



State of Oklahoma

Incentive Evaluation Commission

Ethanol Fuel Retailer Tax Credit Evaluation

November 13, 2017

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Executive Summary



Overview

The Ethanol Fuel Retailer Tax Credit was created to help increase the sale of ethanol blended gasoline. Established in 2006, it is a \$0.016 credit for each gallon of ethanol contained in gasoline sold by a retailer.¹ In order to receive the credit, the retailer must reduce the price of the ethanol sold by the amount of the credit, providing the cost savings to the purchaser, thereby making ethanol more financially attractive to consumers.

While there is some evidence that the credit had some initial effect on increasing the use of ethanol, there is little evidence that the incentive continues to ‘grow the base’ of those using ethanol blended fuels. Even if this is the case, Oklahoma is not a major corn producing state (which is used to produce ethanol), nor does it have ethanol production facilities. Given the debatable evidence regarding ethanol’s environmental and economic impact,² and the state’s significant oil and gas industry, there is little reason to provide an incentive for the use of ethanol blended rather than regular gasoline.

In fact, given the incentive’s construction (where the credit must be passed along to the consumer), it is an open question as to whether this credit qualifies as an incentive under the definition in HB2182, which created the incentive review process. That bill notes that an incentive “means a tax credit, tax exemption, tax deduction, tax expenditure, rebate, grant, or loan that is **intended to encourage businesses to locate, expand, invest, or remain in Oklahoma, or to hire or retain employees in Oklahoma**’ (*emphasis added*). This incentive appears to be targeted at consumers, not businesses, and under any measure of encouraging businesses to expand/invest/remain in the State or hire or retain employees, the evidence around this incentive is lacking.

Recommendation: Based on its analysis of available data, the project team recommends repealing the Ethanol Fuel Retailer Tax Credit.

Key Findings

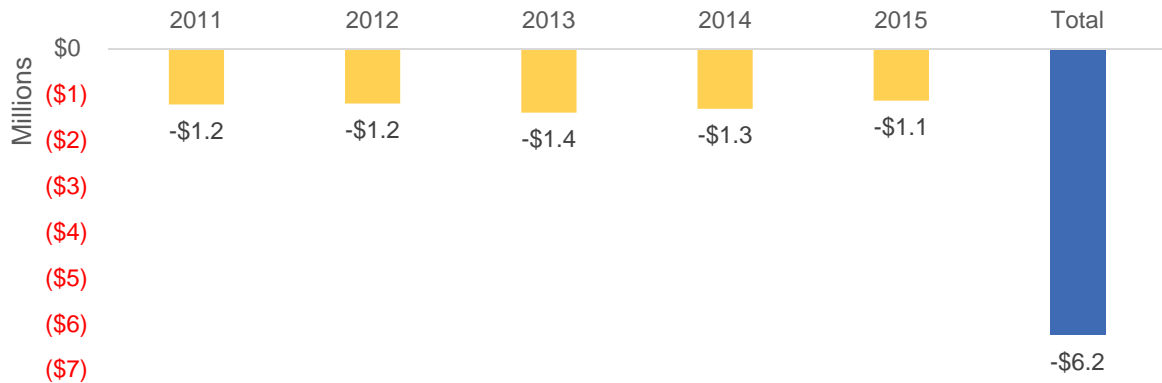
- **Consumption of ethanol in Oklahoma has increased significantly, while consumption of gasoline has flattened.** Between the incentive’s introduction in 2006 and 2015, consumption of ethanol blended gasoline increased by a CAGR of 16.4 percent, while consumption of regular gasoline decreased by a CAGR of -0.3 percent.
- **Previously lagging the nation, per capita ethanol consumption in Oklahoma now mirrors the U.S., but its per capita gasoline consumption continues to exceed the national average.** Per capita consumption of fuel ethanol has increased significantly since the program’s inception, but gasoline consumption per capita has been higher than the U.S. average for at least the last decade.
- **The return on investment (ROI) for this program is negative.** Based on the economic and fiscal impact analysis, it appears the annual incentives offered under this program exceed the tax revenue generated by additional household spending by Oklahoma residents. The net impact to the State is estimated to be -\$6.2 million between 2011 and 2015.

¹ Ethanol means a blend of gasoline and ethyl alcohol consisting of not more than fifteen percent ethyl alcohol by volume.

² The effect that increased ethanol use has on net CO2 emissions depends on how ethanol is made and whether or not indirect impacts on land are included in the calculations. Additionally, some believe the resources used to grow biofuel crops would be better used growing food crops. See, for example, the U.S. Energy Information Administration discussion at https://www.eia.gov/energyexplained/index.cfm?page=biofuel_ethanol_environment.



Figure 1: Net Fiscal Impact³

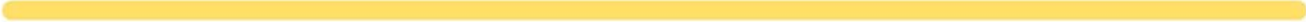


- **Oklahoma’s program is not as robust as other states’ incentives.** Oklahoma’s program inherently incentivizes selling gasoline with higher blends of ethanol, but State law limits blending to 15 percent ethanol. Additionally, Oklahoma’s program is not based upon meeting a threshold of ethanol as a percentage of total fuel sales, a measure that further incentivizes ethanol sales. Finally, Oklahoma is the only state to require that the benefit be passed to the consumer.
- **The program does not provide specific financial protections – but the State is unlikely to be at risk of significant increases.** Currently there are no controls or caps built into the program to limit the fiscal impact on the State. However, it appears unlikely that the credits claimed will increase significantly. In fact, given that the credit is passed along directly to the consumer, retailers do not have an added incentive to increase ethanol sales at their stores in order to receive refunds that exceed their investments.
- **Reporting and administrative issues exist.** Applications must be submitted on a location-by-location basis, as opposed to a retailer-by-retailer basis. Additionally, there is no requirement regarding the frequency of submissions. As a result, large retailers regularly submit hundreds of applications in a given month (many for less than \$100). Finally, there is no specific reporting requirement associated with this credit. As a result, the only information available for determining its use (or potential financial impact going forward) is from submitted applications.

Changes to Improve Future Evaluations (if the Program is Retained)

- **Recommendation 1: Reconfigure the tax credit application process.** Currently, a retailer must submit a refund application for each location, increasing the administrative burden for OTC staff as well as companies with multiple locations. Allowing each company to submit a single application across all locations, along with the required supporting documentation, should result in reduced administrative burden for both the State and retailers.

³ Net fiscal impact is defined as the total tax revenue generated minus the annual credits claimed.



Key Findings and Recommendations



Overall Recommendation: Based on its analysis of available data, the project team recommends repealing the Ethanol Fuel Retailer Tax Credit.

Key Findings

The following analyzes the incentive based on the evaluation criteria:

- **Consumption of ethanol in Oklahoma has increased significantly while consumption of gasoline has flattened.** Between the incentive's introduction in 2006 and 2015, consumption of ethanol increased by a CAGR of 16.4 percent, while consumption of motor gasoline decreased by a CAGR of -0.3 percent. Of course, many factors may have contributed to the increase in ethanol sales and flattening of gasoline consumption. For example, the price of gasoline has varied widely over the past ten years – a factor that may have influenced fuel type used as well as the amount of miles drivers were logging. Additionally, increases in fuel efficiency require fewer gallons of fuel to drive the same distance.
- **Per capita ethanol consumption in Oklahoma mirrors the U.S., while its per capita gasoline consumption exceeds the national average.** In 2005 and 2006, prior to the establishment of the ethanol retailer credit, per capita consumption of fuel ethanol lagged the U.S. average. However, in 2008, when the program began processing credits, the Oklahoma average increased significantly (43.8 gallons), exceeding the U.S. average (31.9). Since then, with the flattening out of Oklahoma's consumption trends, the state has generally been in alignment with U.S. totals – and in 2014 and 2015, exceeded U.S. per capita consumption. Despite the increase in ethanol consumption in the State, Oklahoma's gasoline consumption per capita has been higher than the U.S. average for at least the last decade.
- **The value of the incentive must be passed along to the consumer and appears more intended to increase ethanol consumption than grow an industry or create jobs in the State.** It is an open question as to whether this credit qualifies as an incentive under the definition in HB2182, which created the incentive review process. That bill notes that an incentive “means a tax credit, tax exemption, tax deduction, tax expenditure, rebate, grant, or loan that is **intended to encourage businesses to locate, expand, invest, or remain in Oklahoma, or to hire or retain employees in Oklahoma**” (*emphasis added*). This incentive appears to be targeted at consumers, not businesses, and under any measure of encouraging businesses to expand/invest/remain in the State or hire or retain employees, the evidence around this incentive doing so is lacking.

Other Findings

- **The return on investment (ROI) for this program is negative.** Based on the economic and fiscal impact analysis, it appears the annual incentives offered under this program exceed the tax revenue generated by additional household spending by Oklahoma residents. The net impact to the State is estimated to be -\$6.2 million between 2011 and 2015.
- **The program does not provide adequate protections – but the State is unlikely at risk of significant increases.** One of the statutory requirements is that each evaluation should determine “whether adequate protections are in place to ensure the fiscal impact of the incentive does not increase substantially beyond the State's expectations in future years.”



Currently there are no controls or caps built into the program to limit the fiscal impact of the incentive on the State. However, it appears unlikely that the credits claimed will increase significantly. In fact, given that the credit is passed along directly to the consumer, retailers do not currently have an added incentive to increase ethanol sales at their stores in order to receive refunds that exceed their investments.

- **Oklahoma’s program is structured differently than other states’ ethanol incentives.** Oklahoma’s program inherently incentivizes selling gasoline with higher blends of ethanol, but State law limits blending to 15 percent ethanol. Additionally, Oklahoma’s program is not based upon meeting a threshold of ethanol as a percentage of total fuel sales, a measure that further incentivizes ethanol sales. Finally, Oklahoma is the only state to require the benefit be passed to the consumer.
- **There are significant reporting and administrative issues that should be addressed.** Applications must be submitted on a location-by-location basis, as opposed to a retailer-by-retailer basis. Additionally, there is no requirement regarding the frequency of submissions. As a result, large retailers regularly submit hundreds of applications in a given month (many for less than \$100). Finally, there is no specific reporting requirement associated with this credit. As a result, the only information available for determining its use (or potential financial impact going forward) is from submitted applications.

Changes to Improve Future Evaluations (if the Program is Retained)

The project team recommends repealing the Ethanol Fuel Retailer Tax Credit. Should the program be retained, the project team provides the following recommendations to improve future evaluations.

- **Recommendation 1: Reconfigure the tax credit application process.** Currently, a retailer must submit a refund application for each location, increasing the administrative burden for OTC staff as well as companies with multiple locations. Allowing each company to submit a single application across all locations, along with the required supporting documentation, would presumably result in reduced administrative burden for both the State and retailers.



Introduction



Overview

In 2015, HB2182 established the Oklahoma Incentive Evaluation Commission (the Commission). It requires the Commission to conduct evaluations of all qualified state incentives over a four-year timeframe. The law also provides that criteria specific to each incentive be used for the evaluation. The first set of 11 evaluations were conducted in 2016.

The Ethanol Fuel Retailer Tax Credit is one of 12 incentives scheduled for review by the Commission in 2017. Based on this evaluation and their collective judgement, the Commission will make recommendations to the Governor and the State Legislature related to this incentive.

Industry and Incentive Background

The Ethanol Fuel Retailer Tax Credit was created to help increase ethanol sales for Oklahoma ethanol retailers. Established in 2006, it is a \$0.016 credit for each gallon of ethanol contained in gasoline sold by a retailer.⁴ In order to receive the credit, the retailer must reduce the price of the ethanol sold by the amount of the credit, providing the cost savings to the purchaser, thereby making ethanol more financially attractive to consumers.

Oklahoma does not produce fuel ethanol or biomass inputs (feedstock) for the production of fuel ethanol. Because the state is not a producer of ethanol, the credit is not associated with the creation of jobs or support of a significant component of the state agricultural industry. As a result, it does not align with most incentives that are under review by the Incentive Evaluation Commission. HB2182 noted that incentives for review were defined as “a tax credit, tax exemption, tax deduction, tax expenditure, rebate, grant, or loan that is intended to encourage businesses to locate, expand, invest, or remain in Oklahoma, or to hire or retain employees in Oklahoma.” This incentive appears to be targeted at consumers, not businesses. There is no real ethanol business in Oklahoma (either in terms of providing raw materials or its production), and under any measure of encouraging businesses to expand/invest/remain in the State or hire or retain employees, the evidence around this incentive is lacking.

Criteria for Evaluation

A key factor in evaluating the effectiveness of incentive programs is to determine whether they are meeting the stated goals as established in state statute or legislation. In the case of this credit, the specific goals were not included in the legislation that established it. However, to assist in a determination of program effectiveness, the Incentive Evaluation Commission has adopted the following criteria:

- Change in production and consumption of blended versus non-blended fuel;
- Change in production and consumption of blended versus non-blended fuel relative to other states.

The ethanol industry within Oklahoma is relatively small. While many incentive programs are focused on increasing jobs and investment in an existing Oklahoma industry (or, in cases where it makes sense, creating a new one), that opportunity is not present in Oklahoma.

As a result, the criteria focus on specific objectives related to this program (increased production and consumption of blended fuel). Ultimately, incentive programs have to weigh both the benefits (outcomes related to achieving policy goals and objectives) and the costs, and that is also a criterion for evaluation (State return on investment). These will be discussed throughout the balance of the evaluation.

⁴ Ethanol means a blend of gasoline and ethyl alcohol consisting of not more than fifteen percent ethyl alcohol by volume.



Industry Background



U.S. Ethanol Background and History

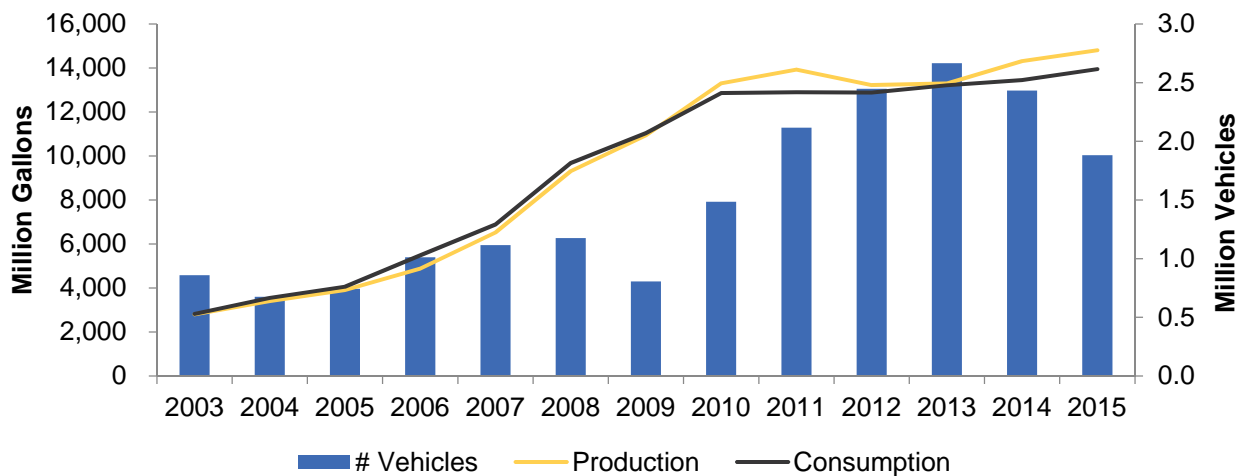
Under the Energy Policy Act of 2005, Congress enacted the Renewable Fuel Standard (RFS) Program, a national policy that requires a certain volume of renewable fuel to replace or reduce the quantity of petroleum-based transportation fuel, heating oil or jet fuel. The Energy Independence and Security Act of 2007 established a goal of 36 billion gallons of renewable fuel produced in the U.S. by 2022.

As part of its requirements, each renewable fuel category in the RFS program (cellulosic biofuel, biomass-based diesel, advanced biofuel and conventional biofuel) must emit lower levels of greenhouse gases (GHGs) than the petroleum fuel it replaces.⁵

The RFS category of conventional biofuel typically refers to ethanol derived from corn starch. The most common blend of ethanol is E10, which consists of 10 percent ethanol and 90 percent gasoline. E15 is also available, which is defined by the Environmental Protection Agency as a blend of between 10.5 and 15.0 percent ethanol with gasoline. E15 is an approved ethanol blend for use in model year 2001 and newer light-duty conventional gas vehicles.⁶ Ethanol is also available as E85 – a blend containing between 51 and 83 percent ethanol depending on season and geography – for use in flexible fuel vehicles.

Since 2003, the number of E85 vehicles in the U.S. has more than doubled, growing by an average of 6.7 percent annually, as shown in [Figure 2](#).

Figure 2: U.S. Fuel Ethanol Production and Consumption and E85 Vehicles, 2003-2015



Source: EIA Fuel Ethanol Overview and Yearly E85 Totals

The use of ethanol to supplement gasoline is widespread. More than 97 percent of gasoline in the U.S. contains some ethanol to oxygenate the fuel and reduce air pollution. E85 fuel can be found at many gas stations (2,905 across the U.S. and 27 in Oklahoma as of April 20, 2017⁷). In 2015, about 14 billion gallons of ethanol were added to the gasoline consumed in the United States.⁸ While the percentage is rising, ethanol still makes up a small percentage of the content of finished gasoline.

⁵ U.S. Department of Energy Alternative Fuels Data Center. Available at <http://www.afdc.energy.gov/laws/RFS>.

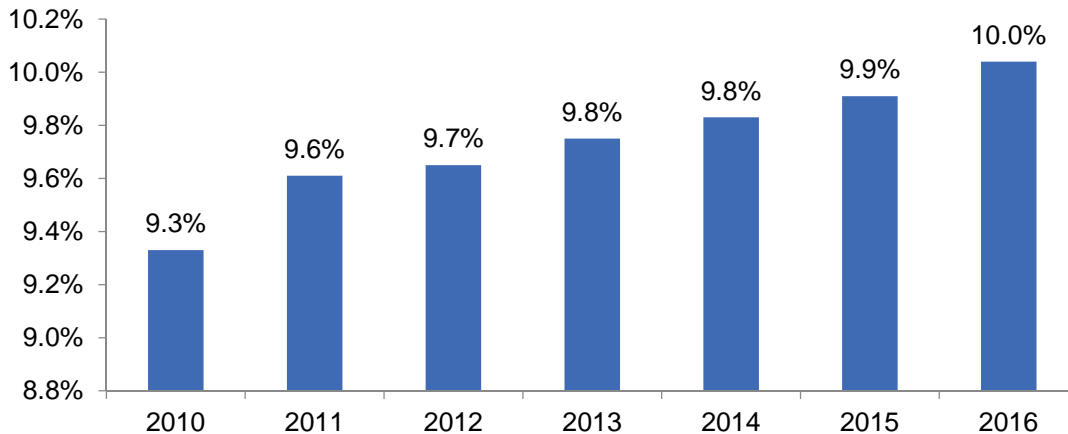
⁶ U.S. Department of Energy Alternative Fuels Data Center. Available at <http://www.afdc.energy.gov/fuels/ethanol.html>.

⁷ Stations selling E85. 2 of those stations offer mid-level blends. Source: http://www.afdc.energy.gov/fuels/ethanol_locations.html.

⁸ U.S. Energy Information Administration. Available at https://www.eia.gov/energyexplained/print.cfm?page=biofuel_ethanol_home.



Figure 3: Annual U.S. Average Ethanol Content of Finished Gasoline, 2010-2016



Source: EIA

U.S. Ethanol Industry Outlook

Through the first six months of 2017, U.S. weekly ethanol production averaged 1.02 million barrels per day (b/d), an increase of 5 percent over the same period in 2016. On a weekly basis, U.S. ethanol production set a record of 1.06 million b/d in the week of January 27, 2017, and it has averaged near or above 1.00 million b/d in nearly every week of 2017. If ethanol production remains relatively high through the second half of the year, as EIA's *Short-Term Energy Outlook* (STEO) expects, 2017 will set a new record for annual fuel ethanol production.⁹ However, as previously noted, Oklahoma is not a producer of ethanol.

Oklahoma Ethanol Industry

While Oklahoma is not a producer of ethanol, it ranks in the middle among states in ethanol consumption. According to the EIA, the state was responsible for the consumption of 4.1 million barrels of fuel ethanol in 2014, equal to one percent of the national total and ranking 28th among all states and 24th on a per capita basis. Unlike gasoline, Oklahoma is not a major provider of the raw materials that go into ethanol or an ethanol producer. The primary raw material for producing ethanol in the U.S. is corn, and Oklahoma is a relatively minor corn producing state. In 2016, according to the U.S. Department of Agriculture, total corn for grain harvested in the U.S. totaled over 15.2 billion bushels. Five states (Iowa, Illinois, Indiana, Minnesota and Nebraska) each produced over 1 billion bushels and collectively combined for over 9.2 billion bushels. By contrast, Oklahoma ranked 27th among the states in corn production, with a total of 47 million bushels – which is three-tenths of one percent of U.S. production.¹⁰ Besides being a minor corn producer, Oklahoma has no ethanol refineries.¹¹ By contrast, Oklahoma has four operating petroleum refineries with a crude oil distillation capacity of 511,000 barrels per day.¹²

⁹ U.S. EIA – U.S. Fuel Ethanol Production Continues to Grow in 2017. July 21, 2017. Available at <https://www.eia.gov/todayinenergy/detail.php?id=32152>.

¹⁰ USDA, National Agriculture Statistics Service, 'Crop Production (August 2016)' p. 5.

¹¹ Renewable Fuels Association 2017 Ethanol Outlook.

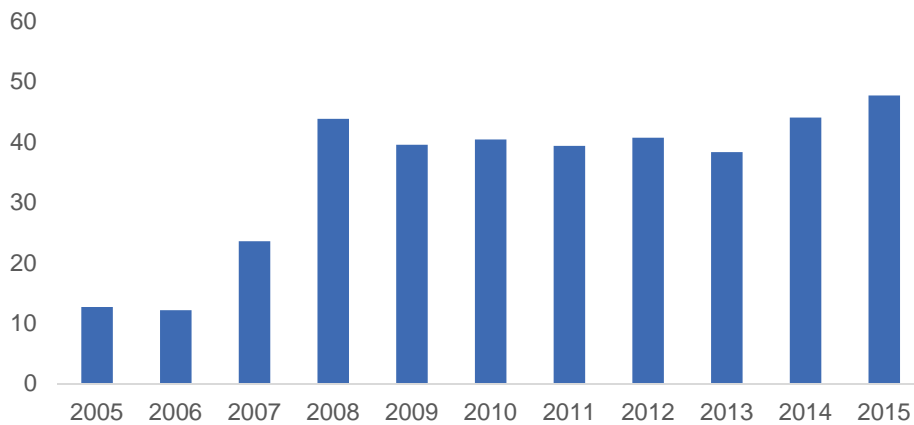
¹² U.S. EIA, accessed electronically at https://www.eia.gov/dnav/pet/pet_pnp_cap1_dcu_SOK_a.htm.



Oklahoma Ethanol and Gasoline Consumption

Since the credit was implemented in 2006, Oklahoma ethanol consumption has increased significantly. As shown in the following figure, in 2006, Oklahomans consumed an average of 12.2 gallons per capita. In 2007, that figure nearly doubled, reaching 23.6 gallons per capita. In 2008 (the year the first credit was claimed), statewide consumption nearly doubled again, averaging 43.8 gallons per capita. Since that time, consumption has remained relatively stable in that range (38-47 gallons annually per capita) – and between when the incentive was introduced in 2006 and 2015, consumption of ethanol increased by a compound annual growth rate (CAGR) of 16.4 percent.

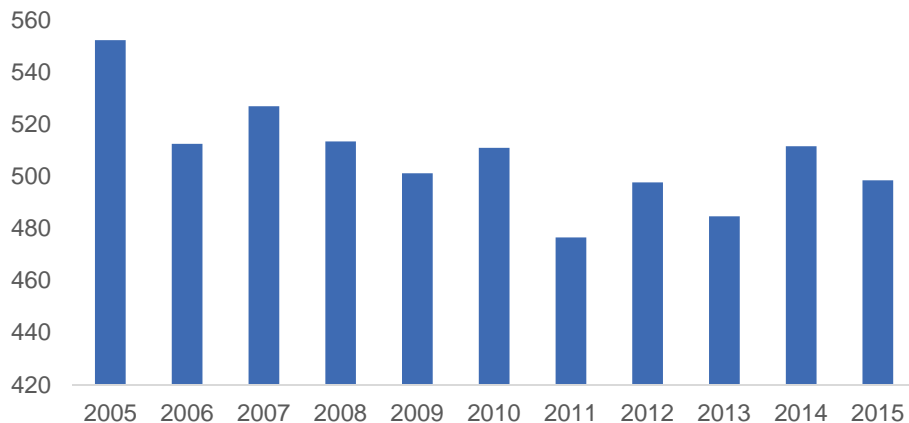
Figure 4: Oklahoma Fuel Ethanol Consumption (gallons per capita), 2005-2015



Source: EIA State Profiles and Energy Estimates, American Community Survey 1-Year Estimates

During the same time frame, consumption of gasoline has stagnated. As shown in the following figure, in 2006, per capita consumption of gasoline was 513 gallons. Since that time, consumption has remained between 477 and 527 gallons per capita – and between when the ethanol retailer incentive was introduced in 2006 and 2015, consumption of motor gasoline decreased by a CAGR of -0.3 percent.

Figure 5: Oklahoma Motor Gasoline Consumption (gallons per capita), 2005-2015



Source: EIA State Profiles and Energy Estimates, American Community Survey 1-Year Estimates

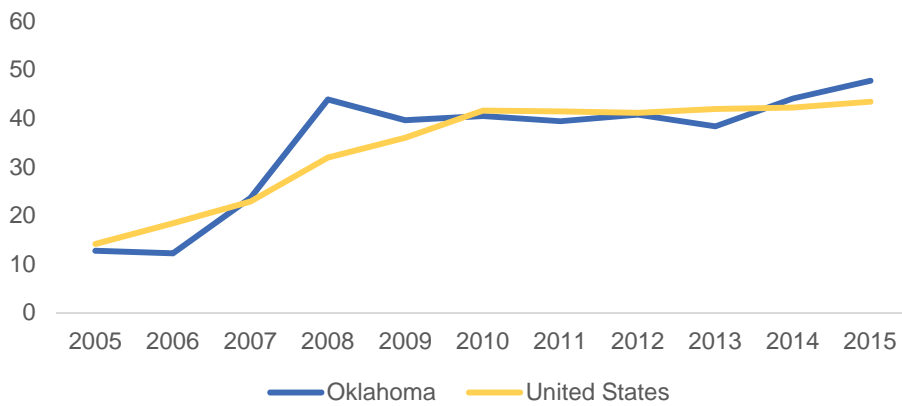


Of course, many factors may have contributed to the increase in ethanol sales and flattening of gasoline consumption. For example, the price of gasoline has varied widely over the past 10 years – a factor that may have influenced fuel type used as well as the amount of miles drivers were logging. Additionally, increases in fuel efficiency require fewer gallons of fuel to drive the same distance.

Oklahoma Ethanol and Gasoline Consumption Relative to Other States

In 2005 and 2006, prior to the establishment of the ethanol retailer credit, per capita consumption of fuel ethanol lagged the United States average. However, in 2008, when the program began processing credits, the Oklahoma average increased significantly (43.8 gallons), exceeding the U.S. average (31.9). Since then, with the flattening out of Oklahoma’s consumption trends, the state has generally been in alignment with U.S. totals – and in 2014 and 2015, exceeded U.S. per capita consumption.

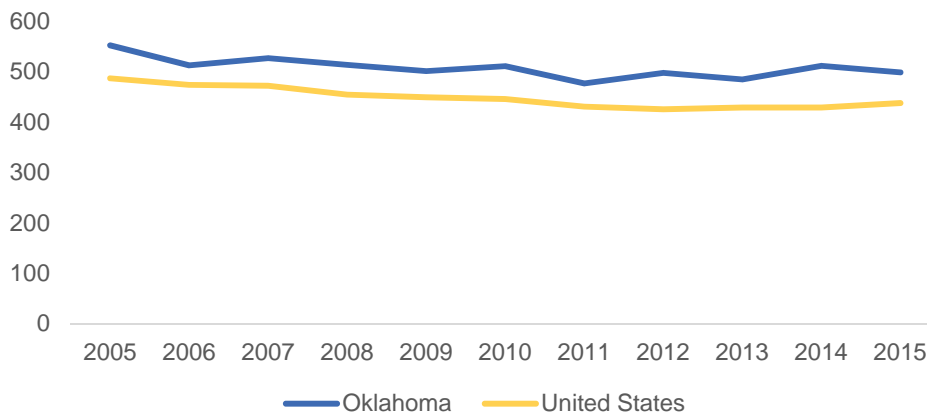
Figure 6: Fuel Ethanol Consumption (gallons per capita), 2005-2015



Source: EIA State Profiles and Energy Estimates, American Community Survey 1-Year Estimates

Despite the increase in ethanol consumption in the state, Oklahoma’s gasoline consumption per capita has been higher than the U.S. average for at least the last decade.

Figure 7: Motor Gasoline Consumption (gallons per capita), 2005-2015



Source: EIA State Profiles and Energy Estimates, American Community Survey 1-Year Estimates



Incentive Usage and Administration



Incentive Characteristics

Oklahoma's Ethanol Fuel Retailer Tax Credit, established in 2006, is a \$0.016 credit for each gallon of ethanol contained in gasoline sold by a retailer.¹³ In order to receive the credit, the dealer must reduce the price of the ethanol sold by the amount of the credit, providing the cost savings to the purchaser, thereby making ethanol more financially attractive to consumers. It is an open question, of course, whether this level of incentive (which, at current gasoline prices translates into a benefit of less than one-tenth of one percent of the purchase price) is effectively incenting consumer behavior.¹⁴

Historic Use of the Credit

Use of the Ethanol Fuel Retailer credit has fluctuated over time; while the number of companies claiming the credit decreased by a CAGR of -4.4 percent between 2008 and 2016, the total credits claimed have increased by a CAGR of 3.0 percent. This implies that the average credit claimed per company is increasing – and this is supported by the data, which shows that the average claim per company increased by a CAGR of 7.8 percent during the time frame.

Table 1: Ethanol Fuel Retailer Tax Credit Claims, 2008-2016

Year	Number of Companies	Amount of Credits Used/Claimed	Average Claim/Company
2008	46	\$927,050	\$20,153
2009	48	\$885,825	\$18,455
2010	45	\$1,128,537	\$25,079
2011	43	\$1,246,588	\$28,990
2012	40	\$1,226,997	\$30,675
2013	41	\$1,424,302	\$34,739
2014	52	\$1,352,461	\$26,009
2015	41	\$1,163,215	\$28,371
2016	32	\$1,176,110	\$36,753

Source: OTC data

The tax expenditures associated with this credit are relatively small, averaging approximately \$1.2 million annually since the first credits were claimed in 2008. Total claims peaked in 2013 at \$1.4 million but have since flattened, with totals nearly unchanged from 2015 to 2016. Between January 1 and September 6, 2017, 47 companies have submitted more than 2,800 claims totaling \$1.1 million.¹⁵

While the number of companies claiming the credit decreased by a CAGR of -4.4 percent between 2008 and 2016, the total credits claimed have increased by a CAGR of 3.0 percent – resulting in an increase in the average aggregate credit per company over time. The following table illustrates the history of the claims since 2008.

¹³ Ethanol means a blend of gasoline and ethyl alcohol consisting of not more than fifteen percent ethyl alcohol by volume.

¹⁴ If the federal government mandates the use of reformulated fuel in an area within the State in nonattainment with the National Ambient Air Quality Standards, the credit does not apply. Currently, there are no areas within Oklahoma in nonattainment areas.

¹⁵ 2017 is not included in the table or chart because it represents a partial year.



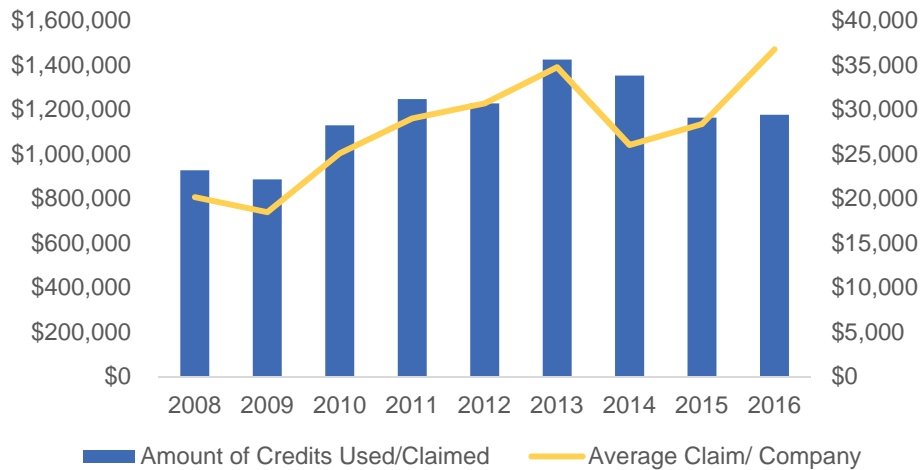
Table 2: Ethanol Fuel Retailer Claims, 2008-2016

Year	Number of Companies	Amount of Credits Used/Claimed	Total Gallons	Average Claim/ Company	Median Claim/ Company	Largest Company Claim	Smallest Company Claim
2008	46	\$927,050	58,368,632	\$20,153	\$884	\$396,466	\$46
2009	48	\$885,825	56,436,869	\$18,455	\$831	\$367,404	\$71
2010	45	\$1,128,537	71,336,708	\$25,079	\$1,979	\$350,083	\$31
2011	43	\$1,246,588	78,322,644	\$28,990	\$1,616	\$427,759	\$46
2012	40	\$1,226,997	92,907,118	\$30,675	\$3,602	\$418,431	\$14
2013	41	\$1,424,302	89,927,939	\$34,739	\$4,395	\$387,834	\$29
2014	52	\$1,352,461	85,982,427	\$26,009	\$2,521	\$499,279	\$1
2015	41	\$1,163,215	71,842,682	\$28,371	\$3,143	\$405,554	\$16
2016	32	\$1,176,110	74,446,254	\$36,753	\$3,401	\$499,946	\$371
Avg	43	\$1,170,121	75,507,919	\$27,692	\$2,486	\$416,973	\$69

Source: OTC data

While trends in the total credits claimed annually have generally aligned with trends in the average claim per company, in 2016, the average claim per company increased by 30 percent while the total claims were flat, increasing by just 1 percent. This is primarily due to a decline in the number of companies submitting claims, which dropped from 41 in 2015 to 32 in 2016.

Figure 8: Total Ethanol Fuel Retailer Credits and Average Claim per Company, 2008-2016



Source: OTC data

Incentive Administration

The program is administered by the Oklahoma Tax Commission (OTC). There are essentially two components to overall program administration:

1. **Eligibility.** The credit is available to retail dealers who sell fuel grade ethanol (a blend of gasoline and not more than 15 percent ethanol by volume) and who provide the same cost savings to consumers.



The incentive is effective unless the federal government mandates the use of reformulated fuel in an area within the state that is in non-attainment with the National Ambient Air Quality Standards; there are currently no such areas in Oklahoma.

2. **Determining the Credit.** The retail dealer claims the credit by filing Form 130-35, Application for Refund of Ethanol Credit for Retail Dealers. The completed form is remitted to the Account Maintenance Division, Credit and Refunds Section of the OTC for review and processing.

As part of the application process, the retail dealer must provide total gallons of ethanol purchased. That amount is multiplied by the blend percentage (E10 is 10 percent, E15 is 15 percent, etc.). That figure is used to calculate total gallons to be refunded, which is then multiplied by \$0.016 in order to generate a total refund.

To verify claims, OTC employees generally spot-check applications, ensuring applicants are motor fuel licensees and checking the math found in the application. In the event that errors or questions arise, staff follow up with claimants to correct applications before refunds are issued. The OTC has 20 days from the receipt of an application to refund the amount of the credit.

It is notable that applications must be submitted on a location-by-location basis, as opposed to a retailer-by-retailer basis. Additionally, there is no requirement regarding the frequency of submissions. As a result, large retailers regularly submit hundreds of applications in a given month (many for less than \$100). The following table displays the average claims submitted per month since 2008. The average monthly claims increased annually between 2008 (132) and 2013 (401), but has decreased each year since.

Table 3: Average Monthly Claims, 2008-2016

Year	Total Claims	Avg. Monthly Claims
2008	1,578	132
2009	2,230	186
2010	3,268	272
2011	4,304	359
2012	4,624	385
2013	4,809	401
2014	4,783	399
2015	4,235	353
2016	3,864	322

Source: OTC data

Reporting Issues

There is no specific reporting requirement associated with this credit. As a result, the only information available for determining its use (or potential financial impact going forward) is from applications submitted by retailers.



Economic and Fiscal Impact



Economic Impact Methodology

Economists use a number of statistics to describe regional economic activity. Four common measures are **Output**, which describes total economic activity and is generally equivalent to a firm’s gross sales; **Value Added**, which equals gross output of an industry or a sector less its intermediate inputs; **Labor Income**, which corresponds to wages and benefits; and **Employment**, which refers to jobs that have been created in the local economy.

In an input-output analysis of new economic activity, it is useful to distinguish three types of effects: **direct, indirect, and induced.**

Direct effects are production changes associated with the immediate effects or final demand changes. The payment made by an out-of-town visitor to a hotel operator or the taxi fare paid for transportation while in town are examples of direct effects.

Indirect effects are production changes in backward-linked industries caused by the changing input needs of directly affected industries – typically, additional purchases to produce additional output. Satisfying the demand for an overnight stay will require the hotel operator to purchase additional cleaning supplies and services. The taxi driver will have to replace the gasoline consumed during the trip from the airport. These downstream purchases affect the economic output of other local merchants.

Induced effects are the changes in regional household spending patterns caused by changes in household income generated from the direct and indirect effects. Both the hotel operator and taxi driver experience increased income from the visitor’s stay, as do the cleaning supplies outlet and the gas station proprietor. Induced effects capture the way in which increased income is spent in the local economy.

A multiplier reflects the interaction between different sectors of the economy. An output multiplier of 1.4, for example, means that for every \$1,000 injected into the economy, all other sectors produce an additional \$400 in output. The larger the multiplier, the greater the impact will be in the regional economy.

Figure 9: The Flow of Economic Impacts



For this analysis, the project team used the IMPLAN online economic impact model with the dataset for the State of Oklahoma (2014 Model).

State of Oklahoma Tax Revenue Estimate Methodology

To provide an “order of magnitude” estimate for state tax revenue attributable to the incentive being evaluated, the project team focused on the ratio of state government tax collections to Oklahoma Gross Domestic Product (GDP).¹⁶ Two datasets were used to derive the ratio: 1) U.S. Department of Commerce Bureau of Economic

¹⁶ Gross State Product (GSP) is the state counterpart of Gross Domestic Product (GDP) for the nation. To assist the reader, the project team has decided to use GDP throughout this section of the report instead of mixing the two terms. This decision was made because more people are familiar with the term GDP.



Analysis GDP estimates by state;¹⁷ and 2) the OTC's *Annual Report of the Oklahoma Tax Commission*.¹⁸ Over the past 10 years, the state tax revenue as a percent of state GDP was 5.5 percent.

Table 4: State of Oklahoma Tax Revenue as a Percent of State GDP

Year	Oklahoma Tax Revenue ¹⁹	Oklahoma GDP	Ratio
2006-07	\$8,685,842,682	\$144,171,000,000	6.0%
2007-08	\$9,008,981,280	\$155,015,000,000	5.8%
2008-09	\$8,783,165,581	\$143,380,000,000	6.1%
2009-10	\$7,774,910,000	\$151,318,000,000	5.1%
2010-11	\$8,367,871,162	\$165,278,000,000	5.1%
2011-12	\$8,998,362,975	\$173,911,000,000	5.2%
2012-13	\$9,175,334,979	\$182,447,000,000	5.0%
2013-14	\$9,550,183,790	\$190,171,000,000	5.0%
2014-15	\$9,778,654,182	\$180,425,000,000	5.4%
2015-16	\$8,963,894,053	\$182,937,000,000	4.9%

Source: U.S. Department of Commerce Bureau of Economic Analysis and Oklahoma Tax Commission

The value added of an industry, also referred to as gross domestic product (GDP)-by-industry, is the contribution of a private industry or government sector to overall GDP. The components of value added consist of compensation of employees, taxes on production and imports less subsidies, and gross operating surplus. Changes in value added components such as employee compensation have a direct impact on taxes such as income and sales tax. Other tax revenues such as alcoholic beverage and cigarette taxes are also positively correlated to changes in income.

Because of the highly correlated relationship between changes in the GDP by industry and most taxes collected by the state, the ratio of government tax collections to Oklahoma GDP forms the evaluation basis of the fiscal implications of different incentive programs offered by the State. The broader the basis of taxation (i.e., income and sales taxes) the stronger the correlation; with certain taxes on specific activity, such as the gross production (severance) tax, there may be some variation in the ratio year-to-year, although these fluctuations tend to smooth out over a period of several years. This ratio approach is somewhat standard practice, and is consistent with what IMPLAN and other economic modeling software programs use to estimate changes in tax revenue.

To estimate State of Oklahoma tax revenue generated in a given year, the project team multiplied the total value added figure produced by the IMPLAN model by the corresponding annual ratio (about 5.0 percent). For example, if the total value added was \$1,000,000, then the estimated State of Oklahoma tax revenue was \$50,000 (\$1,000,000 x 5.0 percent).

Impact of Ethanol Fuel Retailer Incentives

The State of Oklahoma ethanol fuel retailer tax credit is directly passed along to the consumer. As a result, consumers have more disposable income that can be spent elsewhere in Oklahoma or invested in savings accounts. Assuming Oklahoma residents spend these savings elsewhere, this generates additional economic

¹⁷ U.S. Department of Commerce Bureau of Economic Analysis. Available at <http://www.bea.gov/regional/>.

¹⁸ Oklahoma Tax Commission. Available at https://www.ok.gov/tax/Forms_&_Publications/Publications/Annual_Reports/index.html.

¹⁹ Gross collections from state-levied taxes, licenses and fees, exclusive of city/county sales and use taxes and county lodging taxes.



activity that has a positive impact on the state. These total expenditures (also referred to as “economic activity”) are not the same as the tax credit. It is common, but not accurate, in economic impact studies to compare economic activity against the incentives offered. This comparison does not provide any insights into if the public sector is making a net profit or loss on the incentive program.

To evaluate the economic impact of the ethanol fuel retailer tax credit, it was assumed Oklahoma residents spend these savings elsewhere in the economy less an estimated savings rate of 8 percent. The IMPLAN Institutional Sector Households \$40 to \$50K was used to model the economic impact. The model takes in to account “leakages” in the economy as well as retail margining. Therefore, the amount saved by consumers from the tax credit is not equal to the direct economic activity used in the econometric model. The following tables depict the statewide annual impact of how the ethanol fuel retailer tax credit ripples through the economy.

Table 5: Impact of Ethanol Fuel Retailer Incentives

Year		Output	Value Added	Labor Income	Employment	Estimated Oklahoma Tax Revenue
2011	Direct Effect	\$638,046	\$355,648	\$196,507	5	
	Indirect Effect	\$259,619	\$133,715	\$80,108	2	
	Induced Effect	\$212,440	\$116,339	\$65,820	2	
	Total Effect	\$1,110,105	\$605,702	\$342,435	9	\$31,497
2012	Direct Effect	\$650,440	\$362,199	\$200,126	5	
	Indirect Effect	\$262,307	\$136,178	\$81,584	2	
	Induced Effect	\$216,239	\$118,482	\$67,032	2	
	Total Effect	\$1,128,986	\$616,859	\$348,742	9	\$30,843
2013	Direct Effect	\$661,921	\$368,048	\$203,358	5	
	Indirect Effect	\$268,156	\$138,377	\$82,901	2	
	Induced Effect	\$220,362	\$120,395	\$68,115	2	
	Total Effect	\$1,150,439	\$626,820	\$354,374	9	\$31,523
2014	Direct Effect	\$808,229	\$448,976	\$248,073	6	
	Indirect Effect	\$328,463	\$168,805	\$101,130	2	
	Induced Effect	\$269,308	\$146,869	\$83,092	2	
	Total Effect	\$1,406,000	\$764,650	\$432,295	10	\$41,291
2015	Direct Effect	\$698,839	\$390,304	\$215,655	5	
	Indirect Effect	\$284,513	\$146,745	\$87,914	2	
	Induced Effect	\$232,962	\$127,676	\$72,234	2	
	Total Effect	\$1,216,314	\$664,725	\$375,803	9	\$32,572

Source: TXP, Inc. IMPLAN analysis output, September 2017



Table 6: Annual Tax Revenue Generated, 2011-2015

Year	Credit Established During Current Tax Year	Estimated State of OK Tax Revenue	Net Impact
2011	\$1,246,588	\$31,497	(\$1,215,092)
2012	\$1,226,997	\$30,843	(\$1,196,154)
2013	\$1,424,302	\$31,523	(\$1,392,779)
2014	\$1,352,461	\$41,291	(\$1,311,170)
2015	\$1,163,215	\$32,572	(\$1,130,644)
Total	\$6,413,564	\$167,725	(\$6,245,839)

Source: TXP, Inc. IMPLAN analysis output, September 2017

As depicted in the preceding tables, increased household spending based on the ethanol fuel retailer tax credit supports approximately 10 total jobs each year. Multiplying the total value added figure produced by the IMPLAN model by the corresponding annual tax ratio provides an estimate for total annual State tax revenue. Over the past 5 years, the savings passed along to consumers from the ethanol fuel retailer tax credit (through direct, indirect and induced effects) has generated approximately \$167,725 in state tax revenue. Over this same period, the state has provided \$6.4 million in tax credits. Each year, the state's return on investment (ROI) is a loss of approximately \$1.2 million – equal to a net loss of \$6.2 million between 2011 and 2015. In some cost-benefit analyses, the environmental implications of energy policies or programs are monetized. This evaluation, however, focused more narrowly on ROI.



Incentive Benchmarking

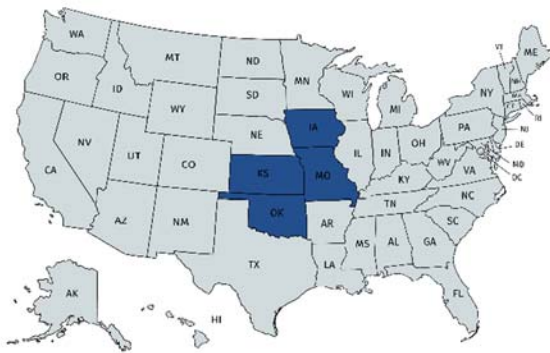


Benchmarking

A detailed description of comparable state programs can be found in **Appendix A**.

For evaluation purposes, benchmarking provides information related to how peer states use and evaluate similar incentives. At the outset, it should be understood that no states are ‘perfect peers’ – there will be multiple differences in economic, demographic and political factors that will have to be considered in any analysis; likewise, it is exceedingly rare that any two state incentive programs will be exactly the same.²⁰ These benchmarking realities must be taken into consideration when making comparisons – and, for the sake of brevity, the report will not continually re-make this point throughout the discussion.

Figure 10: States Offering Ethanol Fuel Retailer Incentives



The process of creating a comparison group for incentives typically begins with bordering states. This is generally the starting point, because proximity often leads states to compete for the same regional businesses or business/industry investments. Second, neighboring states often (but not always) have similar economic, demographic or political structures that lend themselves to comparison.

In the case of ethanol fuel retailer tax credits, there are only three other states offering or proposing comparable incentives (Iowa, Kansas and Missouri – which proposed but ultimately did not enact a program). All three states are in relatively close proximity to Oklahoma, as shown in [Figure 10](#)

10.

Oklahoma’s credit is based on gallons of pure ethanol sold. With the exception of Iowa’s Ethanol Promotion Tax Credit, all other comparable incentives are based upon gallons of blended gasoline sold. Oklahoma’s program inherently incentivizes selling gasoline with higher blends of ethanol, but State law limits blending to 15 percent ethanol. Additionally, as previously discussed, Oklahoma’s program is not based upon meeting a threshold of ethanol as a percentage of total fuel sales, a measure that further incentivizes ethanol sales.

Of the three states offering comparable incentives, Iowa’s is by far the most comprehensive. In its current state, the program offers three separate incentives:

- **Ethanol Promotion Tax Credit:** Credit is based on meeting a threshold (17 or 21 percent in 2017²¹) of renewable fuel as a percentage of total fuel sales; a reduced credit can be earned by retailers within 4 percent of meeting target
- **E85 Gasoline Promotion Tax Credit:** A credit of \$0.16 per gallon of blended fuel sold in calendar years 2012 through 2017
- **E15 Plus Gasoline Promotion Tax Credit:** For every gallon of ethanol-blended gasoline sold, a credit of between \$0.03 and \$0.10 (depending on season) is available

²⁰ The primary instances of exactly alike state incentive programs occur when states choose to ‘piggyback’ onto federal programs.

²¹ 2017 threshold is 21 percent for retailers selling 200,000 or more gallons of fuel or 17 percent for retailers selling fewer than 200,000 gallons.



Similar to Iowa's Ethanol Promotion Tax Credit, Kansas' Renewable Fuel Retailer Tax Credit is based on meeting a threshold of renewable fuel as a percentage of total sales (increasing from 10 percent in 2009 to 25 percent by 2024). The credit is \$0.065 if the percentage is met; a reduced incentive of \$0.045 per gallon is available if the threshold is missed by 2 percent or less. This program is unfunded through June 30, 2018.

Though ultimately not enacted, the State of Missouri proposed an Ethanol-Blended Fuel Tax Credit that, as with Iowa's E15 incentive, would have provided between \$0.03 and \$0.10, depending on season, for every gallon of 15-50 percent ethanol blended gasoline sold.

Among states with or proposing comparable incentives, Kansas' E85 profile is very similar to Oklahoma's. While Oklahoma's total E85 consumption is increasing at a more rapid pace than Kansas, the two states have a comparable number of E85 fueling locations, number of E85 vehicles, and levels of E85 fuel consumption, as shown in [Table 7](#):

Table 7: E85 Profile, States with Comparable Incentives²²

State	Mandate	E85 Stations	E85 Stations Per 100k Residents	2015 E85 Vehicles	2010 E85 Consump	2015 E85 Consump	% Change
Iowa	No	225	7.27	895	3,394	4,241	4.6%
Kansas	No	18	0.62	199	2,693	3,073	2.7%
Missouri	Yes	94	1.55	600	8,809	9,715	2.0%
Oklahoma	No	27	0.70	240	2,975	3,882	5.5%

Source: U.S. Department of Energy Alternative Fuels Data Center

Many states offer infrastructure incentives or sales tax reductions to ethanol retailers as an alternative to or in addition to credits on ethanol sales. Examples include:²³

- In Illinois, sales and use taxes apply to 80 percent of the proceeds from the sale of fuels containing 10 percent ethanol between July 1, 2003 and December 31, 2018. However, if at any time these taxes are imposed at a rate of 1.25 percent, the tax will apply to 100 percent of the proceeds of sales. Additionally, state sales and use taxes do not apply to fuels containing between 70 percent and 90 percent ethanol sold during the same time frame.
- In addition to the incentives described above, the State of Iowa offers biofuel infrastructure grants to qualified E85 or dual E15 and biodiesel retailers. Three-year cost-share grants up to 50 percent of the total cost of the project and 5-year grants up to 70 percent are available to upgrade or install new infrastructure.
- In addition to Kansas' Renewable Fuel Retailer Tax Incentive, the State provides a 10-year state property tax exemption on qualified equipment used for storing and blending petroleum-based fuel with biodiesel, ethanol or other biofuel.
- In North Carolina, the retail sale, use, storage and consumption of alternative fuels is exempt from the state retail sales and use tax.
- The State of North Dakota Department of Commerce administers a Biofuels Infrastructure Partnership grant program that works with retailers and state and local government fleets to install infrastructure for

²² Data only available for E85 – information is intended to be representative of other blends of ethanol-blended gasoline

²³ All examples are found in the U.S. Department of Energy's Alternative Fuels Data Center repository of state laws and incentives.



higher blends of ethanol; available funds are based on pump type and range from 33 percent of the costs of installation up to \$14,985 to 50 percent of the costs of installation up to \$15,000.

- In South Carolina, a taxpayer that purchases, constructs, or installs, and places into service a qualified commercial facility for distributing or dispensing biofuels is eligible for an income tax credit of up to 25 percent of the purchase, construction, and installation costs.

Benchmarking Program Evaluations

Among the states with comparable incentive programs, one useful study was found: the Iowa Department of Revenue's December 2014 study of the State's Biofuel Retailers' Tax Credits.

In 2006, the State of Iowa established a goal to replace 25 percent of all petroleum used in gasoline by 2020. In order to help the State promote biofuel sales to meet that goal, various refundable tax credits (mentioned in the previous section) were enacted for ethanol retailers.

To gauge the effectiveness of the State's Ethanol Promotion Tax Credit (EPTC) program, the study sought to determine if the State's goal of promoting the sale of biofuels was being met. The study measured the change in biofuel distribution percentage for EPTC claimants. Out of 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. The study determined that since they have claimed the EPTC before, it is likely they stopped claiming the tax credit because they were no longer able to meet the rising biofuel threshold percentage. Additionally, the study found that the ratio of pure ethanol to total gasoline reported by retailers earning the EPTC increased from 8.5 percent in 2008 to 9.7 percent in 2012.

Because Oklahoma's incentive is a flat amount offering the same incentive regardless of ethanol sales as a percent of total fuel sales (rather than a tiered refund based on total ethanol sales), the State has not experienced that same decline in total claims due to reduced eligibility.

A key takeaway for the State is that in order to drive a more impactful change, it could consider establishing ethanol sales thresholds along with tiered refund percentages, further incenting retailers to promote the sale of ethanol.



Appendices



Appendix A: Comparable State Programs

State	Program Name	Effective Date	Sunset Date	% of Total Sales Threshold?	Credit Based on Pure Ethanol or Blend	Credit per Gallon	Eligible Blends	Annual Cap	Refundable?
Oklahoma	Ethanol Fuel Retailer Tax Credit	January 1, 2006	None	No	Pure Ethanol	\$0.016 per gallon of pure ethanol sold; retailer must provide price reduction to the purchaser of the ethanol fuel in the same amount	15%	None	Yes
Iowa	Ethanol Blended Gasoline Tax Credit (<i>Expired</i>)	January 1, 2002	December 31, 2008	Yes	Blend	\$0.025 per blended gallon sold in excess of 60% of total sales	N/A	None	Yes
	Ethanol Promotion Tax Credit	January 1, 2009	December 31, 2020	Yes	Pure Ethanol	Credit based on meeting threshold of renewable fuel as a percentage of total sales; 2017 threshold is 21% for retailers selling > 200,000 gallons and 17% for those selling < 200,000 gallons - \$0.080 if threshold percentage is met - \$0.060 if threshold is missed by 2% or less - \$0.040 if threshold is missed by 2-4%	N/A	None	Yes
	E85 Gasoline Promotion Tax Credit	January 1, 2006	December 31, 2017	No	Blend	\$0.16 per gallon for fuel sold in calendar years 2012-2017	70-85%	None	Yes



State	Program Name	Effective Date	Sunset Date	% of Total Sales Threshold?	Credit Based on Pure Ethanol or Blend	Credit per Gallon	Eligible Blends	Annual Cap	Refundable?
	E15 Plus Gasoline Promotion Tax Credit	July 1, 2011	December 31, 2017	No	Blend	For every gallon of ethanol blended gasoline sold: - \$0.03 between September 15 and May 30 - \$.010 between June 1 and September 14	15-69%	None	Yes
Kansas	Renewable Fuel Retailer Tax Incentive	January 1, 2009	December 31, 2025	Yes	Blend	Credit based on meeting threshold of renewable fuel as a percentage of total sales; threshold ranges from 10% in 2009 to 25% in 2024 - \$0.065 if threshold percentage is met - \$0.045 if threshold is missed by 2% or less	N/A	No funding available through June 30, 2018	No
Missouri	Ethanol-Blended Fuel Tax Credit (<i>Not Enacted</i>)	January 1, 2017	December 31, 2025	No	Blend	For every gallon of 15-50% ethanol blended gasoline sold: - \$0.03 between September 16 and May 31 - \$0.10 between June 1 and September 15	15-50%	\$1,000,000	Yes