provides a reimbursement of up to 50% of the cost of new installations of biofuel dispensing equipment, storage tanks, and associated piping equipment, not to exceed $50,000 per site.	
North Carolina			The retail sale, use, storage or consumption of alternative fuels is exempt from the state retail sales and use tax.
North Dakota		Biofuels Partnership in Assisting Community Expansion (PACE) Loan Program will provide a 5% interest buy down to biofuels retailers for refueling infrastructure installation.	The sale of ethanol blended gasoline fuel containing 85% ethanol (E85) is exempt from the $0.23 per gallon tax, and is instead subject to a reduced tax of $0.01 per gallon on all E85 fuel sold or used in the state.
Ohio		Alternative Fuel Transportation Grant Program authorized $900,000 for the purchase and installation of alternative fuel fueling and blending facilities, and for the purchase and use of alternative fuel by businesses, nonprofit organizations, public school systems, and local governments	
Oregon	*Effective Mandate* - All gasoline sold in the state must be blended with 10% ethanol since mid-2008, three months after retailers were notified by the Oregon Department of Agriculture (ODA) that Oregon ethanol production has reached 40 million gallons per year. In addition, all diesel fuel sold in the state must be blended with 2% biodiesel within three months after retailers are notified by the ODA that biodiesel production from sources in the Pacific Northwest (consisting of Oregon, Washington, Idaho, and Montana) has reached a level of at least five million gallons on an annualized basis for at least three months. The biodiesel blending requirement increases to 5% when the annual production level reaches at least 15 million gallons on an annualized basis for at least three months.	The Retail and Fleet Biofuels Infrastructure Grant provides incentives of up to $10,000 to install or convert fueling equipment at retail gasoline stations and fleet fueling sites to B20 or higher biodiesel blends and E85 ethanol blends.	Biofuels Use Tax Credit offers consumers an income tax credit equal to $0.50 per gallon of E85 or B99 purchased, up to $200 per alternative-use vehicle registered in the state and owned or leased by the resident taxpayer. The credit is in effect January 1, 2007 through January 1, 2013.

Table 6 (cont). Federal and State Biofuels Mandates or Goals and Other Investment or Sales Incentive Programs

Government	Mandate/Goal	Incentive for Investment	Incentive for Sales
Pennsylvania	*Goal* - PennSecurity Fuels Initiative, established in 2006, aims to reduce dependence on foreign oil by replacing 900 million gallons of the state's transportation fuels with alternative sources over the next decade. The initiative requires that a certain percentage of retail transportation fuel sales contain eligible fuels such as biodiesel and ethanol, and it also invests $30 million in existing funds from the state's Alternative Fuels Incentive Grant program to build alternative fuel fueling and production infrastructure over the next five years.		
South Dakota			Motor fuel excise tax rate on E10 is $0.02 per gallon lower than on gasoline.
Tennessee		Tennessee Department of Transportation is authorized to establish a grant program to provide financial assistance to help pay the capital costs of purchasing, preparing, and installing fuel storage tanks and fuel pumps for biofuels at private sector fuel stations.	
Texas			Biodiesel or ethanol blended with taxable diesel, that is identified when sold or used as a biodiesel or ethanol fuel blend, is exempt from the diesel fuel tax.
Washington	*Mandate* - At least 2% of the diesel sold in Washington must be biodiesel, beginning November 30, 2008, or when a determination is made by the Director of the Department of Ecology that feedstock grown in Washington State can satisfy a 2% fuel blend requirement. The biodiesel requirement would increase to 5% once in-state feedstocks and oil-seed crushing capacity can meet a 3% requirement. Additionally, by December 1, 2008, at least 2% of the total gasoline sold in the state must be denatured ethanol. The ethanol requirement could be increased to 10% if the Director of the Department of Ecology determines that this would not jeopardize continued attainment of federal Clean Air Act standards.	Energy Freedom Program awards low-interest loans and grants up to $50,000 for construction of new alternative fuel refueling facilities as well as upgrades and expansion of existing refueling infrastructure offered to the public. Funding for refueling infrastructure projects will only be awarded if the project is located within a 'green highway zone' in the state, which is a designated area within reasonable proximity of Washington State Routes 5, 90, and 82.	A tax deduction is available for the sale or distribution of biodiesel or E85 motor fuel. This deduction is available until July 1, 2015. Fuel delivery vehicles and machinery, equipment, and related services that are used for the retail sale or distribution of a biodiesel blend or E85 motor fuel are exempt from state retail fuel sales and use taxes. This tax exemption expires July 1, 2015.
Wisconsin	*Goal* - Aims to generate 25% of its transportation fuels from renewable sources by the year 2025		

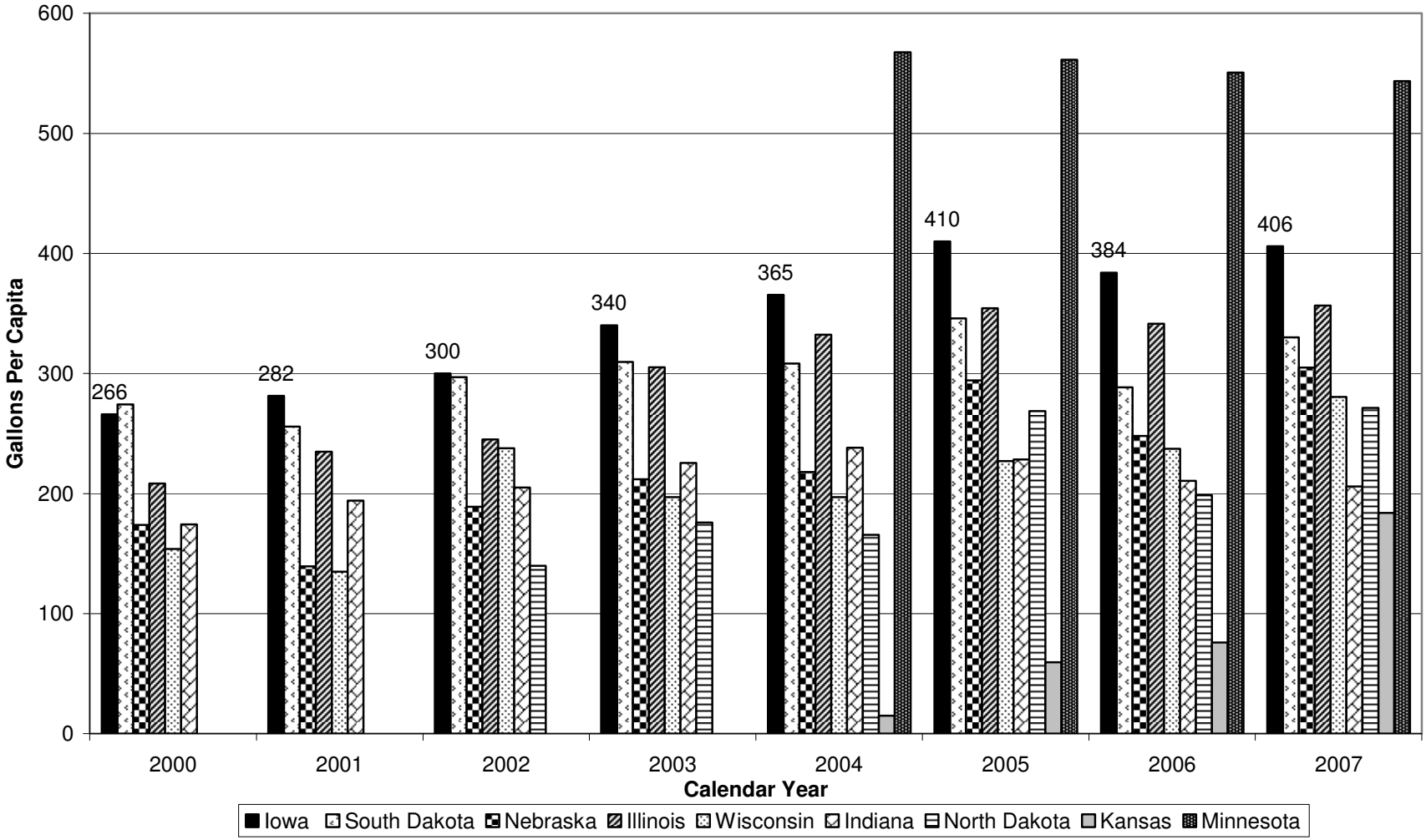
Source: U.S. Department of Energy, Alternative Fuels and Advanced Vehicles Data Center, http://www.eere.energy.gov/afdc/, accessed April 14, 2008.

Figure 1. Iowa Monthly Taxable Distributions of Gasoline and Gasohol



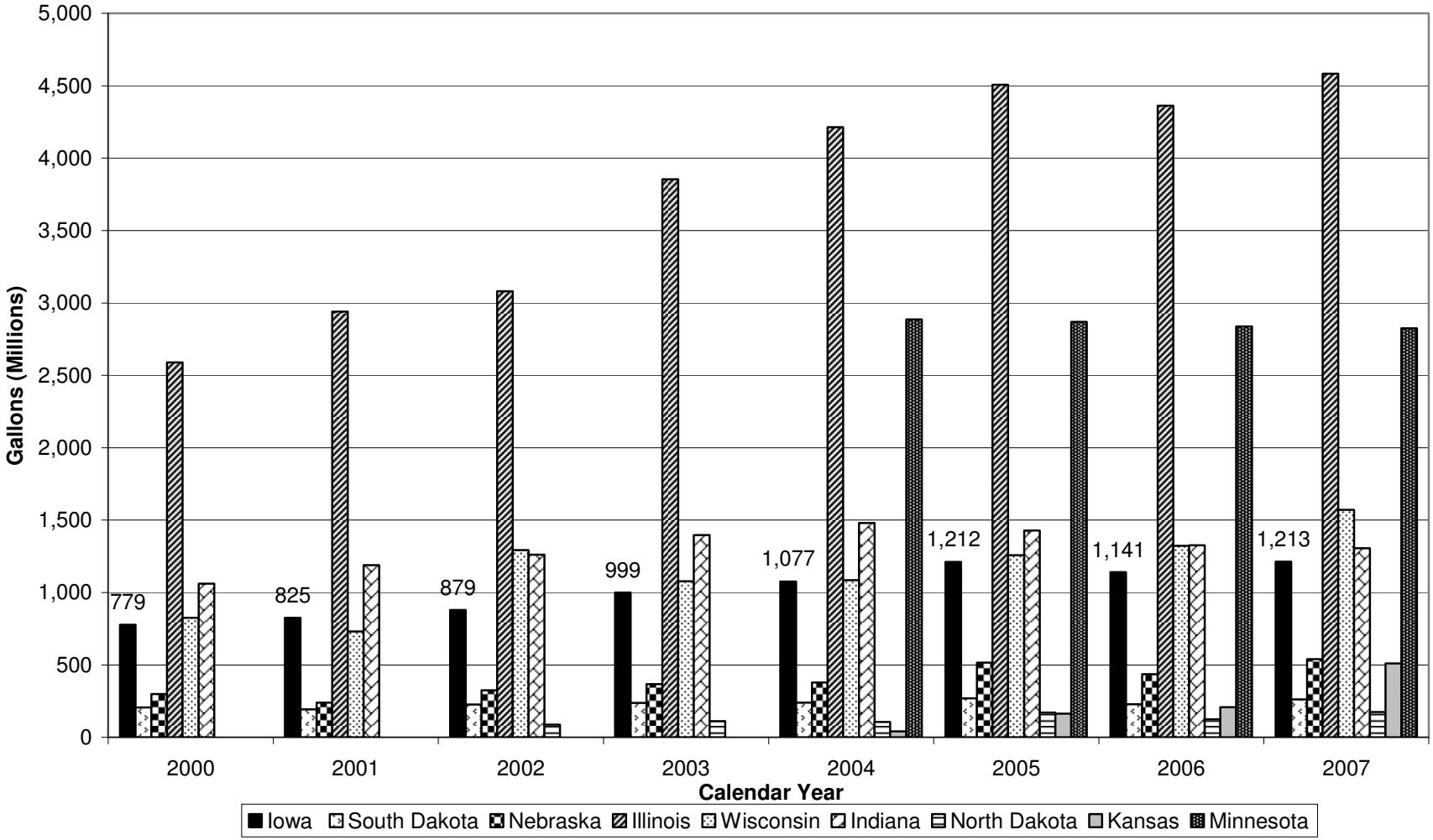
Source: Iowa Department of Revenue, *Iowa Motor Fuel Tax Monthly Reports*

Figure 2. Taxable Gasohol Gallons Per Capita in Midwestern States, 2000 to 2007



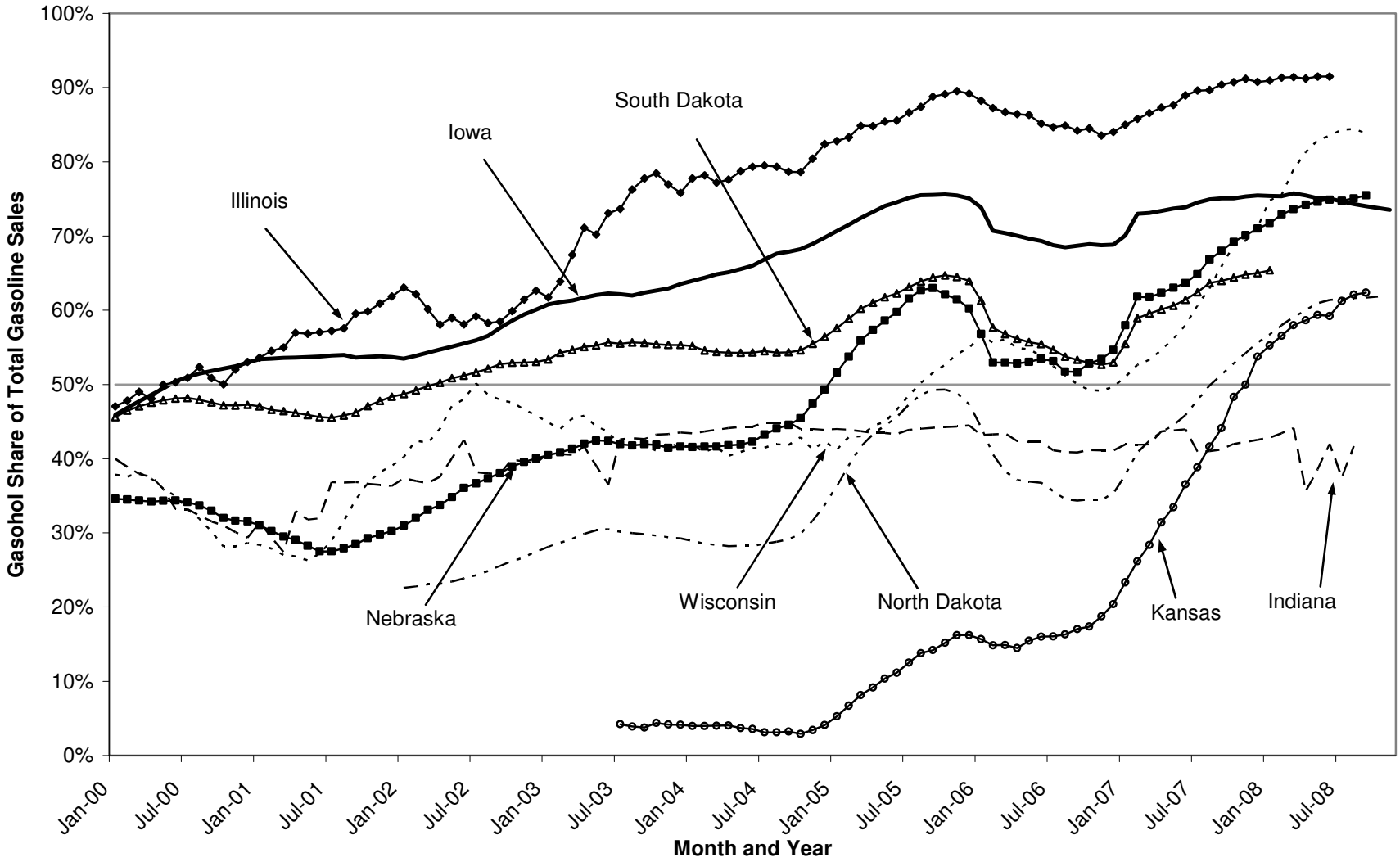
Source: Gasohol data from state departments of revenue, population data from U.S. Census

Figure 3. Total Taxable Gasohol Gallons in Midwestern States, 2000 to 2007



Source: Gasohol data from state departments of revenue

Figure 4. Monthly Gasohol Share in Midwestern States, 2000 to 2008 (12-Month Moving Average)



Source: Author's calculations using data from state departments of revenue

Table 7. Change in Gasohol Shares Across Midwestern States Between 2002 and 2007

	Iowa	South Dakota	Nebraska	Illinois	Wisconsin	Indiana	North Dakota	Average
Gasohol Share								
2002	55.5%	51.6%	36.7%	59.2%	50.1%	38.2%	24.3%	45.1%
2007	73.9%	62.4%	64.9%	89.6%	60.6%	40.9%	47.9%	62.9%
Rank 2002	*2*	*3*	*6*	*1*	*4*	*5*	*7*	
Rank 2007	*2*	*4*	*3*	*1*	*5*	*7*	*6*	
Percentage Point Change	18.3%	10.8%	28.2%	30.4%	10.5%	2.8%	23.6%	17.8%
Rank	*4*	*5*	*2*	*1*	*6*	*7*	*3*	
Percentage Change	133.0%	120.9%	176.9%	151.4%	120.9%	107.2%	197.1%	139.5%
Rank	*4*	*5*	*2*	*3*	*6*	*7*	*1*	

Source: Authors' calculations based on data provided by state departments of revenue.
Note: Because Kansas and Minnesota annual gasohol shares are not available until after 2002, those states are not included in this table.

Table 8. Motor Fuel Excise Tax Rates Collected by Federal and State Governments

Government	Gasoline Excise Tax	Gasoline Add'l Tax	Gasoline Total Tax	Gasohol Excise Tax	Gasohol Add'l Tax	Gasohol Total Tax	Diesel Fuel Excise Tax	Diesel Fuel Add'l Tax	Diesel Fuel Total Tax	Notes
Federal	18.3	0.1	18.4	13.0	0.1	13.1	24.3	0.1	24.4	*/7 LUST tax*
Alabama /1	16.0	2.0	18.0	16.0	2.0	18.0	19.0		19.0	*Inspection fee*
Alaska	8.0		8.0	8.0		8.0	8.0		8.0	
Arizona	18.0		18.0	18.0		18.0	18.0		18.0	*/3*
Arkansas	21.5		21.5	21.5		21.5	22.5		22.5	
California	18.0		18.0	18.0		18.0	18.0		18.0	*Sales tax applicable*
Colorado	22.0		22.0	22.0		22.0	20.5		20.5	
Connecticut	25.0		25.0	25.0		25.0	37.0		37.0	
Delaware	23.0		23.0	23.0		23.0	22.0		22.0	*Plus 0.5% GRT*
Florida /2	4.0	11.6	15.6	4.0	11.6	15.6	16.8	12.2	29.0	*Sales tax added to excise /2*
Georgia	7.5	11.0	18.5	7.5	11.0	18.5	7.5	12.3	19.8	*Sales tax added to excise*
Hawaii /1	17.0		17.0	17.0		17.0	17.0		17.0	*Sales tax applicable*
Idaho	25.0	1.0	26.0	22.5	1.0	23.5	25.0	1.0	26.0	*Clean water tax /7*
Illinois /1	19.0	1.1	20.1	19.0	1.1	20.1	21.5	1.1	22.6	*Sales tax add., env. & LUST fee /3*
Indiana	18.0		18.0	18.0		18.0	16.0		16.0	*Sales tax applicable /3*
Iowa	20.7		20.7	19.0		19.0	22.5		22.5	
Kansas	24.0		24.0	24.0		24.0	26.0		26.0	
Kentucky	19.6	1.4	21.0	19.6	1.4	21.0	16.6	1.4	18.0	*Environmental fee /4 /3*
Louisiana	20.0		20.0	20.0		20.0	20.0		20.0	
Maine	27.6		27.6	27.6		27.6	28.8		28.8	*/5*
Maryland	23.5		23.5	23.5		23.5	24.25		24.25	
Massachusetts	21.0		21.0	21.0		21.0	21.0		21.0	
Michigan	19.0		19.0	19.0		19.0	15.0		15.0	*Sales tax applicable*
Minnesota	20.0		20.0	20.0		20.0	20.0		20.0	
Mississippi	18.0	0.4	18.4	18.0	0.4	18.4	18.0	0.4	18.4	*Environmental fee*
Missouri	17.0	0.55	17.55	17.0	0.55	17.55	17.0	0.55	17.55	*Inspection fee*
Montana	27.0		27.0	27.0		27.0	27.75		27.75	
Nebraska	23.0	0.9	23.9	23.0	0.9	23.9	23.0	0.3	23.3	*Petroleum fee /5*
Nevada /1	24.0	0.055	24.055	24.0	0.055	24.055	27.0		27.0	*Inspection fee*
New Hampshire	18.0	1.625	19.625	18.0	1.625	19.625	18.0	1.625	19.625	*Oil discharge cleanup fee*
New Jersey	10.5	4.0	14.50	10.5	4.0	14.50	13.5	4.0	17.50	*Petroleum fee*
New Mexico	17.0	1.875	18.875	17.0	1.875	18.875	21.0	1.875	22.875	*Petroleum loading fee*
New York	8.0	16.4	24.4	8.0	16.4	24.4	8.0	14.65	22.65	*Sales tax applicable, Petrol. Tax*
North Carolina	29.9	0.25	30.15	29.9	0.25	30.15	29.9	0.25	30.15	*/4 Inspection tax*
North Dakota	23.0		23.0	23.0		23.0	23.0		23.0	
Ohio	28.0		28.0	28.0		28.0	28.0		28.0	*Plus 3 cents commerical*
Oklahoma	16.0	1.0	17.0	16.0	1.0	17.0	13.0	1.0	14.0	*Environmental fee*
Oregon /1	24.0		24.0	24.0		24.0	24.0		24.0	
Pennsylvania	12.0	19.2	31.2	12.0	19.2	31.2	12.0	26.1	38.1	*Oil franchise tax*
Rhode Island	30.0	1	31.0	30.0	1	31.0	30.0	1	31.0	*LUST tax*
South Carolina	16.0		16.0	16.0		16.0	16.0		16.0	
South Dakota /1	22.0		22.0	20.0		20.0	22.0		22.0	
Tennessee /1	20.0	1.4	21.4	20.0	1.4	21.4	17.0	1.4	18.4	*Petroleum Tax & Envir. Fee*
Texas	20.0		20.0	20.0		20.0	20.0		20.0	
Utah	24.5		24.5	24.5		24.5	24.5		24.5	
Vermont	19.0	1.0	20.0	19.0	1.0	20.0	25.0	1.0	26.0	*Petroleum cleanup fee*
Virginia /1	17.5		17.5	17.5		17.5	17.5		17.5	*/6*
Washington /8	36.0		36.0	36.0		36.0	36.0		36.0	*0.5% privilege tax*
West Virginia	20.5	11.7	32.2	20.5	11.7	32.2	20.5	11.7	32.2	*Sales tax added to excise*
Wisconsin	30.9	2.0	32.9	30.9	2.0	32.9	30.9	2.0	32.9	*/5 Petroleum Inspection fee*
Wyoming	13.0	1	14.0	13.0	1	14.0	13.0	1	14.0	*License tax*
Dist. of Columbia	20.0		20.0	20.0		20.0	20.0		20.0	

Source: Compiled by the Federation of Tax Administrators from various sources as of January 1, 2008.
Note: The tax rates listed are fuel excise taxes collected by distributor/supplier/retailers in each state. Additional taxes may apply to motor carriers.

/1 Tax rates do not include local option taxes. In AL, 1 - 3 cents; HI, 8.8 to 18.0 cent; IL, 5 cents in Chicago and 6 cents in Cook county (gasoline only); NV, 4.0 to 9.0 cents; OR, 1 to 3 cents; SD and TN, one cent; and VA 2%.

/2 Local taxes for gasoline and gasohol vary from 10.2 cents to 18.2 cents. Plus a 2.07 cent per gallon pollution tax.

/3 Carriers pay an additional surcharge equal to AZ-8 cents, IL-6.3 cents (g) 6.0 cents (d), IN-11 cents, KY-2% (g) 4.7% (d).

/4 Tax rate is based on the average wholesale price and is adjusted quarterly. The actual rates are: KY, 9%; and NC, 17.5¢ + 7%.

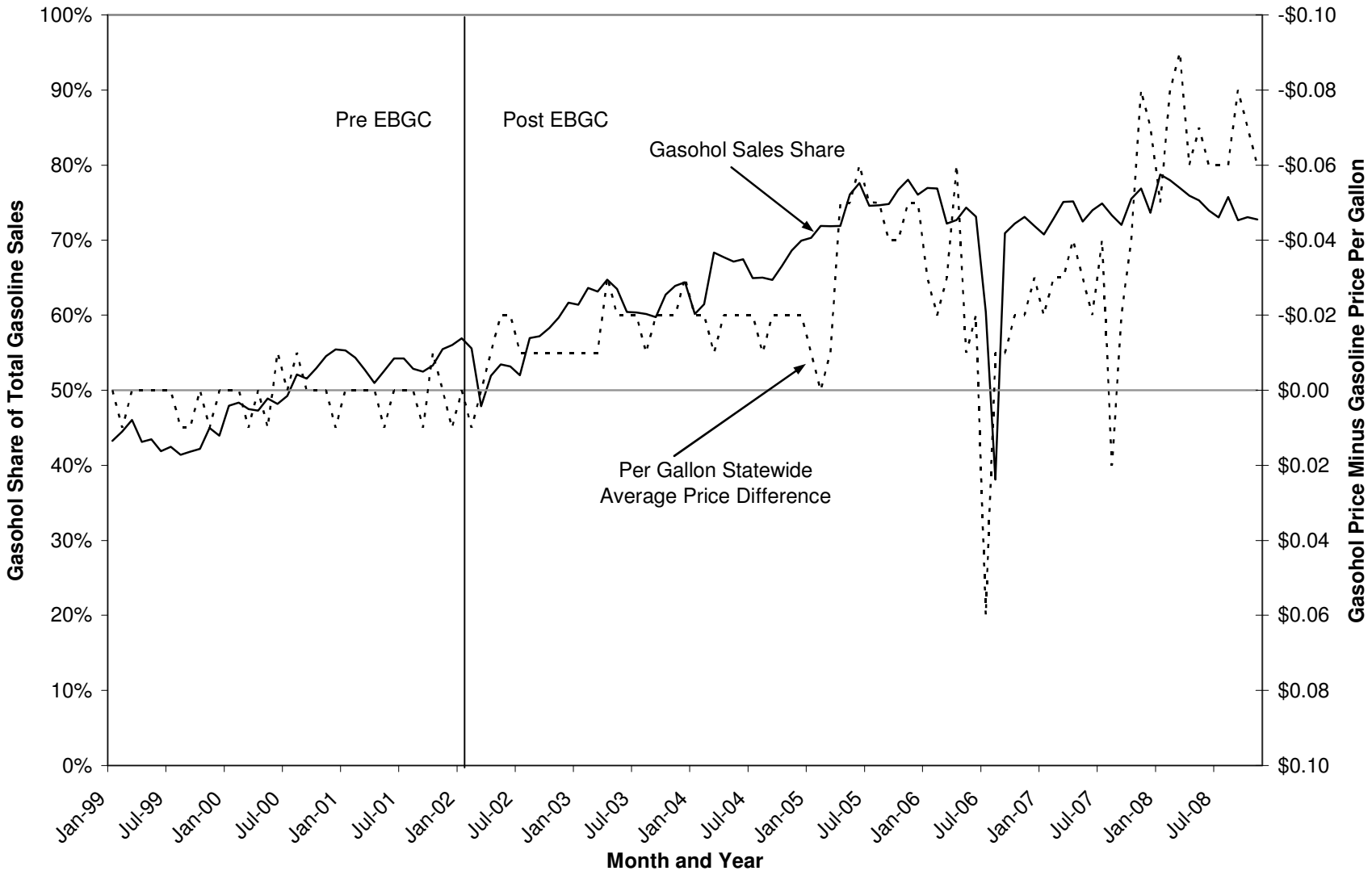
/5 Portion of the rate is adjustable based on maintenance costs, sales volume, or inflation.

/6 Large trucks pay an additional 3.5 cents.

/7 Tax rate is reduced by the percentage of ethanol used in blending (reported rate assumes the max. 10% ethanol).

/8 Tax rate scheduled to increase to 37.5 cents on July 1, 2008.

Figure 5. Iowa Gasohol Sales Share and Statewide Gasohol/Gasoline Price Difference, 1999 to 2008



Source: Iowa Department of Revenue, *Iowa Motor Fuel Tax Monthly Reports;* Iowa Department of Natural Resources, *Fuel Price Surveys*

Table 9. Gasohol Sales Reported on IA 6478 Tax Forms, Tax Years 2001 to 2007

Tax Year	Count	Total Gasoline Sales		Gasohol Sales		Gasohol Share	Pure Ethanol
		Total	Average	Total	Average	Average	Share
2001	328	72,886,694	222,216	52,159,261	159,022	71.6%	7.2%
2002	1,199	898,192,005	749,118	638,371,165	532,420	72.0%	7.1%
2003	1,115	789,494,864	708,067	591,203,810	530,228	76.2%	7.5%
2004	1,369	1,066,878,076	779,312	824,305,113	602,122	79.0%	7.7%
2005	1,510	1,148,517,997	760,608	933,576,685	618,263	83.1%	8.1%
2006	1,770	1,319,679,753	745,582	1,042,409,388	588,932	80.3%	7.9%
2007	528	273,184,522	517,395	222,131,789	420,704	83.1%	8.1%
Total	7,819	5,568,833,911	712,218	4,304,157,210	550,474	78.6%	7.7%

Source: Iowa Department of Revenue Corporate and Individual Tax Returns.
Note: Tax year 2007 data are incomplete.

Table 10. Gasohol Sales and EBGC Claims Reported by Eligible Stations on IA 6478 Tax Forms, Tax Years 2001 to 2007

Tax Year	Count	Total Gasoline Sales		Gasohol Sales		Gasohol Share	EBGC Claims			
		Total	Average	Total	Average	Average	Total	Average	Median	Maximum
2001	294	65,708,696	223,499	48,181,403	163,882	73.6%	$218,911	$745	$636	$3,444
2002	1,078	825,718,117	765,972	604,865,605	561,100	74.8%	$2,735,867	$2,538	$1,776	$40,729
2003	1,069	758,077,337	709,146	577,145,193	539,893	77.7%	$3,057,468	$2,860	$2,107	$31,545
2004	1,325	1,027,251,763	775,284	804,836,590	607,424	79.9%	$4,712,144	$3,556	$2,455	$39,164
2005	1,484	1,118,541,934	753,734	919,935,558	619,903	83.8%	$6,220,283	$4,192	$3,096	$46,900
2006	1,749	1,301,485,794	744,131	1,036,123,557	592,409	80.9%	$6,380,806	$3,648	$2,596	$51,534
2007	528	273,184,522	517,395	222,131,789	420,704	83.1%	$1,455,488	$2,757	$2,232	$13,328
Total	7,527	5,369,968,163	713,427	4,213,219,694	559,748	79.8%	$24,780,967	$3,292	$2,300	$51,534

Source: Iowa Department of Revenue Corporate and Individual Tax Returns.
Note: Tax year 2007 data are incomplete. All claims are reported in nominal dollars.

Figure 6. EBGC Total Claim and Per Gallon Credit by Gasohol Sales Share for an Average Gasohol Retailer

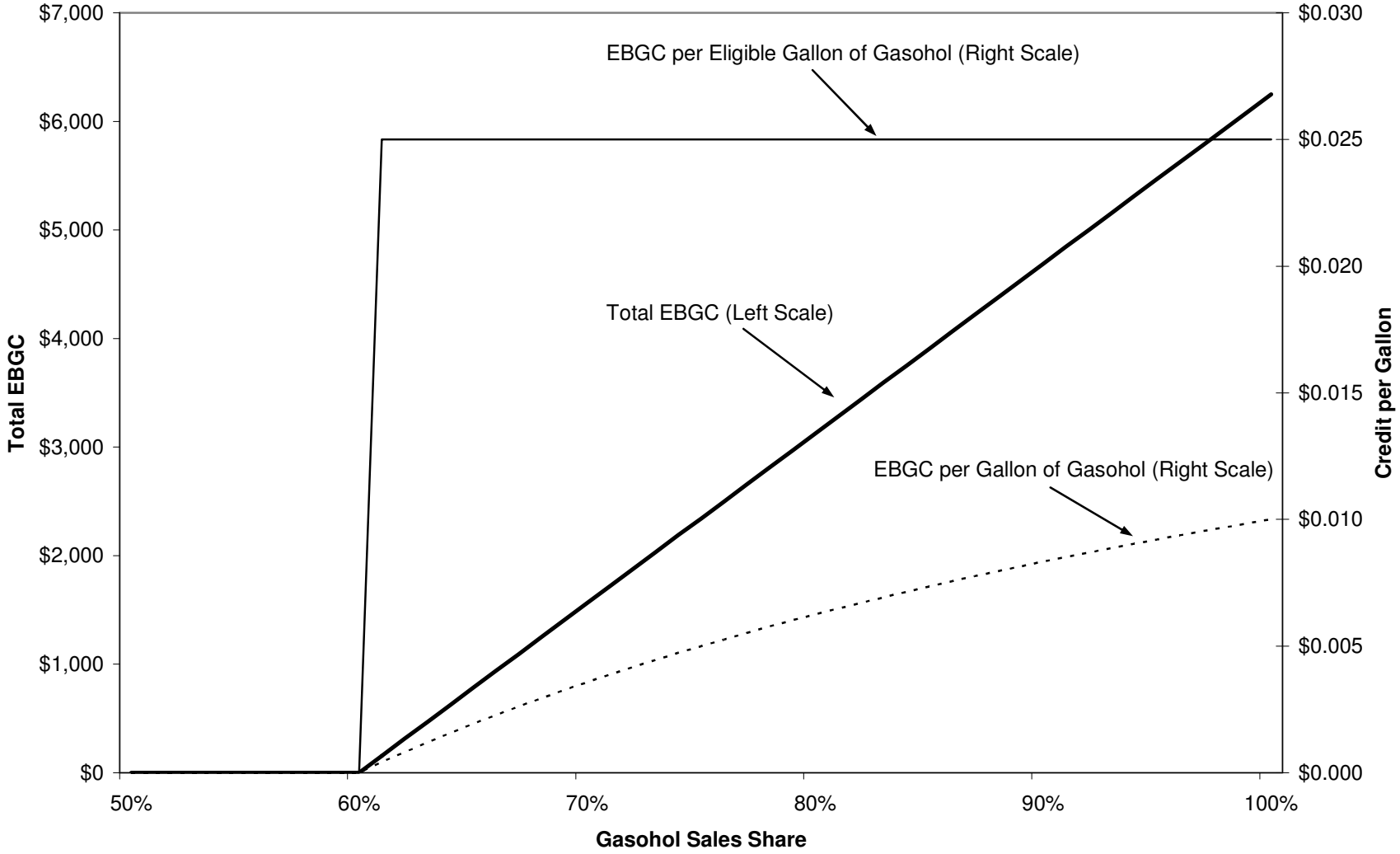


Table 11. Share of Total Iowa Gasohol Sales Made at Eligible Stations and Receiving EBGC as Reported on IA 6478 Tax Forms, Tax Years 2001 to 2007

Calendar Year	Iowa Fuel Report Total Gasohol Sales	Tax Year	Gasohol Sold at Eligible Stations		Gasohol Receiving Credit		EBGC	EBGC per gallon of Gasohol Sold at Eligible Stations
			Gallons	Share of Total Sales	Gallons	Share of Total Sales		
2001	824,976,644	2001	48,181,403	5.8%	8,756,185	1.1%	$218,911	$0.0045
2002	879,336,236	2002	604,865,605	68.8%	109,182,582	12.4%	$2,735,867	$0.0045
2003	998,831,351	2003	577,145,193	57.8%	121,991,644	12.2%	$3,057,468	$0.0053
2004	1,076,721,458	2004	804,836,590	74.7%	188,133,657	17.5%	$4,712,144	$0.0059
2005	1,211,812,177	2005	919,935,558	75.9%	248,395,114	20.5%	$6,220,283	$0.0068
2006	1,140,987,948	2006	1,036,123,557	90.8%	251,727,940	22.1%	$6,380,806	$0.0062
2007	1,212,613,525	2007	222,131,789	18.3%	41,135,462	3.4%	$1,455,488	$0.0066
Total	7,345,279,339		4,213,219,694	57.4%	969,322,584	13.2%	$24,780,967	$0.0059

Source: Iowa Department of Revenue Monthly Fuel Reports, Iowa Department of Revenue Corporate and Individual Tax Returns.
Note: Tax year 2007 data are incomplete. All claims are reported in nominal dollars.

Table 12. Gasohol Sales in a Balanced Panel of 594 Retailers, Tax Years 2002 to 2006

Tax Year	Gasoline Sales in Gallons		Gasohol Sales in Gallons		Retailer Gasohol Share			
	Total	Average	Total	Average	Average	Std Deviation	Minimum	Maximum
2002	410,018,526	690,267	303,415,245	510,800	74.7%	13.5%	6.6%	100.0%
2003	439,123,165	739,265	336,792,345	566,990	77.5%	12.7%	5.8%	100.0%
2004	457,904,213	770,883	367,737,344	619,086	81.3%	9.4%	33.3%	100.0%
2005	458,124,984	771,254	388,830,590	654,597	85.9%	7.4%	53.7%	100.0%
2006	457,477,461	770,164	374,852,136	631,064	82.4%	8.3%	48.7%	100.0%

Source: Iowa Department of Revenue Corporate and Individual Tax Returns

Table 13. Gasohol Sales and EBGC Claims Reported by Eligible Retail Stations on IA 6478 Tax Forms by Entity Type, Tax Years 2001 to 2007

C-Corporation

			Total Gasoline Sales			Gasohol Sales			Gasohol Share	EBGC Claims		
Tax Year	Count	Share	Total	Average	Share	Total	Average	Share	Average	Total	Average	Share
2001	294	100.0%	65,708,696	223,499	100.0%	48,181,403	163,882	100.0%	73.6%	$218,911	$745	100.0%
2002	632	58.6%	437,391,502	692,075	53.0%	327,563,360	518,296	54.2%	76.7%	$1,628,203	$2,576	59.5%
2003	637	59.6%	415,193,587	651,795	56.1%	327,111,350	513,519	58.2%	80.1%	$1,949,877	$3,061	65.9%
2004	747	56.4%	582,540,348	779,840	56.7%	472,522,050	632,560	58.7%	82.7%	$3,074,957	$4,116	65.3%
2005	829	55.9%	643,785,672	776,581	57.6%	541,639,292	653,365	58.9%	85.6%	$3,884,201	$4,685	62.4%
2006	970	55.5%	734,978,854	757,710	56.5%	598,500,985	617,011	57.8%	82.9%	$3,937,839	$4,060	61.7%
2007	194	36.7%	102,466,507	528,178	37.5%	84,075,222	433,377	37.8%	83.7%	$564,879	$2,912	38.8%

S-Corporation

			Total Gasoline Sales			Gasohol Sales			Gasohol Share	EBGC Claims		
Tax Year	Count	Share	Total	Average	Share	Total	Average	Share	Average	Total	Average	Share
2001	0	0.0%	0	0	0.0%	0	0	0.0%	0.0%	$0	$0	0.0%
2002	151	14.0%	155,239,067	1,028,073	18.8%	112,187,561	742,964	18.5%	72.2%	$476,102	$3,153	17.4%
2003	200	18.7%	173,556,146	867,781	23.5%	127,176,417	635,882	22.6%	73.3%	$576,069	$2,880	19.5%
2004	173	13.1%	193,028,073	1,115,769	18.8%	144,812,196	837,065	18.0%	75.3%	$724,885	$4,190	15.4%
2005	219	14.8%	223,539,229	1,020,727	20.0%	178,811,937	816,493	19.4%	80.8%	$1,117,223	$5,101	18.0%
2006	310	17.7%	276,771,254	892,811	21.3%	214,925,899	693,309	20.7%	78.1%	$1,221,588	$3,941	19.1%
2007	121	22.9%	81,221,275	671,250	29.7%	65,257,056	539,315	29.4%	81.2%	$413,079	$3,414	28.4%

Limited Liability Company, Partnership, Sole Proprietorship

			Total Gasoline Sales			Gasohol Sales			Gasohol Share	EBGC Claims		
Tax Year	Count	Share	Total	Average	Share	Total	Average	Share	Average	Total	Average	Share
2001	0	0.0%	0	0	0.0%	0	0	0.0%	0.0%	$0	$0	0.0%
2002	295	27.4%	233,087,548	790,127	28.2%	165,114,684	559,711	27.3%	72.1%	$631,562	$2,141	23.1%
2003	232	21.7%	169,327,604	729,860	22.9%	122,857,426	529,558	21.9%	74.6%	$531,522	$2,291	18.0%
2004	405	30.6%	251,683,342	621,440	24.5%	187,502,344	462,969	23.3%	76.6%	$912,302	$2,253	19.4%
2005	436	29.4%	251,217,033	576,186	22.5%	199,484,329	457,533	21.7%	81.8%	$1,218,859	$2,796	19.6%
2006	469	26.8%	289,735,686	617,773	22.3%	222,696,673	474,833	21.5%	78.6%	$1,221,379	$2,604	19.1%
2007	213	40.3%	89,496,740	420,172	32.8%	72,799,511	341,782	32.8%	83.6%	$477,530	$2,242	32.8%

Source: Iowa Department of Revenue Corporate and Individual Tax Returns.
Note: Tax year 2007 data are incomplete. All claims are reported in nominal dollars.

Table 14. EBGC Claims Reported by C-Corporations on IA 6478 Tax Forms, Tax Years 2001 to 2007

		Total Gasoline Sales		Gasohol Sales		EBGC Claims	
Tax Year	Count	Total	Average	Total	Average	Total	Average
2001	9	72,886,694	8,098,522	52,159,261	5,795,473	$218,910	$24,323
2002	80	464,452,428	5,805,655	340,978,977	4,262,237	$1,628,187	$20,352
2003	75	438,120,841	5,841,611	337,652,034	4,502,027	$1,949,879	$25,998
2004	88	602,370,456	6,804,784	484,483,058	5,474,683	$3,096,934	$35,025
2005	110	659,017,314	5,991,066	551,917,657	5,017,433	$3,924,848	$35,680
2006	153	761,031,965	4,974,065	611,747,849	3,998,352	$3,975,161	$25,981
2007	65	102,890,703	1,582,934	84,444,146	1,299,141	$567,728	$8,734
Total	580	3,100,770,401		2,463,382,982		$15,361,647	

Source: Iowa Department of Revenue Corporate Tax Returns.
Note: Tax year 2007 data are incomplete. All claims are reported in nominal dollars.

Table 15. EBGC Claims Paid as Refunds to C-Corporations, Tax Years 2001 to 2007

						Refund Share	
Tax Year	Count	EBGC Total	Refund Count	Total Refunds	Average Refund	Count	EBGC Total
2001	9	$218,910	1	$2,092	$232	11.1%	1.0%
2002	80	$1,628,187	43	$641,834	$8,023	53.8%	39.4%
2003	75	$1,949,879	56	$1,613,322	$21,511	74.7%	82.7%
2004	88	$3,096,934	50	$2,110,107	$24,002	56.8%	68.1%
2005	110	$3,924,848	53	$2,515,933	$22,304	48.2%	64.1%
2006	149	$3,923,776	70	$2,407,194	$16,013	47.0%	61.3%
2007	65	$567,728	42	$324,493	$4,992	64.6%	57.2%
Total	576	$15,310,262	315	$9,614,975		54.7%	62.8%

Source: Iowa Department of Revenue Corporate Tax Returns.
Note: Tax year 2007 data are incomplete. All claims are reported in nominal dollars. Claim data for 2006 differ from Table 14 because some returns have not completed the processing from which refund data is collected.

Table 16. EBGC Claim and Refund Concentration Among Top Ten C-Corporate Claimants, Tax Years 2002 to 2007

	Corporate EBGC Claims					
		Top 10		Top 10 as Share of Total Corporate Claims		
Tax Year	Total Gasoline	Total Gasohol	Total EBGC	Gasoline Share	Gasohol Share	EBGC Share
2002	384,047,278	280,310,304	$1,333,193	82.7%	82.2%	81.9%
2003	360,526,803	277,648,418	$1,613,698	82.3%	82.2%	82.8%
2004	503,055,092	404,288,843	$2,581,779	83.5%	83.4%	83.4%
2005	542,530,112	457,446,369	$3,322,743	82.3%	82.9%	84.7%
2006	607,494,756	488,685,985	$3,217,917	79.8%	79.9%	81.0%
2007	72,187,255	59,088,958	$394,410	70.2%	70.0%	69.5%

	Corporate EBGC Refunds					
		Top 10		Top 10 as Share of Total Corporate Claims/Refunds		
Tax Year	Total Gasoline	Total Gasohol	Total EBGC Refunds	Gasoline Share	Gasohol Share	EBGC Refund Share
2002	274,014,013	199,327,271	$545,539	59.0%	58.5%	85.0%
2003	304,265,028	235,455,411	$1,396,206	69.4%	69.7%	86.5%
2004	363,140,920	294,721,446	$1,921,520	60.3%	60.8%	91.1%
2005	406,685,551	349,023,434	$2,390,242	61.7%	63.2%	95.0%
2006	473,090,072	380,986,425	$2,219,069	62.2%	62.3%	92.2%
2007	61,273,712	50,649,627	$260,234	59.6%	60.0%	80.2%

Source: Iowa Department of Revenue Corporate Tax Returns.
Note: Tax year 2007 data are incomplete. All claims are reported in nominal dollars.

Table 17. EBGC Tax Year and Fiscal Year Claims by C-Corporations, Fiscal Years 2002 to 2009

Total EBGC Tax Year Claims by Fiscal Year that Return was Received

Tax Year	2002	2003	2004	2005	2006	2007	2008	2009
2001	$383	$218,527	$0	$0	$0	$0	$0	$0
2002	$0	$49,869	$1,564,582	$11,927	$0	$0	$0	$0
2003	$0	$0	$106,905	$1,832,386	$10,588	$0	$0	$0
2004	$0	$0	$0	$98,362	$2,909,156	$45,521	$0	$0
2005	$0	$0	$0	$0	$158,640	$3,532,727	$45,559	$0
2006	$0	$0	$0	$0	$0	$132,968	$3,706,437	$9,699
2007	$0	$0	$0	$0	$0	$0	$203,671	$364,057
Total	$383	$268,396	$1,671,487	$1,942,675	$3,078,384	$3,711,216	$3,955,667	$373,756

Share of Total EBGC Tax Year Claims by Fiscal Year that Return was Received

Tax Year	2002	2003	2004	2005	2006	2007	2008	2009
2001	0.2%	99.8%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
2002	0.0%	3.1%	96.2%	0.7%	0.0%	0.0%	0.0%	0.0%
2003	0.0%	0.0%	5.5%	94.0%	0.5%	0.0%	0.0%	0.0%
2004	0.0%	0.0%	0.0%	3.2%	95.3%	1.5%	0.0%	0.0%
2005	0.0%	0.0%	0.0%	0.0%	4.2%	94.5%	1.2%	0.0%
2006	0.0%	0.0%	0.0%	0.0%	0.0%	3.5%	96.3%	0.3%
2007	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	35.9%	64.1%

Average Distribution of EBGC Tax Year Claims by Fiscal Year that Return was Received, TY 2002-2006

Fiscal Year =	Tax Year	Tax Year + 1	Tax Year + 2	Tax Year + 3	Tax Year + 4
	0.0%	3.9%	95.3%	0.7%	0.0%

Source: Iowa corporate income tax returns and Iowa Department of Revenue returns processing data.
Note: Tax year 2007 data are incomplete. All claims are reported in nominal dollars.

Table 18. EBGC Claims Reported by Other Entities on IA 6478 Tax Forms, Tax Years 2002 to 2007

Tax Year	Count	Total Gasoline Sales		Gasohol Sales		EBGC Claims	
		Total	Average	Total	Average	Total	Average
2002	162	348,637,182	2,152,081	248,898,976	1,536,413	$994,449	$6,139
2003	172	431,598,704	2,509,295	314,152,565	1,826,468	$1,382,203	$8,036
2004	169	446,908,293	2,644,428	334,329,259	1,978,280	$1,638,642	$9,696
2005	196	478,691,182	2,442,302	380,738,671	1,942,544	$2,335,486	$11,916
2006	336	558,352,038	1,661,762	430,813,013	1,282,182	$2,414,451	$7,186
2007	258	174,417,914	676,038	140,772,443	545,630	$905,423	$3,509
Total	1,293	2,438,605,313		1,849,704,926		$9,670,654	

Source: Iowa Department of Revenue Individual and Corporate Tax Returns.
Note: Tax year 2007 data are incomplete. All claims are reported in nominal dollars.

Table 19. EBGC Claim Concentration Among Top Ten Other Entity Claimants, Tax Years 2002 to 2007

Tax Year	Top 10 EBGC Claims by S-Corporations, LLCs, Partnerships, or Sole Proprietors					
	Total Gasoline	Total Gasohol	Total EBGC	Gasoline Share	Gasohol Share	EBGC Share
2002	226,654,285	162,824,133	$676,028	65.0%	65.4%	68.0%
2003	268,178,122	196,035,193	$878,182	62.1%	62.4%	63.5%
2004	290,200,043	218,188,251	$1,101,689	64.9%	65.3%	67.2%
2005	317,530,562	253,758,547	$1,581,006	66.3%	66.6%	67.7%
2006	334,181,466	261,706,137	$1,529,930	59.9%	60.7%	63.4%
2007	54,512,491	44,428,126	$293,004	31.3%	31.6%	32.4%

Source: Iowa Department of Revenue Corporate Tax Returns.
Note: Tax year 2007 data are incomplete. All claims are reported in nominal dollars.

Table 20. EBGC Claims Made by Taxpayers on IA 148 Tax Forms, Tax Years 2006 to 2007

Tax Year	Count of Claims		Total EBGC Claims			Average EBGC Claims	
	Corporate	Individual	Corporate	Individual	Total	Corporate	Individual
2006	159	774	$3,906,462	$2,352,677	$6,259,139	$24,569	$3,040
2007	65	831	$526,241	$1,729,332	$2,255,573	$8,096	$2,081

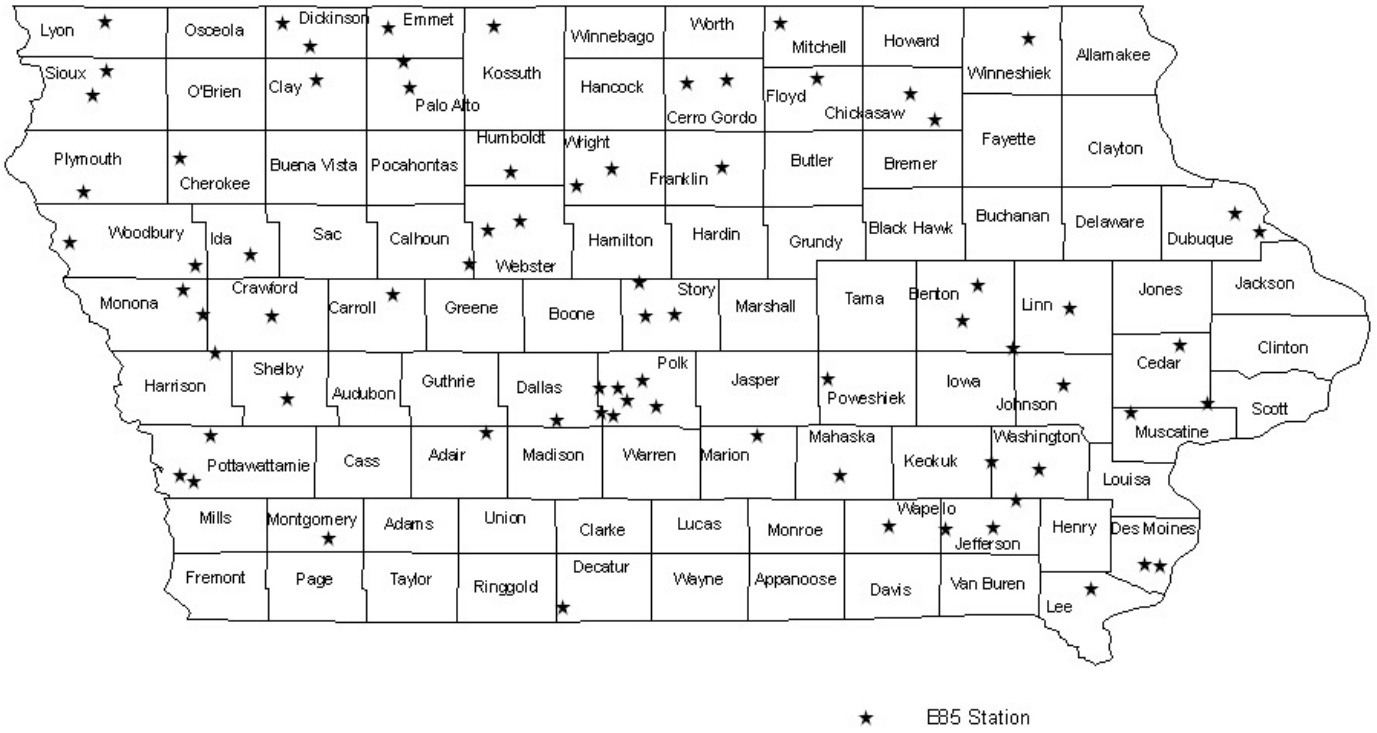
Source: Iowa Department of Revenue Corporate and Individual Tax Returns
Note: Tax year 2007 data are incomplete. IA 148 claim data for tax year 2007 has not been cleaned.

Table 21. EBGC Claim Concentration Among Top Ten Taxpayers, Tax Years 2006 to 2007

Tax Year	Total EBGC Claims		Share of All Taxpayer EBGC Claims		
	Corporate	Individual	Corporate	Individual	Total
2006	$3,156,005	$1,260,166	80.8%	53.6%	70.6%
2007	$369,727	$440,790	70.3%	25.5%	35.9%

Source: Iowa Department of Revenue Corporate and Individual Tax Returns
Note: Tax year 2007 data are incomplete. IA 148 claim data for tax year 2007 has not been cleaned.

Figure 7. Map of E85 Stations in Iowa, January 2008



Source: Iowa Department of Revenue

Table 22. Quarterly Count of E85 Stations in Iowa

	Stations Reporting E85 Sales
Mar-2004	10
Jun-2004	10
Sep-2004	11
Dec-2004	14
Mar-2005	17
Jun-2005	18
Sep-2005	19
Dec-2005	26
Mar-2006	31
Jun-2006	40
Sep-2006	47
Dec-2006	47
Mar-2007	49
Jun-2007	57
Sep-2007	63
Dec-2007	78
Mar-2008	81
Jun-2008	82
Sep-2008	90

Source: Iowa Renewable Fuels Association
and Iowa Department of Revenue

Table 23. E85 Calendar Years Sales and Sales Reported by Retailers on IA 135 Tax Forms, 2004 to 2008

Calendar Year	E85 Quarterly Report/RFA Total E85 Sales	E85 Receiving Credit	
		Gallons[a]	Share
2004	140,726		
2005	668,595		
2006	1,975,359	1,772,209	89.7%
2007	3,420,557	1,306,108	38.2%
2008[b]	5,728,412	82,214	1.4%

Source: Iowa Department of Revenue E-85 Quarterly Reports, Iowa Department of Revenue Corporate and Individual Tax Returns, Iowa Renewable Fuels Association
a. Retailers with fiscal years that extend into the following calendar year were allowed to make E85GC claims on their 2005 tax returns for sales made after January 1, 2006; those gallons are included in the 2006 E85 gallonage. For claims made in later tax years, E85 gallons were prorated across calendar years based on the fiscal year of the taxpayer, assuming uniform monthly sales.
b. Data for calendar year 2008 includes sales through September 2008.

Table 24. E85GC Claims as Reported on IA 135 Tax Tax Forms by Entity Type, Tax Years 2005 to 2007

	Count of Claims		E85 Gallons[a]			Total E85GC Claims			Average E85GC Claims	
Tax Year	C-Corporate	Other	C-Corporate	Other	Total	C-Corporate	Other	Total	C-Corporate	Other
2005	9	3	465,985	60,566	526,551	$116,498	$15,141	$131,639	$12,944	$5,047
2006	26	13	1,396,152	745,681	2,141,833	$349,040	$186,421	$535,461	$13,425	$18,091
2007	7	9	492,147	425,841	917,988	$123,037	$106,460	$229,497	$17,577	$11,829
Total	42	25	2,354,284	1,232,088	3,586,372	$588,575	$308,022	$896,597		

Source: Iowa Department of Revenue Corporate and Individual Tax Returns
a. Retailers with fiscal years that extend into the following calendar year were able to make E85GC claims on their 2005 tax returns for sales made after January 1, 2006.
Note: Tax year 2007 data are incomplete.

Table 25. E85GC Claims Made by Taxpayers on IA 148 Tax Forms, Tax Years 2006 to 2007

	Count of Claims		Total E85GC Claims			Average E85GC Claims	
Tax Year	Corporate	Individual	Corporate	Individual	Total	Corporate	Individual
2006	31	78	$366,401	$148,934	$515,335	$11,819	$1,909
2007	7	113	$123,037	$165,795	$288,832	$17,577	$1,467
Total	38	191	$489,438	$314,729	$804,167		

Source: Iowa Department of Revenue Corporate and Individual Tax Returns
Note: Tax year 2007 data are incomplete.

Table 26. BBFC Claims as Reported on IA 8864 Tax Tax Forms by Entity Type, Tax Years 2005 to 2007

Tax Year	Count of Claims		Blended Biodiesel Gallons[a]			Total BBFC Claims			Average BBFC Claims	
	C-Corporate	Other	C-Corporate	Other	Total	C-Corporate	Other	Total	C-Corporate	Other
2005	8	2	10,353,705	3,590,929	13,944,634	$310,612	$107,728	$418,340	$38,827	$53,864
2006	27	21	42,731,772	43,807,485	86,539,256	$1,281,953	$1,314,224	$2,596,177	$47,480	$71,144
2007	5	21	2,805,209	92,941,283	95,746,492	$84,156	$2,788,239	$2,872,395	$16,831	$132,773
Total	40	44	55,890,686	140,339,697	196,230,382	$1,676,721	$4,210,191	$5,886,912		

Source: Iowa Department of Revenue Corporate and Individual Tax Returns
a. Firms with fiscal years that extend into the following calendar year were able to make BBFC claims on their 2005 tax returns for sales made after January 1, 2006.
Note: Tax year 2007 data are incomplete.

Table 27. BBFC Claims Made by Taxpayers on IA 148 Tax Forms, Tax Years 2006 to 2007

Tax Year	Count of Claims		Total BBFC Claims			Average BBFC Claims	
	Corporate	Individual	Corporate	Individual	Total	Corporate	Individual
2006	29	42	$1,314,945	$339,754	$1,654,699	$45,343	$8,089
2007	6	140	$98,012	$868,472	$966,484	$16,335	$6,203
Total	35	182	$1,412,957	$1,208,226	$2,621,183		

Source: Iowa Department of Revenue Corporate and Individual Tax Returns
Note: Tax year 2007 data are incomplete.

Figure 8. E85GC Total Claim and Per Gallon Credit by E85 Sales Share for an Average Gasohol Retailer

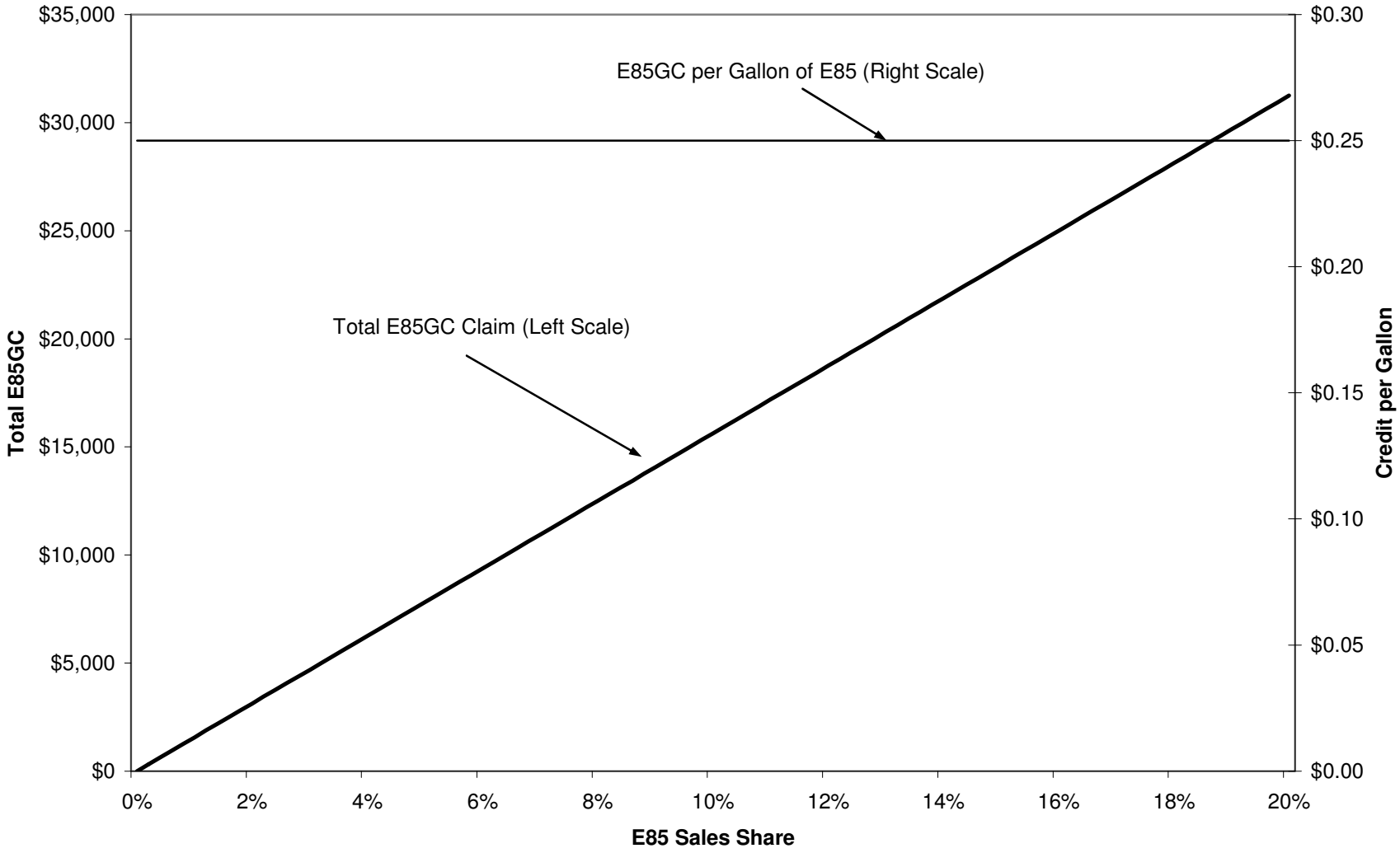


Figure 9. BBFC Total Claim and Per Gallon Credit by Biodiesel Sales Share for an Average Diesel Retailer

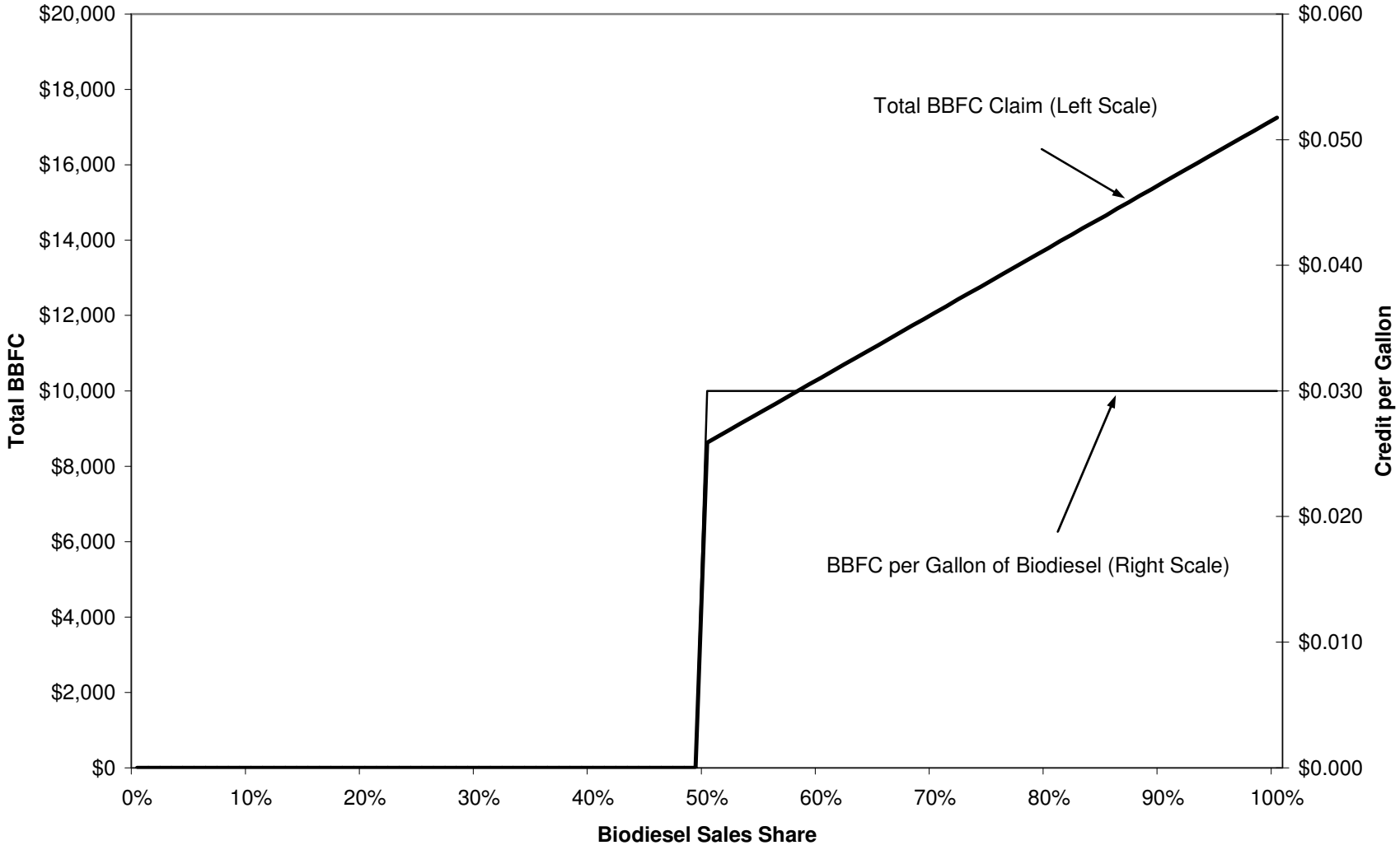


Table 28. Iowa Motor Fuel Retailers' Sales for Calendar Year 2007

	Count	Total Sales	Share of Total Sales	Pure Biofuels
Total Gasoline	2,222	1,376,639,395		
Gasoline	1,976	302,498,615	22.0%	0
Gasohol	2,084	1,070,720,223	77.8%	107,072,022
E85	86	3,420,557	0.2%	2,736,446
Total Diesel	1,198	702,994,220		
Petroleum Diesel	1,198	542,512,818	77.2%	0
Biodiesel	327	160,481,402	22.8%	17,495,445
Total Biofuels				127,303,913
Biofuel Percentage				9.2%

Source: Iowa Department of Revenue 2007 Retailers Motor Fuel Gallons Annual Report
Note: Biofuel percentage is computed as the ratio of pure ethanol and pure biodiesel over total gasoline sales, as defined for the calculation of the Ethanol Promotion Tax Credit.

Table 29. Biofuel Share of Sales Among Iowa Motor Fuel Retailers for Calendar Year 2007

	All Stations Selling General Fuel Type			Only Stations Selling Biofuel Type		
	Count	Average	Standard Deviation	Count	Average	Standard Deviation
Total Gasoline						
Gasohol	2,222	75.7%	24.5%	2,084	80.8%	15.3%
E85	2,222	0.3%	3.5%	86	8.0%	15.8%
Pure Ethanol	2,222	7.8%	3.5%	2,088	8.3%	3.0%
Total Diesel						
Biodiesel	1,198	14.3%	29.8%	327	52.4%	35.6%
Pure Biodiesel	1,198	1.5%	13.2%	404	4.4%	22.4%

Source: Iowa Department of Revenue 2007 Retailers Motor Fuel Gallons Annual Report

Table 30. Estimated Biofuel Percentage Using Gasohol and E85 Sales, Calendar Years 2006 to 2008

	2006	2007	2008: Q1 - Q3
Total Gasoline Sales	1,644,163,803	1,642,877,918	1,190,497,685
Gasoline	498,443,398	431,106,408	290,053,143
Gasohol	1,143,745,046	1,208,350,953	894,716,130
E85	1,975,359	3,420,557	5,728,412
Pure Ethanol	115,954,792	123,571,541	94,054,343
Biofuel (Ethanol Only) Percentage	7.1%	7.5%	7.9%

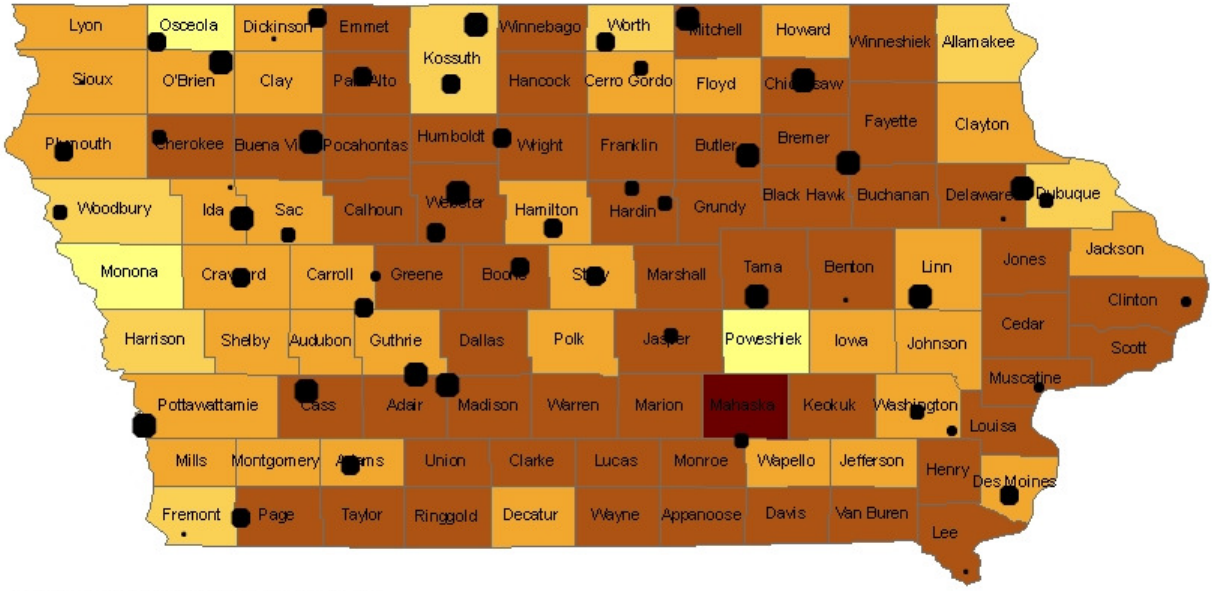
Source: Iowa Department of Revenue Motor Fuel Tax Monthly Reports

Table 31. Characteristics of Iowa's 99 Counties

County Characteristic	Mean	Standard Deviation	Minimum	Maximum
Count of Reporting Gasoline Retailers	26.2	25.3	3.0	194.0
Gasohol Share of Total Gasoline Gallons Sold	79.6%	7.2%	53.3%	91.3%
Average Gasohol Share at Stations	78.0%	7.6%	55.8%	91.0%
Share of Retail Stations Selling Gasohol	94.8%	5.4%	79.3%	100.0%
Share of Retail Stations Selling Only Gasohol	12.7%	9.3%	0.0%	40.0%
Share of Total Gasoline Sold by Large Retailers	40.9%	20.8%	5.1%	85.4%
Share of Retail Stations Claiming EBGC in Most Recent Tax Year	70.4%	13.9%	36.4%	100.0%
Retail Stations Offering Gasohol Per Square Mile	0.04	0.04	0.01	0.33
Total Gasoline Gallons Sold Per Capita	513.2	131.6	273.6	921.2
Ethanol Production Facilities Located in the County	0.3	0.5	0.0	2.0
Ethanol Production Facilities Closely Located in Neighboring County	0.2	0.4	0.0	2.0
Ethanol Production Capacity in the County (Million Gallons)	21.6	56.7	0.0	420.0
State Border County Indicator	0.4	0.5	0.0	1.0
Interstate County Indicator	0.3	0.5	0.0	1.0
Area (Square Miles)	564	118	381	973
Share Farmland, 2006	87.8%	7.2%	60.9%	99.0%
Population, 2006	30,122	50,225	4,192	408,888
Population Density (Persons per Square Mile), 2006	52	86	10	718
Household Age, 2006	47.4	1.7	41.8	50.6
Share Married, 2006	50.0%	3.4%	40.5%	58.3%
Share of Males, 2006	49.6%	0.8%	47.7%	52.8%
Share Aged 65 and Older, 2006	17.5%	3.1%	8.2%	23.6%
Share Reporting Farm Income, 2006	12.0%	5.9%	0.8%	27.4%
Share Aged 25+ High School Graduate or Some College, 2000	68.4%	4.6%	46.1%	76.6%
Share Aged 25+ College Graduate or Higher, 2000	16.3%	5.8%	11.1%	47.6%
Average Gross Household Income, 2006	$45,542	$6,894	$34,562	$74,460
Share of Houses Owner-Occupied, 2000	75.2%	4.0%	56.6%	81.8%
Median House Value, 2000	$68,829	$17,514	$35,600	$131,500

Source: Iowa Department of Revenue Retailers Motor Fuel Gallons Annual Report for 2007, individual and corporate income tax returns for 2006 and 2007 tax years, Iowa Renewable Fuels Association, and the US Census Bureau
Note: Motor fuel retail data based on a data set of 2,596 stations.

Figure 10. Gasohol Share of Sales by County and Location of Ethanol Production Facilities



Source: Iowa Department of Revenue

Ethanol Production Facilities Scaled by Production Capacity

- 2 - 8 MGY
- 9 - 20 MGY
- 21 - 38 MGY
- 39 - 65 MGY
- 66 - 300 MGY

Gasohol Share of Sales

- 50% to 59%
- 60% to 69%
- 70% to 79%
- 80% to 89%
- 90% to 100%

Table 32. Explaining Variation in the Gasohol Share of Sales Across Iowa Counties

Independent Variable	Coefficient	t-value
Intercept	0.325	0.680
Ethanol Production Facilities Located in the County	-0.002	-0.170
Ethanol Production Facilities Closely Located in Neighboring County	0.014	0.910
State Border County Indicator	-0.014	-0.930
Interstate County Indicator	-0.046	-3.090
Total Gasoline Gallons Sold Per Capita (Hundreds)	-0.010	-1.850
Share of Retail Stations Selling Gasohol	0.219	1.600
Share of Retail Stations Selling Only Gasohol	0.180	2.670
Retail Stations Offering Gasohol Per Square Mile	0.136	0.640
Share of Total Gasoline Sold by Large Retailers	0.084	2.460
Share Reporting Farm Income, 2006	0.165	1.010
Share Aged 25+ High School Graduate or Some College, 2000	0.005	1.510
Share Aged 25+ College Graduate or Higher, 2000	0.002	0.650
Share of Males, 2006	0.001	0.110
Share Aged 65 and Older, 2006	-0.681	-2.070
Average Gross Household Income (Thousands), 2006	-0.001	-0.880
Share of Retail Stations Claiming EBGC in Most Recent Tax Year	0.052	0.860
Adjusted R^2	0.354	

Source: Iowa Department of Revenue Retailers Motor Fuel Gallons Annual Report for 2007, individual and corporate income tax returns for 2006 and 2007 tax years, Iowa Renewable Fuels Association, and the US Census Bureau.
Note: A t-value with an absolute value greater than 2.0 denotes statistical significance of the corresponding coefficient at the five percent level.

Table 33. Comparison of Estimated EBGC and EPTC Claims for Tax Year 2009

Retailers Based on Estimated Relative Credit Claims	Count	Percent	Estimated Change in Average Credit	Total Estimated EBGC	Total Estimated EPTC	Average Gasohol Sales	Average E85 Sales	Average Pure Biodiesel Sales	Average Biofuel Percentage
EPTC greater than EBGC	248	9.3%	$1,011	$626,719	$877,546	356,949	26,953	10,720	11.7%
EPTC, ineligible for EBGC	74	2.8%	$669	$0	$49,530	128,493	2,430	24,741	10.8%
EBGC greater than EPTC	2,161	81.1%	-$1,823	$9,701,021	$5,761,707	549,410	560	8,166	10.2%
EBGC, ineligible for EPTC	5	0.2%	-$587	$2,936	$0	411,707	5,929	51	3.0%
EPTC and EBGC zero	177	6.6%	$0	$0	$0	189,823	193	1,113	2.4%
Totals	2,665		-$1,367	$10,330,676	$6,688,783	489,178	3,054	585,174	10.0%

Source: Forecasts of biofuel sales using Iowa Department of Revenue Retailers Motor Fuel Gallons Annual Report for 2007, individual and corporate income tax returns for 2006 and 2007 tax years, 2008 E85 quarterly report retail sales data, and Energy Information Administration motor fuel consumption forecasts.
Note: Biofuel percentage is computed as the ratio of pure ethanol and pure biodiesel over total gasoline sales, as defined for the calculation of the EPTC.

Table 34. Projected Distribution of Retailer EPTC Rates and Estimated EPTC Claims, 2009 to 2020

		Distribution of Retailers by Appicable Credit Rates Based on Estimated Biofuel Threshold Percentages								
		Retail Dealers Selling 200,000 or Fewer Gallons Per Year				Retail Dealers Selling More than 200,000 Gallons Per Year				Projected State-Wide
		Credit Per Gallon of Pure Ethanol Sold				Credit Per Gallon of Pure Ethanol Sold				Biofuel
Calendar Year	Total EPTC Claims	$0.065	$0.045	$0.025	No Credit	$0.065	$0.045	$0.025	No Credit	Percentage
2009	$6,688,783	11.4%	0.6%	0.3%	2.6%	24.0%	50.9%	6.5%	3.6%	10.0%
2010	$5,999,938	11.7%	0.6%	0.3%	2.0%	12.1%	48.3%	20.4%	4.5%	10.4%
2011	$5,936,750	4.5%	5.9%	1.7%	2.5%	11.6%	21.7%	45.4%	6.7%	10.9%
2012	$4,876,805	1.7%	6.7%	3.6%	2.5%	9.8%	14.8%	48.7%	12.2%	11.4%
2013	$4,429,895	1.9%	3.9%	6.0%	2.7%	9.8%	12.6%	37.5%	25.6%	11.9%
2014	$3,425,131	1.8%	0.2%	7.8%	4.7%	9.2%	12.5%	9.3%	54.5%	12.4%
2015	$2,478,631	1.7%	0.3%	5.4%	6.9%	7.8%	3.0%	11.8%	63.1%	13.0%
2016	$2,714,734	1.7%	0.3%	0.4%	12.1%	8.0%	2.1%	12.1%	63.4%	13.6%
2017	$2,047,275	1.6%	0.2%	0.4%	12.5%	8.0%	1.2%	1.2%	74.8%	14.3%
2018	$2,160,062	1.5%	0.3%	0.3%	12.9%	7.9%	0.5%	1.4%	75.3%	15.0%
2019	$2,314,903	1.4%	0.3%	0.1%	13.1%	7.1%	1.2%	0.9%	75.9%	15.7%
2020	$2,854,674	1.3%	0.1%	0.1%	13.4%	8.3%	0.6%	1.1%	75.1%	16.5%

Source: Iowa Department of Revenue Retailers Motor Fuel Gallons Annual Report for 2007 and individual and corporate income tax returns for 2006 and 2007 tax years.
Note: Assumed growth in retailers' motor fuel sales are based on forecasted change in motor fuel consumption presented by the Energy Information Administration.

Figure 11. EPTC Total Claim and Per Gallon Credit for Average Retailer Depending on Gasohol Sales Share and Average Sales of E85 and Biodiesel

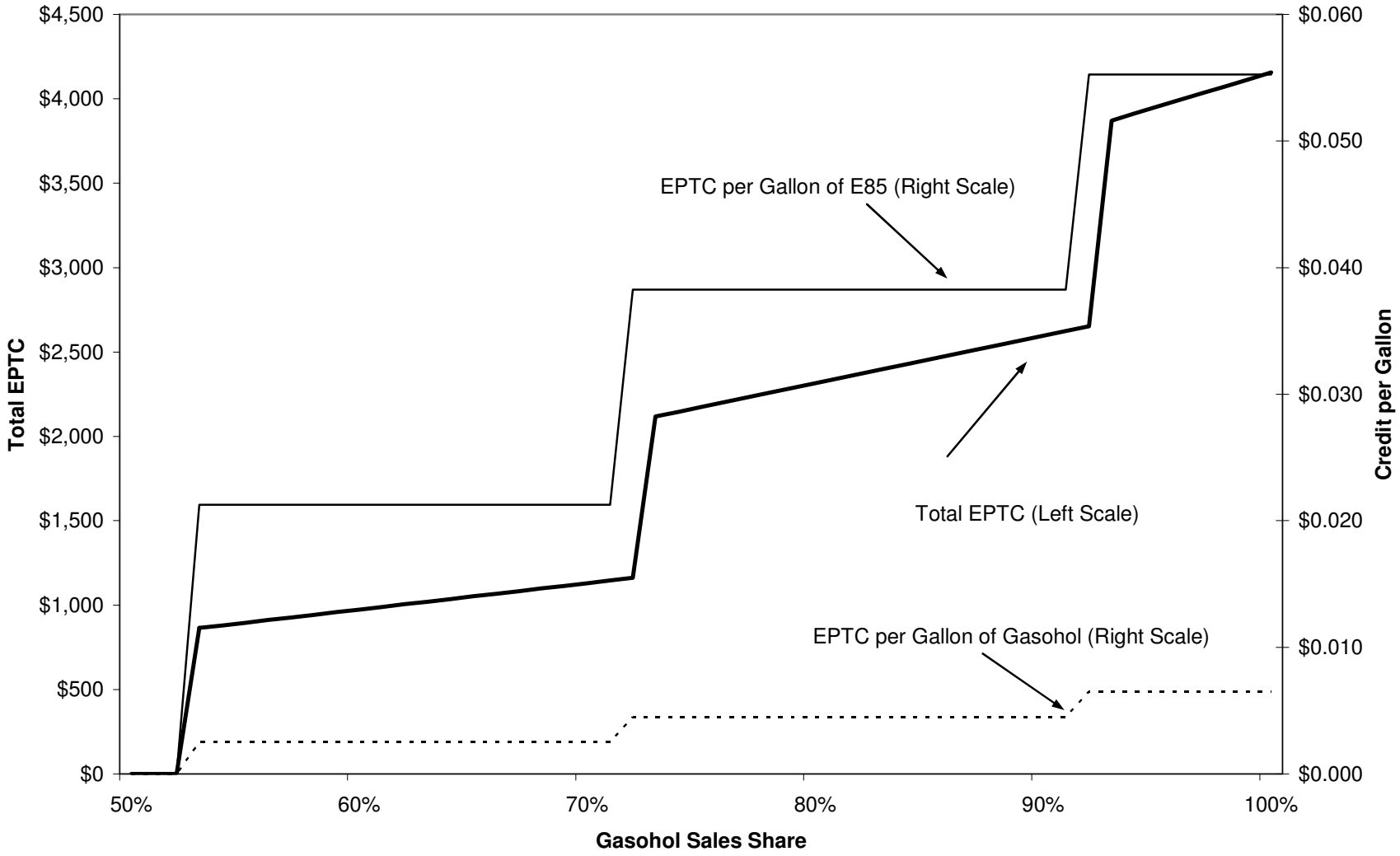


Table 35. Actual and Forecasted Biofuel Retailers' Tax Credit Claims, Tax Years 2001 to 2020

Year	EBGC	E85GC	BBFC	EPTC	Total Biofuel Retailers Tax Credits
2001	$218,911	*NA*	NA	*NA*	$218,911
2002	$2,735,867	*NA*	NA	*NA*	$2,735,867
2003	$3,057,468	*NA*	NA	*NA*	$3,057,468
2004	$4,712,144	*NA*	NA	*NA*	$4,712,144
2005	$6,220,283	$131,639	$2,596,177	*NA*	$8,948,099
2006	$6,380,806	$535,461	$2,872,395	*NA*	$9,788,662
2007	$8,456,769	$855,139	$3,469,287	*NA*	$12,781,195
2008	$9,217,066	$1,513,573	$4,311,167	*NA*	$15,041,806
2009	*NA*	$1,627,556	$4,643,894	$6,688,783	$12,960,232
2010	*NA*	$2,183,952	$4,992,488	$5,999,938	$13,176,378
2011	*NA*	$1,491,955	$5,508,820	$5,936,750	$12,937,524
2012	*NA*	$1,738,177	*NA*	$4,876,805	$6,614,982
2013	*NA*	$1,974,105	*NA*	$4,429,895	$6,404,000
2014	*NA*	$2,223,261	*NA*	$3,425,131	$5,648,393
2015	*NA*	$2,395,865	*NA*	$2,478,631	$4,874,496
2016	*NA*	$2,544,598	*NA*	$2,714,734	$5,259,332
2017	*NA*	$2,472,624	*NA*	$2,047,275	$4,519,900
2018	*NA*	$2,255,222	*NA*	$2,160,062	$4,415,284
2019	*NA*	$1,772,903	*NA*	$2,314,903	$4,087,806
2020	*NA*	$1,044,596	*NA*	$2,854,674	$3,899,270
Actual	$23,325,479	$667,100	$5,468,572	$0	$29,461,151
Forecasted	$17,673,835	$26,093,528	$22,925,656	$45,927,580	$112,620,599
Total	$40,999,314	$26,760,628	$28,394,228	$45,927,580	$142,081,750

Appendix A: Tax Year 2008 Forms for Claiming Biofuel Retailers' Tax Credits

IA 135: E85 Gasoline Promotion Tax Credit Tax Form

IA 137: Ethanol Promotion Tax Credit Tax Form

IA 148: Tax Credits Schedule

IA 6478: Iowa Ethanol Blended Gasoline Income Tax Credit Tax Form

IA 8864: Biodiesel Blended Fuel Tax Credit Tax Form

Iowa Department of Revenue
www.state.ia.us/tax

IA 135 2008

E85 Gasoline Promotion Tax Credit

This is not a motor fuel tax credit or refund form. It is an income tax form. Attach a copy to your Iowa individual or corporation income tax return.

Name(s) of Individual(s) or C Corporation	Identification No.

Tax Period Ending:

1. Total number of gallons of E85 gasoline sold through motor fuel pumps in Iowa through December 31, 2008. ..... 1. _____
2. Multiply line 1 by .25 (twenty-five cents) ..... 2. _____
3. Total number of gallons of E85 gasoline sold through motor fuel pumps in Iowa from January 1, 2009, through the end of the tax year. (fiscal year filers only) ..... 3. _____
4. Multiply line 3 by .20 (twenty cents) ..... 4. _____
5. Total E85 Gasoline Promotion Tax Credit (add lines 2 and 4) ..... 5. _____

INSTRUCTIONS

Beginning January 1, 2006, an E85 gasoline promotion tax credit is available to retail dealers of gasoline who operate motor fuel pumps at a retail motor fuel site. Tank wagons are considered retail motor fuel sites. To qualify for the tax credit, retail dealers must sell E85 gasoline, which is ethanol blended gasoline formulated with a minimum percentage of between 70 and 85 percent by volume of ethanol. A taxpayer may claim the E85 gasoline promotion tax credit even if the taxpayer claims the ethanol blended gasoline tax credit for the same ethanol gallons.

The amount of credit is twenty-five cents multiplied by the total number of gallons of E85 gasoline sold during the tax year. For taxpayers whose fiscal year ends after December 31, 2008, the amount of credit is twenty cents multiplied by the total number of gallons sold after December 31, 2008.

Any credit in excess of the tax liability can be refunded. In lieu of the refund, taxpayer may elect to have the overpayment credited to the tax liability for the following year. In addition, if the taxpayer is a partnership, limited liability company, S corporation, estate or trust, the credit must be allocated to the individual owners in the ratio of each owner's share of the earnings of the entity to the entity's total earnings.

The IA 148 Tax Credits Schedule must be completed.

Iowa Department of Revenue
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IA 137 2008

Ethanol Promotion Tax Credit

This is not a motor fuel tax credit or refund form.
It is an income tax form for taxpayers with a fiscal year ending after December 31, 2008.
Attach a copy to your Iowa individual or corporation income tax return.

Name(s) of Individual(s), Corporation, Partnership, LLC, Estate or Trust

Taxpayer Identification Number

Tax Period Ending

PART I –
Determination of Biofuel Distribution Percentage and Biofuel Threshold Percentage Disparity

1. Total amount of E10 gasoline gallons sold at all Iowa retail motor fuel sites from January 1, 2009, until the end of the fiscal year ..... 1) _____
2. Multiply line 1 by 10% (.10) ..... 2) _____
3. Total amount of E85 gasoline gallons sold at all Iowa retail motor fuel sites from January 1, 2009, until the end of the fiscal year ..... 3) _____
4. Multiply line 3 by 79% (.79) ..... 4) _____
5. Total amount of non-ethanol blended gasoline gallons sold at all Iowa retail motor fuel sites from January 1, 2009, until the end of the fiscal year ..... 5) _____
6. Total gasoline gallons sold at all Iowa retail motor fuel sites from January 1, 2009, until the end of the fiscal year (add lines 1, 3 and 5) ..... 6) _____
7. Total gallons of biodiesel blended fuel sold at all Iowa retail motor fuel sites from January 1, 2009, until the end of the fiscal year (if zero, enter zero on line 7f)
   a. B2 gallons _____ X 2% = 7a) _____
   b. B5 gallons _____ X 5% = 7b) _____
   c. B10 gallons _____ X 10% = 7c) _____
   d. B20 gallons _____ X 20% = 7d) _____
   e. Other Biodiesel gallons
      B___gallons _____ X __% = 7e) _____
   f. Add lines 7a through 7e ..... 7f) _____
8. Add lines 2, 4 and 7f ..... 8) _____
9. Biofuel threshold percentage **(see instructions for annualization information)**
   If line 6 is 200,000 or less, enter 6%
   If line 6 is more than 200,000, enter 10% ..... 9) _____ %
10. Divide line 8 by line 6 (enter percent to 2 decimal places)
    This is the biofuel distribution percentage ..... 10) _____ %
11. Subtract line 10 from line 9. If less than 0% enter 0.
    This is the biofuel threshold percentage disparity ..... 11) _____ %
    If line 11 is 4.01% or more, STOP. You are not eligible for the credit.

PART II – Determination of Credit
Complete one form for each Iowa Retail Motor Fuel Site

Name and Address of Iowa Retail Motor Fuel Site:

_____
_____
_____

		Use this column to calculate the credit for this Iowa retail motor fuel site only	Use this column to enter the total of all Iowa retail motor fuel sites
1. Total amount of E10 gasoline gallons sold at this retail motor fuel site from January 1, 2009, until the end of the fiscal year	1)		
2. Multiply line 1 by 10% (.10)	2)		
3. Total amount of E85 gasoline gallons sold at this retail motor fuel site from January 1, 2009, until the end of the fiscal year	3)		
4. Multiply line 3 by 79% (.79)	4)		
5. Total amount of non-ethanol blended gasoline gallons sold at this retail motor fuel site from January 1, 2009, until the end of the fiscal year	5)		
6. Total gasoline gallons sold at this retail motor fuel site from January 1, 2009, until the end of the fiscal year (add lines 1, 3 and 5)	6)		
7. Add lines 2 and 4	7)		
8. Total ethanol promotion tax credit If line 11 of Part I = 0, multiply line 7 by .065 (six and one-half cents) If line 11 of Part I is 0.01% to 2.00%, multiply line 7 by .045 (four and one-half cents) If line 11 of Part I is 2.01% to 4.00%, multiply line 7 by .025 (two and one-half cents) Enter the result here and on the IA 148 Tax Credits Schedule	8)		
		Amount to enter on the IA 148 if only one site.	**Amount to enter on the IA 148 if more than one site.**

The IA 148 Tax Credits Schedule must be completed.

INSTRUCTIONS:

This 2008 form should only be completed for taxpayers that have a fiscal year ending before December 31, 2009.

Beginning January 1, 2009, an ethanol promotion tax credit is available to taxpayers who:

- are retail dealers of ethanol blended gasoline and
- who operate motor fuel pumps at an Iowa retail motor fuel site.

Tank wagons are considered retail motor fuel sites.

Part I of this form is the calculation of the taxpayer's biofuel distribution percentage, which is computed for all gallons sold from January 1, 2009, through the end of the taxpayer's fiscal year at all motor fuel sites. This percentage is calculated by adding the total ethanol gallonage and the total biodiesel fuel gallonage, and dividing this sum by the total gasoline gallonage.

The total ethanol gallonage is the total number of gallons of ethanol sold. For example, 10,000 gallons of ethanol blended gasoline formulated with 10% by volume of ethanol results in an ethanol gallonage of 1,000. The percentage used for E85 is 79%, which is an average of the amount of ethanol contained in E85 gasoline during warm and cold weather.

The total biodiesel gallonage is the total number of gallons of biodiesel sold. For example, 10,000 gallons of biodiesel blended fuel formulated with 2% by volume of biodiesel results in a biodiesel gallonage of 200.

The total gasoline gallonage is the total number of gallons of gasoline sold.

The amount of the ethanol promotion tax credit depends on whether the taxpayer attains a biofuel threshold percentage, which in turn is dependent on the number of gallons of motor fuel sold during the period from January 1, 2009, through the end of the taxpayer's fiscal year.

The number of gallons sold during the period from January 1, 2009, through the end of the taxpayer's fiscal year will be annualized to determine whether 200,000 gallons of motor fuel are sold during the 2009 calendar year for purposes of the biofuel threshold percentage.

- The biofuel threshold percentage is 6% for taxpayers who sell 200,000 gallons or less during the 2009 calendar year, and
- The biofuel threshold percentage is 10% for taxpayers who sell more than 200,000 gallons during the 2009 calendar year.

For example, if 70,000 gallons were sold by a taxpayer between January 1, 2009, and a fiscal year end of April 30, 2009, the annualized amount is 210,000 gallons. This would result in a biofuel threshold percentage for this taxpayer of 10%.

The biofuel distribution percentage is compared to the biofuel threshold percentage to determine the biofuel threshold percentage disparity, which is also computed on Part I of this form.

Part II of this form computes the credit, which must be calculated separately for each Iowa retail motor fuel site operated by the taxpayer.

The ethanol blended credit is calculated by multiplying the retail dealer's total ethanol gallonage at each site by the tax credit rate, which is dependent upon the retail dealer's biofuel threshold percentage disparity.

The tax credit rate is shown below:

Biofuel Threshold Percentage Disparity	Tax Credit Rate
0%	6.5 cents
0.01% to 2.00%	4.5 cents
2.01% to 4.00%	2.5 cents
4.01% or more	0 cents

This credit can be claimed even if the taxpayer also claims an E85 gasoline promotion credit for the same ethanol gallons.

Taxpayers whose fiscal year ends before December 31, 2009, will compute the tax credit on the total ethanol gallonage sold during the period from January 1, 2009, through the end of the taxpayer's fiscal year.

Instead of claiming the credit on the 2008 return for a fiscal year ending before December 31, 2009, the taxpayer can claim the ethanol promotion tax credit on the tax return for the following fiscal year, including the ethanol gallonage for the period from January 1, 2009, through the end of the taxpayer's 2009 fiscal year.

Likewise, if the taxpayer filed the Iowa return for the fiscal year which ended before December 31, 2009, and did not claim the ethanol promotion tax credit, it is not necessary to amend that 2008 return. The ethanol promotion credit can be claimed on the next tax return (2009) which can include the ethanol gallonage sold for the previous year.

For example, a taxpayer who is a retail dealer of gasoline has a fiscal year ending April 30, 2009, and operates one motor fuel site in Iowa. The taxpayer expects to sell more than 200,000 gallons of gasoline during the 2009 calendar year. The ethanol gallonage is 50,000 gallons for the period from January 1, 2009, through April 30, 2009. The biofuel distribution percentage is 7.7% for the period from January 1, 2009, through April 30, 2009, which results in a biofuel threshold percentage disparity of 2.3% (10.0 minus 7.7). The taxpayer is entitled to claim an ethanol promotion tax credit of $1,250 (50,000 gallons multiplied by 2.5 cents) on the taxpayer's Iowa income tax return for the period ending April 30, 2009.

In this example, rather than claiming the credit on the return for the period ending April 30, 2009, the taxpayer can claim the ethanol promotion tax credit on the tax return for the period ending April 30, 2010, including the ethanol gallonage for the period from January 1, 2009, through April 30, 2010. In this case, the taxpayer will compute the biofuel distribution percentage for the period from January 1, 2009, through December 31, 2009, to determine the proper tax credit rate to be applied to the ethanol gallonage for the period from January 1, 2009, through December 31, 2009.

Any tax credit in excess of the tax liability can be refunded. Instead of claiming a refund, the taxpayer may elect to have the overpayment credited to the tax liability for the following year. In addition, if the taxpayer is a partnership, limited liability company, S corporation, estate or trust, the credit must be allocated to the individual owners in the ratio of each owner's share of the earnings of the entity to the entity's total earnings.

The IA 148 Tax Credits Schedule must be completed.

Iowa Department of Revenue
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2008 IA 148 Tax Credits Schedule

Name(s)	Taxpayer Identification Number (SSN or FEIN)

Part I — Nonrefundable Credits

	A Tax Credit Code (see instr.)	B Certificate Number (if applicable)	C Amount Carried Forward From Prior Years	D Current Year Amount (earned by taxpayer or received from pass-through entity)	E Total Credit Available (C+D=E)	F Amount Applied Current Year (may not exceed total tax liability)	G Expired Credit Amount	H Amount Carried Forward to Future Years (E-F-G=H)
1								
2								
3								
4								
5								
6								
7								
8								
9								
10								

Part I Total (Sum of column F; enter amount on line 53 of IA 1040, line 10 of IA 1040C, or line 2 of schedule C1 of IA 1120 or line 13 of IA 1120A)

Part II — Refundable Credits

	I Tax Credit Code (see instr.)	J Certificate Number (if applicable)	K Current Year Amount (earned by taxpayer or received from pass-through entity)
11			
12			
13			
14			
15			
16			
17			
18			
19			
20			

Part II Total (Sum of column K; enter amount on line 66 of IA 1040, line 14 of IA 1040C, or line 3 of schedule C1 of IA 1120 or line 14 of IA 1120A)

Part III — Total Credits

(Does not apply to individual income tax)

(Sum of Totals Part I and Part II; enter amount on line 17 of IA 1120F, line 30 of IA 1041, or the miscellaneous line of the Iowa Insurance Premium Tax Return)

Part IV — Pass -Through Entity Schedule

L Line Number from Part I or Part II Above	M Pass-Through Entity Name	N Pass-Through Entity Federal ID Number	O Taxpayer's Percentage Share of Credit Earned by Pass-Through Entity

Instructions for IA 148 Tax Credits Schedule

Attach the Tax Credits Schedule to the tax return on which tax credits are being claimed. The Tax Credits Schedule is used to claim tax credits against individual income tax, fiduciary income tax, corporation income tax, franchise tax, and insurance premium tax liabilities. Each credit should be entered on a separate line. Also, a separate line should be used for each unique tax credit certificate number.

Part I: Nonrefundable Tax Credits

Column A: Enter the tax credit code from the table below for the credit claimed on each line.

- 02 Economic Development Region Revolving Fund Credit
- 03 Endow Iowa Credit
- 04 Franchise Tax Credit (refer to worksheet IA 147)
- 06 Housing Investment Tax Credit
- 07 Investment Tax Credit (attach form IA 3468)
- 08 Iowa New Jobs Credit (attach form IA 133)
- 09 Minimum Tax Credit (attach form IA 8801 to IA 1040 and IA 1041; or form IA 8827 to IA 1120)
- 10 Renewable Energy Credit (476C)
- 11 S Corporation Apportionment Credit (attach form IA 134)
- 12 School Tuition Organization Credit
- 13 Venture Capital Credit-Fund of Funds
- 14 Venture Capital Credit-Qualified Business or Seed Capital Fund
- 15 Venture Capital Credit-Venture Capital Funds
- 16 Wind Energy Production Credit (476B)
- 17 Agricultural Assets Transfer Credit
- 18 Film Expenditure Tax Credit
- 19 Film Investment Tax Credit
- 20 Charitable Conservation Contribution Tax Credit

Column B: Enter the tax credit certificate number received from the agency or organization that awarded the tax credit. Tax credits awarded before July 2006 may not have a certificate number. Several credits do not require the award of a tax credit certificate and/or number from an agency or organization. The following nonrefundable credits do not require a certificate number: charitable conservation contribution, franchise tax credit, minimum tax credit, and S corporation apportionment credit. If the tax credit certificate does not have a certificate number, leave blank. For non-awarded credits, leave blank.

Column C: Enter any amount carried forward from previous tax years for each of the credits being claimed.

Column D: Enter the total amount of credit you earned directly or received from a pass-through entity (see definition of pass-through entity in instructions for Part IV) during the current tax year. The instructions for column A indicate if a credit requires a separate form. If the credit you are claiming lists a form number, please attach that form to your tax return. If a credit is received from a pass-through entity, Part IV must also be completed for the credit.

Column E: Add column C to column D and enter total in column E.

Column F: Enter the amount of each credit being applied to the current tax year. If credits available (the sum of column F) exceed total liability (line 52 of the IA 1040 for individual income tax), credits are to be claimed in the order provided in Iowa Administrative Rule 701-42.23 for individual income tax and fiduciary income tax and Iowa Administrative Rule 701-52.12 for corporation income tax, franchise tax, and insurance premiums tax. (To view the text of these rules, go to www.legis.iowa.gov/ACO/IAChtml/701.htm and scroll down to 42.23 or 52.12). The total of column F may not exceed total tax liability.

Column G: If the entire credit is not claimed by the end of the carryforward period, the remaining credit expires. Enter the amount of any credit that has expired.

Column H: Enter the amount from column E less any amount from column F and/or column G.

Part II: Refundable Tax Credits.

Column I: Enter the tax credit code from the table below for the credit claimed on each line.

- 51 Assistive Device Credit
- 52 Biodiesel Blended Fuel Credit (attach form IA 8864)
- 53 Claim of Right Credit
- 54 Ethanol Blended Gasoline Credit (attach form IA 6478)
- 55 E85 Gasoline Promotion Credit (attach form IA 135)
- 56 Historic Preservation Credit
- 57 Refundable Investment Tax Credit (attach form IA 3468)
- 58 Research Activities Credit (attach form IA 128 or Form IA 128A)
- 59 Supplemental Research Activities Credit (attach form IA 128 or form IA 128A)
- 61 Soy-Based Transformer Fluid Credit
- 62 Third Party Sales Tax Credit
- 63 Wage-Benefit Credit
- 64 Ethanol Promotion Credit (attach form IA 137)

Column J: Enter the tax credit certificate number received from the agency or organization that awarded the tax credit. Tax credits awarded before July 2006 may not have a certificate number. Several credits do not require the award of a tax credit certificate and/or number from an agency or organization. The following refundable credits do not require a certificate number: biodiesel blended fuel credit, claim of right credit, E85 gasoline promotion credit, ethanol blended gasoline credit, ethanol promotion credit, and research

activities credit (if not doubled under an Iowa Department of Economic Development program). If the tax credit certificate does not have a number, leave blank. For non-awarded credits, leave blank.

Column K: Enter the total amount of credit you earned directly or received from a pass-through entity (see definition of pass-through entity in instructions for Part IV) during the current tax year. The instructions for column I indicate if a credit requires a separate form. If the credit you are claiming lists a form number, please attach that form to your tax return. If a credit is received from a pass-through entity, Part IV must also be completed for the credit.

Part III: Total Credits

Enter the sum of the total boxes for Part I and Part II. This total is entered on line 17 of IA 1120F, line 30 of IA 1041 or the miscellaneous line of the Iowa Insurance Premium Tax Return.

Part IV: Pass-Through Entity Schedule

Businesses that are organized as pass-through entities (such as partnerships, limited liability companies, cooperatives, S corporations, etc.) earn tax credits at the business level, but the credits are claimed by individuals and businesses that are members of the ownership group. For each line in Part I or Part II with a credit received from a pass-through entity, complete a corresponding line in Part IV to indicate the source of the credits. Part IV does not have to be completed for individuals claiming the S corporation apportionment credit.

Column L: Enter the line number from Part I or Part II that includes credits received from a pass-through entity. This includes any carryforward (column C) claimed from credits received in prior years from a pass-through entity.

Column M: Enter the name of the pass-through entity from which credits were received.

Column N: Enter the Federal Employer Identification Number (FEIN) of the pass-through entity from which credits were received. This FEIN should be the same number provided to the awarding agency or organization. It also should be the same FEIN used to complete any required information returns (such as form IA 1065 and Schedule K-1 for partnerships).

Column O: Enter the percentage share of credits earned by the pass-through entity that you are claiming. Enter the percentage with one decimal place.

Special Instructions

Related to Individual Income and Fiduciary Tax:

Individuals using filing status 3 (married filing separately on this combined return) must complete a separate form IA 148 for each spouse with credits to claim.

The list of credits included in the instructions for column A and column I include tax credits for all types of taxpayers. In 2008, individuals are allowed to claim all credits except the third party sales tax credit. All credits except the third party sales tax credit may also be claimed on fiduciary tax returns.

Related to Corporate Income Tax:

The list of credits included in the instructions for column A and column I include tax credits for all types of taxpayers. All of the credits except the claim of right credit, S corporation apportionment credit, and school tuition organization credit are allowed to be claimed on corporate income tax returns.

Related to Franchise Tax:

The list of credits included in the instructions for column A and column I include tax credits for all types of taxpayers. The following nonrefundable credits may be claimed against the franchise tax: economic development region revolving fund credit, endow Iowa credit, housing investment tax credit, investment tax credit, renewable energy credit, venture capital credit-fund of funds, venture capital credit-qualified business or seed capital fund, venture capital credit-venture capital funds, wind energy production credit, film production tax credit, and film investment tax credit. The following refundable credits may be claimed against the franchise tax: historic preservation credit, refundable investment tax credit, third party sales tax credit, and wage-benefit tax credit. The minimum tax credit is reported on line 16 of the IA 1120F and will not appear on the IA 148.

Related to Insurance Premium Tax:

The list of credits included in the instructions for column A and column I include tax credits for all types of taxpayers. The following nonrefundable credits may be claimed against the insurance premium tax: economic development region revolving fund credit, endow Iowa credit, housing investment tax credit, investment tax credit, renewable energy credit, venture capital credit-fund of funds, venture capital credit-qualified business or seed capital fund, venture capital credit-venture capital funds, wind energy production credit, film production tax credit, and film investment tax credit. The following refundable credits may be claimed against the insurance premium tax: historic preservation credit, refundable investment tax credit, third party sales tax credit, and wage-benefit tax credit.

Iowa Department of Revenue
www.state.ia.us/tax

IA 6478 2008

Iowa Ethanol Blended Gasoline Income Tax Credit

This is not a motor fuel tax credit or refund form. It is an income tax form. Attach a copy to your Iowa individual or corporation income tax return.

Name(s) of Individual(s) or C Corporation	Identification No.

Complete one form for each Iowa Retail Motor Fuel Site.

Name and Address of Retail Motor Fuel Site:

_____

		Use this column to calculate the credit for this retail motor fuel site only.	Use this column to enter the total of all qualifying retail motor fuel sites.
1. Total gasoline gallons, including ethanol blended gasoline, sold through motor fuel pumps through December 31, 2008. (include all gasoline and ethanol blended gasoline)	1.		
2. Total ethanol blended gasoline gallons sold through motor fuel pumps in Iowa through December 31, 2008.	2.		
3. Divide line 2 by line 1 and enter the percentage here	3.	%	%
If line 3 is equal to or less than 60%, STOP. You are not eligible for the credit for this site. If line 3 exceeds 60%, continue to line 4.			
4. Enter 60% of line 1	4.		
5. Subtract line 4 from line 2	5.		
6. Total ethanol blended gasoline tax credit Multiply line 5 by .025 (two and one-half cents). Enter the result here and on the IA 148 Tax Credits Schedule.	6.		
		Amount to enter if only one site.	**Amount to enter if more than one site.**

INSTRUCTIONS

Beginning January 1, 2002, an ethanol blended gasoline tax credit is available to retail dealers of gasoline who operate motor fuel pumps at an Iowa retail motor fuel site. Tank wagons are considered retail motor fuel sites. To qualify for the credit, the dealer must operate at least one retail motor fuel site at which more than 60 percent of the total gallons of gasoline sold and dispensed through one or more motor fuel pumps during the tax year is ethanol blended gasoline. Sales of diesel fuel are not considered sales of gasoline, and should be excluded from the calculation.

This credit must be calculated separately for each retail motor fuel site operated by the taxpayer. The amount of credit for each eligible retail motor fuel site is two and one-half cents multiplied by the total number of gallons of ethanol blended gasoline sold through all motor fuel pumps at that retail motor fuel site during the tax year in excess of 60 percent of all gasoline sold through motor fuel pumps at that retail motor fuel site during the tax year. The credit can only be taken for those retail motor fuel sites where more than 60 percent of the gasoline sold was ethanol blended gasoline. **This form should be completed for each retail motor fuel site, and the total amount of credits for all eligible retail motor fuel sites can be claimed on the individual or corporation income tax return. This credit can be claimed even if the taxpayer also claims an E85 gasoline promotion tax credit for the same ethanol gallons. Do not include any gallons sold after December 31, 2008. Gallons sold after December 31, 2008, may be eligible for the ethanol promotion tax credit, which is computed on form IA 137.**

Any credit in excess of the tax liability can be refunded. In lieu of the refund, taxpayer may elect to have the overpayment credited to the tax liability for the following year. In addition, if the taxpayer is a partnership, limited liability company, S corporation, estate or trust, the credit must be allocated to the individual owners in the ratio of each owner's share of the earnings of the entity to the entity's total earnings.

The IA 148 Tax Credits Schedule must be completed.

Iowa Department of Revenue
www.state.ia.us/tax

IA 8864 2008

Biodiesel Blended Fuel Tax Credit

This is not a motor fuel tax credit or refund form. It is an income tax form. Attach a copy to your Iowa individual or corporation income tax return.

Name(s) of Individual(s) or C Corporation	Indentification No.

Tax Period Ending:

1. Total diesel fuel gallons, including biodiesel fuel gallons, sold through motor fuel pumps in Iowa during the tax year. (include all diesel fuel and biodiesel fuel gallons) ..... 1. _____
2. Total biodiesel fuel gallons sold through motor fuel pumps in Iowa during the tax year containing a minimum of 2% biodiesel ..... 2. _____
3. Divide line 2 by line 1 and enter the percentage here ..... 3. _____ %

If line 3 is less than 50%, STOP. You are not eligible for the credit. If line 3 equals or exceeds 50%, continue to line 4.

4. Enter amount from line 2 ..... 4. _____
5. Total biodiesel blended fuel tax credit
   Multiply line 4 by .03 (three cents)
   Enter the result here and on the IA 148 Tax Credits Schedule ..... 5. _____

INSTRUCTIONS

Beginning January 1, 2006, a biodiesel blended fuel tax credit is available to retail dealers of diesel fuel who operate motor fuel pumps at a retail motor fuel site. Tank wagons are considered retail motor fuel sites. To qualify for the tax credit, 50 percent or more of the gallons of diesel fuel sold by the dealer through motor fuel pumps in Iowa must be biodiesel fuel containing a minimum percentage of two percent by volume of biodiesel.

The amount of credit is three cents multiplied by the total number of gallons of biodiesel blended fuel sold at the pump during the tax year.

Any credit in excess of the tax liability can be refunded. In lieu of the refund, taxpayer may elect to have the overpayment credited to the tax liability for the following year. In addition, if the taxpayer is a partnership, limited liability company, S corporation, estate or trust, the credit must be allocated to the individual owners in the ratio of each owner's share of the earnings of the entity to the entity's total earnings.

The IA 148 Tax Credits Schedule must be completed.

Appendix B: Motor Fuel Consumption for 2008 through 2020 Forecast Assumptions

In order to forecast biofuel retailers' tax credit claims for tax years 2008 through 2020, a handful of assumptions about the growth in motor fuel consumption were necessary. These assumptions were based on short-term and long-term forecasts of liquid fuel consumption forecasts made by the Energy Information Administration (EIA) (2008a, 2008b) and calculations using the Iowa Retailers Motor Fuel Annual Report hybrid data set.

In December 2008, EIA projected that total motor gasoline consumption would decline 3.4 percent in 2008 and 0.6 percent in 2009, reflecting the current economic recession in the U.S. For the long-term, EIA projects an annual growth rate for motor fuel consumption of -0.2 percent between 2006 and 2030 (Table A11, 2008a). That forecast includes positive growth of 0.31 percent between 2010 and 2015, then an annual decline of about 1 percent thereafter. EIA projects that gasohol sales will increase 3.7 percent on average over the 2006 through 2030 period, E85 sales will increase 33.5 percent, and biodiesel consumption will increase 6.9 percent (Table A17, 2008a). Diesel sales are expected to increase 1.8 percent annually over this same time period (Table A11, 2008a).

Using the hybrid retailers data, including calendar year 2007 sales of total gasoline, gasohol, E85, diesel, and pure biodiesel, at 2,655 retail stations across Iowa, retail sales were forecasted for calendar 2008 through 2020.[29] The first step was to forecast sales in 2008. IDR collects quarterly E85 sales data from the approximately 100 stations with E85 pumps. Actual 2008 sales through the third quarter were used to forecast 2008 sales of E85 at the identified stations. Those sales were up 151 percent over the first three quarters of 2007 as more stations offered the fuel and demand at existing stations was strong in the face of soaring gasoline prices during the summer. Early fourth quarter numbers from one-third of E85 retailers shows a slowing in sales, not surprising given the recent drop in gasoline prices relative to ethanol. Based on those reports, it was assumed that total 2008 sales would equal the first three quarters plus an additional 14 percent for fourth quarter sales. For the eleven stations that reported new pumps installed during the third quarter of 2008 but no sales, it was assumed that fourth quarter sales would equal 2 percent of total gasoline sales reported in 2007. This was based on the observation that in 2007, stations selling E85 reported sales that equaled 8.0 percent of total gasoline sales. 2008 sales of gasohol, biodiesel, and diesel were assumed to remain flat at 2007 levels, in recognition of the high motor fuel prices driving down demand during the summer and the economic slowdown keeping demand low into the fall and winter. Total gasoline sales at each retail station for 2008 were then calculated as the maximum of the sum of forecasted gasohol and E85 or 2007 total gasoline sales reduced by 3.4 percent.

EIA assumes that the gasohol market will be saturated by 2014, and all subsequent growth in ethanol consumption will be met through increased demand for E85 (they do not consider the option of increasing the ethanol blend to E20 or E30).[30] A saturation of gasohol requires both a relative increase in gasohol sales to total gasoline at those stations with less than 100 percent sales in 2007, and new stations introducing gasohol. In 2007, 141 stations reported zero gasohol sales. Therefore, between 2009 and 2014, 23 or 24 stations with zero gasohol sales in 2007 are randomly assigned to begin selling gasohol each year, where sales in the first year equal 80 percent of gasoline sales reported in the previous year (the average gasohol share at stations in 2007). For stations with existing gasohol sales, it is assumed those sales increase 3.5 percent, up to 100 percent of

[29] Data for 444 of those stations actually reflect tax year 2006 or 2007 data and do not include E85 or biodiesel sales. The sales data for these stations were treated equivalently to the other stations.

[30] The U.S. Department of Energy found that cars running on 15 or 20 percent ethanol blends had similar emissions than with gasoline (Spokesman, 2008b). Research with E20 and E30 blends has shown that cars can get better gas mileage than predicted based on ethanol's energy content at those mid-level blends (Spokesman, 2008a).

forecasted total gasoline sales less E85 sales. The annual growth rate for gasohol for 2009 through 2014 ranges from 2.0 to 3.5 percent, then drops into slightly negative territory as motor fuel demand growth moves to zero while E85 continues to expand (see Table B1).

Likewise, to target projected growth of 33.5 percent in E85 consumption, 20 stations with no E85 sales reported in 2007 are randomly assigned to begin selling E85 each year from 2009 through 2020. Thus by 2020, 12 percent of stations are forecasted to offer E85, up from three percent in 2007. In the initial year, it is assumed sales equal 8.0 percent of total gasoline sales in the prior year, based on 2007 average E85 sales for the 86 stations. For stations with existing E85 sales, it is assumed those sales increase 23.5 percent each year, up to 50 percent of total gasoline sales. E85 annual growth is above 25 percent each year through 2016, but then falls in the last four years of the forecast as the 50 percent sales threshold becomes binding at many retailers (see Table B1).

Because biodiesel blends can vary between two and 100 percent, the forecast considers only gallons of pure biodiesel sales, the number required to compute the EPTC. Each year, ten stations with zero biodiesel sales but positive diesel sales reported in 2007 are randomly assigned to begin offering biodiesel. In the initial year when a station introduces biodiesel, sales are assumed to equal 52.4 percent of total diesel sales, based on 2007 average sales at the 327 stations with biodiesel sales. The average blend is assumed to be 3.95 percent, again based on the retailers data. Therefore, pure biodiesel is assumed to equal approximately two percent of diesel sales. For stations with existing biodiesel sales, it is assumed those sales increase 6.6 percent each year. Total annual growth in pure biodiesel averages 6.9 percent after no growth in 2008 (see Table B1).

In order to forecast BBFC claims using the pure biodiesel gallons sold at each retail location, it was necessary to estimate the gallons of biodiesel blend sold. In the 2007 retailers data, the average biodiesel share in biodiesel-blended gallons was 15.1 percent. Therefore biodiesel blended sales were assumed to equal 6.6 times the forecasted pure biodiesel gallons sold at each retail location

Total diesel sales are assumed to grow 1.8 percent each year. Total gasoline sales are assumed to increase by 0.3 percent each year between 2010 and 2015, then decrease one percent each year between 2016 and 2020, or equal the sum of forecasted gasohol plus E85 sales. Gasoline sales are estimated to decrease 16 percent on average each year (see Table B1).

Once sales of each type of fuel were forecasted for each station, the various credits were computed based on current law, using information on a taxpayer level to compute the biofuel percentage threshold and the resulting tax credit rate for the EPTC, although all tax credit claims were computed separately for each retail location. In order to forecast BBFC claims using the pure biodiesel gallons sold at each retail location, it was necessary to estimate the gallons of biodiesel blend sold. Each station was assumed to maintain the average biodiesel blend reported in the 2007 retailers data. For stations assigned to introduce biodiesel after 2008, the average biodiesel blend of 3.95 percent was assumed for all future years.

Table B1. Forecasted Annual Growth in Motor Fuel Consumption, Years 2008 to 2020

Year	Total Gasoline	Gasoline	Gasohol	E85	Pure Ethanol	Total Diesel	Pure Biodiesel
2008	-3.1%	-15.1%	0.0%	77.0%	1.6%	0.0%	0.0%
2009	-0.5%	-17.2%	3.3%	34.4%	4.4%	1.8%	6.8%
2010	1.1%	-12.9%	3.5%	34.2%	5.0%	1.8%	6.8%
2011	0.5%	-19.1%	3.4%	36.6%	5.4%	1.8%	7.8%
2012	0.6%	-21.0%	3.0%	29.4%	5.1%	1.8%	6.8%
2013	0.7%	-20.9%	2.5%	27.8%	4.9%	1.8%	7.3%
2014	0.9%	-20.2%	2.0%	28.7%	5.1%	1.8%	6.8%
2015	1.0%	-16.6%	1.5%	25.7%	5.0%	1.8%	6.7%
2016	0.0%	-19.6%	0.2%	27.4%	4.9%	1.8%	6.8%
2017	0.0%	-15.5%	-0.1%	21.5%	4.4%	1.8%	6.8%
2018	0.2%	-12.1%	-0.2%	21.6%	5.1%	1.8%	7.0%
2019	0.3%	-9.5%	-0.3%	17.9%	4.8%	1.8%	6.7%
2020	0.5%	-8.5%	-0.3%	17.8%	5.4%	1.8%	6.7%

Source: Author's calculations using retailers' sales data from 2007 forecasted through 2020.
Note: Numbers represent the resulting growth in each motor fuel type in the forecast, based on the EIA assumptions and random assignment of stations to introduce the sale of gasohol, E85, and biodiesel.