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 assist the legislature by performing periodic economic studies of tax credit programs. This is the second economic study completed for these tax credits, with the first completed in 2009.

As part of the evaluation, an advisory panel was convened to provide input and advice on the study's scope and analysis. We wish to thank the members of the panel:

Dawn Carlson	Petroleum Marketers and Convenience Stores of Iowa
Chad Hart	Iowa State University, Center for Agricultural and Rural Development
Harold Hommes	Iowa Department of Agriculture and Land Stewardship, Renewable Fuels Infrastructure Program
Grant Menke	Iowa Renewable Fuels Association
Marty Schwager	Iowa Farm Bureau
Matt Steinfeldt	Iowa Farm Bureau

The assistance of an advisory panel implies no responsibility for the content and conclusions of the evaluation 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 website.

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Executive Summary

In 2006, the Iowa General Assembly enacted House File (HF) 2754 establishing a goal that 25 percent of all petroleum used in gasoline in Iowa be replaced by biofuels by 2020. In order to help the State promote biofuel sales to meet that goal, various refundable tax credits were enacted for Iowa biofuel retailers. In Iowa, currently there are four tax credits provided for biofuel retailers: the Ethanol Promotion Tax Credit, the E85 Gasoline Promotion Tax Credit, the E15 Plus Gasoline Promotion Tax Credit, and the Biodiesel Blended Fuel Tax Credit.

Ethanol Promotion Tax Credit

- First available January 1, 2009, the Ethanol Promotion Tax Credit (EPTC) is calculated using the pure amount of ethanol gallons sold by a retailer in Iowa. For example, 10 gallons of E10 equals one gallon of pure ethanol. The tax credit is set to be repealed on January 1, 2021.

- The EPTC rate earned by a retailer varies from $0.08 to $0.04. The tax credit rate is a function of the size of the retailer and the difference between the biofuel threshold percentage and the retailer's biofuel distribution percentage. The biofuel threshold percentage steadily increases over the life of the tax credit from 6 percent for small retailers and 10 percent for large retailers, in 2009, to 25 percent for all retailers in 2020. The retailer's biofuel distribution percentage is calculated as the ratio of pure ethanol gallons plus pure biodiesel gallons to total gasoline gallons sold (excluding any biodiesel or diesel gallons sold).

E85 Gasoline Promotion Tax Credit

- First available January 1, 2006, the E85 Gasoline Promotion Tax Credit (E85GC) provides a credit for each gallon of E85 sold by a retailer during the tax year. For tax years 2012 through 2017, the tax credit rate is $0.16 per gallon. E85 requires dedicated pumps and can only be used in flex fuel vehicles. The repeal date of the tax credit is January 1, 2018.

E15 Plus Gasoline Promotion Tax Credit

- First available July 1, 2011, the E15 Plus Gasoline Promotion Tax Credit (E15GC) is available for retail dealers who sell blended gasoline with 15 to 69 percent ethanol, which is classified as E15 Plus. For tax years 2014 through 2016, the tax credit rate is $0.03 per eligible gallon sold throughout the year, except June 1 through September 15, when the rate is higher at $0.10 per gallon. Only vehicles model year 2001 or newer, or flex fuel vehicles, have been cleared by manufacturers to use E15 sold by retailers. The repeal date of the tax credit is January 1, 2018.

Biodiesel Blended Fuel Tax Credit

- First available January 1, 2006, the Biodiesel Blended Fuel Tax Credit (BBFC) was available to retail dealers of biodiesel blended 2 percent or higher. In calendar years 2013 through 2017, the tax credit equals $0.045 per gallon for blends classified as B5 or higher; lower blends are no longer eligible. The repeal date of the tax credit is January 1, 2018.

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

- The federal government does not offer any retailers tax credits, but does mandate biofuel usage through the Renewable Fuels Standard (RFS). Eight states also have mandates or explicit goals for biofuel usage.

- Along with Iowa, four other states currently offer tax credits for retailers based on the amount of biofuels sold at retail stations.

- Eight states and the federal government currently offer tax credits for retailers based on investment made in the infrastructure necessary to sell biofuels. Fifteen states, including Iowa and the federal government, offer some other type of incentive, such as a grant or tax deduction, for investment in biofuel retail infrastructure. Ten states offer a tax deduction or excise tax exemption for sales of biofuels.

Other Determinants of Biofuel Sales

- To sell ethanol blends, retailers must have modern gasoline underground storage tanks. Approximately 95 percent of Iowa's retail gasoline infrastructure was designed for and listed by an independent third party testing laboratory as compatible with E10. However, that infrastructure is not necessarily compatible with higher ethanol blends.

- Flex fuel vehicles (FFV) are designed to run on gasoline or ethanol blends of up to 85 percent. As of January 2014, there were 282,849 FFVs registered with the State of Iowa, which is short of the State target of 350,000 FFVs.

- Much of the non-ethanol gasoline sold in Iowa is piped into the state. Starting September 15, 2013, Iowa's largest pipeline operator, Magellan Midstream Partners, stopped shipping regular 87-octane gasoline to its Iowa terminals. Instead, the pipeline operator started shipping 84-octane gasoline, which cannot be legally sold because Iowa requires a minimum 87-octane fuel at gas pumps. Boosting the fuel to the minimum octane requires either blending with ethanol or with more expensive 91-octane premium gasoline.

Ethanol Sales in Iowa and Midwestern States

- According to monthly fuel tax reports, from 1999 through 2001, suppliers in Iowa reported roughly equal distributions of taxable gasoline and ethanol-blended gallons. Since mid-2002, taxable ethanol-blended gallons have significantly exceeded gasoline gallons in all but one month, August 2006. Many other states experienced increases in ethanol-blended sales around this same time. It was also in 2002 when Iowa's ethanol production boom began.

- The Retailers Motor Fuel Gallons Annual Reports are completed by Iowa retailers to report sales to consumers of gasoline, diesel, and biofuels each calendar year. The reports allow tracking of progress toward meeting the State goal of reaching a biofuel distribution percentage of 25 percent by 2020.

- According to 2007-2013 Retailers Motor Fuel Gallons Annual Reports, the statewide biofuel distribution percentage was, in general, increasing, starting at 7.9 percent in 2007, rising to 9.1 percent in 2008, then continued increasing gradually in following years, reaching 10.7 percent in 2013.

Biofuel Retailers' Tax Credit Claims

- The number of EPTC claimants was 981 in tax year 2009, but declined each of the following years, falling to 700 in tax year 2011, the most recent complete tax year. The decline is likely due to retailers being unable to meet the increasing biofuel threshold percentages. Total claims were $4.6 million in tax year 2009. In tax year 2011, the total claim amount was $3.3 million. Since tax year 2008, 65.2 percent of EPTC claims were refunded, totaling $9.5 million in refunds.

- In tax year 2006, the number of the E85GC claimants was 109. In tax year 2011 the number of claimants increased to 269. The total claim amount started at $0.5 million in 2006, reaching $1.1 million in tax year 2011. Since tax year 2006, 66.9 percent of E85GC claims were refunded; totaling $5.4 million in refunds.

- In tax year 2011, the number of E15GC claimants started at 25. Those claimants claimed over $19,500 in tax credits. Preliminary numbers for tax year 2012, show 36 claimants for the E15GC exceeding $32,000 in credits. Since tax year 2010, 28.9 percent of E15GC claims were refunded, totaling over $15,000 in refunds.

- In tax year 2006, the number of BBFC claimants started at 72. Although tax year 2012 is an incomplete year, by August 2014 the number of claims had increased to 189 with total claims increasing to $10.3 million from $2.2 million in 2006. Since tax year 2006, 81.2 percent of BBFC claims were refunded, totaling $28.6 million in refunds.

Change in Biofuel Distribution Percentage for EPTC Claimants

- Out of the 260 large retailers who earned the EPTC in 2009 with a biofuel distribution percentage less than 10 percent, 87.3 percent dropped out by 2012 and 77.8 percent of 72 small retailers dropped out. Since they have claimed the EPTC before, it is likely that they stopped claiming the tax credit because they were no longer able to meet the rising biofuel threshold percentage in later years.

- The ratio of pure ethanol to total gasoline reported by retailers earning the EPTC increased from 8.5 percent (27.2 million out of 318.5 million gallons) in 2008 to 9.7 percent (43.3 million out of 446.7 million gallons) by retailers eligible to claim the EPTC in 2012.

The Future of Biofuel Retailers' Tax Credits in Iowa

- Using data from the Retailers Motor Fuel Gallons Annual Report, future biofuel sales by retailers in Iowa were forecasted. In order to produce the forecasts, a variety of assumptions about the growth of Iowa fuel sales are applied, including aggregate annual sales growth rates by type of fuel and growth in the number of stations selling biofuels.

- EPTC claims are expected to experience a continued decrease from an estimated $1.5 million in tax year 2013 to an estimated $0.7 million in 2020 as fewer retailers qualify over time. E85GC claims are estimated to increase from $1.8 million in 2013 to an estimated $2.9 million in 2017 due to the steady tax credit rate and continued growth in sales. E15GC claims are forecasted to increase from $78 thousand in 2013 to an estimated $0.15 million in 2017. The claim amount for BBFC is estimated to increase to $15.0 million in 2013 and rise steadily to an estimated $15.7 million in 2017.

- The statewide biofuel distribution percentage, 10.7 percent in 2013, is estimated to jump to 11.6 percent in 2014 as a result of the pipeline change raising the price of gasoline and shifting demand to ethanol-blended fuels. After that one-time shift, the percentage is forecasted to continue increasing moderately, rising to 12.9 percent in 2020.

I. Introduction

In the Unites States, various public policies are aimed at increasing biofuel consumption and reducing crude oil consumption. Among these policies there are tax incentive programs with the purpose of increasing biofuel sales for biofuel retailers, who decide what type of fuel is provided to final consumers in the fuel market.

In 2006, the Iowa General Assembly enacted HF 2754, an act pertaining to the regulation of renewable fuels and energy. The act provided incentives for the installation of biofuels infrastructure and the promotion of biofuels sales, including three biofuel retailers' tax credits. The incentives were included to assist in meeting the legislation's goal that 25 percent of all petroleum used in the formulation of gasoline consumed in the state be replaced by biofuels by the year 2020. In Iowa, there are currently four tax credits provided for biofuel retailers: the Ethanol Promotion Tax Credit (EPTC), the E85 Gasoline Promotion Tax Credit (E85GC), the E15 Plus Gasoline Promotion Tax Credit (E15GC), and the Biodiesel Blended Fuel Tax Credit (BBFC). This study will assess the effectiveness of these tax credits in terms of the goal set forth in HF 2754 and forecasts the tax credit claims through 2020.

In 2009, the Iowa Department of Revenue conducted the first evaluation study of Iowa's four biofuel retailers' tax credits effective in tax years 2002 through 2009. The 2009 study evaluated the newly enacted Ethanol Promotion Tax Credit (EPTC), the E85 Gasoline Promotion Tax Credit (E85GC), and the Biodiesel Blended Fuel Tax Credit (BBFC) which are also evaluated in this study. The 2009 study also reviewed the Ethanol Blended Gasoline Tax Credit that existed for tax years 2002 through 2008. The E15GC was not enacted until 2011 so was not included in the previous study.

This study is organized as follows: Section II introduces the four tax credits. Section III reviews tax policies at the federal level and other states, particularly neighboring states of Iowa. The related literature is briefly discussed in Section IV. Section V discusses major determinants of biofuel sales and challenges to promote biofuel sales. Section VI describes terminal-level biofuel sales for Iowa and Midwestern states, followed by retail station-level sales in Iowa. Section VII describes the claim patterns of the four credits. Changes in the biofuel distribution percentage for EPTC claimants are discussed in Section VIII. Section IX reports forecasted biofuels sales and tax credit claims through 2020. Finally, Section X concludes the study.

II. Iowa Retailers Tax Credits for Biofuels

Under current law, retailers selling biofuel out of motor fuel pumps in Iowa may be eligible to claim any one of four retailers' tax credits. The four tax credits offered to biofuel retailers are automatic, which means that any retailer who meets the sales requirement is eligible to make a claim. All four tax credits are refundable (while a nonrefundable tax credit can only reduce a taxpayer's tax liability to zero, a refundable

tax credit allows the taxpayer to receive a refund from the State when the tax credit claim amount exceeds tax liability). The tax credits can be claimed against corporation income tax or individual income tax. Businesses that are organized as partnerships, S-corporations, limited liability companies (LLC), estates, or trusts must allocate the pro rata share of any earned tax credits to the individual members of the entity.

A. Ethanol Promotion Tax Credit

Starting January 1, 2009, motor fuel retailers selling ethanol blended gasoline, including E10, E85, and E15, may be eligible to claim the Ethanol Promotion Tax Credit (EPTC). The amount of the tax credit is calculated using the pure amount of ethanol gallons sold by a retailer in Iowa. For example, 10 gallons of E10 equals one gallon of pure ethanol. The tax credit is set to be repealed on January 1, 2021.

The tax credit rate of the EPTC earned by a retailer is a function of the size of the retailer and the difference between the applicable biofuel threshold percentage and the retailer's biofuel distribution percentage. The retailer's biofuel distribution percentage is calculated as the ratio of pure ethanol gallons plus pure biodiesel gallons to total gasoline gallons sold (excluding any biodiesel or diesel gallons sold). For retailers selling more than 200,000 gallons per year at all retail locations (large retailers), the applicable biofuel threshold percentage was 10 percent in calendar year 2009, increasing one percentage point each year reaching 15 percent in calendar year 2014, then increasing two percentage points each year until it reaches 25 percent in calendar year 2019 (see Table 1). The applicable biofuel threshold percentage for retail dealers selling 200,000 or fewer gallons per year (small retailers) was 6 percent in calendar years 2009 and 2010 and 10 percent in 2011. The threshold increases one percentage point each year through 2016 until it reaches 13 percent, at which time it increases two percentage points each year until reaching 21 percent in calendar year 2019. For 2020, all retailers are subject to the 25 percent biofuel threshold percentage. When the tax credit was passed in 2006, a retailer whose biofuel distribution percentage was between 2.01 and 4.00 percentage points below the applicable biofuel threshold percentage was eligible for a $0.025 credit for each gallon of pure ethanol sold. Retail dealers with a biofuel distribution percentage no more than two percentage points below the applicable threshold was eligible for a $0.045 credit per gallon of pure ethanol sold, while retail dealers meeting or exceeding the applicable biofuel threshold percentage were eligible for a $0.065 credit.

Because the EPTC was established on a calendar year basis, retailers who file tax returns on a fiscal year basis that involve two calendar years must calculate the tax credit rate separately based on sales in each calendar year. However, those retailers must annualize sales for each calendar year to determine whether they are considered large retailers or small retailers.

Legislation in 2011 increased the EPTC rate at each level of compliance. Under current law, the top tax credit rate, available for any retailer meeting or exceeding the applicable biofuel threshold percentage, is $0.08 per gallon of pure ethanol sold beginning in

calendar year 2011. For retailers within two percentage points of the applicable biofuel threshold percentage, the tax credit rate equals $0.06. For retailers within four percentage points of the applicable biofuel threshold percentage, the tax credit rate equaled $0.025 in calendar year 2011 and rose to $0.04 for calendar years 2012 through 2020. If the retailer reports a biofuel threshold percentage disparity (subtracting the calculated biofuel distribution percentage from the biofuel threshold percentage) of four percentage points or more, then no credit is allowed.

When the EPTC was first created, a retailer was required to calculate its biofuel distribution percentage and biofuel threshold percentage disparity based on sales at all retail locations. This would determine the EPTC rate for the retailer. EPTC claims were then calculated separately for each retail site operated based on pure ethanol sold at each retail station. With the 2011 law change, retail dealers of gasoline have the option of calculating the biofuel distribution percentage, the EPTC rate, and the claim amount on either a company-wide basis or a site-by-site basis. However, the gallons sold at all sites in Iowa must still be considered in determining if the taxpayer is considered a large or small retailer and thus the applicable biofuel threshold percentage. Once the retail dealer makes the election to use either a site-by-site or company-wide basis to calculate the tax credit, the election is binding for subsequent tax years unless the Department of Revenue consents to a change in the method.

Taxpayers filing claims for the EPTC must include Form IA 137 in addition to the IA 148 Tax Credits Schedule with the tax return on which the tax credit is claimed. A retail dealer of gasoline can claim the EPTC even if the dealer claims an E15 Plus Gasoline Promotion Tax Credit and/or E85 Gasoline Promotion Tax Credit for the same tax year for the same ethanol gallons sold.

B. E85 Gasoline Promotion Tax Credit

E85 is a blend of gasoline that contains between 70 and 85 percent ethanol. Most vehicle engines are only capable of operating with ethanol blends up to 10 percent; newer vehicles have also been cleared to use E15. In order to use E85, a vehicle requires a flex fuel engine which is designed to run on a blend of up to 85 percent ethanol. Starting January 1, 2006, retail dealers of motor fuel that sell E85 gasoline can claim the E85 Gasoline Promotion Tax Credit (E85GC). When the tax credit was passed in 2006, the rate started at $0.25 per gallon of sales through calendar year 2008, fell to $0.20 for calendar years 2009 and 2010, and fell even further to $0.10 in calendar year 2011 (see Table 2). The tax credit rate was scheduled to fall one cent per year down to a final rate of one cent per gallon sold in 2020, with expiration set for January 1, 2021. Legislation in 2011 raised the credit to $0.16 per gallon starting in calendar year 2012 through 2017 and moved the expiration date to January 1, 2018. The tax credit applies to E85 gallons sold on a company-wide basis.

In order to claim the E85GC, taxpayers are required to file Form IA 135 and the IA 148 with the tax return on which the tax credit is claimed. A retail dealer of gasoline can

claim the E85GC even if the dealer claims an EPTC for the same tax year for the same ethanol gallons sold.

C. E15 Plus Gasoline Promotion Tax Credit

Starting July 1, 2011, the E15 Plus Gasoline Promotion Tax Credit (E15GC) was available to retail dealers of gasoline who sell blended gasoline that is classified as E15 Plus. E15 Plus is a blend of gasoline that contains between 15 and 69 percent ethanol. Most vehicle engines are only capable of operating with ethanol blends up to 10 percent; vehicles model year 2001 or newer have been cleared by the U.S. Environmental Protection Agency (EPA) to use E15, a blend up with 15 percent ethanol, sold by registered E15 retailers. Blends above E15 or E15 sold by nonregistered retailers can only be used in a flex fuel engine. Beginning July 2011 through 2013, the tax credit rate per eligible gallon sold was $0.03 (see Table 3).

During the 2014 Legislative Session, the E15GC was altered. Starting January 1, 2014, the calendar year is divided into three periods during which two different credit rates are utilized. For the first period beginning January 1 and ending May 31, the credit is $0.03 per gallon. For the second period beginning June 1 and ending September 15, the credit is $0.10 per gallon. For the third period beginning September 16 and ending December 31, the credit rate returns to $0.03 per gallon. The change reflects EPA regulations that disallow the sale of E15 during the summer months as a regular fuel because the vapor pressure of gasoline available to be blended with ethanol in Iowa does not meet summer air quality regulations. In 1978, E10 blends were granted a waiver from those regulations, but the same waiver has not been granted to higher ethanol blends. As a result of these regulations, during the summer months, E15 can only be sold by registered retailers in Iowa, with existing gasoline supplies, as a flex fuel. The goal of the higher tax credit rate during the summer is to incentivize retailers to ship low volatile fuel into Iowa for blending that will allow E15 to become a year-round fuel.

Taxpayers making E15GC claims must file Form IA 138 and the IA 148. The tax credit applies to qualifying gallons sold on a company-wide basis. The repeal date of this tax credit is January 1, 2018. A retail dealer of gasoline can claim the E15GC even if the dealer claims an EPTC for the same tax year for the same ethanol gallons sold.

D. Biodiesel Blended Fuel Tax Credit

Starting January 1, 2006, retail dealers of motor fuel that sell biodiesel blended fuel can claim the Biodiesel Blended Fuel Tax Credit (BBFC). For 2006 through 2008, to qualify for the tax credit, on a company-wide basis, 50 percent or more of the total gallons of diesel fuel sold by the retailer in Iowa must have been biodiesel fuel containing a minimum percentage of two percent biodiesel by volume (B2). Effective in 2009 through 2011, eligibility for the tax credit was determined separately at each retail location, where at least 50 percent of diesel sales must have been B2 or higher blend biodiesel sales. Through calendar year 2011, the tax credit equaled $0.03 multiplied by the total

number of gallons of biodiesel blended fuel gallons of B2 or higher sold at each qualifying retail location (see Table 4).

In 2011, the Legislature made several changes to the BBFC. Effective for tax years beginning on or after January 1, 2012, the 50 percent biodiesel sales requirement was eliminated so that the BBFC now applies to all biodiesel sold on a company-wide basis regardless of its share of sales at each retail location. The tax credit rate was lowered to $0.02 per gallon for blends between B2 and B4 and raised to $0.045 per gallon for blends classified as B5 or higher. In calendar years 2013 through 2017, the tax credit equals $0.045 per gallon for blends classified as B5 or higher; lower blends are no longer eligible. The repeal date of the credit is January 1, 2018. Taxpayers making BBFC claims must file Form IA 8864 and the IA 148.

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

Along with Iowa, four other states currently offer tax credits for retailers based on the amount of biofuels sold at retail stations. Eight states and the federal government currently offer tax credits for retailers based on investment made in the infrastructure necessary to sell biofuels. The federal government and eight states have a mandate or explicit goal for biofuel usage in the near future. Ten states offer a tax deduction or excise tax exemption for sales of biofuels. Additionally, fifteen states, including Iowa and the federal government, offer some other type of incentive, such as a grant or tax deduction, for investment in biofuel retail infrastructure. These incentives for biofuel retailers are briefly discussed below.

A. Retailer Sales Tax Credits

Five states, Iowa, Montana, North Dakota, Oklahoma, and South Dakota, have established tax credit programs for biofuel sales (see Table 5). Iowa is the only state that offers income tax credits for biofuel sales. Kansas and North Dakota offer a sales tax credit while South Dakota, Oklahoma, and Montana offer credits against their fuel taxes. Only Iowa and Oklahoma offer a tax credit for ethanol blends less than E85. Oklahoma's tax credit rate is $0.016 per gallon of ethanol blend sold and Iowa's Ethanol Promotion Tax Credit rate is $0.08 - $0.04 per gallon of pure ethanol. Therefore, when comparing the credits, the tax credit for a gallon of E10 in Oklahoma is equal to $0.016 and in Iowa the highest tax credit earned for the same gallon would be $0.008 or half of the credit earned in Oklahoma. 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. Iowa is the only state that offers a tax credit explicitly for ethanol blends between E15 and E85.

Iowa's E85GC is the only retailer tax credit specifically for E85 fuel gallons. Iowa's neighbor, South Dakota, is the only other state with a tax credit for sales of E85; however, the tax credit is claimed by blenders rather than retailers. The South Dakota

tax credit applies to the motor fuel tax because South Dakota has no income tax. The tax credit equals the amount that the motor fuel tax rate for gasoline, $0.22 per gallon, exceeds the tax rate for E85, $0.08 per gallon, and is more like a rebate of excess taxes paid than a tax credit.

For biodiesel retailers, Iowa's $0.045 per gallon is one of three biodiesel retailer tax credits available in the United States. Where Iowa's BBFC previously only required a two percent biodiesel blend to qualify, the threshold was increased to a five percent biodiesel blend in 2013. In North Dakota, the rate is $0.05 per gallon and the blend must also be at least five percent biodiesel. Montana offers a $0.01 per gallon refund of fuel taxes paid by retailers on biodiesel produced entirely from Montana components with no mentioned limit of the blend percentage.

While, Kansas does have a fuel retailer tax incentive program for ethanol and biodiesel blends, it is currently unfunded. In Kansas' program a qualified motor fuel retailer would be 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 a required threshold percentage is met. The threshold is determined by calculating the percent of total gasoline sales that is renewable fuel or biodiesel. This threshold is similar to Iowa's Ethanol Promotion Tax Credit threshold.

B. Retailer Investment Tax Credits

Eight states, Florida, Kansas, Louisiana, Montana, North Dakota, Oregon, South Carolina, and Wisconsin, currently offer some type of tax credit for investment in biofuel infrastructure by retailers (see Table 6). State tax credits for biofuel infrastructure investment range from 10 percent (North Dakota) to 75 percent (Florida) of the cost of construction or equipment for alternative fuel filling stations. Five states have caps on their investment tax credits. Florida's credit has a $1 million cap per taxpayer and a $6.5 million statewide cap while Oregon limits its 25 percent credit to $750 per fueling station. North Dakota has a $50,000 cap per taxpayer over the life of the program, Montana has a $52,500 cap per retailer, and Wisconsin has a $5,000 limit per station per year. All of the income tax credits are nonrefundable with carry forward periods ranging from three to ten years.

Wisconsin is Iowa's only neighbor to offer a tax credit for retailer investment with Kansas and North Dakota as other Midwest states that offer such credits. Wisconsin's infrastructure tax credit equals 25 percent of the cost to install or retrofit fueling pumps that dispense gasoline fuel blends of at least 85 percent ethanol or diesel fuel blends of at least 20 percent biodiesel. Kansas offers a tax exemption from state property tax for infrastructure installation of equipment for storing or blending biofuels at a fuel terminal, refinery, or biofuel production plant. The tax exemption ends 10 taxable years following the year in which the equipment was installed. North Dakota offers a 10 percent income tax credit for the direct costs to adapt or add equipment that enables a facility to sell at least 2 percent biodiesel blends.

The federal Alternative Fuel Vehicle Refueling Property Tax Credit is available for property used to store or dispense an alternative fuel, including E85 and B20 or higher blends, into the fuel tank of a motor vehicle. The amount of the tax credit for retailers equals the lesser of 30 percent of the property's cost or $30,000. The tax credit is one of the federal temporary tax provisions that have been repeatedly extended over the last decade; with the latest extension for calendar year 2014 enacted December 19, 2014.

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 to 36 billion gallons 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. Currently there is a fair amount of uncertainty surrounding the RFS. The EPA has yet to release their final 2014 RFS Proposal, due November 2013, and the previous proposal showed reduced renewable volume obligations compared to the original legislation. Producers are worried that curtailing biofuel blending obligations or the potential of a complete repeal of the Renewable Fuels Standard will eliminate demand for their product.

Eight states, Hawaii, Louisiana, Minnesota, Missouri, Montana, Oregon, Pennsylvania, and Washington, have existing mandates for biofuel sales independent of the federal requirements, (see Table 7). 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 five percent biodiesel blends. Beginning in 2006, Hawaii required that at least 85 percent of unleaded gasoline must be E10. Starting in 2008, Missouri required all gasoline sales to be E10. Oregon enacted its ethanol mandate during 2008, but the governor was allowed to suspend the renewable fuels mandate for ethanol if the Oregon Department of Energy finds that a sufficient amount of ethanol is not available. In 2014, Oregon's Department of Environmental Quality states that fuel suppliers have not met the average carbon intensity standards for the mandate to currently be upheld. Many other states have requirements that state fleet vehicles are to either use alternative fuels or be retrofitted to accept alternative fuels. Other states have goals as opposed to mandates for biofuel use or promotion within their state, such as Iowa's biofuel goal to replace 25 percent of gasoline in the state with biofuels by the year 2020.

Ten states including Iowa and the federal government offer other incentive programs established to encourage investment in alternative fuel filling stations (see Table 7). The federal government offers the Rural Energy for America Program (REAP) which provides loan guarantees and grants to agricultural producers and rural small businesses to purchase renewable energy systems or make energy efficiency improvements. Eligible renewable energy systems include flex fuel pumps, or blender pumps, that dispense intermediate ethanol blends. The maximum loan guarantee is $25

million and the maximum grant funding is 25 percent of project costs. At least 20 percent of the grant funds awarded must be for grants of $20,000 or less. This federal program is funded through fiscal year 2018. Neighboring states with programs are Illinois, Minnesota, Nebraska, and South Dakota. Nebraska offers a loan program, Minnesota offers grants, and Illinois offers grants up to $30,000. South Dakota offers the Ethanol Infrastructure Incentive Program which provides funding to offset the cost of installing ethanol blender pumps at retail fueling stations throughout the state. Awardees may receive $25,000 for the first pump installed and $10,000 for each additional pump.

Eleven states including Iowa offer incentives for sales of biofuels, typically through reduced fuel or sales tax rates. South Dakota charges a fuel tax rate two cents lower on E10 or higher blends. Hawaii exempts ethanol blends with 10 percent or higher from the state fuel sales tax. North Carolina exempts the retail sale, use, storage or consumption of alternative fuels from the state retail sales and use tax. Biodiesel or ethanol blended with taxable diesel fuel, that is identified when sold or used as a biodiesel or ethanol fuel blend, is exempt from the diesel fuel tax in the State of Texas.

D. Other Iowa Incentive Programs

Iowa also provides the Biodiesel Production Sales Tax Refund to qualified biodiesel producers. Enacted in 2011, the refund equaled three cents per gallon produced in calendar year 2012, the refund fell to 2.5 cents per gallon produced in 2013, and dropped to two cents in 2014. The refund was originally scheduled to expire after 2014, but was extended through 2017 during the 2014 Legislative Session. The refund is claimed against the sales tax which is filed on a quarterly basis, allowing producers to receive the State incentive every three months unlike an income tax incentive that is paid annually. In 2014, a qualified biodiesel producer may apply for a sales tax refund equal to 2 cents per gallon produced, each quarter, up to 25 million gallons each year. The producer must be engaged in the manufacturing of biodiesel and must have registered with the EPA as a manufacturer of biodiesel. The biodiesel manufactured must be used in biodiesel blended fuel. This program has provided a total of $5.0 million in refunds for 2012, $4.8 million for 2013, and $2.8 for the first three quarters of 2014 to Iowa biodiesel producers (see Table 8).

As noted above, Iowa offers other programs to incentivize investment in infrastructure to sell biofuels and a lower fuel tax rate. Iowa offers the Renewable Fuel Infrastructure Grant Program through the Iowa Department of Agriculture and Land Stewardship that provides financial assistance to qualified E85 and biodiesel retailers. Cost-share grants are available for up to 70 percent of the total cost, up to $100,000, to upgrade or install new E85 or biodiesel infrastructure. Since its inception in 2007, over $19 million in grants have been disbursed by the State to 555 projects around the state (see Table 9). Reimbursement can be for 50 percent of the costs for specific components of a project with a three-year commitment required to sell certain renewable fuels. A five year commitment to store and sell renewable fuels and install certain equipment can result in up to 70 percent reimbursement for specific equipment or installation costs. Heated

biodiesel terminal equipment and/or infrastructure can receive funding for up to $100,000 per project.

The Iowa fuel tax rate is currently 21 cents per gallon while the fuel tax on ethanol blended fuel is 19 cents per gallon, where the rates are set for a fiscal year based on the share of taxable ethanol-blended gasoline gallons in the prior calendar year. Under current law, that gap in tax rates is eliminated effective July 1, 2015. The fuel tax is levied at the terminal; however, a significant number of gallons of ethanol-blended fuel are blended downstream, that is between the terminal and the retailer. Blenders are thus eligible to receive a refund from the Department of Revenue of the two cents when gasoline is blended into E10 or any other higher ethanol blend.

IV. Literature Review

Impacts of U.S. biofuel public policies, including import tariffs, mandates, tax incentives, and subsidies, have been extensively assessed in the literature (e.g., de Gorter and Just, 2009 Metcalf, 2008; Babcock, 2010; Knittel, 2011).[1] These evaluations touch upon a broad spectrum of topics, including biofuel production, biofuel consumption, fuel prices, corn prices, food commodity prices, crude oil importation, land use, air quality, and farmers' welfare. However, there is little published research on the effectiveness of tax incentives particularly for biofuel retailers.

The significant impact of the Renewable Fuel Standard, the federal biofuel usage mandate, in promoting ethanol consumption is well documented (e.g., Anderson and Coble, 2010; Carter, Rausser, and Smith, 2012; CBO, 2014).[2] For example, Smith (2012) reported that the ethanol infrastructure boom post 2005 could be mainly attributed to the RFS. In 2005 there were 4.3 billion gallons of ethanol-production capacity and 1.8 billion gallons of capacity under construction in the United States; in only one year's time, capacity under construction had tripled.

In contrast, the estimated impact of the federal Volumetric Ethanol Excise Tax Credit (VEETC) which expired at the end of 2011 is much smaller than the impact of the RFS.[3] For example, Babcock, Barr, and Carriquiry (2010) showed eliminating the VEETC would impact ethanol markets only "moderately" (p. 19), with the projected ethanol

[1] From the 1980s to 2011, domestic ethanol producers were protected by an import tariff equal to $0.54 per gallon, mainly intended to offset the ethanol blending tax credit of the same amount, the Volumetric Ethanol Excise Tax Credit, so that only domestic ethanol producers would benefit from the tax credit (Renewable Fuels Association, 2007). The effect of the tariff was to prevent large-scale direct imports from foreign countries such as Brazil. It, along with the tax credit, expired on December 31, 2011.

[2] Without special reference, "ethanol" in this section indicates corn-ethanol rather than cellulosic-ethanol.

[3] The VEETC was a tax credit administrated by the Internal Revenue Service between 2004 and 2011 for gasohol blenders. It expired on December 31, 2011. Gasoline suppliers who blend ethanol with gasoline were eligible for a tax credit of 51 cents per gallon of ethanol between 2005 and 2008 and 45 cents per gallon between 2009 and 2011. See more details in IRS Publication 510 (Revised July 2013).

production declining by an average of only about 700 million gallons (-5%) in the Unites States.

Kesan and Ohyama (2011) examined the change in the impact of state-level biofuel support programs before and after the creation of the RFS in 2005, focusing on how ethanol consumption responded to state-level incentives across the United States. Their state-level biofuel consumption data demonstrated remarkable changes in ethanol consumption patterns that occurred before and after 2005. Ethanol consumption prior to 2005 was found to respond to incentives set by state governments, but such incentives were found to become less effective for promoting per capita ethanol consumption after 2005.[4]

A number of papers claimed that U.S. federal tax credit programs for biofuel consumption or production have unintended consequences with the RFS in place. Babcock (2010) argued, with both the RFS and VEETC in place, biofuel producers receive little or no additional benefit from the VEETC and the resulting beneficiaries were gasoline and diesel producers. Using a simple biofuel market supply and demand model, his analysis showed the only impact of the federal tax credit is to lower prices of the Renewable Identification Numbers (RIN) under the RFS A RIN is a serial number assigned to a batch of biofuels by the Environmental Protection Agency to record compliance with the RFS. Gasoline producers and importers must acquire and submit RINs to the EPA each year for the purpose of tracking its production, use, and trading as required by the RFS. Similarly, de Gorter and Just (2009) argued that with a consumption mandate under the RFS, an ethanol consumption tax credit aimed to reduce crude oil consumption did “the exact opposite” (p. 21), because the tax credit acts as a gasoline consumption subsidy instead of a subsidy for biofuels. de Gorter and Just argued that as a result, with a binding consumption mandate, the tax credit had no effect on the ethanol price and provided little help for corn or ethanol producers.

Another branch of literature related to the evaluation of the effectiveness of biofuel incentive programs estimates demand or supply elasticities of ethanol-blended fuel. Anderson (2012) estimated households' demand for E85 is sensitive to relative price changes. A $0.10-per-gallon decrease in E85's price relative to E10 leads to a 12 to 16 percent increase in the quantity of E85 demanded, based on monthly data collected from over 200 individual retail fueling stations in Minnesota during 1997–2006. Luchansky and Monks (2009) using a simultaneous equations model and 1997-2006 monthly U.S. national data found the demand elasticity of pure ethanol was between -1.6 to -2.9 (a one percent decrease in the price of pure ethanol increases demand

[4] Kesan and Ohyama (2011, p.463) reported the random-model regressions using per capita ethanol consumption (in gallons) as the dependent variable regressed on four major state-level policy instruments (a consumption tax deduction for E10, a consumption tax reduction for E85, mandatory blending, and alternative fuel vehicle (AFV) credit) on two subsamples 2000-2005 (or 2002-2005) and 2006-2008 separately. Before 2005, coefficients for all the three policies except for the AFV credit were significant at least at the 5 percent significance level (where the coefficients for E10 tax reduction were between 5.6 and 7.1; and coefficients for E85 tax reduction were ranged 10.4-14.5 significant at 1 percent level); but from 2006 to 2008, all these estimated coefficients do not statistically differ from zero for the subsample from 2006 to 2008.

between 1.6 to 2.9 percent), but the supply elasticity was much smaller, between 0.2 and 0.3 (a one percent increase in the price of ethanol leads to a 0.2 to 0.3 percent increase in ethanol supply). On the contrary, de Gorter and Just (2009) estimated a forecasted supply elasticity of 2.2 in 2015/2016 with consideration of the RFS as specified in 2007. Despite the mixed results, ethanol's long-run elasticity of supply is expected to become more inelastic as ethanol production increases considering the amount of corn produced is limited by the number of acres of farmland available for corn production (Delucchi, 2010).

V. Determinants of Biofuel Sales

A. Infrastructure

To sell ethanol blends, retailers must have modern gasoline tanks. According to the Petroleum Marketers and Convenience Stores of Iowa (PMCI) more than 660 gasoline tanks in Iowa are 30 years of age or older. More than 3,000 tanks in Iowa are 20 years of age or older. The typical underground storage tank system life is 20 to 25 years. Approximately 95 percent of Iowa's retail gasoline infrastructure was designed for and listed by an independent third party testing laboratory as compatible with E10. However, that infrastructure is not necessarily compatible with higher ethanol blends. Thus the state has reached the point where a majority of retailers need to replace aged infrastructure with alternative fuel compatible infrastructure if Iowa retailers are to legally offer higher ethanol blended gasoline for sale.

Retailers who upgrade infrastructure today often move to E100 compatible equipment (Replacement cost: $70,000 - $100,000 per system). The fuel dispenser's lifespan is closer to 15-20 years (Replacement cost: $20,000 - $25,000). An average two-tank system with four dispensers costs approximately $320,000 to upgrade; an average three-tank system with six dispensers costs approximately $500,000 to upgrade. The upgrade costs would include breaking up concrete, removing the aged tank systems and replacing with E100 compatible tanks, lines, piping, and dispensers. These costs would not include the cleanup expenses that will be incurred if contaminated soils are discovered underneath the tanks pulled out.

The State of Iowa does provide a grant program to assist retailers in installing the proper infrastructure to accommodate the increased levels of ethanol. As discussed in Section III, the Renewable Fuel Infrastructure Grant Program provides financial assistance to upgrade or install equipment to sell E85, or other higher ethanol blends, and biodiesel. This program provided grants to 555 projects over the last 8 years (see Table 9).

B. Pipeline Changes

Much of the non-ethanol gasoline sold in Iowa is piped into the state. A recent change in the grade of gasoline being piped into Iowa appears to have had an impact on biofuel sales. Starting September 15, 2013, Iowa's largest pipeline operator, Magellan Midstream Partners, stopped shipping regular 87-octane gasoline to its Iowa terminals.

Instead, the pipeline operator started shipping 84-octane gasoline, which cannot be legally sold because Iowa requires a minimum 87-octane fuel at gas pumps (Iowa Renewable Fuels Association IRFA).[5] Boosting the fuel to the minimum required 87-octane requires either blending with ethanol (87-octane fuel can be created by blending 90 percent 84-octane gasoline with 10 percent ethanol because ethanol has a high octane content) or with more expensive 91-octane premium gasoline. In order to sell gasoline, blending with premium has raised the price for 87-octane gasoline significantly higher than an 87-octane ethanol-blend. Although a one-time impact on the fuel market, this pipeline change is estimated to boost ethanol sales in Iowa.

C. Flex Fuel Vehicles

Flex fuel vehicles (FFVs) are designed to run on ethanol blends of up to 85 percent (E85) as well as gasoline. According to the U.S. Department of Energy and EPA, except for a few engine and fuel system modifications, they are identical to gasoline-only models. FFVs experience no loss in engine performance when operating on E85, and some generate more torque and horsepower than when operating on gasoline. However, according to independent studies by the University of Nebraska, American Coalition for Ethanol, and the Rochester Institute for Technology, since ethanol contains less energy per volume than gasoline, FFVs get about 15 to 27 less energy per gallon when fueled with E85 compared to gasoline with no added ethanol, depending upon the study. Flex fuel vehicles are considered alternative fuel vehicles under the Energy Policy Act of 1992.

The legislation that established the state goal of replacing 25 percent of gasoline with biofuels by 2020, HF 2754, also established target numbers of FFVs identified for successful implementation of the goal (see Figure 1). The targets were 250,000 FFVs by January 2011; 350,000 FFVs by January 2014; 450,000 FFVs by January 2017; and 550,000 FFVs by January 2019. According to vehicle registration data from the Department of Transportation (DOT), Iowa missed the first two goals. In 2011, the number of FFVs registered in the State of Iowa was 168,799, accounting for only 67.5 percent of the 2011 goal. As of January 2014, there were 282,849 FFVs registered with the State of Iowa, missing the goal of 350,000 registered vehicles by 67,151 vehicles (19.2%).

For FFVs to help meet the 25 percent by 2020 goals, owners must use E85. When comparing the total gallons of E85 sold in Iowa to the number of registered FFVs, the total gallons of E85 per FFV is below potential utilization of E85. In 2009, registered FFVs only purchased an average of 42 gallons of E85 from Iowa retailers. The average gallons of E85 per FFV increased in 2010 to 59 gallons per FFV, before dropping to 54 gallons per FFV in 2011, 37 gallons per FFV in 2012, and 39 gallons per FFV in 2013 (see Table 10). Further analysis can quantify this underutilization of E85 consumption by owners of flex fuel vehicles in Iowa.

[5] This change included terminals in Iowa, Nebraska, and South Dakota, some of the last Midwestern states experiencing a change to the grade of fuel to 84-octane.

Data collected from U.S. PIRG (Public Interest Research Group, 2014) reported that Iowan's have averaged driving around 10,200 miles per year in recent years. Data collected by the U.S. Department of Energy (2014) suggests that all model year 2012 FFVs that would likely be registered in Iowa would have an average fuel economy of 22 miles per gallon on regular gasoline and 16 miles per gallon on E85 fuel. The potential E85 fuel consumption based on these data would average 633 gallons of E85 per FFV. However, the average E85 fuel consumption per FFV per year in Iowa is only 46 gallons, or about 7.3 percent of potential E85 consumption.

Reasons for the underutilization of E85 by FFVs could be the proximity of E85 fuel pumps to FFVs. With only 206 retailers in the state (according to 2013 Retailers Motor Fuel Gallons Annual Report), it could be difficult for consumers to locate and utilize a station within their normal commuting patterns (see Figure 2). Market availability of E85 can be examined by looking at the E85 station distribution by county. Across Iowa out of the stations reporting having E85 sales in 2013, 25 stations are located in Polk County.[6] Woodbury, Linn, and Pottawattamie each had seven E85 stations, followed by Johnson and Story with six E85 stations. The above counties also are some of the most populated counties across Iowa. On the other hand, 23 of Iowa's more rural counties did not have any stations with reported E85 sales.[7] Another possible reason for the underutilization of E85 could be the fuel economy lost by the consumer when utilizing E85 in their FFV as compared to regular or E10 fuels.

VI. Ethanol Sales in Iowa and Midwestern States

According to the Energy Information Administration, in 2012 Iowa's fuel ethanol production was 82.6 million barrels while consumption was 2.4 million barrels, indicating that only 2.9 percent of ethanol produced was consumed within Iowa. The goal of the tax credits is to increase consumption of biofuels in Iowa. One way to measure that would be to compare consumption of biofuels in Iowa to Midwestern states. This section first compares terminal-level ethanol sales between Iowa and Midwestern states. With a significant amount of blending occurring between the terminal and retailer in Iowa, but not in all Midwestern states, this comparison is imperfect. The rest of this section focuses on biofuel sales at the retailer level in Iowa, where comparable retail data for other states is unavailable.

A. Biofuel Sales at the Terminal Level

The amount of ethanol blended gasoline sold in a state could be influenced by the various tax credits, incentives, and mandates discussed in Section III. In order to compare Iowa's ethanol sales with sales in other Midwestern states, monthly data for

[6] Another source of data, Fuel Institute (2014), reported that there were 185 E85 stations in Iowa as of June 2014.

[7] Urban counties are defined as counties of 50,000 or more people using the 2010 census population estimation data by county, from higher population to lower including Polk, Linn, Scott, Black Hawk, Johnson, Woodbury, Dubuque, Pottawattamie, Story, and Dallas.

terminal level gasoline and ethanol-blended gasoline taxable sales as far back as January 1999 were collected for Iowa, Illinois, Kansas, Missouri, Nebraska, North Dakota, South Dakota, and Wisconsin. Annual aggregate sales data were available for Minnesota. The data were made available by the department responsible for collecting the fuel taxes for the state either on their website or through e-mail contact. However, not all years of data are available for all of the states listed.

The data on gasoline and ethanol sales are collected by state agencies from fuel tax returns and do not reflect actual purchases by consumers. Different states apply fuel taxes at different levels in the distribution chain. Iowa, as well as Wisconsin, Missouri, and South Dakota, levy the fuel tax at the level of the terminal, a business that stores and distributes fuel to distributors and retailers. Thus, for Iowa, gallons reported reflect the taxable distributions of fuel 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 fuel tax at the distributor level, those buying the fuel from suppliers via the terminals, which increases the number of taxpayers and 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 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, ethanol, E85, and diesel for which 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 ethanol-blended gasoline. These blenders can apply for a refund of the excess fuel tax paid on those gallons of gasoline, where the excess reflects the per gallon difference in the gasoline versus E10/E85 fuel tax rates. 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.

From 1999 through 2001, suppliers in Iowa reported roughly equal distributions of taxable gasoline and ethanol-blended gallons (see Figure 3). Since mid-2002, taxable ethanol-blended gallons have significantly exceeded gasoline gallons in all but one month, August 2006. This anomaly reflects a price flip in which E10 prices were briefly

above gasoline prices. Iowa's Ethanol Blended Gasoline Tax Credit which was a precursor to the Ethanol Promotion Tax Credit was introduced January 2002. However, as will be seen below, many other states experienced increases in ethanol-blended sales around this same time. The beginning of the boom in Iowa's ethanol production was also in 2002.

In 2000, South Dakota and Iowa led the way in per capita ethanol-blended sales reporting 274 and 266 gallons per capita, respectively (see Figure 4). Minnesota likely had a higher value, but data are not available until 2004. Iowa pulled ahead of South Dakota in 2001 and has reported the highest per capita terminal level ethanol-blended sales of all Midwestern states, excluding Minnesota, until 2008. In the last five years, Missouri, another mandate state, also pulled ahead of Iowa, as well as South Dakota (2009) and North Dakota (2013). Despite Iowa's lead in per capita sales, total terminal level ethanol-blended gasoline sold in Iowa is dwarfed by sales in Illinois (see Figure 5). This reflects the much larger population of Iowa's neighbor (12.9 million versus 3.1 million in 2013). Minnesota and Missouri sales are also much higher, each more than doubles the totals Iowa has recorded annually since 2008. Since 2009, Kansas reports the closest to Iowa's total terminal level ethanol-blended sales, within approximately 300 million gallons per year.

Although absolute ethanol-blended sales are interesting to compare, a more telling measure of changing demand for ethanol is the path of ethanol-blended shares in each state (see Figure 6). In January 2000, all states reported that ethanol-blended gasoline'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 ethanol-blended threshold in January 2005 and Wisconsin in September 2005, while North Dakota and Kansas did not reach that point until late in 2007. While data prior to 2007 for Missouri is unavailable, their ethanol-blended share of sales remained well above 50 percent from 2007 through 2013.

B. Iowa Biofuel Sales at the Retailer Level

HF 2754 required the Department of Revenue to report the state biofuel distribution percentage at least annually to allow the Legislature to monitor whether policies need to be adjusted to meet the goal that biofuels replace 25 percent of the petroleum used in gasoline in Iowa by 2020. Beginning in calendar year 2007, the Department has annually surveyed retailers to provide fuel sales information. Information collected on the Retailers Motor Fuel Gallons Annual Report includes name, address, and calendar year gasoline, diesel, and biofuel sales for each retail location in Iowa. Annual reports are due to the Department by January 31 in the following year, and using those data the Department submits a report to the Legislature by April 1 each year.

Despite a requirement for retailers to complete the report, the participation rate for all retail locations across the state have ranged between 85.9 percent and 94.9 percent over calendar years 2007 and 2013 (see Table 11). The variation in the numbers of report forms sent out across the years (such as the drops in 2009 and 2012) reflects

variation in efforts to remove stations with zero sales reported in previous years from the mailing list.

To examine the characteristics of non-respondents, the most recent calendar year 2013 is considered. Most retailers are mailed the Annual Report to be completed on paper, but large retailers have requested to receive and complete the report electronically. In 2013, 13 large retailers, accounting for 950 stations (36.1% of the total), completed the report electronically. Of the remaining 1,685 reports delivered via mail, 284 stations were identified as non-respondents. Their geographic distribution was concentrated in urban counties, with Scott, Dubuque, and Pottawattamie as the top three counties having the highest numbers of non-responding stations. It is notable that 46 (16.2%) of non-respondents were related to an airport (with their names containing one of the following words “airport”, “flying”, or “aviation”). Roughly two-thirds filed the Annual Report in at least one other year. Based on the gallons reported in the latest year available, the station’s average fuel sales were about 80 percent of that for the respondents in 2013, suggesting that non-respondents were stations with below average sales.

According to the published Annual Reports, the pure biofuel share of gasoline and diesel increased from 5.4 percent in 2007 to 7.2 percent in 2013 (see Table 12). The statewide biofuel distribution percentage was in general increasing, starting at 7.9 percent in 2007, rising to 9.1 percent in 2008, then continuing to gradually increase in following years, reaching 10.7 percent in 2013 (see Figure 7).[8] Recall that the biofuel distribution percentage reflects the pure biofuel share of gasoline only. In 2008 through 2010, ethanol made up nearly 95 percent of the pure biofuel sold by retailers, but the share of biodiesel increased over the years, especially from calendar year 2011 to 2012, pushing the ethanol share down to 81.5 percent in 2013. The jump in pure biodiesel was in large part a move by retailers from selling B2 blends to B5 or higher blends. Particularly the share of B5 or higher sales in all biodiesel sales increased from 58.5 percent of biodiesel in 2007 to 95.6 percent in 2013.

Based on the Retailers Motor Fuel Gallons Annual Reports, ethanol sales were 998.9 million gallons in calendar year 2007, jumped to 1,270.0 million gallons in calendar year 2008 and then peaked at 1,289.7 million of gallons in 2010 (see Table 13). In calendar years 2011 and 2012 sales declined slightly each year and ended at 1,199.2 gallons in 2012. Sales had a negligible increase in calendar year 2013. The share of gasoline that was reported as an ethanol blend was 71.1 percent in calendar year 2007, and then remained over 80 percent through 2008 to 2012, reaching 82.2 percent in calendar year 2013. As discussed above, these data reflect actual sales to the consumer unlike in the previous subsection where sales were at the terminal level. The ethanol-blended share at the retail level should be higher than at the terminal because these sales reflect downstream blending of ethanol blended fuel. For example, the 2013 ethanol-blended share was 71.8 percent at the terminal level but 82.2 percent at the retailer level.

[8] The biofuel distribution percentage in 2013 was adjusted from 10.8 percent in the published report to 10.7 percent in this study, reflecting a confirmation from a few respondents that E10 sales were misreported as E15 sales.

E85 sales were 4.2 million gallons in calendar year 2007 when the E85GC rate was set at 25 cents per gallon of E85 sold. Sales bounced around between 2008 and 2012, rising to 11.2 million gallons in calendar year 2013. E15 sales, including blends from E15 through E69, were 0.1 million gallons in calendar year 2011, the first year that the Annual Report included E15-E69 as a separate biofuel blend. Reported E15-69 sales increased for calendar years 2012-2013, reaching 2.6 million gallons in calendar year 2013. Biodiesel sales, including blends ranging from B2 to B99, were 160.8 million gallons in calendar year 2007. Sales increased in every year except 2009 when sales fell to 175.7 million gallons, by calendar year 2013 sales increased to 347.8 million gallons.

In addition, the 2013 Annual Report data can be used to examine the geographic distribution of retail stations reporting having fuel sales but without any biofuel sales (see Figure 8). A total of 45 counties had all of the retail stations reporting positive biofuel sales. Across Iowa, there were nearly 100 stations reporting zero biofuel sales, composing approximately five percent out of a total of 2,155 fuel stations completing reports. Dickenson had the highest percentage of stations without any reported biofuel sales at 25.9 percent. Adams had 25.0 percent of stations reporting zero biofuel sales. This was followed by Allamakee with 22.2 percent, both Decatur and Ringgold with 20.0 percent, Clayton with 18.2 percent and Appanoose with 16.7 percent. It is notable that the seven counties with more than 15 percent of zero biofuel stations are rural counties, and six of those are on the Iowa border.

VII. Biofuel Retailers' Tax Credit Claims

Tax credit claims for each of the current four tax credits made between tax years 2006 through 2012 are available from the IA 148 Tax Credits Schedule filed with any tax credit claim. Taxpayers provide the tax credit type being claimed, the tax credit amount (earned by the taxpayer or received from pass-through entity), and pass-through information, if relevant. The most recent complete tax year is 2011 (tax year 2012 data are incomplete).

For the presentation of tax credit claims, claimants are divided into corporations (defined as taxpayers who claim the tax credit against their corporation income tax liability), individuals (defined as taxpayers who claim the tax credit against individual income tax and earn the tax credit as a sole proprietor of a fuel retailer), and pass-through taxpayers (defined as taxpayers who receive a tax credit from a pass-through entity, including corporation taxpayers, individual taxpayers, and a handful of taxpayers who claim the tax credit against their fiduciary income tax).[9] Pass-through entities are businesses arranged as an S-corporation, a partnership, a limited liability company (LLC), an estate, or a trust that own a fuel retail station. These entities earn the tax

[9] Fiduciary taxpayers include members of a trust or estate that own a motor fuel retailer. In those instances, claims would be made on a fiduciary income tax return.

credit, but in Iowa they are not taxable entities. Therefore, the tax credit claims are passed through to the members of those entities based on their shares of ownership.

For the presentation of refunds received as a result of claims, the refunds are based on the tax type against which the tax credit was claimed. For calculations regarding concentration of tax credits, claims are based on the entity earning the tax credit; claims reported by members of a pass-through were summed over that pass-through entity and that total claim amount was considered as one tax credit. The timing analysis was based on dates that each claimant filed their return with the Department.

A. Ethanol Promotion Tax Credit Claims

Although the EPTC was first available for sales of ethanol made in calendar year 2009, the IA 148 Schedules show that nearly 80 claims were made in tax year 2008, reflecting taxpayers filing a return for a fiscal year that extended into calendar year 2009 (see Table 14). The number of claimants was 981 in 2009 but declined each of the following years, falling to 700 in tax year 2011. The decline is likely due to retailers unable to meet the increased thresholds in the years following 2009 when the biofuel thresholds were respectively six percent and 10 percent. Pass-through taxpayers composed the majority of claimants in tax years 2009-2011, while corporation and individual claimants made up less than 30 percent of the number of claimants. Total claims were $1.1 million in tax year 2008 and were $4.6 million in tax year 2009. In tax year 2011, the total claims amount was $3.3 million, with $14,610 being the average claim amount for corporations, $994 for individuals, and $3,381 for pass-through taxpayers. The corporation claimants had the highest average claim, as most of them were large retailers claiming the whole tax credit. By contrast, most of the individual claimants were owners of small retail stations, who had the lowest average claim per return. The pass-through claimants likely include shareholders of relatively large retailers.

It is notable that from 2010 to 2011, the number of claims dropped from 903 to 700 and the EPTC claims dropped by $0.4 million. The 2010-2011 drop in the number of claims primarily reflects the four percentage-point jump in the biofuel thresholds in 2011 for retailers with yearly total gasoline sales not exceeding 200,000 gallons. Although there was an increase in the tax credit rate per gallon between those two years so that claimants received more tax credit dollars for the same quantity of gallons of biofuel sales, the EPTC claims drop suggests the prevalence of fewer retailers being eligible for the tax credit.

The EPTC is a refundable tax credit, which means a taxpayer can take advantage of the full credit even if it exceeds tax liability. The amount of tax credits refunded to taxpayers was estimated by comparing tax credit claims against tax liability for each taxpayer with available tax return data, where a taxpayer's refund equals the amount the tax credit claim exceeds State tax liability.[10] In tax year 2009, corporation income taxpayers

[10] In cases where the taxpayer had multiple tax credits, claims were applied against tax liability based on the order presented in administrative rule 701.42.44 for individual income taxpayers and 701.52.12 for corporation income taxpayers. Some taxpayers could not be matched to returns in Department databases because claims were made on

received a full or partial refund of their EPTC claim comprising an estimated 63.2 percent of the total amount of claims, or $1.7 million. Since 2008, an estimated $4.1 million in EPTC claims have been paid as refunds against corporation income tax. In tax year 2009, individual income taxpayers received a full or partial refund of their EPTC claim comprising 74.2 percent of the total amount of claims, or $1.5 million (see Table 15). Since its inception, an estimated $5.3 million in EPTC claims have been paid as refunds to individuals. In the five years of recorded refunds, EPTC claimants have been refunded a total of $9.5 million, comprising 65.2 percent of the total claims throughout the years.

When comparing EPTC claims, the top 20 entities had a disproportionate share of the claims (see Table 16). In 2009 there were 516 entities that claimed $4.6 million in EPTC credits. Of those, the top 20 entities account for 69.5 percent of all claims, or $3.2 million. As the number of claims decreased, year over year, the concentration of claims among the top 20 entities increased to 70.9 percent in 2010, 73.5 percent in 2011, and reaching 78.2 percent in 2012.

A complete understanding of the EPTC program requires an analysis of how claims in a given tax year impact General Fund receipts over the subsequent 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, retailers have varying tax years and thus tax due dates. With automatic six-month extensions, an option chosen more by corporations than individual taxpayers, some retailers may not file a tax return until nearly two calendar years after the end of the individual income tax year. For tax year 2011, 18.8 percent of EPTC claims impacted State fiscal year 2012 revenues, 77.5 percent impacted State fiscal year 2012 revenues, and 9.2 percent impacted State fiscal year 2013 revenues (see Table 17). This highlights how many taxpayers face a significant lag between the time of sale of the biofuels and the receipt of the tax credit benefit. Such a lag could make it difficult for retailers to pass on tax credits to consumers and thus encourage biofuel sales through lower prices.

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. 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 sales of E85 attributable to the taxpayer (see Appendix B). Credit claims are made against the corporation or individual income tax, depending on the ownership structure of the retailer. Claim data are based on information collected from the IA 148.

In tax year 2006, the number of the E85GC claimants was 109, including 26 corporation taxpayers, seven individual taxpayers, and 76 pass-through taxpayers (see Table 18).

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amended returns filed after the processing season, and return file, was complete. In addition, no database exists that captures tax liability of fiduciary returns, so refunds could not be calculated for those claimants.

In tax year 2011, the number of claimants increased to 269, including 49 corporations, 16 individuals, and 204 pass-through taxpayers. The total claim amount started at $0.5 million in 2006, increasing each following year until reaching $1.1 million in tax year 2011. In tax year 2011, the average tax credit amount was $7,657 for corporations and $8,162 for pass-through taxpayers.

Although there were decreases in the tax credit rate per gallon between 2008 and 2009, 2010 and 2011, 2011 and 2012, the total number of claimants and credit amounts for the E85GC in 2011 more than doubled 2006 totals. The rise in E85GC claims suggests an increase in the demand for E85, primarily driven by the low price of E85 compared to that of gasoline (at times E85 has been more than $1 cheaper than regular gasoline in some places). The numbers of flex fuel vehicle in Iowa which are able to use E85 also increased between 2006 through 2012 (as discussed in Section V, the total number of FFVs registered in Iowa more than doubled from 138,802 in 2009 to 282,849 in 2013 based on Iowa Department of Transportation data).

The E85GC is also a refundable tax credit; the share of tax credits refunded was calculated for all claims that could be matched to return data. In tax year 2007, taxpayers with claims against corporation income tax received a full or partial refund of their EPTC claim comprising an estimated 20.9 percent of the total amount of claims, or $143,801 (see Table 19). Since 2006, $1.1 million in E85GC claims have been paid as refunds to corporations. In tax year 2007, taxpayers with claims against individual income tax received a full or partial refund of their E85GC claim comprising an estimated 82.5 percent of the total amount of claims, or $110,594. Since 2006, nearly $4.3 million in E85GC claims have been paid as refunds to individuals. In the seven years of recorded refunds, E85GC claimants have been refunded a total of $5.4 million, comprising an estimated 66.9 percent of the total claims throughout the years.

When comparing the concentration of E85GC claims, the top 20 entities made a disproportionate share of the claims. In 2009, there were 130 entities that claimed $1.3 million in E85GC credits (see Table 20). Of those, the top 20 entities accounted for 73.2 percent of all claims, or $1.0 million. The concentration of claims among the top 20 entities increased to 75.7 percent in 2010, 75.4 percent in 2011, and finally 82.2 percent in 2012.

C. E15 Plus Gasoline Promotion Tax Credit Claims

Starting July 1, 2011, the E15 Plus Gasoline Promotion Tax Credit (E15GC) was available. In tax year 2011, 10 corporations submitted claims for the E15GC covering single or multiple retail locations (see Table 21). Those corporations claimed over $18,000 in credits, for an average of $1,806 per claimant. Since 2010, nearly $47,000 in claims (87.7 percent) have been made by corporations. In tax year 2011, 15 pass-through claimants submitted claims for the E15GC. Those pass-through claimants claimed more than $1,600 in credits, for an average of $108 per claimant.

The E15GC is also a refundable tax credit. In tax year 2011, taxpayers with claims against corporation income tax received a full or partial refund of their E15GC claim comprising an estimated 50 percent of the total amount of claims, or $9,555 (see Table 22). Since 2010, $12,303 in E15GC claims has been paid as refunds to corporations. In that same time, over $3,000 in E15GC claims have been paid as refunds to taxpayers with claims against the individual income tax. In the three years of recorded refunds, E15GC claimants have been refunded a total of $15,359, comprising an estimated 28.9 percent of total claims.

D. Biodiesel Blended Fuel Tax Credit Claims

In tax year 2006, the number of the BBFC claimants started at 72, including 26 corporations, 7 individuals, and 39 pass-through taxpayers (see Table 23). Unlike the other three tax credits in this study, the numbers of claimants only varied slightly across the years except a sharp drop in 2010 reflecting a temporary drop in the number of pass-through taxpayers. The average claim amount was $31,410 for corporations, $10,340 for individuals, and $70,032 for pass-through taxpayers. Although tax year 2012 is an incomplete year, by August 2014 the number of claims had increased to 189 with total claims increasing to $10.3 million. From 2011 to 2012 so far, corporation taxpayers increased to 24 from 13, and pass-through taxpayers increased to 157 from 133, while individual taxpayers dropped to 8 from 15. The noticeable increase in the number of claims could be driven by elimination of the 50 percent biodiesel sales requirement effective in 2012 (recall that in tax years 2006 through 2008, to be eligible for the credit, 50 percent of diesel sales must have been biodiesel sales company-wide; for tax years 2009 through 2011, the requirement applied by retail location). The increase in the average claims could be attributed to the increase in the tax credit rate to four and a half cents per gallon for blends classified as B5 or higher in 2012 from three cents for all biodiesel between 2006-2011, which more than offsets the effect of the drop in the tax credit rate for B2-B4 blends to two cents from three cents per gallon. Recall in 2013, B2-B4 blends were no longer qualified for the tax credit.

The BBFC is a refundable tax credit; in tax year 2007, taxpayers with claims against the corporation income tax received a full or partial refund of their EPTC claim, comprising an estimated 58.1 percent of the total amount of claims, or $2.1 million (see Table 24). Since 2006, $16.0 million in BBFC claims have been paid as refunds to corporations. In tax year 2007, taxpayers with claims against the individual income tax received a full or partial refund of their BBFC claim comprising an estimated 88.3 percent of the total amount of claims, or over $900,000. Since 2006, over $12.6 million in BBFC claims have been paid as refunds to individuals. In the seven years of recorded refunds, BBFC claimants have been refunded a total of $28.6 million, comprising an estimated 81.2 percent of the total claims throughout the years.

When comparing BBFC claims, the top 20 entities made a disproportionate share of the claims. In 2009, there were 86 entities that claimed $5.4 million in BBFC credits (see Table 25). Of those, the top 20 entities account for 92.9 percent of all claims, or $5.0 million. As the number of claimants fluctuated, year over year, the concentration of

claims among the top 20 entities increased to 94.6 percent in 2010, slipped to 93.6 percent in 2011, and dropped again to 91.7 percent in 2012.

VIII. Change in Biofuel Distribution Percentage for EPTC Claimants

Taxpayers who claim the Ethanol Promotion Tax Credit (EPTC) are required to file the IA 137 Ethanol Promotion Tax Credit Form, which requires information about ethanol sales (E10, E15 if tax year 2011 and after, E85, and other ethanol blends), non-ethanol gasoline, biodiesel sales (B2, B5, B10, B20, and other biodiesel blends), and the calculated biofuel distribution percentage for the retailer (defined as pure ethanol plus pure biodiesel sales divided by total gasoline sold). IA137 data are used in this analysis to examine retailer-level changes in the share of biofuel in total gasoline sales (biofuel distribution percentage) since the EPTC was enacted. Although IA137 Form data are available for tax years 2008 through 2012, this analysis focuses on data for tax years 2009 to 2012 because 2008 claims were only filed by non-calendar year taxpayers.

Total gasoline (including ethanol and non-ethanol, hereafter) sales reported on the IA137 were 1,288.1 million gallons in 2009, dropping slightly to 1,244.5 million gallons in 2010, dropping further to 938.9 million gallons in 2011, and ending up at 446.7 million gallons in 2012 (see Table 26).[11] The ratio of pure ethanol to total gasoline increased slightly from 8.5 percent (27.2 out of 318.5 million gallons) in 2008 to 9.7 percent (43.3 out of 446.7 million gallons) in 2012. Pure biodiesel gallons more than doubled from 2011 to 2012, reflecting the sharp rise in higher blend biodiesel sales in 2012.

This analysis separates large retailers (defined as those whose total gasoline sales are more than 200,000 gallons in a given calendar year) from small retailers (those whose total gasoline sales are equal or less than 200,000 gallons in a given year) because the biofuel threshold percentages underlying the EPTC are different by retailer size. Company-wide sales in 2009 are used to define large retailers and small retailers throughout this analysis; only a handful of retailers changed size after 2009.

Although roughly 25 percent of retailers chose to file their IA 137 Form using the site-by-site method rather than the company-wide method for tax years 2011 and 2012 (23.8% for 2011 and 27.0% for 2012), this analysis considers biofuel sales on a retailer company-wide level to make the data comparable across years. This analysis focuses on the biofuel sales reported for the first calendar year on the IA137 Form, which equals total reported sales for calendar year filers, but partial sales reported by the roughly 30 percent of retailers that are fiscal year filers and therefore reported sales for parts of two calendar years. On each form sales can be reported for both the calendar year the same as the tax year and the following calendar year; fiscal year filers report sales in both calendar years.

[11] Data for tax year 2012 from IA 137 Ethanol Promotion Tax Credit Form are still incomplete.

Because the EPTC program was established to promote sales of biofuels, it is logical to examine whether biofuel sales increased over time under this program. The first question regarding the EPTC claimants is, for retailers who earned the EPTC in 2009 but just met the biofuel threshold requirement, did they raise the shares of their biofuel sales over time to continue earning the tax credit or did they drop out? Retailers whose biofuel threshold percentage did not exceed 10 percent in 2009 were selected as those who just met the thresholds in 2009 (see Table 27). The majority of those retailers dropped out from claiming the EPTC and thus did not file the IA137 Form between tax years 2010 and 2012. In 2012, out of the 260 retailers who earned the tax credit in 2009, 87.3 percent of large retailers dropped out and 77.8 percent of small retailers out of the 72 retailers in 2009 dropped out. Since they have claimed the EPTC before, it is likely that they stopped filing the IA 137 Form because they were no longer able to meet the biofuel distribution thresholds in later years. In contrast, for those retailers who remained eligible for the EPTC in 2012, their median biofuel distribution percentage increased from 8.2 percent in 2009 to 10.0 percent in 2012 for large retailers and 8.5 percent to 8.8 percent for small retailers.

The second question is, for retailers who started with a biofuel distribution percentage in 2009 above 10 percent indicating they were selling some biofuel other than E10, did their biofuel distribution percentages increase in later years in line with the tax credit incentives? Not surprisingly, the drop-out rate of large retailers who started with higher biofuel distribution percentage (62.5%) was lower than those who started with a lower biofuel distribution percentage (87.3%) (see Table 27). For small retailers, the drop-out rates in 2012 were similar between those having a lower and higher starting level of the biofuel distribution percentage. It is notable that although those large retailers who started with biofuel distribution percentages below 10 percent experienced higher growth rates, their median biofuel distribution percentage were still lower than those who started with biofuel distribution percentages in excess of 10 percent.

Another question related to the EPTC claimants is: compared with biofuel shares for other retailers in the same year, did retailers ending with relatively higher biofuel share in the most recent year (2012) start with a relatively higher biofuel share, or did they increase their biofuel share since the inception of the tax credit? In order to answer this question, the top ten large and small retailers with the highest biofuel distribution percentages in 2012 were tracked between 2009 and 2011 (see Table 28). The disparity in biofuel distribution percentage and the thresholds were examined to rule out the effect of the raising thresholds over time (for example, a large retailer with biofuel distribution percentage at 13 percent in 2009 would have a disparity equal to 2 percentage points indicating the difference between 13 and 11 percentages) . For large retailers, their median biofuel distribution disparity was 7.7 percent in 2012. In tax year 2009, their median biofuel distribution disparity at 4.2 percent was also higher than the median for all large retailers (-1.7%). For small retailers, the top ten started with an 8.5 percent median biofuel distribution percentage in 2009, obviously higher than the median biofuel distribution percentage for all small retailers which was 2.9 percent.

These comparisons suggest that in general retailers with higher biofuel distribution percentages in 2012 did start with higher biofuel distribution percentages in 2009.

In order to examine whether retailers raised their biofuel distribution percentage at the same rate as the required biofuel distribution threshold to be qualified to claim the EPTC, the frequency of retailers by the biofuel distribution percentage between 2009 and 2102 is examined. For large retailers, in 2009 when the biofuel threshold percentage was 10 percent, it is clear that most of the retailers had a lower biofuel distribution percentage than 10 percent (see Figure 9).[12] In 2010, the threshold was raised to 11 percent, but the distribution of retailers remained a similar shape as that in 2009 rather than shifting to the right as the biofuel threshold percentage advanced. The left tail of the distribution (being composed of those EPTC claimants with lower biofuel distribution percentage) was cut off, reflecting the retailers with lower biofuel distribution percentages that were no longer eligible to claim the tax credit. In 2011 a larger share of retailers with low biofuel distribution percentages (shown as the left tail in the frequency distribution of EPTC claimants) no longer appeared in the analysis because without enough increasing their sales of biofuels those retailers were no longer eligible to claim the EPTC. Finally, in tax year 2012, under the higher threshold at 13 percent even fewer retailers remained eligible to claim the EPTC.

The analysis in this section showed that in general, retailers did not raise their biofuel sales share as the threshold of the EPTC increased. Retailers, instead, dropped out from claiming the tax credit, possibly a result of constraints faced by retailers regarding required infrastructure for expanding biofuel sales and questioning the structure of the incentives under the EPTC in getting retailers to make investments.

IX. The Future of Biofuel Retailers' Tax Credit Claims

This section provides forecasts for future biofuel retailers' tax credit claims from 2013 through 2020 and evaluates how close the state may get to the 25 percent target by 2020. The base year data used to produce these forecasts are from the 2013 Retailers Motor Fuel Gallons Annual Report. In order to produce the forecasts, a variety of assumptions about the growth of Iowa fuel sales are applied, including aggregate annual sales growth rates by type of fuel and growth in the number of stations selling biofuels (see details in Appendix A for those forecast assumptions). One key assumption is that the pipeline change that occurred in late 2013 will increase the ethanol-blend share in gasoline sold beginning in 2014, based on a shift in the ethanol-blend share at the terminal level observed during the first 10 months of 2014 and a sharp increase in the amount of excess tax on E10 refunds paid to blenders. In addition, the pipeline change is assumed not be revised during the forecast period.

[12] Similar analysis was conducted for small retailers. The patterns were similar to those for large retailers.

There are a few limitations of this forecast method, primarily associated with the fact that the data to produce the forecasts are one-year survey data (to be distinguished from objective data). Because the data are a snapshot of retailers' self-reported sales in 2013, possible abnormalities that occurred in 2013 were carried forward in the following years. Furthermore, sales at the stations who did not respond to the Annual Report in 2013 could not be included in the analysis. In addition, the information reported by the retailers might not be completely accurate despite the efforts to correct some apparent errors in the reported information.

A. Forecast of the Retailers' Tax Credits Claims

The projected EPTC claims are expected to experience a continued decrease from an estimated $1.5 million in tax year 2013 to an estimated $0.8 million in 2020 (see Table 29). This would result in claim amounts dropping by more than one half from 2013 to 2020. This decrease in claims primarily reflects projections of fewer retailers being able to meet the rising biofuel threshold percentage as it moves to 25 percent.

In contrast to the EPTC, claims for the remaining three tax credits (E85GC, E15GC, and BBFC) are projected to increase between tax years 2013 and 2017 (all three tax credits are scheduled to expire after 2017). In particular, E85GC claims are estimated to increase from $1.8 million in 2013 to an estimated $2.8 million in 2017. E15GC claims are forecasted to increase from $0.09 million in 2013 to an estimated $0.20 million in 2017. From 2013 to 2014, the estimated increase of $0.04 million worth of E15GC claims primarily reflects the increase in the tax credit rate to 10 cents in summer (June 1 - September 15), as well as the estimated increase in E15 sales in Iowa. The claim amount for BBFC, the largest tax credit for biofuel retailers under current law, is estimated to increase from $15.0 million in 2013 to an estimated $16.1 million in 2017.

B. Forecast of Statewide Biofuel Distribution Percentage

The statewide biofuel distribution percentage between 2007 and 2013, in general, has increased moderately, according to Retailers Motor Fuel Gallons Annual Reports. Looking forward, the biofuel distribution percentage is estimated to continue increasing moderately, rising from 11.6 percent in 2014 to 12.9 percent in 2020 (Figure 10). The forecasted biofuel distribution percentage reaches approximately one half of the targeted biofuel replacing 25 percent of petroleum in 2020.

It is worthwhile noting that the estimated portion of the biofuel distribution percentage attributed to pure ethanol jumped from 8.7 percentage points in 2013 to 9.5 percentage points in 2014, reflecting the estimated shift from gasoline to ethanol-blended fuel as a result of the September 2013 pipeline changes. The portion attributed to pure ethanol is projected to increase gradually, reaching 10.5 percentage points in 2020. The share accounted for by pure biodiesel is projected to increase from 2.1 percentage points in 2014 to 2.4 percentage points in 2020.

Overall, the estimation shows that under current policies, the likelihood for the state to achieve the 2020 goal of biofuel replacing 25 percent of petroleum in the formulation of gasoline is slim.

X. Conclusion

The goal of the four tax credits currently available for biofuel retailers in Iowa is to promote biofuel sales to help the state achieve the goal of replacing 25 percent of all petroleum used in the formulation of gasoline consumed in Iowa with biofuels by 2020. Claims of the EPTC demonstrate a decreasing trend between tax years 2009 and 2012, mainly reflecting fewer retailers were able to qualify for the tax credit as the biofuel distribution thresholds increased. However, both the number of claimants and claim amounts for the BBFC and the E85GC increased from 2006 to 2012. The rise in E85GC claims reflects an increase in the sales of E85. The BBFC has seen the biggest increase in claim amounts between the first applicable year and 2012, reflecting legislative changes to the tax credit starting from tax year 2012, including an increase in the tax credit rate. Despite an increase in claims between 2011 and 2012, the newest biofuel retailers' tax credit, the E15GC, is still quite small compared with the other three tax credits.

The statewide biofuel distribution percentage has increased slowly, from 7.9 percent in 2007 to 10.7 percent in 2013. Using national biofuel growth assumptions made by the Energy Information Administration and retailers' sales data in 2013, the study forecasts that approximately 13 percent of Iowa's petroleum used in gasoline will be replaced by biofuels in 2020, falling short of the Legislative goal of 25 percent.

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Iowa's Biofuel Retailers' Tax Credits
Tax Credits Program Evaluation Study
Tables and Figures

Table 1. Ethanol Promotion Tax Credit Rate Schedule

Calendar Year of Sales	Credit Rate Per Gallon of Pure Ethanol Sold			Biofuel Threshold Percentages					
				Retail Dealers Selling 200,000 or Fewer Gallons Per Year			Retail Dealers Selling More Than 200,000 Gallons Per Year		
	Rate 1	Rate 2	Rate 3	Threshold	Threshold - 2%	Threshold - 4%	Threshold	Threshold - 2%	Threshold - 4%
2009	$0.065	$0.045	$0.025	6%	4%	2%	10%	8%	6%
2010	$0.065	$0.045	$0.025	6%	4%	2%	11%	9%	7%
2011	$0.08	$0.06	$0.025	10%	8%	6%	12%	10%	8%
2012	$0.08	$0.06	$0.04	11%	9%	7%	13%	11%	9%
2013	$0.08	$0.06	$0.04	12%	10%	8%	14%	12%	10%
2014	$0.08	$0.06	$0.04	13%	11%	9%	15%	13%	11%
2015	$0.08	$0.06	$0.04	14%	12%	10%	17%	15%	13%
2016	$0.08	$0.06	$0.04	15%	13%	11%	19%	17%	15%
2017	$0.08	$0.06	$0.04	17%	15%	13%	21%	19%	17%
2018	$0.08	$0.06	$0.04	19%	17%	15%	23%	21%	19%
2019	$0.08	$0.06	$0.04	21%	19%	17%	25%	23%	21%
2020	$0.08	$0.06	$0.04	25%	23%	21%	25%	23%	21%
2021 and later	NA	NA	NA	NA	NA	NA	NA	NA	NA

Source: Iowa Code 422.11N and 422.33(11A).
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. Tax credit expires on January 1, 2021.

Table 2. E85 Gasoline Promotion Tax Credit Rate Schedule

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	$0.16
2013	$0.16
2014	$0.16
2015	$0.16
2016	$0.16
2017	$0.16
2018 and later	NA

Source: Iowa Code 422.11O and 422.33(11B).
Note: Tax credit is repealed January 1, 2018. For retail dealers of gasoline whose tax year is not on a calendar year basis, the retail dealer may compute the tax credit on the eligible gallons sold during the each year using the applicable credit amounts.

Table 3. E15 Plus Gasoline Promotion Tax Credit Rate Schedule

	Credit Per Gallon Sold		
Calendar Year of Sales	Period 1 January 1 - May 31	Period 2 June 1 - September 15	Period 3 September 16 - December 31
July 1, 2011 - December 31, 2011	$0.03	$0.03	$0.03
2012	$0.03	$0.03	$0.03
2013	$0.03	$0.03	$0.03
2014	$0.03	$0.10	$0.03
2015	$0.03	$0.10	$0.03
2016	$0.03	$0.10	$0.03
2017	$0.03	$0.10	$0.03
2018 and later	NA	NA	NA

Source: Iowa Code 422.11Y and 422.33 (11D).
Note: Tax credit is repealed on January 1, 2018.

Table 4. Biodiesel Blended Fuel Tax Credit Rate Schedule

Calendar Year of Sales	Calculation: Designated Rate Per Gallon	Calculation: X Number of gallons of biodiesel blended fuel gallons sold	Eligibility	Basis of Calculation
2006	$0.03	B2 or higher	50 percent biodiesel sales requirement	Company-wide
2007	$0.03	B2 or higher	50 percent biodiesel sales requirement	Company-wide
2008	$0.03	B2 or higher	50 percent biodiesel sales requirement	Company-wide
2009	$0.03	B2 or higher	50 percent biodiesel sales requirement	Retail station
2010	$0.03	B2 or higher	50 percent biodiesel sales requirement	Retail station
2011	$0.03	B2 or higher	50 percent biodiesel sales requirement	Retail station
2012	$0.02, $0.045	B2 - B4, B5 or higher	B2 or above	Company-wide
2013	$0.045	B5 or higher	B5 or above	Company-wide
2014	$0.045	B5 or higher	B5 or above	Company-wide
2015	$0.045	B5 or higher	B5 or above	Company-wide
2016	$0.045	B5 or higher	B5 or above	Company-wide
2017	$0.045	B5 or higher	B5 or above	Company-wide
2018 and later	NA	NA	NA	NA

Source: Iowa Code 422.11P and 422.33(11C).
Note: Tax credit is repealed January 1, 2018.

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

Government	Tax Credit Name	Tax Type	Tax Credit Rate	Tax Credit Cap	Refundable	Carry Forward	Dates Applicable
Iowa	E15 Plus Gasoline Promotion Tax Credit	Individual Income Tax Corporation Income Tax	$0.03 per gallon between September 16 - May 31; and $0.10 between June 1 - September 15	No	Yes	No	January 1, 2006 through December 31, 2017
	E85 Gasoline Promotion Tax Credit		$0.16 per gallon	No	Yes	No	January 1, 2006 through December 31, 2017
	Biodiesel Blended Fuel Tax Credit		$0.045 per gallon of B5	No	Yes	No	January 1, 2006 through December 31, 2017
	Ethanol Promotion Tax Credit		$0.08 - $0.04 per gallon pure ethanol	No	Yes	No	January 1, 2009 through December 31, 2020
Kansas	Renewable Fuel Retailer Tax Incentive (Currently Unfunded)	Sales tax	$0.065 per gallon of renewable fuel sold, $0.03 per gallon of biodiesel sold, if the threshold percent is met.	No	No	No	January 1, 2009 through January 1, 2024. (Unfunded from 2013-June 30, 2016.)
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	No	No	No	Not Available
North Dakota	Biodiesel Blender Tax Credit	Sales Tax	$0.05 per gallon for fuel containing at least 5% biodiesel or green diesel.	No	Yes	5 years	Not Available
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	No	No	No	January 1, 2006 to present
South Dakota	Ethanol and Methanol Tax Report Credit	Motor fuel tax	Equals the $0.08 differential in per gallon taxes on gasoline versus E85 (only blenders are eligible)	No	No	No	Not Available

Source: U.S. Department of Energy, Alternative Fuels and Advanced Vehicles Data Center, http://www.afdc.energy.gov/, accessed August 2014, and TaxCreditResearch.com, http://www.taxcreditresearch.com/, accessed June 2014 and July 2014

Table 6. Federal and State Comparison of Tax Credits for Investments in Biofuel Infrastructure by Retailers

Government	Tax Credit Name	Eligible Investments	Tax Type	Tax Credit Rate	Tax Credit Cap	Refundable	Carry Forward	Dates Applicable
Federal	Alternative Fuel Infrastructure Tax Credit	Fueling equipment for E85, or diesel fuel blends containing a minimum of 20% biodiesel is eligible for a tax credit.	Property Tax	30% of the cost, not to exceed $30,000.	$30,000 per taxpayer	No	Unused credits may be carried backward one year and carried forward 20 years.	December 31, 2005 through December 31, 2014
Florida	Biofuels 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	$1 million per taxpayer and $10 million statewide cap per fiscal year	No	Unclaimed credits can be claimed through 2018	July 1, 2012 through June 30, 2016
Kansas	Biofuel Blending Equipment Tax Exemption	Qualified equipment used for storing and blending petroleum-based fuel with biodiesel, ethanol, or other biofuel is exempt from state property taxes. The exemption begins at the time of installation at a fuel terminal, refinery, or biofuel production plant, and ends 10 taxable years following the year in which the equipment was installed.	Property Tax	100 percent exemption from property tax for ten years	No	No	Not Applicable	
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	No	No	3 years	1991 to present

Table 6 (cont). Federal and State Comparison of Tax Credits for Investments in Biofuel Infrastructure by Retailers

Government	Tax Credit Name	Eligible Investments	Tax Type	Tax Credit Rate	Tax Credit Cap	Refundable	Carry Forward	Dates Applicable
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
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	Yes	5 years	January 1, 2005 to present
Oregon	Alternative Fuel Vehicle Fueling Station Credit	Cost of construction or installation of an 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
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	No	No	10 years	January 1, 2007 through January 1, 2020
Wisconsin	Renewable Fuel Infrastructure Tax Credit	Cost of purchase or construction of commercial facilities that distribute renewable fuel	Income tax	25% of the cost to install or retrofit fueling pumps that dispense gasoline fuel blends of at least 85% ethanol or diesel fuel blends of at least 20% biodiesel fuel	$5,000 per taxable year for each fueling station	No	4 years	Expires December 31, 2017

Source: U.S. Department of Energy, Alternative Fuels and Advanced Vehicles Data Center, http://www.afdc.energy.gov/, accessed August 2014, and TaxCreditResearch.com, http://www.taxcreditresearch.com/, accessed June 2014 and July 2014

Table 7. Federal and State Biofuels Mandates or Goals and Other Investment or Sales Incentive Programs

Government	Mandate/Goal	Incentive for Investment	Incentive for Sales
Federal	*Mandate* - In 2008, 9 billion gallons of renewable fuel was required to be blended, increasing to 36 billion gallons per year by 2022. Beginning in 2016, 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 Rural Energy for America Program (REAP) provides loan guarantees and grants to agricultural producers and rural small businesses to purchase renewable energy systems or make energy efficiency improvements. Eligible renewable energy systems include flexible fuel pumps, or blender pumps, that dispense intermediate ethanol blends. The maximum loan guarantee is $25 million and the maximum grant funding is 25% of project costs. At least 20% of the grant funds awarded must be for grants of $20,000 or less. This program is funded through fiscal year 2018	
Arkansas	*Goal* - Arkansas Alternative Fuels Development Act established an annual goal of 50 million gallons of alternative fuels produced at production facilities in the state by October 6, 2008.		
Hawaii	*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			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.
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 Department of Commerce and Economic Opportunity's Renewable Fuels Development Program is partnered with the Illinois Corn Marketing Board to fund new E85 fueling infrastructure at retail gasoline stations. The American Lung Association of Illinois-Iowa administers grants for up to $5,000 of the total cost of converting an existing facility to dispense E85 or for up to 30% of the cost to construct a new E85 fueling station or modify a current station, with a maximum grant of $30,000 per facility.	Sales and use taxes apply to only 80% of the proceeds from the sale of fuels containing 10% ethanol (E10) made between July 1, 2003, and December 31, 2018. If at any time these taxes are imposed at a rate of 1.25%, the tax on E10 will apply to 100% of the proceeds of sales. State sales and use taxes do not apply to fuels containing between 70% and 90% ethanol (E70-E90) sold between July 1, 2003, and December 31, 2018.
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.	

Table 7 (cont). Federal and State Biofuels Mandates or Goals and Other Investment or Sales Incentive Programs

Government	Mandate/Goal	Incentive for Investment	Incentive for Sales
Iowa	*Goal* - Replace 25% of petroleum used in gasoline in the state with biofuels (ethanol or biodiesel) by January 1, 2020.	assist retail operators of motor fuel dispensing sites or fueling stations in the conversion of their equipment to allow the expanded use of renewable fuels in Iowa. The program utilizes grant incentives to encourage these upgrades. Reimbursement can be for 50% of the costs for specific components of a project with a three year commitment required to sell certain renewable fuels. A five year commitment to store and sell renewable fuels and install certain equipment can result in up to 70% reimbursement for specific equipment or installation costs. Heat biodiesel terminal equipment and/or infrastructure can receive funding for up to $100,000 per project.	Motor fuel tax rate on E10 and E85 is $0.02 lower than the tax rate on gasoline for July 1, 2008 through June 30, 2015. 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 2016, the tax rate is scheduled to be $0.20 per gallon on both gasohol and gasoline.
Kansas		An income tax credit is available for 40% of the total cost to install alternative fueling infrastructure after January 1, 2009. Qualified property must be directly related to the delivery of alternative fuel into the fuel tank of a motor vehicle propelled by such fuel. The tax credit may not exceed $100,000 per fueling station. Alternative fuels are defined as combustible liquids derived from grain starch, oil seed, animal fat, or other biomass, or produced from a biogas source. Excess credits may be carried over for up to three years after the year in which the expenditures were made. Beginning in 2013, the credit is only available to entities with corporate income tax liability.	
Louisiana	*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.		

Table 7 (cont). Federal and State Biofuels Mandates or Goals and Other Investment or Sales Incentive Programs

Government	Mandate/Goal	Incentive for Investment	Incentive for Sales
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	*Mandate* - All gasoline sold or offered for sale in the state must contain at least 10% ethanol by volume (E10). Some exemptions apply. All diesel fuel sold or offered for sale in the state for use in internal combustion engines must contain at least 10 percent biodiesel fuel by volume. The mandate will rise to B20 in May 2018 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.	The Minnesota Corn Research & Promotion Council and the Minnesota Department of Agriculture offer funding assistance to fuel retailers for the installation of equipment to dispense ethanol fuel blends ranging from E15 through E85.	
Missouri	*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.
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.		
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.	

Table 7 (cont). Federal and State Biofuels Mandates or Goals and Other Investment or Sales Incentive Programs

Government	Mandate/Goal	Incentive for Investment	Incentive for Sales
New York		Biofuel Station Initiative 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.	
		The New York State Energy Research and Development Authority (NYSERDA) administers the Biofuel Station Initiative Program, which provides funding to retail fueling stations offering E85 in the state. NYSERDA provides a reimbursement of $35,000 to cover new biofuel dispensing installation costs, including equipment, storage tanks, and associated piping equipment. NYSERDA accepts applications from public access retail fueling station owners and operators in the state. Funding is limited, does not cover facility permitting or engineering costs, and expires on July 5, 2015.	
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 biofuel retailers for refueling infrastructure installation.	The sale of ethanol blended gasoline fuel containing 85% ethanol (E85) is exempt from the $0.23 per gallon fuel 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		The Alternative Fuel Transportation Grant Program provides grants and loans for up to 80% of the cost of purchasing and installing fueling facilities offering E85, fuel blends containing at least 20% biodiesel (B20), natural gas; liquefied petroleum gas or propane; hydrogen; electricity; or any fuel that the U.S. Department of Energy determines, by final rule, to be substantially not petroleum. Provides funding for up to 80% of the incremental cost of purchasing and using alternative fuel for businesses, nonprofit organizations, public school systems, and local governments.	
Oregon	*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.	

Table 7 (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	*Mandate* - One year after in-state production has reached 350 million gallons of cellulosic ethanol and sustained this volume for three months, all gasoline sold in Pennsylvania must contain at least 10% cellulosic ethanol. All diesel fuel sold in Pennsylvania must contain at least 2% biodiesel (B2) one year after in-state production of biodiesel reaches 40 million gallons. The mandated biodiesel blend level will continue to increase according to the following schedule: •5% biodiesel (B5) one year after in-state production of biodiesel reaches 100 million gallons; •10% biodiesel (B10) one year after in-state production of biodiesel reaches 200 million gallons; and •20% biodiesel (B20) one year after in-state production of biodiesel reaches 400 million gallons. All biodiesel retailers in Pennsylvania must register with the Pennsylvania Department of Agriculture each year. Additional compliance and blending standards, in-state registration requirements, and certification and enforcement guidelines apply.		
Rhode Island			Biodiesel is exempt from the $0.30 per gallon state motor fuel tax. Biodiesel may be blended with other fuel for use in motor vehicles, but only the biodiesel portion of the blended fuel is exempt.
South Dakota		The Ethanol Infrastructure Incentive Program provides funding to offset the cost of installing ethanol blender pumps at retail fueling stations throughout the state. Awardees may receive $25,000 for the first pump installed and $10,000 for each additional pump.	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.	

Table 7 (cont). Federal and State Biofuels Mandates or Goals and Other Investment or Sales Incentive Programs

Government	Mandate/Goal	Incentive for Investment	Incentive for Sales
Texas		The Texas Commission on Environmental Quality (TCEQ) administers the Alternative Fueling Facilities Program as part of the Texas Emissions Reduction Plan. Provides grants for 50% of eligible costs, up to $500,000, to construct, reconstruct, or acquire a facility to store, compress, or dispense alternative fuels in Texas air quality nonattainment areas. Qualified alternative fuels include biodiesel, electricity, natural gas, hydrogen, propane, and fuel mixtures containing at least 85% methanol (M85). The entity receiving the grant must agree to make the fueling station available to people and organizations not associated with the grantee during certain times. This program ends August 31, 2017.	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 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.afdc.energy.gov/, accessed August 2014, and TaxCreditResearch.com, http://www.taxcreditresearch.com/, accessed June 2014 and July 2014

Table 8. Biodiesel Production Sales Tax Refunds by Quarter, Calendar Years 2012 to 2014

Gallons and Refunds
(in Millions)

Calendar Year	1st Quarter		2nd Quarter		3rd Quarter		4th Quarter		Total	
	Gallons	Refund	Gallons	Refund	Gallons	Refund	Gallons	Refund	Gallons	Refund
2012	41.87	$1.3	54.99	$1.6	44.22	$1.3	25.88	$0.8	166.95	$5.0
2013	42.77	$1.1	56.74	$1.4	50.64	$1.3	43.07	$1.1	193.21	$4.8
2014	38.48	$0.8	52.28	$1.0	51.05	$1.0			141.81	$2.8

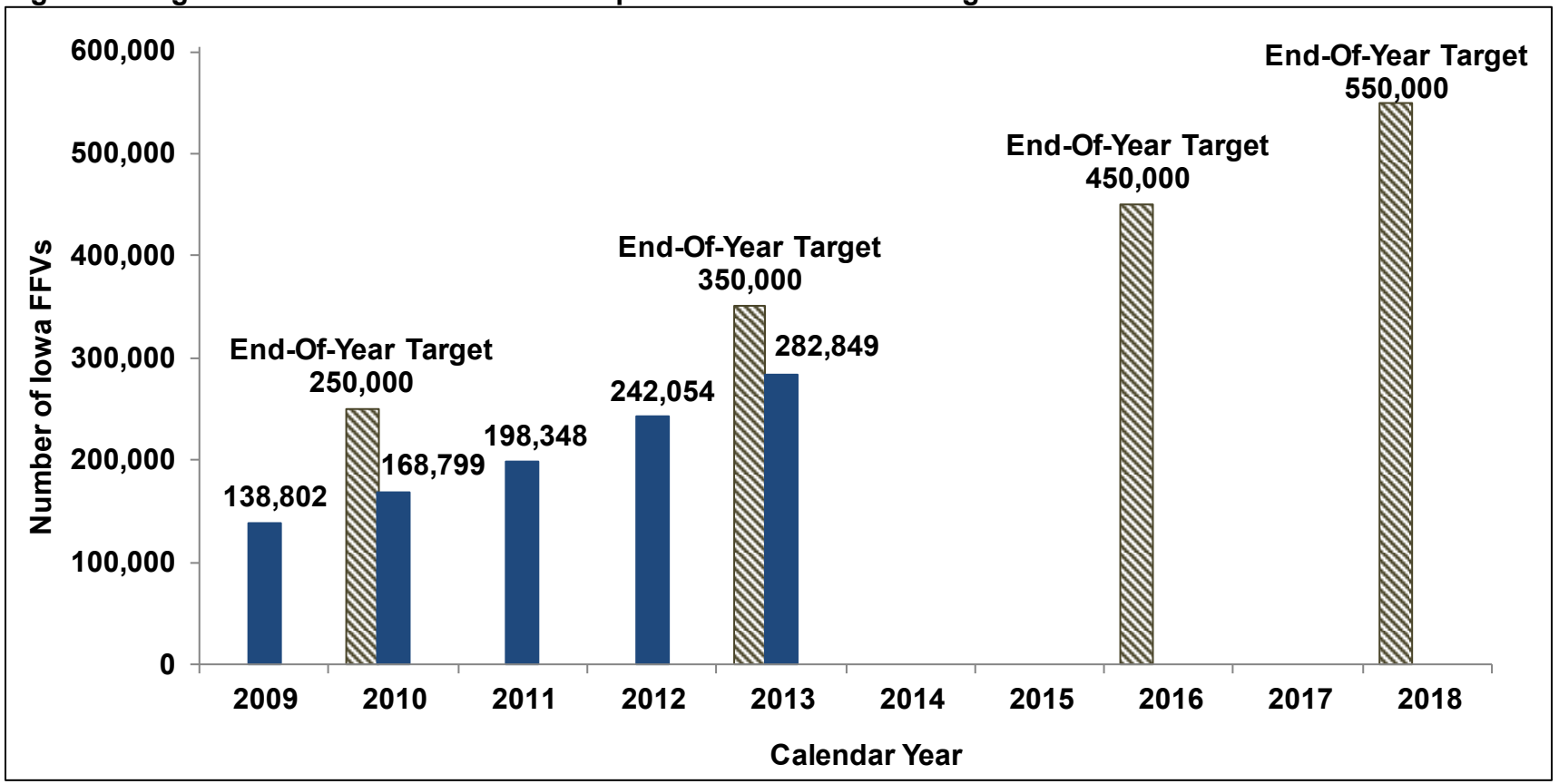
Source: Iowa Department of Revenue

Table 9. Renewable Fuel Infrastructure Program Funding and Projects Fiscal Years 2007 to 2014

Fiscal Year	Number of Projects	Program Funding
2007	88	$2,032,274
2008	67	$1,880,800
2009	110	$3,797,300
2010	53	$1,852,000
2011	66	$2,619,600
2012	68	$2,770,550
2013	43	$1,757,018
2014	60	$2,505,102
Total	555	$19,214,644

Source: Iowa Department of Agriculture and Land Stewardship

Figure 1. Registered Flex Fuel Vehicles Compared to End-Of-Year Target Goals 2009 to 2018



Source: Iowa Department of Transportation
Note: Goals established in HF 2754 passed in 2006

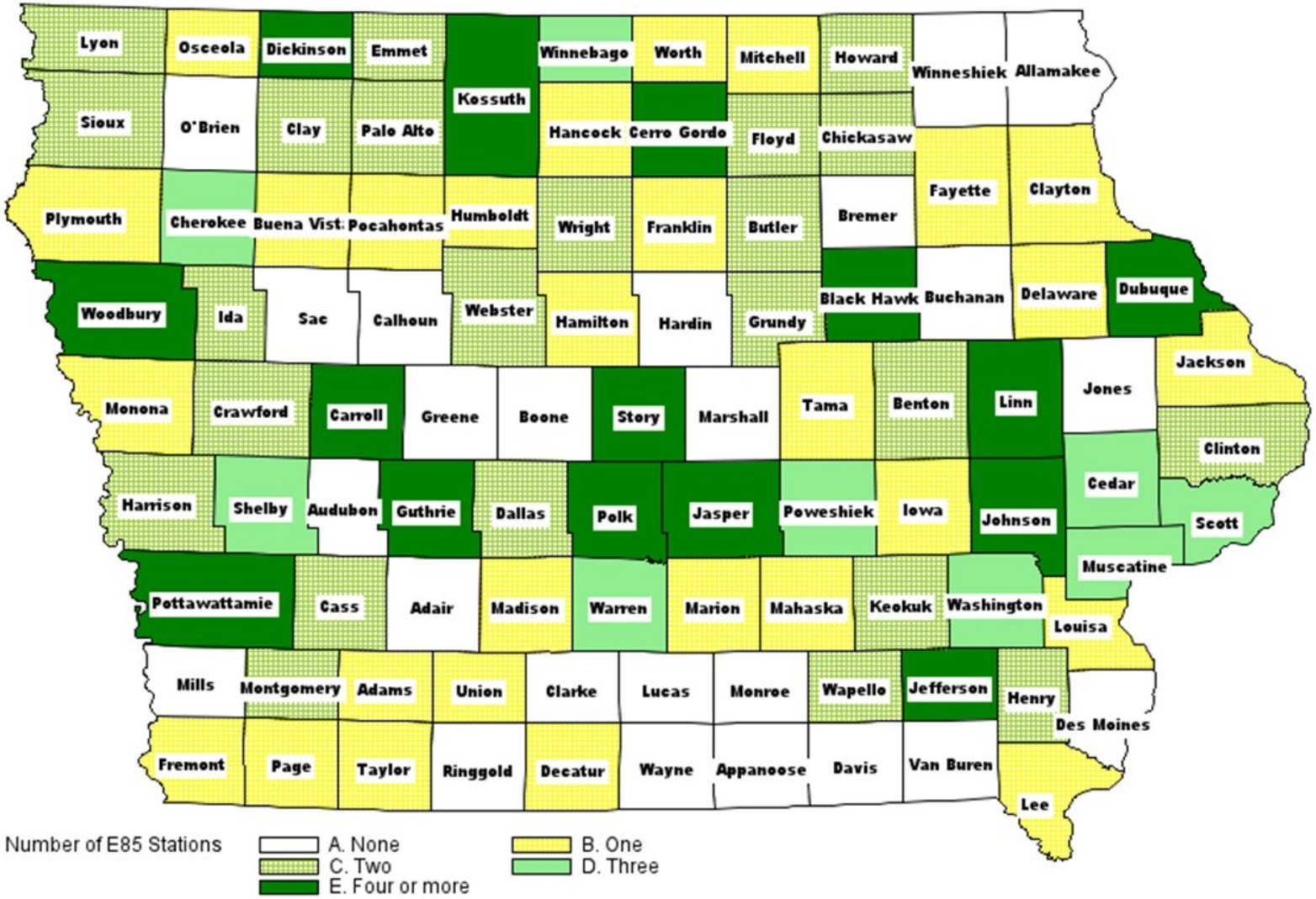
Table 10. Estimated E85 Fuel Utilization by Flex Fuel Vehicles in Iowa

Calendar Year	Total FFVs	E85 Gallons Sold	E85 Gallons per FFV
2009	138,802	5,892,280	42
2010	168,799	10,019,508	59
2011	198,348	10,674,574	54
2012	242,054	9,017,410	37
2013	282,849	11,152,763	39

Average Miles Traveled per Year*	Potential E85 Gallons per Average FFV**	Average Gallons E85 per FFV Per Year	Share of Potential E85 Consumption
10,200	633	46	7.3%

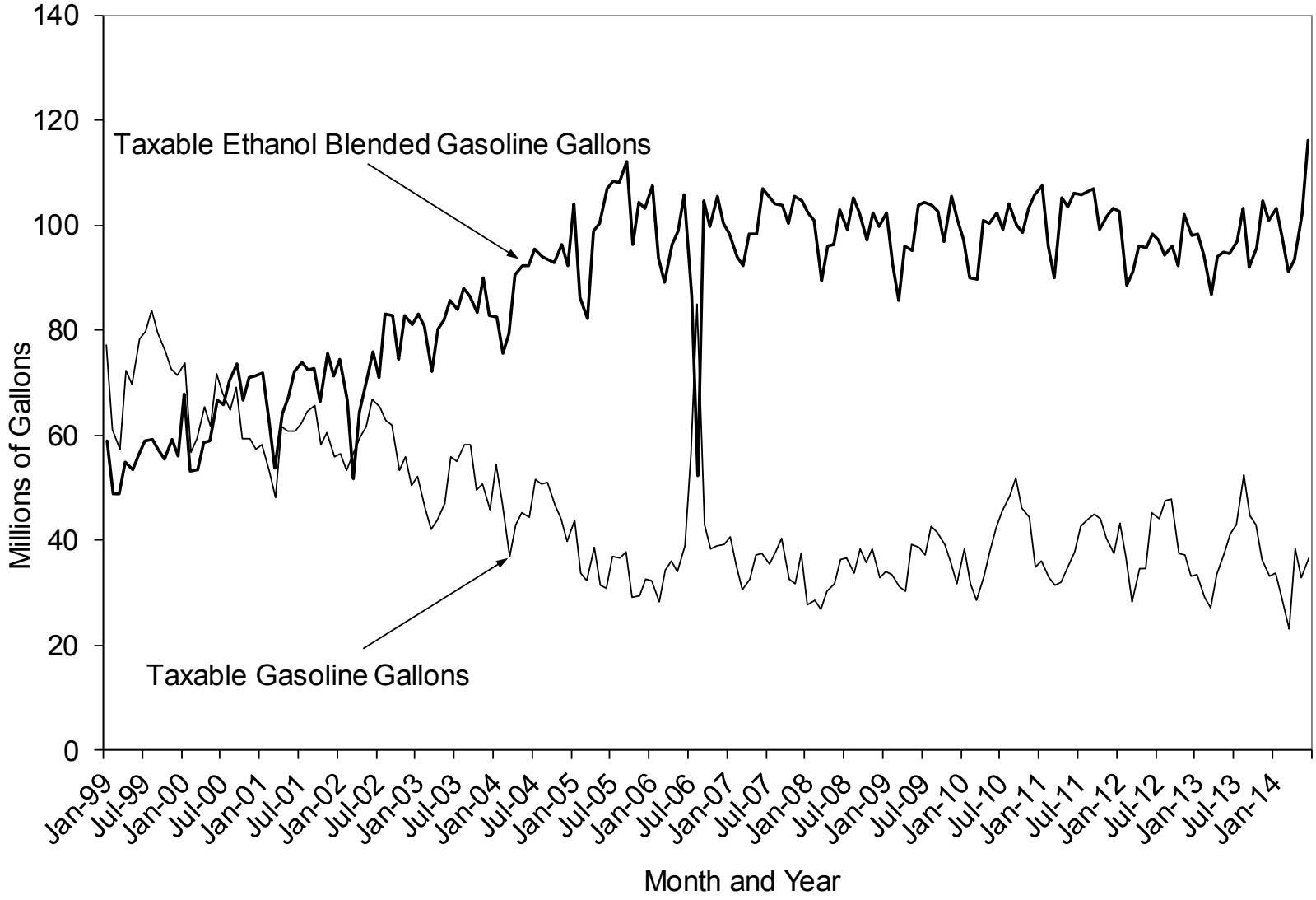
Sources:
* U.S. Public Interest Research Group, www.uspirg.org; accessed December 10, 2014
**U.S Department of Energy, Energy Efficiency & Renewable Energy, www.fueleconomy.gov; accessed December 10, 2014
Note: Potential E85 gallons per vehicle is based on an average FFV fuel efficiency of flex fuel vehicles operating on E85 blended gasoline divided by average miles traveled per year.

Figure 2. Number of Stations Reporting E85 Sales by County, Calendar Year 2013



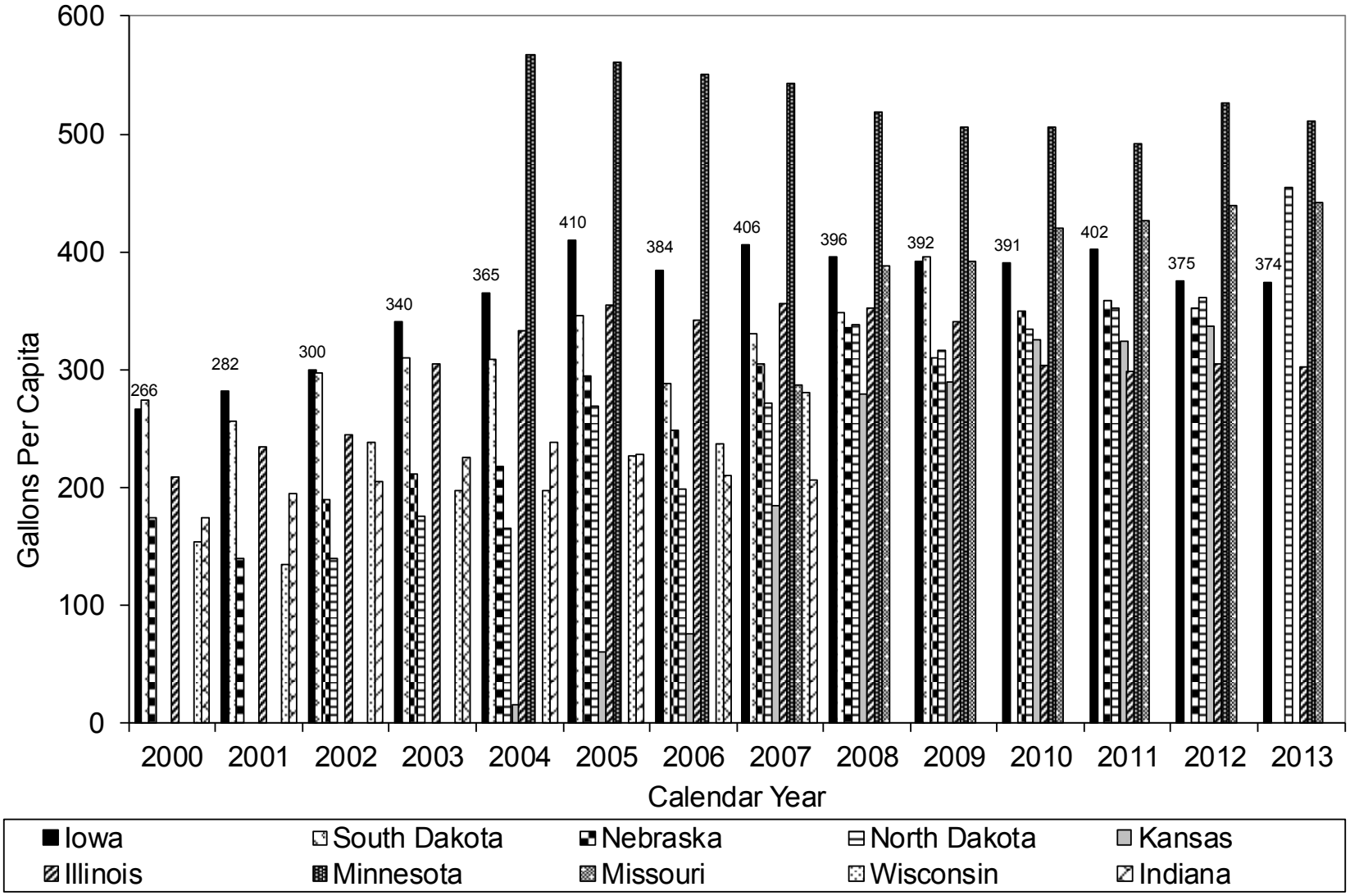
Source: 2013 Retailers Motor Fuel Gallons Annual Report.
Note: Stations with zero total sales of any fuels were excluded.

Figure 3. Iowa Monthly Taxable Gasoline and Ethanol-Blended Gasoline Gallons, Calendar Years 1999 to 2014



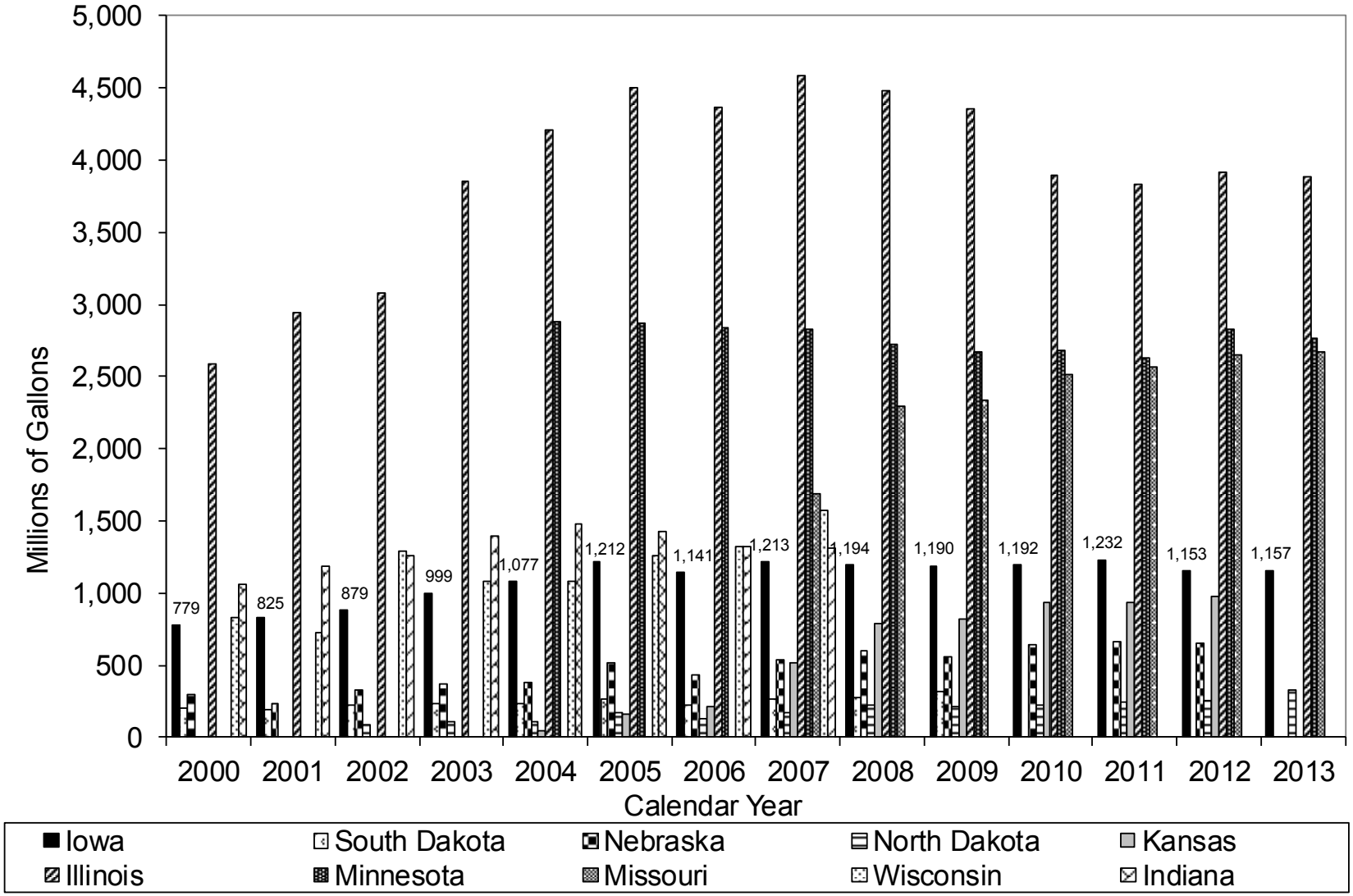
Source: IDR Iowa Fuel Tax Monthly Reports

Figure 4. Taxable Ethanol-Blended Gasoline Gallons Per Capita in Midwestern States, 2000 to 2013



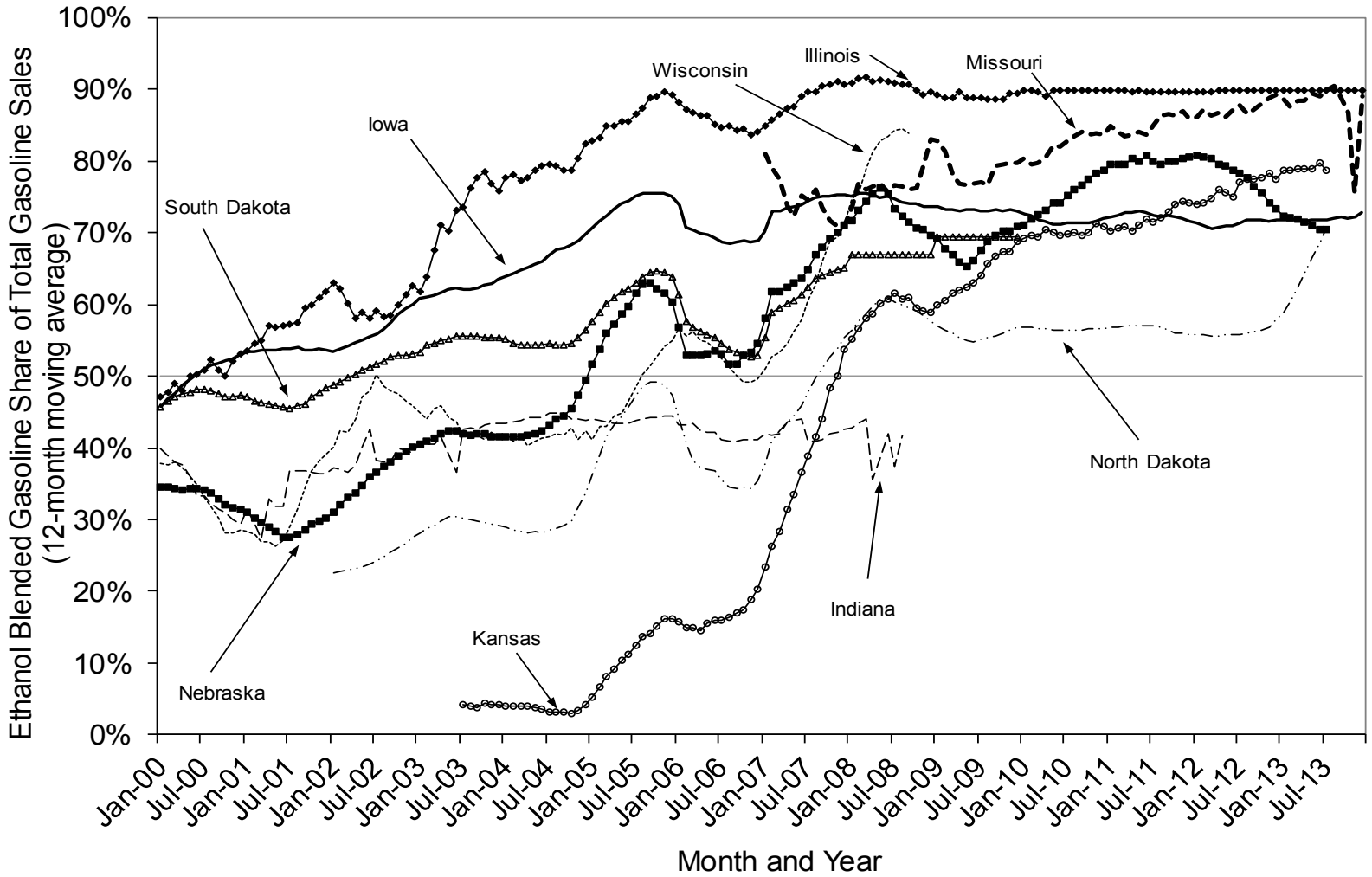
Sources: Ethanol Blended Gasoline data from state departments of revenue and population data from U.S. Census

Figure 5. Total Taxable Ethanol-Blended Gasoline Gallons in Midwestern States, 2000 to 2013



Source: Ethanol Blended Gasoline data from state departments of revenue

Figure 6. Ethanol-Blended Gasoline Share of Terminal Level Sales in Midwestern States, 2000 to 2014



Source: Author's calculations using data from state departments of revenue
Note: State shares may not be comparable because different amounts of downstream blending of ethanol-blended gasoline occur.

Table 11. Retailers Motor Fuel Gallons Annual Report Response Rates, Calendar Years 2007 to 2013

		CY 2007	CY 2008	CY 2009	CY 2010	CY 2011	CY 2012	CY 2013
A.	Number of Reports Sent Out (Mailed or Emailed)	2,892	2,777	2,499	2,706	2,650	2,502	2,635
B.	Number of Reports Returned	2,551	2,459	2,372	2,324	2,287	2,223	2,300
C.	Number of Reports with No Sales	198	188	102	115	113	60	145
D.	Number of Reports with Sales	2,353	2,271	2,270	2,209	2,174	2,163	2,155
E.	Response Rate=B./A.	88.2%	88.5%	94.9%	85.9%	86.3%	88.8%	87.3%

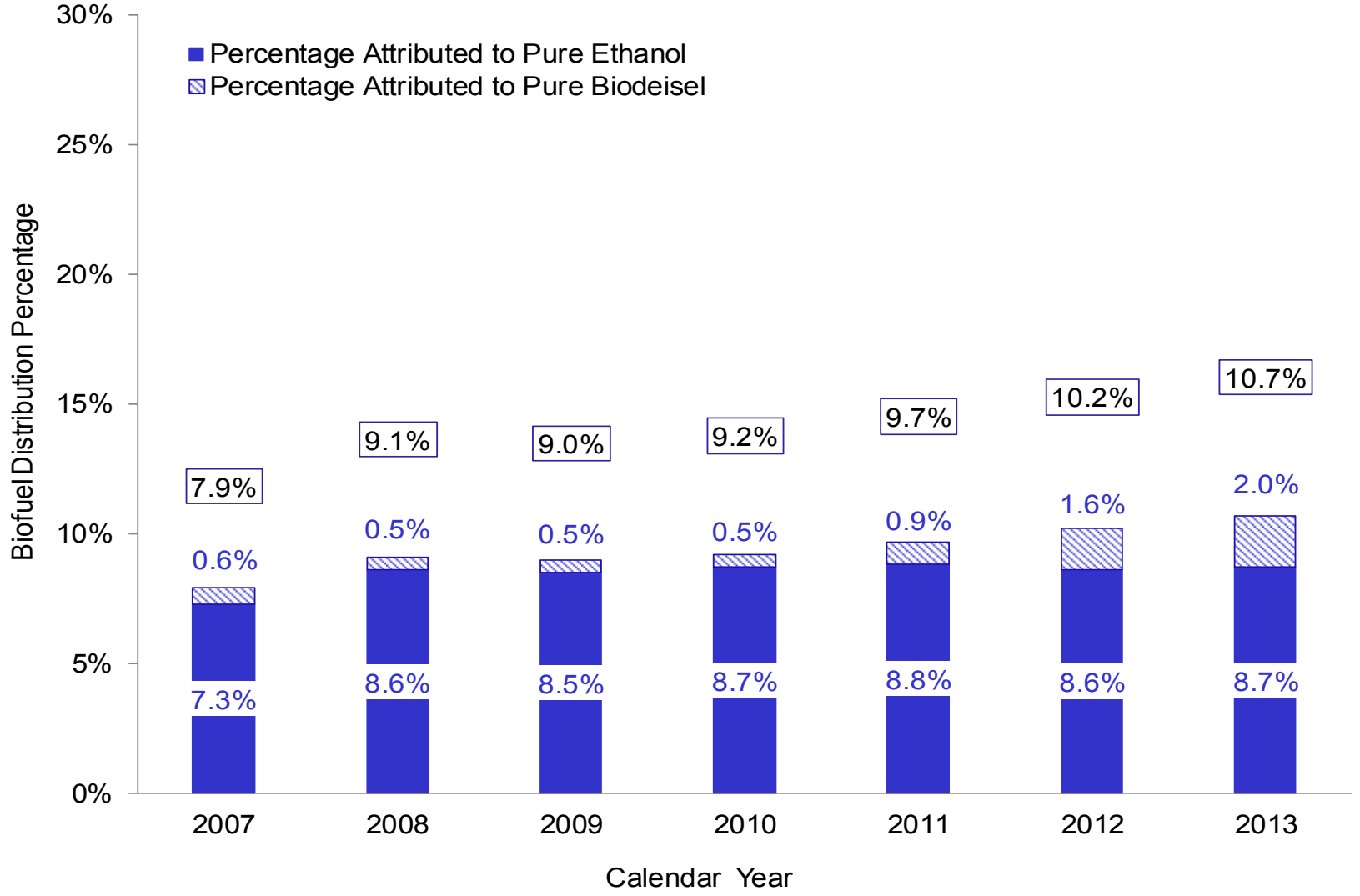
Source: IDR Retailers Motor Fuel Gallons Annual Reports.

Table 12. Biofuel Shares in Retailers Motor Fuel Gallons Annual Reports, Calendar Years 2007 to 2013

	CY 2007	CY 2008	CY 2009	CY 2010	CY 2011	CY 2012	CY 2013
Pure Biofuel Share of Gasoline and Diesel	5.4%	6.1%	6.2%	6.2%	6.5%	7.0%	7.2%
Biofuel Distribution Percentage	7.9%	9.1%	9.0%	9.2%	9.7%	10.2%	10.7%
Ethanol Share in Pure Biofuel	92.4%	94.5%	94.4%	94.6%	90.9%	84.6%	81.5%
Biodiesel Share in Pure Biofuel	7.6%	5.6%	9.1%	15.4%	18.5%	15.4%	18.5%
B2-B4 Share in Biodiesel Blends Gallons	41.5%	85.5%	63.5%	83.1%	40.9%	13.2%	4.4%
B5 Plus Share in Biodiesel Blends Gallons	58.5%	14.5%	36.5%	16.9%	59.1%	86.8%	95.6%

Source: IDR Retailers Motor Fuel Gallons Annual Reports.
Note: Incorporates revisions to correct some inaccurate information that retailers provided when completing the reports.

Figure 7. Statewide Biofuel Distribution Percentage, Calendar Years 2007 to 2013



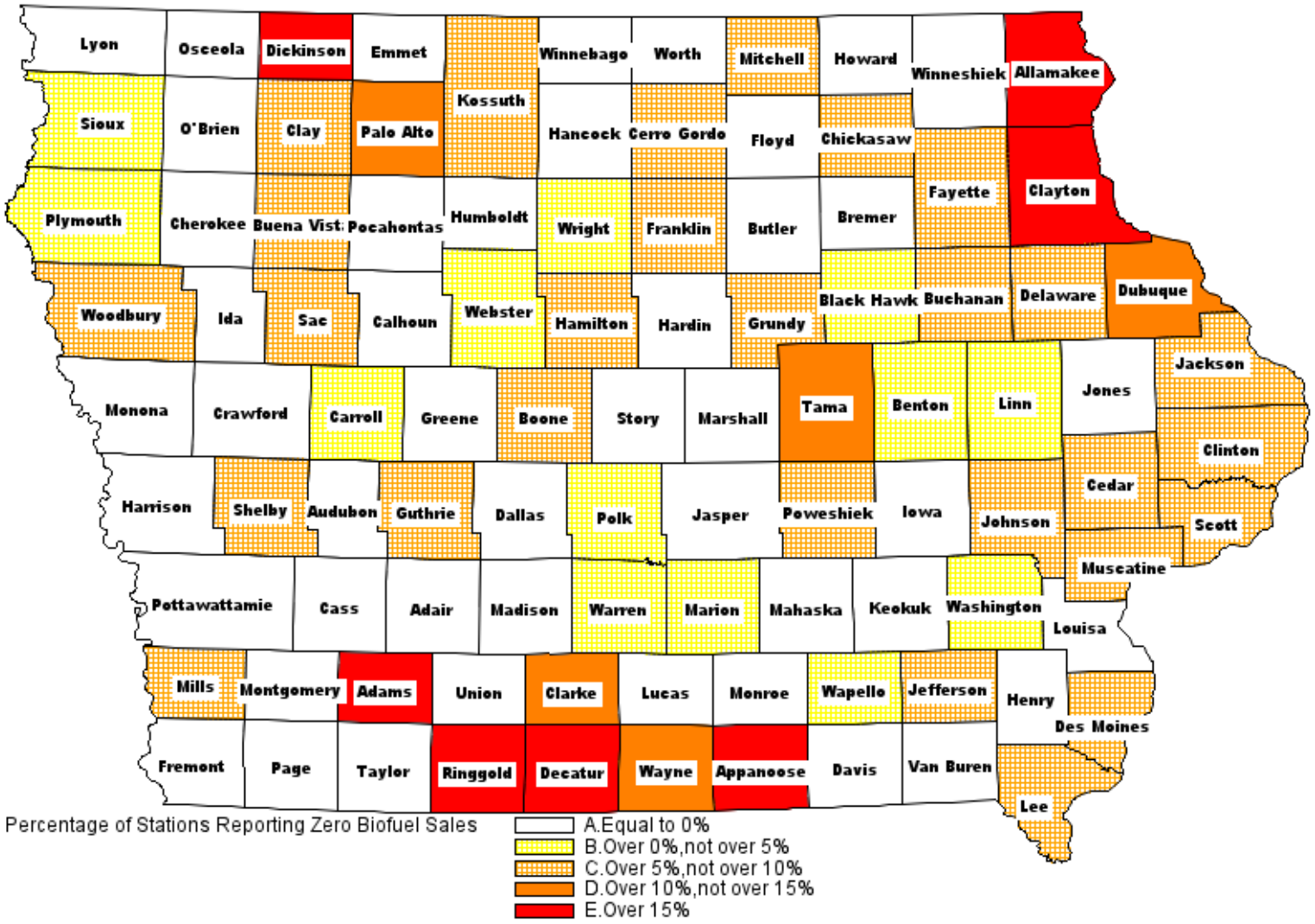
Source: IDR Retailers Motor Fuel Gallons Annual Reports.
Note: Incorporates revisions to correct some inaccurate information that retailers provided when completing the reports.

Table 13. Ethanol and Biodiesel Retail Sales, Calendar Years 2007 to 2013

Calendar Year	Total Ethanol Sales (E10, E85, E15, Other Ethanol)			Total E85 Sales		Total E15 Sales		Total Biodiesel Sales	
	Million Gallons	Growth Rate	Share of Ethanol Blend in Gasoline	Million Gallons	Growth Rate	Million Gallons	Growth Rate	Million Gallons	Growth Rate
2007	998.9		71.1%	4.2				160.8	
2008	1,269.9	27.1%	82.3%	7.7	84.5%			226.8	41.1%
2009	1,203.3	-5.2%	81.4%	5.9	-23.2%			175.7	-22.5%
2010	1,289.7	7.2%	82.5%	10.0	70.0%			239.8	36.5%
2011	1,187.6	-7.9%	82.1%	10.7	6.5%	0.1		245.2	2.3%
2012	1,199.2	1.0%	81.7%	9.0	-15.5%	2.1	1884.0%	285.8	16.6%
2013	1,198.9	0.0%	82.2%	11.2	23.7%	2.6	24.6%	347.8	21.7%

Source: IDR Retailers Motor Fuel Gallons Annual Reports.

Figure 8. Percent of Stations Reporting Zero Biofuel Sales by County, Calendar Year 2013



Source: 2013 Retailers Motor Fuel Gallons Annual Report.
Note: Stations with zero total sales of any fuels were excluded.

Table 14. Taxpayer Claims to Ethanol Promotion Tax Credit Reported on IA 148, Tax Years 2008 to 2012

Tax Year	Number of Claims				Total EPTC Claims				Average EPTC Claims		
	Corporation	Individual	Pass-Through	Total	Corporation	Individual	Pass-Through	Total	Corporation	Individual	Pass-Through
2008	68	**	12	**	$1,045,356	$9,465	$55,350	$1,110,171	$15,373	**	$4,613
2009	125	133	723	981	$2,555,520	$145,186	$1,921,780	$4,622,486	$20,444	$1,092	$2,658
2010	119	106	677	902	$1,992,868	$108,786	$1,642,587	$3,744,241	$16,747	$1,026	$2,426
2011	104	84	508	696	$1,539,255	$75,130	$1,700,038	$3,314,423	$14,801	$894	$3,347
2012*	65	25	198	288	$569,444	$25,593	$1,619,268	$2,214,305	$8,761	$1,024	$8,178
Total	481	348	2,118	2,867	$7,702,443	$364,160	$6,939,023	$15,005,626	$16,013	$1,046	$3,276

Source: Iowa Department of Revenue IA 148 Tax Credits Schedule
Notes: *Tax year 2012 data are incomplete **Response rate too low to report
Individual taxpayers include a small number of fiduciary taxpayers.

Table 15. Ethanol Promotion Tax Credit Refunds and Refund Percentage, for Tax Years 2008 to 2012

Tax Year	Total EPTC Refunds			EPTC Refund Percentage		
	Corporation	Individual	Total	Corporation	Individual	Total
2008	$621,287	$11,236	$632,523	56.7%	85.5%	57.0%
2009	$1,683,216	$1,455,001	$3,138,217	63.2%	74.2%	67.9%
2010	$1,027,320	$1,269,172	$2,296,492	50.1%	75.8%	61.7%
2011	$737,285	$1,555,691	$2,292,976	47.4%	88.8%	69.3%
2012*	$69,112	$1,041,813	$1,624,803	10.8%	93.0%	63.1%
Total	$4,138,220	$5,332,913	$9,985,011			

Source: Iowa Department of Revenue corporation and individual income tax returns
Notes: *Tax year 2012 data are incomplete
Not all claims could be matched to tax returns.

Table 16. Concentration of Ethanol Promotion Tax Credits, Tax Years 2009 to 2012

Tax Year	Number of Entities	Total Claims	Top 20 Claims	Share of Top 20 Claims
2009	516	$4,624,492	$3,212,131	69.5%
2010	458	$3,750,421	$2,657,036	70.8%
2011	365	$3,327,422	$2,446,150	73.5%
2012*	163	$1,787,877	$1,397,324	78.2%

Source: Iowa Department of Revenue IA 148 Tax Credits Schedule
Notes: *Tax year 2012 data are incomplete

Table 17. Timing of Ethanol Promotion Tax Credit Claims, Tax Years 2008 to 2012

	Share of Total EPTC Tax Year Claims by Fiscal Year that Return was Received						
Tax Year	2009	2010	2011	2012	2013	2014	Total
2008	1.1%	89.8%	9.2%	0.0%	0.0%	0.0%	100.0%
2009	0.0%	22.1%	74.3%	3.6%	0.0%	0.0%	100.0%
2010	0.0%	0.0%	22.0%	74.7%	3.3%	0.0%	100.0%
2011	0.0%	0.0%	0.0%	18.8%	77.5%	3.7%	100.0%
2012*	0.0%	0.0%	0.0%	0.0%	19.4%	80.6%	100.0%

Source: Iowa corporation and individual income tax returns and Iowa Department of Revenue return processing data

Table 18. Taxpayer Claims to E85 Gasoline Promotion Tax Credit Reported on IA 148, Tax Years 2006 to 2012

Tax Year	Number of Claims				Total E85GC Claims				Average E85GC Claims		
	Corporation	Individual	Pass-Through	Total	Corporation	Individual	Pass-Through	Total	Corporation	Individual	Pass-Through
2006	26	7	76	109	$349,040	$5,510	$657,044	$1,011,594	$13,425	$787	$8,645
2007	31	33	88	152	$600,878	$20,536	$1,418,236	$2,039,650	$19,383	$622	$16,116
2008	38	29	140	207	$492,908	$26,763	$3,392,992	$3,912,663	$12,971	$923	$24,236
2009	44	21	244	309	$485,269	$29,919	$3,965,815	$4,481,003	$11,029	$1,425	$16,253
2010	39	8	191	238	$294,229	$24,241	$5,958,815	$6,277,285	$7,544	$3,030	$31,198
2011	49	17	202	268	$375,842	$21,055	$7,151,260	$7,548,157	$7,670	$1,239	$35,402
2012*	49	**	104	**	$333,367	$15,723	$5,505,663	$5,854,753	$6,803	**	$52,939
Total	276	115	1,045	1,436	$2,931,533	$143,747	$28,049,825	$31,125,105	$10,621	$1,250	$26,842

Source: Iowa Department of Revenue IA 148 Tax Credits Schedule
Notes: *Tax year 2012 data are incomplete **Response rate too low to report
Individual taxpayers include a small number of fiduciary taxpayers.

Table 19. E85 Gasoline Promotion Tax Credit Refunds and Refund Percentage, for Tax Years 2006 to 2012

	Total E85GC Refunds			E85GC Refund Percentage		
Tax Year	Corporation	Individual	Total	Corporation	Individual	Total
2006	$105,367	$114,204	$219,571	28.3%	77.7%	42.3%
2007	$143,801	$110,594	$254,395	20.9%	82.5%	31.0%
2008	$247,425	$794,383	$1,041,808	45.3%	96.7%	76.2%
2009	$284,165	$674,887	$959,052	51.0%	90.1%	73.4%
2010	$158,696	$1,021,534	$1,180,230	37.1%	94.8%	78.4%
2011	$111,461	$732,374	$843,835	28.2%	91.5%	70.5%
2012*	$48,801	$836,375	$885,176	12.5%	88.3%	66.2%
Total	$1,099,716	$4,284,351	$5,384,067			

Source: Iowa Department of Revenue corporation and individual income tax returns
Notes: *Tax year 2012 data are incomplete
Individual taxpayers include a small number of fiduciary taxpayers.

Table 20. Concentration of E85 Gasoline Promotion Tax Credits, Tax Years 2006 to 2012

Tax Year	Number of Entities	Total Claims	Top 20 Claims	Share of Top 20 Claims
2006	54	$518,811	$449,365	86.6%
2007	89	$975,973	$765,059	78.4%
2008	102	$1,367,919	$1,103,118	80.6%
2009	130	$1,308,351	$958,109	73.2%
2010	110	$1,510,233	$1,142,454	75.6%
2011	122	$1,112,363	$838,274	75.4%
2012*	91	$1,294,334	$1,063,733	82.2%

Source: Iowa Department of Revenue IA 148 Tax Credits Schedule
Notes: *Tax year 2012 data are incomplete

Table 21. Taxpayer Claims to E15 Plus Gasoline Promotion Tax Credit Reported on IA 148, Tax Years 2011 to 2012

	Number of Claims				Total E15GC Claims				Average E15GC Claims		
Tax Year	Corporation	Individual	Pass-Through	Total	Corporation	Individual	Pass-Through	Total	Corporation	Individual	Pass-Through
2011	10	0	15	25	$18,061	$0	$1,626	$19,687	$1,806	$0	$108
2012*	22	0	14	36	$27,315	$0	$4,819	$32,134	$1,242	$0	$344
Total	32	0	29	61	$45,376	$0	$6,445	$51,821	$1,418	$0	$222

Source: Iowa Department of Revenue IA 148 Tax Credits Schedule
Notes: *Tax year 2012 data are incomplete
Individual taxpayers include a small number of fiduciary taxpayers.

Table 22. E15 Plus Gasoline Promotion Tax Credit Refunds and Refund Percentage, for Tax Years 2010 to 2012

	Total E15GC Refunds			E15GC Refund Percentage		
Tax Year	Corporation	Individual	Total	Corporation	Individual	Total
2010	$1,185	$0	$1,185	91.4%	0.0%	91.4%
2011	$9,555	$609	$10,164	50.3%	89.3%	51.6%
2012*	$1,563	$2,447	$4,010	5.7%	50.8%	12.5%
Total	$12,303	$3,056	$15,359			

Source: Iowa Department of Revenue corporation and individual income tax returns
Notes: *Tax year 2012 data are incomplete

Table 23. Taxpayer Claims to Biodiesel Blended Fuel Tax Credit Reported on IA 148, Tax Years 2006 to 2012

	Number of Claims				Total BBFC Claims				Average BBFC Claims		
Tax Year	Corporation	Individual	Pass-Through	Total	Corporation	Individual	Pass-Through	Total	Corporation	Individual	Pass-Through
2006	26	7	39	72	$860,223	$62,009	$1,250,986	$2,173,218	$33,086	$8,858	$32,077
2007	20	54	93	167	$533,481	$375,305	$3,822,097	$4,730,883	$26,674	$6,950	$41,098
2008	16	35	102	153	$347,454	$150,080	$4,176,089	$4,673,623	$21,716	$4,288	$40,942
2009	15	22	125	162	$182,133	$164,325	$5,022,862	$5,369,320	$12,142	$7,469	$40,183
2010	13	10	74	97	$408,334	$103,398	$5,182,350	$5,694,082	$31,410	$10,340	$70,032
2011	13	15	133	161	$482,020	$315,236	$6,230,710	$7,027,966	$37,078	$21,016	$46,847
2012*	24	8	157	189	$1,342,256	$375,226	$8,547,373	$10,264,855	$55,927	$46,903	$54,442
Total	127	151	723	1,001	$4,155,901	$1,545,579	$34,232,467	$39,933,947	$32,724	$10,236	$47,348

Source: Iowa Department of Revenue IA 148 Tax Credits Schedule
Notes: *Tax year 2012 data are incomplete
Individual taxpayers include a small number of fiduciary taxpayers.

Table 24. Biodiesel Blended Fuel Tax Credit Refunds and Refund Percentage, for Tax Years 2006 to 2012

	Total BBFC Claims			BBFC Refund Percentage		
Tax Year	Corporation	Individual	Total	Corporation	Individual	Total
2006	$1,834,590	$338,628	$2,173,218	57.3%	56.1%	57.1%
2007	$2,327,217	$2,403,666	$4,730,883	58.1%	88.3%	64.8%
2008	$2,074,446	$2,599,177	$4,673,623	69.9%	94.6%	78.3%
2009	$2,058,459	$3,310,861	$5,369,320	85.0%	91.2%	88.0%
2010	$2,092,577	$3,601,505	$5,694,082	80.4%	91.4%	85.8%
2011	$3,006,022	$4,021,944	$7,027,966	87.4%	94.9%	91.0%
2012*	$3,216,222	$7,055,192	$10,271,414	68.9%	97.1%	84.5%
Total	$16,609,533	$23,330,973	$39,940,506			

Source: Iowa Department of Revenue corporation and individual income tax returns
Notes: *Tax year 2012 data are incomplete
Individual taxpayers include a small number of fiduciary taxpayers.

Table 25. Concentration of Biodiesel Blended Fuel Tax Credits, Tax Years 2006 to 2012

Tax Year	Number of Entities	Total Claims	Top 20 Claims	Share of Top 20 Claims
2006	51	$2,173,218	$1,870,711	86.1%
2007	117	$4,730,883	$4,249,796	89.8%
2008	92	$4,673,623	$4,335,178	92.8%
2009	86	$5,369,320	$4,990,233	92.9%
2010	65	$5,694,082	$5,385,055	94.6%
2011	86	$7,027,966	$6,580,163	93.6%
2012*	93	$10,271,414	$9,415,631	91.7%

Source: Iowa Department of Revenue IA 148 Tax Credits Schedule
Notes: *Tax year 2012 data are incomplete

Table 26. Biofuel Sales Reported on IA 137 Ethanol Promotion Tax Credit Forms, Tax Years 2008 to 2012

Tax Year	Number of Retailers	Sales in Million Gallons						
		Gasoline (Ethanol and Non-Ethanol)	Ethanol	Pure Ethanol	Biodiesel	Pure Biodiesel	Biofuel	Pure Biofuel
2008	78	318.5	264.1	27.2	23.3	0.9	287.5	28.1
2009	402	1,288.1	1,064.4	111.3	111.0	3.6	1,175.4	114.9
2010	366	1,244.5	1,031.5	109.4	107.8	3.6	1,139.2	113.0
2011	265	938.9	786.4	85.6	90.4	4.4	876.7	90.0
2012*	128	446.7	378.7	43.3	133.8	10.1	512.5	53.4

Source: IA137 Ethanol Promotion Tax Credit Forms.
Note: Tax year 2012 data are incomplete.

Table 27. Biofuel Distribution Percentage Tax Years 2009 to 2012 for Retailers by 2009 Biofuel Distribution Percentage

Tax Year	2009 Biofuel Distribution Percentage Not Over 10%			2009 Biofuel Distribution Percentage Over 10%		
	Number	Median of the Biofuel Distribution Percentage	Exit Rate From 2009	Number	Median of the Biofuel Distribution Percentage	Exit Rate From 2009
Large Retailers						
Claim in 2009	260	8.2%		72	10.6%	
Also Claim in 2010	182	8.3%	30.0%	50	11.3%	30.6%
Also Claim in 2011	108	8.7%	58.5%	42	11.5%	41.7%
Also Claim in 2012	33	10.0%	87.3%	27	11.0%	62.5%
Small Retailers						
Claim in 2009	72	8.5%		36	10.0%	
Also Claim in 2010	50	8.5%	30.6%	24	10.0%	33.3%
Also Claim in 2011	34	8.4%	52.8%	19	10.9%	47.2%
Also Claim in 2012	16	8.8%	77.8%	9	10.4%	75.0%

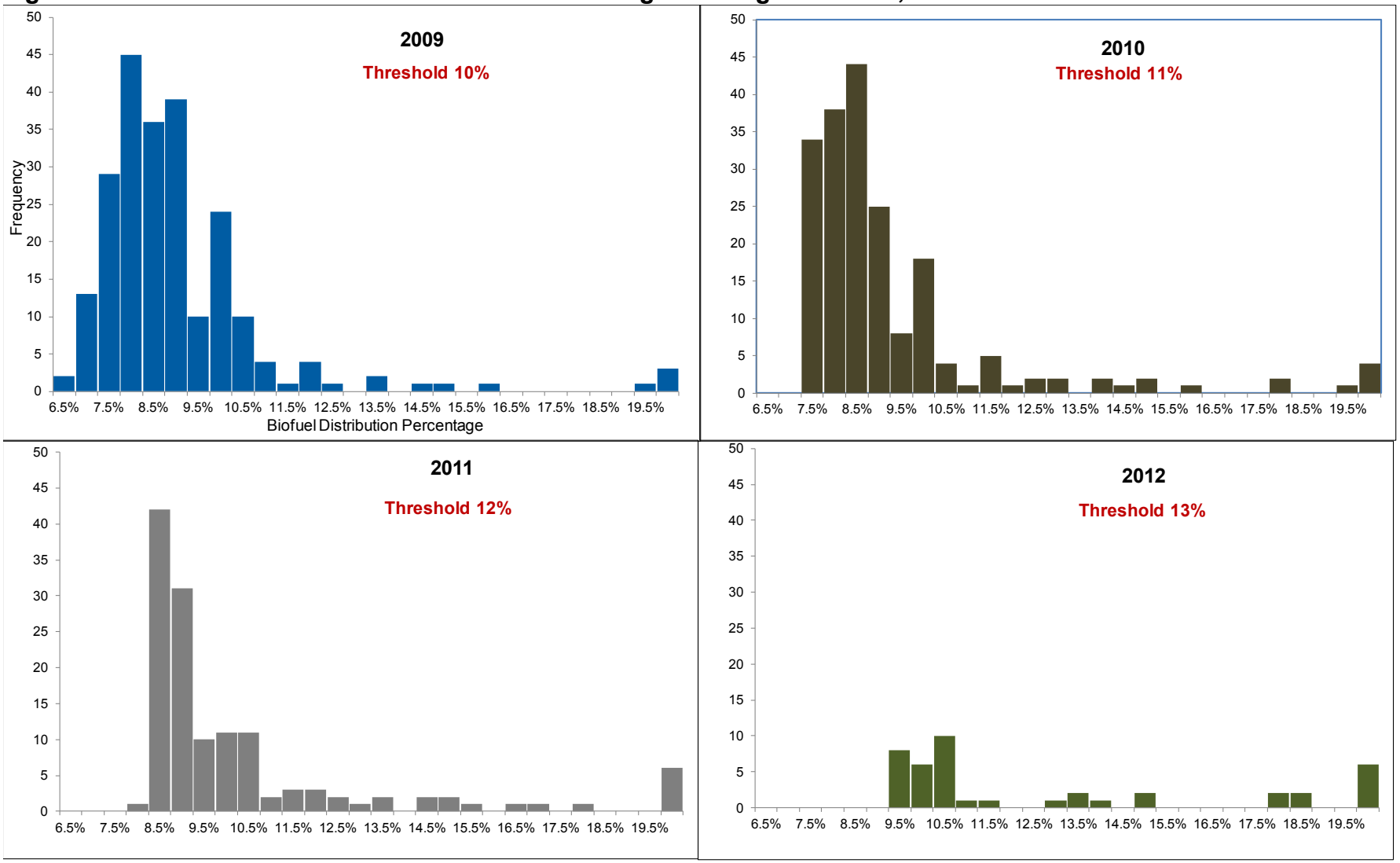
Source: IA 137 Ethanol Promotion Tax Credit Tax Forms.
Notes: Tax year 2012 data are incomplete. For this analysis, large retailers are defined as those whose total gasoline sales are greater than 200,000 gallons in 2009; small retailers are those whose total gasoline sales are equal or less than 200,000 gallons in 2009.

Table 28. Median of Difference Between Biofuel Share and Biofuel Distribution Percentage Threshold for 2012 Top Ten Retailers with Highest Biofuel Distribution Percentages, 2009 to 2012

Top Ten Retailers With the Highest Biofuel Distribution Percentages in 2012	Number	Median of Difference Between Biofuel Share and Biofuel Distribution Percentage Threshold
Large Retailers		
2009	6	4.2%
2010	9	4.0%
2011	8	12.0%
2012	10	7.7%
Small Retailers		
2009	6	8.5%
2010	7	6.9%
2011	7	4.8%
2012	10	19.6%

Source: IA 137 Ethanol Promotion Tax Credit Tax Forms.
Notes: Tax year 2012 data are incomplete. For this analysis, large retailers are defined as those whose total gasoline sales are greater than 200,000 gallons in 2009. Small retailers are those whose total gasoline sales are equal or less than 200,000 gallons in 2009.

Figure 9. Distribution of Biofuel Distribution Percentage for Large Retailers, Tax Years 2009 to 2012



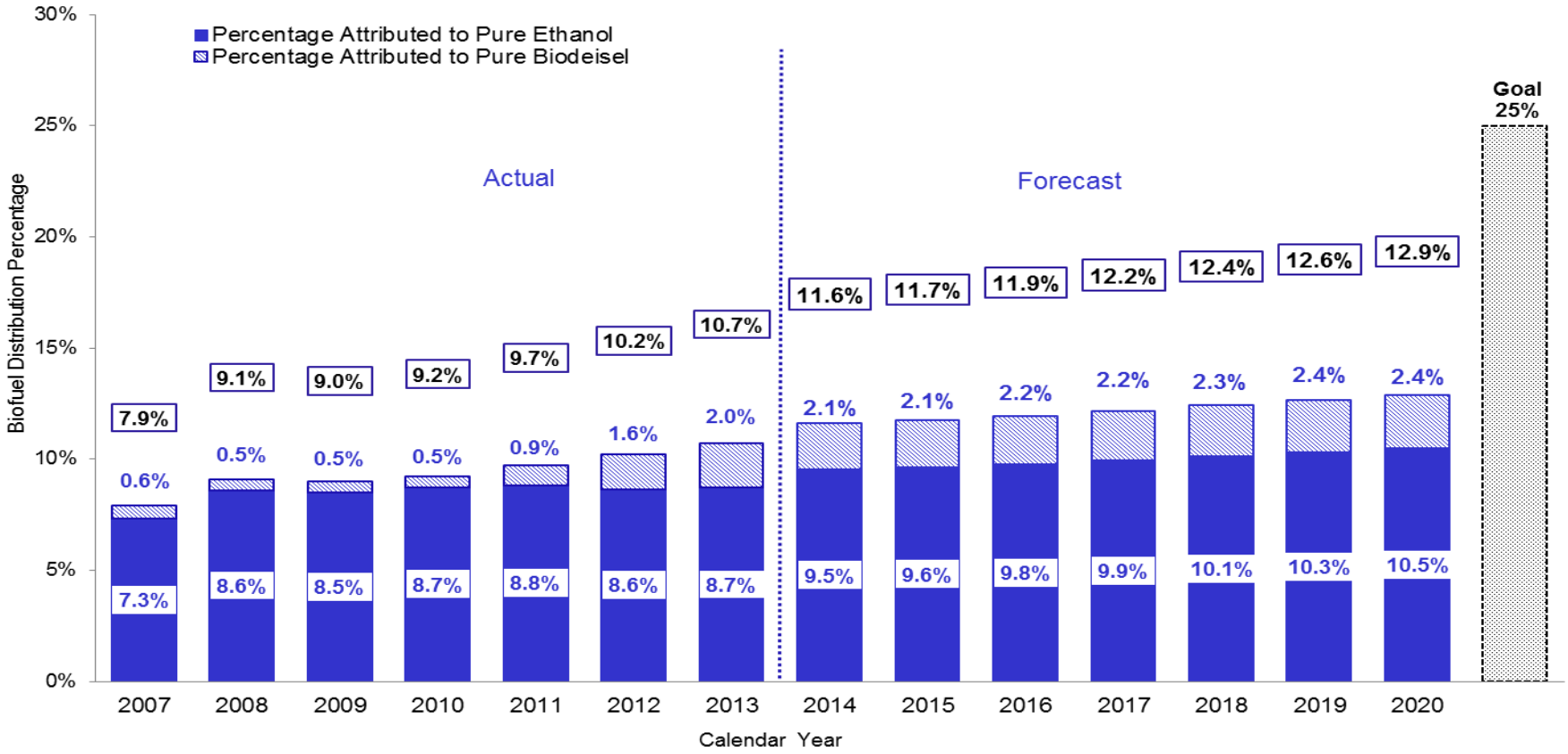
Source: IA 137 Ethanol Promotion Tax Credit Tax Forms.

Table 29. Actual and Forecasted Biofuel Retailers' Tax Credit Claims, Tax Years 2012 to 2020

		Millions of $		
Tax Year	EPTC	E85GC	E15GC	BBFC
2012	$1.8	$1.3	$0.03	$10.3
2013 (F)	1.5	1.8	0.09	15.0
2014 (F)	1.8	2.0	0.13	15.4
2015 (F)	1.5	2.2	0.15	15.6
2016 (F)	1.1	2.5	0.18	15.9
2017 (F)	1.0	2.8	0.20	16.1
2018 (F)	0.9	NA	NA	NA
2019 (F)	0.8	NA	NA	NA
2020 (F)	0.8	NA	NA	NA

Source: 2012 IDR IA148 Tax Credits Schedule Form and 2013 Retailers Motor Fuel Gallons Annual Report.
Notes: Actual claims data are presented for tax year 2012 (where tax year 2012 claims data are incomplete).
(F) Indicates forecasted claim amounts in nominal million dollars.

Figure 10. Actual and Forecasted Biofuel Distribution Percentage, Calendar Years 2007 to 2020



Sources: Retailers Motor Fuel Gallons Annual Reports for 2007 to 2013; IDR forecast model (using data from the 2013 Retailers Motor Fuel Gallons Annual Report) for 2014 to 2020.
Notes: The biofuel distribution percentage in 2013 was adjusted from 10.8 percent in the published report to 10.7 percent in this study, reflecting a confirmation from a few respondents that E10 sales were misreported as E15 sales.

Appendix A: Forecast Assumptions for Biofuel Retailers' Tax Credits Claims Tax Years 2013 Through 2020

Various assumptions about the growth of Iowa fuel sales are used to forecast sales of fuel at retail stations across Iowa for calendar years 2014 through 2020. Key assumptions include aggregate annual sales growth rates by type of fuel at stations that reported the various biofuel sales in 2013 and growth in the number of stations within Iowa selling the various types of biofuels over the next seven years. These assumptions are based on the long-term U.S. liquid fuel consumption forecasts made by the Energy Information Administration (EIA) and Iowa station-level statistics from the Retailers Motor Fuel Gallons Annual Reports.

The first set of assumptions is aggregate growth rates in fuel consumption. In April 2014, EIA projected a -0.9 percent annual growth rate in national total gasoline consumption (including non-ethanol gasoline and all ethanol blends) and an 0.8 percent annual growth rate in diesel consumption through 2040 (EIA, 2014). According to EIA's estimation, on average E10 sales will decrease 0.2 percent annually through 2040, E85 sales will increase by 11.9 percent annually, and biodiesel consumption will increase by 1.5 percent each year. Since EIA did not report a forecast for E15-E69 sales growth, E15-E69 blends are assumed to have the same growth rate as E85.

The second set of assumptions is the growth in the number of individual retail stations selling biofuels, since stations that did not report certain biofuel sales in 2013 may start selling those biofuels after 2013 (referred to as "new stations" hereafter). Trends in the number of new stations selling various biofuels reflected in the Annual Report data were examined to estimate the number of new stations in the future (see Table A1). To avoid distortions resulting from variations in response rates across years, trends are measured over the last three years 2011-2013 when the number of stations reporting any fuel sales remained steady. From 2011 to 2013, on average, there was 0.5 percent annual growth in new stations (10 stations) selling E10 (see Table A3). Therefore, it is assumed that 10 stations will start selling E10 each year through 2020 (see Table A4). Thus, in 2020 the total number of stations selling E10 is assumed to increase to 2,084 stations.[13] Using the same logic, based on the average growth rates in the share of stations selling different types of fuels between 2011-2012 and 2012-2013, it is assumed that each year there will be 33 new stations selling E15-E69, 17 new stations selling E85, and 29 new stations selling biodiesel (for those stations selling diesel in 2013).

Another significant change in biofuel sales is a jump in the number of stations selling B2 to B4 blends to selling only B5 blends or higher (see Table A2). Considering the shift in BBFC incentives toward B5 or higher sales in 2012-2013 and the fact there is no extra infrastructure cost for existent diesel retailers to sell B5, it is expected that more stations selling biodiesel will shift to selling only B5 or higher (no lower than B5). However, the trend measured during the

[13] From 2019 to 2020, only two new stations rather than 10 new stations are assumed to start selling E10 because there were totally 2,084 stations with gasoline sales in 2013 (base year). As a result, by 2020, all the stations with gasoline sales in 2013 are assumed to have positive E10 sales.

tax credit law change is too high to extend forward because the forecasted number would soon exceed the forecasted number of stations selling biodiesel. Therefore, it is assumed 98 new stations will start selling B5 plus blends in 2014, but after 2014 the assumption for 2015 and later is that each year all the 29 new stations selling biodiesel will sell B5 plus blends only (see Table A4). When new stations are randomly assigned to introduce biofuel each year, it is assumed that the share of their sales of E15-E69, E85, B5 plus, and biodiesel will be the average share of sales for each type of fuel in 2013 for all the stations selling each particular fuel type (see Table A4).

For the existent biofuel retail stations (in 2013 there were 2,046 existing stations that reported selling biofuel), biofuel sales are forecasted to grow each year. The growth rates applied are based on the EIA forecasts noted above with adjustments accounting for the introduction of new stations each year.

The forecast assumption also incorporates the boost of ethanol-blended sales caused by the pipeline change that occurred in mid-September 2013. The increase in ethanol sales cannot be identified in the annual sales data from the 2013 Annual Report. However, solid evidence of an increase in demand for ethanol blends since September 2013 can be seen in the Department's Monthly Motor Fuel Report. The monthly reports indicate a sharp increase in taxable ethanol-blended sales at the terminal level since September 2013. While the share of ethanol-blended sales averaged around 72 percent in 2010 through 2013, the average share during the first 10 months of 2014 reached 75.5 percent, which was a notable increase.

The second piece of evidence is the increase in blenders refunds of fuel taxes reported in the Monthly Reports. Between January 2008 and October 2014, the refund dollar amount for gasoline allowed when blenders change gasoline into ethanol-blended fuel increased sharply after September 2013, with the 12-month rolling average of refunds increasing from $135,760 for September 2013 to $300,913 for October 2014, more than doubling in about one year (see Figure A1). The rapid growth rate of the refund amount after September 2013 is unprecedented in recent history. Because the refund amount reflects the excess tax when a blender purchases gasoline taxed at $0.21 per gallon and creates E10 subject to a tax of $0.19 per gallon, the jump in refund since September 2013 suggests an increase in demand for downstream blending as a result of the pipeline change in Iowa.

The statistical association between the share of ethanol-blended taxable sales in the Monthly Motor Fuel Reports (terminal level data), the share of taxable gasoline estimated to be transformed to E10 through downstream blending, and the share of ethanol-blended sales in the Annual Reports (retailer level data) is used to estimate the E10 share in gasoline sales in 2014 which is the first complete year after the pipeline change (see Table A5). With sharp increases in estimated downstream blending and observed ethanol-blended sales at the terminal level, the share of E10 in total gasoline at retailer-level in 2014 is estimated to be 88 percent, a 7.3 percent increase over what was observed in 2013. Thus all existing stations with E10 sales are assumed to experience a 7.3 percent increase in the ethanol-blended share of sales to reflect the one-time impact due to the pipeline change which is assumed to not be

reversed during the forecast window. Any new stations with E10 sales are assumed to have 88 percent of sales of gasoline as E10 during the forecast period.

These assumptions, combined with the 2013 retailers' data, are used to forecast sales of each station. These gallons then are used to forecast tax credit claims for all eligible stations and the statewide biofuel distribution percentage in each year from 2014 through 2020 to forecast how close the state may get to meet the 25 percent target by 2020.

Table A1. EIA Forecasted Annual Growth Rates in Fuel Consumption and State Aggregate Forecasted Fuel Sales 2014 to 2020

Calendar Year	Total Gasoline (Non-Ethanol and Ethanol)	E10	E15-E69*	E85	Gasoline (Calculated by Subtracting E10,E15, and E85 from Total Gasoline)	Total Diesel (Biodiesel and Other Diesel)	Biodiesel
EIA Forecasted Yearly Growth Rate (2012-2040)	-0.9%	-0.2%	11.9%	11.9%	N/A	0.8%	1.5%
Sales (in Million Gallons)							
2013 Actual **	**1,458.5**	**1,182.3**	**5.4**	**11.2**	**259.6**	**707.0**	**29.1**
2014 Forecast	1,445.4	1,179.9	6.1	12.5	246.9	712.6	29.6
2015 Forecast	1,432.4	1,177.6	6.8	14.0	234.1	718.3	30.0
2016 Forecast	1,419.5	1,175.2	7.6	15.6	221.0	724.1	30.5
2017 Forecast	1,406.7	1,172.9	8.5	17.5	207.9	729.9	30.9
2018 Forecast	1,394.0	1,170.5	9.5	19.6	194.5	735.7	31.4
2019 Forecast	1,381.5	1,168.2	10.6	21.9	180.8	741.6	31.9
2020 Forecast	**1,369.1**	**1,165.8**	**11.9**	**24.5**	**166.8**	**747.5**	**32.3**

Source: U.S. Energy Information Administration (EIA), 2014.
Notes: * EIA (2014) did not report E15-E69 sales estimation, for simplification E15-E69 was assumed to have the same growth rate as E85. ** 2013 actual sales are based on data from 2013 Retailers Motor Fuel Gallons Annual Report.

Table A2. Stations Selling Selected Types of Fuels in Iowa, Calendar Years 2007 to 2013

	CY 2007	CY 2008	CY 2009	CY 2010	CY 2011	CY 2012	CY 2013
Number of Stations Selling :							
E10	2,038	2,116	2,139	2,076	1,999	2,009	2,022
E15-E69	NA	NA	NA	NA	10	78	76
E85	91	125	145	166	171	190	206
Total Gasoline and Ethanol	2,311	2,234	2,242	2,174	2,114	2,120	2,118
Biodiesel	330	263	324	240	282	301	366
Total Diesel	1,243	1,227	1,265	1,219	1,188	1,228	1,300
B5 or Plus Only (Without Lower Than B5)	99	75	107	46	56	175	269
Any Biofuel	2,072	2,135	2,157	2,089	2,020	2,029	2,046
All-Type Fuel	2,354	2,271	2,277	2,210	2,152	2,153	2,150

Source: IDR Retailers Motor Fuel Gallons Annual Reports.

Table A3. Share of Stations in Iowa Selling Selected Types of Biofuels and Forecasted Numbers of New Stations

Share of Number of Stations Selling:	CY 2011	CY 2012	CY 2013	Average Yearly Growth Rate CY2011-2013	Forecasted Growth Rate	Forecasted Yearly New Stations Numbers
E10 in Total Gasoline and Ethanol	94.6%	94.8%	95.5%	0.5%	0.5%	10
E15-E69 in Total Gasoline and Ethanol	0.5%	3.7%	3.6%	1.6%	1.6%	33
E85 in Total Gasoline and Ethanol	8.1%	9.0%	9.7%	0.8%	0.8%	17
Biodiesel in Total Diesel	23.7%	24.5%	28.2%	2.2%	2.2%	29
B5 or Plus Only (Without Low than B5)	19.9%	58.1%	73.5%	26.8%	26.8%	98

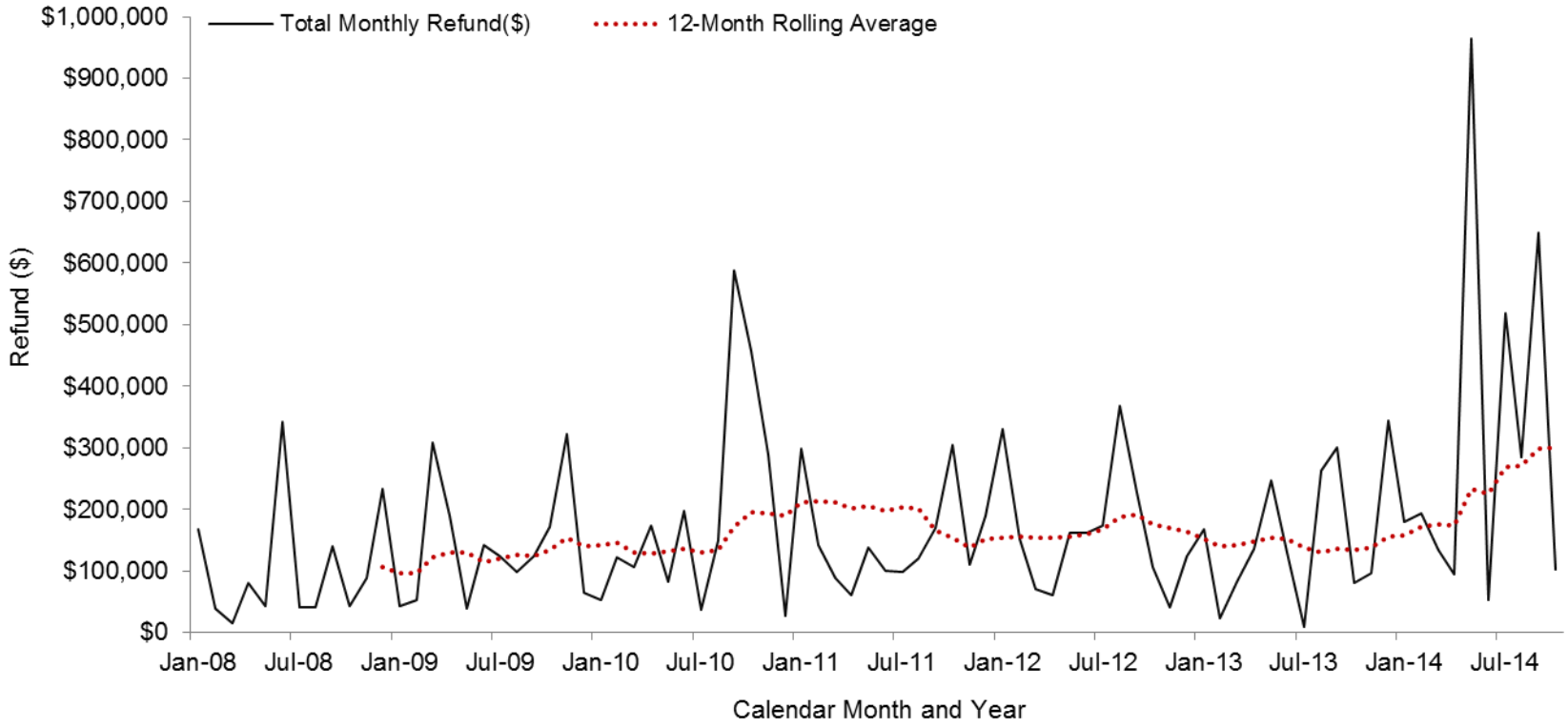
Source: IDR Retailers Motor Fuel Gallons Annual Reports.

Table A4. Forecasted Number of Stations in Iowa Selling Selected Types of Biofuels, Calendar Years 2014 to 2020

Calendar Year	E10	E15-E69	E85	Biodiesel	B5 Plus Only
Forecasted Annual Number of New Stations	10	33	17	98 in 2014; 29 after 2014	98 in 2014; 29 after 2014
Number of Stations Selling Fuels					
2013 Actual *	**2,022**	**76**	**206**	**366**	**269**
2014 Forecast	2,032	109	223	464	367
2015 Forecast	2,042	142	240	493	396
2016 Forecast	2,052	175	257	522	425
2017 Forecast	2,062	208	274	551	454
2018 Forecast	2,072	241	291	580	483
2019 Forecast	2,082	274	308	609	512
2020 Forecast	**2,084**	**307**	**325**	**638**	**541**
Estimated Share of Sales in Total Gasoline and Ethanol Sales for New Stations	Estimated Share of Sales in Total Gasoline and Ethanol Sales for New Stations	Estimated Share of Sales in Total Gasoline and Ethanol Sales for New Stations	Estimated Share of Sales in Total Gasoline and Ethanol Sales for New Stations	Estimated Share of Sales in Total Diesel Sales for New Stations	Estimated Share of Sales in Total Biodiesel Diesel Sales for New Stations
	88.0%	0.4%	0.8%	21.9%	100.0%

Note: * The actual numbers of stations in 2013 are based on data from 2013 Retailers Motor Fuel Gallons Annual Report.

Figure A1. Monthly Excess Tax on E10 Refunds from Iowa Fuel Tax Monthly Reports, January 2008 to October 2014



Source: IDR Iowa Fuel Tax Monthly Reports.

Table A5. Share of E10 in Total Gasoline from Monthly Reports and Annual Reports, Calendar Years 2008 to 2014

	Monthly Motor Fuel Report (Terminal Level Data)		Annual Report (Retailer Level Data)
Calendar Year	Share of Taxable Gasoline Estimated to be Blended Downstream	Share of E10 in Total Gasoline	Share of E10 in Gasoline
2008	16.0%	75.0%	82.3%
2009	19.3%	73.2%	81.4%
2010	23.6%	71.1%	82.5%
2011	19.8%	72.9%	82.1%
2012	21.0%	71.0%	81.7%
2013	20.7%	71.8%	82.2%
2014	47.2%	75.5%	88.0% (F)

Sources: IDR Iowa Fuel Tax Monthly Reports and Retailers Motor Fuel Gallons Annual Reports.
Notes: (F) indicates forecast. Share of taxable gasoline estimated to be blended downstream is based on the refunds for excess tax on E10 reported on the Iowa Fuel Tax Monthly Reports.

Appendix B: Forms for Claiming Biofuel Retailers' Tax Credits, Tax Year 2014

IA 135: E85 Gasoline Promotion Tax Credit Tax Form

IA 137: Ethanol Promotion Tax Credit Tax Form

IA 138: E15 Plus Gasoline Promotion Tax Credit Tax Form

IA 148: Tax Credits Schedule

IA 8864: Biodiesel Blended Fuel Tax Credit Tax Form

Iowa E85 Gasoline Promotion Tax Credit

Name(s)	SSN or FEIN
Pass-Through Entity Name (if applicable)	Pass-Through FEIN
Tax Period Ending Date	

1.	Total number of E85 gasoline gallons sold in Iowa during the tax year ..... 1.	
2.	Tax credit rate per gallon is $0.16 (sixteen cents) ..... 2.	x $0.16
3.	Multiply line 1 by line 2. Enter on Part II of the IA 148 Tax Credits Schedule ..... 3.	
4.	Pass-through E85 Gasoline Promotion Tax Credit from partnership, LLC, S corporation, estate, or trust. Enter on Part II of the IA 148 Tax Credits Schedule and complete Part IV ..... 4.	

Instructions

An E85 Gasoline Promotion Tax Credit is available to retail dealers of gasoline who operate motor fuel pumps at a retail motor fuel site in Iowa. 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 between 70% and 85% by volume of ethanol. A taxpayer may claim the E85 Gasoline Promotion Tax Credit even if the taxpayer claims the Ethanol Promotion Tax Credit for the same ethanol gallons.

The credit equals sixteen cents multiplied by the total number of gallons of E85 gasoline sold during the tax year. Individuals and C corporations must claim the tax credit on the IA 148 Tax Credits Schedule in Part II using tax credit code 55.

If the taxpayer is a partnership, LLC, S corporation, estate, or trust, this form must be completed and included with the Iowa tax return. The credit must be allocated to the individual members in the ratio of each member's share of the earnings of the entity to the entity's total earnings. Show on Schedule K-1, or on an attachment to Schedule K-1, the credit for each member and instruct the members to report the apportioned credit on line 4 of form IA 135 and include it with their tax returns.

If the taxpayer has received any pass-through E85 Gasoline Promotion Tax Credit from a partnership, LLC, S corporation, estate, or trust, indicate that amount on line 4. Individuals and C corporations must enter the amount on Part II of the IA 148 Tax Credits Schedule, using tax credit code 55, and provide the pass-through name and FEIN in Part IV of the IA 148 Tax Credits Schedule.

File a separate IA 135 for each pass-through E85 Gasoline Promotion Tax Credit received. Also list the claims separately on Part II of the IA 148 Tax Credits Schedule, providing each pass-through name and FEIN in Part IV.

Any credit in excess of tax liability can be refunded or credited to tax liability for the following year.

IA 148 Tax Credits Schedule must be completed.

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2014 IA 137

Iowa Ethanol Promotion Tax Credit

Name(s)	SSN or FEIN	Tax Period Ending Date
Pass-Through Entity Name (if applicable)	**Pass-Through FEIN**	

PART I – Determination of Biofuel Threshold Percentage Disparity

Indicate determination method:

Company-wide ☐ **Site-by-site** ☐

		2014 GALLONS Beginning of tax year through 12-31-2014				2015 GALLONS 1-01-2015 through end of tax year			
		A	B	C (AxB)		D	E	F (DxE)	
1. E10 gallons sold	1.		10%		1.		10%		
2. E15 gallons sold	2.		15%		2.		15%		
3. E85 gallons sold	3.		79%		3.		79%		
4. Ethanol gallons other E10, E15, or E85 sold	4.		%		4.		%		
5. Total ethanol sold. Add lines 1 through 4	5.				5.				
6. Non-ethanol gasoline gallons sold	6.				6.				
7. Total gasoline gallons sold. Add lines 5 and 6	7.				7.				
8. Biodiesel gallons sold									
a. B2 gallons	8a.		2%		8a.		2%		
b. B5 gallons	8b.		5%		8b.		5%		
c. B10 gallons	8c.		10%		8c.		10%		
d. B20 gallons	8d.		20%		8d.		20%		
e. Other biodiesel gallons	8e.		%		8e.		%		
9. Total pure biofuel sold. Add lines 5 and 8a through 8e	9.				9.				
10. **Biofuel distribution percentage -** Divide line 9 by line 7, enter percentage to 4 decimals, i.e. 12.05%	10.	%			10.	%			
11. **Biofuel threshold percentage –** Based on annualized sales at all retail locations	11.	%			11.	%			
Fiscal year filers see instructions to annualize line 7		If line 7 for all sites in 2014 is 200,000 gallons or less, enter 13% If line 7 for all sites in 2014 exceeds 200,000 gallons, enter 15%				If line 7 for all sites in 2015 is 200,000 gallons or less, enter 14% If line 7 for all sites in 2015 exceeds 200,000 gallons, enter 17%			
12. **Biofuel threshold percentage disparity -** Subtract line 10 from line 11, enter to 4 decimals. If zero or less, enter zero	12.	%	If 4.01% or more, you are not eligible for this credit		12.	%	If 4.01% or more, you are not eligible for this credit		

41-151a (07/22/14)

PART II – Determination of Credit

For Site-by-site method, provide name and address of Iowa Retail Motor Fuel Site

Name

Address

City and ZIP

Credit calculation for both Company-wide and Site-by-site methods	**2014 Gallons Beginning of tax year through 12-31-14 A**	**2015 Gallons 01-01-15 through end of tax year B**
1. Total pure ethanol sold. Enter line 5 of Part I, Column C/F	1.	1.
2. Eligible tax credit rate per gallon	2. If column A, line 12 of Part I=0.00%, enter $0.08 (eight cents). If column A, line 12 of Part I=0.01 to 2.00%, enter $0.06 (six cents). If column A, line 12 of Part I=2.01 to 4.00%, enter $0.04 (four cents)	2. If column D, line 12 of Part I=0.00%, enter $0.08 (eight cents). If column D, line 12 of Part I=0.01 to 2.00%, enter $0.06 (six cents). If column D, line 12 of Part I=2.01 to 4.00%, enter $0.04 (four cents)
3. Credit for ethanol sold. Multiply line 1 by line 2	3.	3.
4. Add lines 3A and 3B	4.	

PART III – Final Credit Calculation (complete only once for Site-by-site method)

1. **Ethanol Promotion Tax Credit**:
   Company-wide method - Line 4 of Part II
   Site-by-site method - Add all line 4's from all Part II's ..... 1.
2. Pass-through Ethanol Promotion Tax Credit from partnership, LLC, S corporation, estate, or trust.
   Enter on Part II of the IA 148 Tax Credits Schedule and provide pass-through information on Part IV ..... 2.

IA 148 Tax Credits Schedule must be completed.

41-151b (07/05/14)

2014 IA 137 Ethanol Promotion Tax Credit Instructions

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.

The retail dealer can choose to compute the biofuel distribution percentage, biofuel threshold percentage disparity, and tax credit on a Company-wide or Site-by-site basis. The Company-wide or Site-by-site method chosen with the first return that begins on or after January 1, 2011 is binding on the retail dealer for subsequent tax years unless the retail dealer petitions the Department for a change in the method.

If the retail dealer chooses the Company-wide method, then Part I and Part II of the form will include sales at all retail locations in Iowa, and only one Part I and one Part II will be completed. If the retail dealer chooses the Site-by-site method, then Part I and Part II of the form must be completed for each retail motor fuel site in Iowa eligible for the credit. Only one Part III must be completed under either method. If the Site-by-site method is chosen, the retail sales at all sites in Iowa must be included in determining the biofuel threshold percentage on line 11 of Part I.

EXAMPLE: A retail dealer files on a calendar year basis, and chooses the Site-by-site method to compute the credit. The retail dealer has two sites in Iowa, and each site sells 125,000 gallons of gasoline during 2014. The retail dealer must enter 15% as the biofuel threshold percentage on line 11 of each Part I since the total gallons sold during 2014 at all retail sites in Iowa exceeds 200,000 gallons.

Provide the name and SSN or FEIN of the taxpayer claiming the credit. Report the ending date of the tax year for which the credit is claimed. If the Ethanol Promotion Tax Credit is being passed through to the taxpayer by a S Corporation, partnership, LLC, estate, or trust, also provide that entity name and FEIN.

Part I - Determination of Biofuel Distribution Percentage

Calendar year filers:

If the taxpayer files a tax return on a calendar year basis, then only 2014 gallons need to be reported.

Fiscal year filers:

If a taxpayer files a tax return for a fiscal year that extends into 2015, the calculation must be performed separately for all gallons sold during 2014 and for all gallons sold from January 1, 2015, through the end of the taxpayer's fiscal year.

Line 5: Total ethanol sold - Total ethanol is the total number of pure ethanol gallons sold. This is computed on lines 1-4 by multiplying the ethanol blended gallons sold (column A/D) by the appropriate ethanol content percentage (column B/E). For example, 10,000 gallons of ethanol blended gasoline formulated with 10% by volume of ethanol results in 1,000 gallons of pure ethanol.

The ethanol percentage used for E85 is 79%, which is an average of the amount of ethanol contained in E85 during warm and cold weather. If a blend other than E10, E15, or E85 is sold, designate the ethanol gallons sold in line 4, column A/D, the ethanol content percentage in line 4, column B/E, and compute the pure ethanol in column C/F. If more than one additional blend is sold, provide that information on a separate page and include those gallons in the total gasoline gallons sold on line 7, column A/D, and the total pure ethanol gallons sold on line 5, column C/F.

Line 7: Total gasoline gallons sold - Total gasoline gallons computed in line 7, column A/D, is the total number of gallons of gasoline sold. This does not include any biodiesel or diesel gallons sold.

Line 8: Biodiesel gallons sold – Pure biodiesel sold is computed on lines 8a-8e by multiplying the biodiesel blended fuel gallons sold (column A/D) by the appropriate biodiesel content percentage (column B/E). For example, 10,000 gallons of biodiesel blended fuel formulated with 5% by volume of biodiesel results in 500 gallons of pure biodiesel.

If sales of biodiesel blended fuel are made for a blend other than those listed, designate the biodiesel gallons sold in line 8e, column A/D, and the biodiesel content percentage in line 8e, column B/E. If more than one additional blend is sold, provide that information on a separate page and include those gallons in the total pure biodiesel sold on line 8, column C/F.

Line 10: Biofuel distribution percentage - Divide line 9, column C by line 7, column A for calendar year 2014 sales. Divide line 9, column F by line 7, column D for calendar year 2015 sales. Record the result rounding to four decimal places (1/100th of 1%), for example, 12.05%.

Line 11: Biofuel threshold percentage - The tax credit rate applied under the Ethanol Promotion Tax Credit depends on whether the taxpayer attains the biofuel threshold percentage, which is dependent on the number of total gasoline gallons sold at all retail motor fuel sites operated by the taxpayer during the calendar year even if the Site-by-site method is chosen. Taxpayers with total gasoline sales exceeding 200,000 gallons in a year face a higher biofuel percentage threshold than taxpayers with total gasoline sales of 200,000 gallons or less.

- The biofuel threshold percentage is 13% for taxpayers who sell 200,000 gallons or less during the 2014 calendar year.
- The biofuel threshold percentage is 14% for taxpayers who sell 200,000 gallons or less during the 2015 calendar year.
- The biofuel threshold percentage is 15% for taxpayers who sell more than 200,000 gallons during the 2014 calendar year.
- The biofuel threshold percentage is 17% for taxpayers who sell more than 200,000 gallons during the 2015 calendar year.

For fiscal year filers, it is necessary to determine the applicable biofuel threshold percentage by annualizing sales for each calendar year in which the fiscal year falls.

EXAMPLE: A taxpayer with a fiscal year beginning May 1, 2014, and ending April 30, 2015, with sales of 100,000 gallons at all retail locations between May 1, 2014, and December 31, 2014, would have annualized 2014 sales of 150,000 gallons that would result in a 2014 biofuel threshold percentage of 13% (100,000 gallons / 8 months * 12 months = 150,000 annualized gallons). If the same taxpayer had sales of 70,000 gallons between January 1, 2015, and April 30, 2015, the 2015 annualized sales would be 210,000 gallons and the 2015 biofuel threshold percentage would be 17% (70,000 gallons / 4 months * 12 months = 210,000 annualized gallons).

Line 12: Biofuel threshold percentage disparity - To determine the applicable Ethanol Promotion Tax Credit rate, the taxpayer subtracts the calculated biofuel distribution percentage on line 10, column A/D from the proper biofuel threshold percentage on line 11, column A/D. The taxpayer calculates a separate biofuel threshold percentage disparity for each calendar year for which sales are reported. If line 10 exceeds line 11, enter zero. If line 11 exceeds line 10 by more than 4.01% for the calendar year, the taxpayer is not eligible to claim the credit on any ethanol sales for that calendar year under the Company-wide method, or for that retail site under the Site-by-site method.

Part II – Determination of Credit

Site-by-site:

Provide the name and address of the retail motor fuel site including street, city, and Zip Code.

The Ethanol Promotion Tax Credit for each retail motor fuel site is calculated by multiplying the retail dealer's total ethanol sold at that site by the tax credit rate, which is dependent upon the retail site's biofuel threshold percentage disparity calculated under Part I. On line 1, report ethanol sales for the retail motor fuel site calculated on line 5, column D/F of Part I. For fiscal year filers, split sales between calendar years.

Enter the applicable credit rate for the retail site in line 2 as noted under line 2.

Compute the credit for the retail motor fuel site on line 3 by multiplying the tax credit rate entered on line 2 by total ethanol sold in line 1 for each calendar year in which ethanol sales are reported.

Company-wide:

The credit is calculated by multiplying the taxpayer's total ethanol sold by the tax credit rate, which is dependent upon the taxpayer's biofuel threshold percentage disparity calculated under Part I on a Company-wide basis. On line 1 report ethanol sales for the company calculated on line 5, column D/F of Part I. For fiscal year filers, split sales between calendar years.

Enter the applicable credit rate on line 2, as noted under line 2.

Compute the credit for the company on line 3 by multiplying the tax credit rate entered on line 2 by total ethanol sold in line 1 for each calendar year in which ethanol sales are reported.

Part III - Final Credit Calculation

Site-by-site:

Complete Part III of the IA 137 only once. Add the credit calculated for all retail motor fuel sites on line 4 of all Part II's and place on Part III line 1 of the IA 137. Individuals and C corporations, enter in Part II of the IA 148 Tax Credits Schedule using tax credit code 64.

Company-wide:

Place the credit calculated on line 4 of Part II on Part III line 1 of the IA 137. Individuals and C corporations, enter in Part II of the IA 148 Tax Credits Schedule using tax credit code 64.

Pass-through credits:

If the taxpayer has received any pass-through Ethanol Promotion Tax Credit from a partnership, LLC, S corporation, estate, or trust, indicate that amount on one Part III line 2 of the IA 137. Also enter the amount on Part II of the IA 148 Tax Credits Schedule, using tax credit code 64, and provide the pass-through name and FEIN in Part IV of the IA 148 Tax Credits Schedule. File a separate IA 137 for each pass-through Ethanol Promotion Tax Credit received. List the claims separately on Part II of the IA 148 Tax Credits Schedule, providing each pass-through name and FEIN in Part IV.

The Ethanol Promotion Tax Credit can be claimed even if the taxpayer also claims the E85 Gasoline Promotion Tax Credit or the E15 Plus Gasoline Promotion Tax Credit for the same ethanol gallons sold.

Any credit in excess of tax liability can be refunded or credited to tax liability for the following year.

Iowa E15 Plus Gasoline Promotion Tax Credit

Name(s)	SSN or FEIN
Pass-Through Entity Name (if applicable)	Pass-Through FEIN
Tax Period Ending Date	

1.	Number of E15 Plus gasoline gallons sold in Iowa during the 2014 tax year between:		
	1a. January 1, 2014 and May 31, 2014	1a.	
	1b. September 16, 2014 and December 31, 2014	1b.	
	1c. January 1, 2015 and May 31, 2015	1c.	
	1d. September 16, 2015 and November 30, 2015	1d.	
2.	Sum lines 1a through 1d	2.	
3.	Tax credit rate per gallon is $0.03 (three cents)	3.	x $0.03
4.	Multiply line 2 by line 3	4.	
5.	Number of E15 Plus gasoline gallons sold in Iowa during the 2014 tax year between:		
	5a. June 1, 2014 and September 15, 2014	5a.	
	5b. June 1, 2015 and September 15, 2015	5b.	
6.	Sum lines 5a and 5b	6.	
7.	Tax credit rate per gallon is $0.10 (ten cents)	7.	x $0.10
8.	Multiply line 6 by line 7	8.	
9.	Add line 4 and 8. Enter on Part II of IA 148 Tax Credits Schedule	9.	
10.	Pass-through E15 Plus Gasoline Promotion Tax Credit from LLC, partnership, S corporation, estate, or trust. Enter on Part II of the IA 148 Tax Credits Schedule and complete Part IV	10.	

IA 148 Tax Credits Schedule must be completed.

E15 Plus Gasoline Promotion Tax Credit Instructions

An E15 Plus 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 E15 Plus gasoline, which is ethanol blended gasoline formulated with a minimum percentage between 15% and 69% by volume of ethanol. A taxpayer may claim the E15 Plus Gasoline Promotion Tax Credit even if the taxpayer claims the Ethanol Promotion Tax Credit for the same ethanol gallons.

For tax years beginning on or after January 1, 2014, the credit equals three cents multiplied by the total number of gallons of E15 Plus gasoline sold between January 1 and May 31 and E15 Plus gasoline sold between September 16 and December 31. The credit equals ten cents for E15 Plus gasoline sold between June 1 and September 15.

Lines 1c, 1d, and 5b only apply to fiscal-year filers.

Individuals and C corporations must claim the tax credit on the IA 148 Tax Credits Schedule in Part II, using tax credit code 65.

If the taxpayer is a partnership, LLC, S corporation, estate, or trust, this form must be completed and included with the Iowa tax return. The credit must be allocated to the individual members in the ratio of each member's share of the earnings of the entity to the entity's total earnings. Show on Schedule K-1, or on an attachment to Schedule K-1, the credit for each member and instruct the members to report the apportioned credit on line 10 of form IA 138 and include it with their tax returns.

If the taxpayer has received any pass-through E15 Plus Gasoline Promotion Tax Credit from a partnership, LLC, S corporation, estate, or trust, indicate that amount on line 10. Also enter the amount on Part II of the IA 148 Tax Credits Schedule, using tax credit code 65, and provide the pass-through name and FEIN in Part IV of the IA 148 Tax Credits Schedule.

File a separate IA 138 for each pass-through E15 Plus Gasoline Promotion Tax Credit received. Also list the claims separately on Part II of the IA 148 Tax Credits Schedule, providing each pass-through name and FEIN in Part IV.

Any credit in excess of tax liability can be refunded or credited to tax liability for the following year.

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2014 IA 148 Tax Credits Schedule

Name(s)	SSN or FEIN

Part I—Nonrefundable Tax Credits

	A Tax Credit Code	B Certificate Number (if applicable)	C Amount Carried Forward from Prior Year	D Current Year Amount (earned or received from pass-through entity)	E Total Available (C+D=E)	F Current Year Amount Applied (may not exceed total tax liability)	G Expired 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 (column F sum) Enter on line 50 of IA 1040, line 10 of IA 1040C, or line 2 of schedule C1 of IA 1120

Part II—Refundable Tax Credits

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

Part II Total (column K sum) Enter on line 61 of IA 1040, line 13 of IA 1040C, or line 3 of schedule C1 of IA 1120

Part III—Total Credits

Sum Part I and Part II Totals Enter on line 16 of the IA 1120F, line 30 of IA 1041, or the miscellaneous line of the Iowa Insurance Premium Tax Return

Part IV—Pass-Through Entity Information from Schedule K-1

L Line Number from Part I or Part II	M Pass-Through Entity Name	N Pass-Through Entity FEIN	O Taxpayer's Share of Credit from Pass-Through Entity

Iowa Biodiesel Blended Fuel Tax Credit

Name(s)	SSN or FEIN
Pass-Through Entity Name (if applicable)	Pass-Through FEIN
Tax Period Ending Date	

1.	Total number of biodiesel fuel gallons containing a minimum of 5% pure biodiesel sold in Iowa during the tax year	1.
2.	Tax credit rate per gallon is $0.045 (four and one-half cents)	2. x $0.045
3.	Multiply line 1 by line 2. Enter on Part II of the IA 148 Tax Credits Schedule	3.
4.	Pass-through through Biodiesel Blended Fuel Tax Credit from partnership, LLC, S corporation, estate, or trust. Enter on Part II of the IA 148 Tax Credits Schedule and complete Part IV	4.

Instructions

A Biodiesel Blended Fuel Tax Credit is available to retail dealers of gasoline who operate motor fuel pumps at a retail motor fuel site in Iowa. Tank wagons are considered retail motor fuel sites. To qualify for the tax credit, retail dealers must sell biodiesel blended fuel with a minimum percentage of 5% by volume of biodiesel. The credit equals four and one half cents multiplied by the total number of gallons of biodiesel blended fuel sold during the tax year with a minimum of 5% biodiesel. Individuals and C corporations must claim the tax credit on the IA 148 Tax Credits Schedule in Part II, using tax credit code 52.

If the taxpayer is a partnership, LLC, S corporation, estate, or trust, this form must be completed and included with the Iowa tax return. The credit must be allocated to the individual members in the ratio of each member's share of the earnings of the entity to the entity's total earnings. Show on Schedule K-1, or on an attachment to Schedule K-1, the credit for each member and instruct the members to report the apportioned credit on line 4 of form IA 8864 and include it with their tax returns.

If the taxpayer has received any pass-through Biodiesel Blended Fuel Tax Credit from a partnership, LLC, S corporation, estate, or trust, indicate that amount on line 4. Also enter the amount on Part II of the IA 148 Tax Credits Schedule, using tax credit code 52, and provide the pass-through name and FEIN in Part IV of the IA 148 Tax Credits Schedule.

File a separate IA 8864 for each pass-through Biodiesel Blended Fuel Tax Credit received. Also list the claims separately on Part II of the IA 148 Tax Credits Schedule, providing each pass-through name and FEIN in Part IV.

Any credit in excess of tax liability can be refunded or credited to tax liability for the following year.

IA 148 Tax Credits Schedule must be completed.