

## Recent Motor Vehicle Fuel Tax Proposals

### ISSUE

This **Issue Review** will review recent legislative proposals to amend Iowa's Motor Vehicle Fuel Tax, the history of Iowa's Motor Fuel Tax, fuel consumption forecasts, and system needs identified by the Iowa Department of Transportation (DOT). Estimated revenue changes are based on recent proposals and will be estimated and compared for FY 2015 through FY 2024.

### AFFECTED AGENCIES

Iowa Department of Transportation (DOT), Iowa County Engineers, City Governments, State Parks and State Institutional Roads

### CODE AUTHORITY

Iowa Code chapter [452A](#) and [312](#)

### BACKGROUND

The Motor Fuel Tax was established by the Iowa General Assembly in 1925. Several key road-related acts were enacted in the 1920s. These include establishing secondary and primary roads, and delineating the jurisdiction of the Transportation Commission and counties.<sup>1</sup> The outline of the structure established in the 1920's remains similar today. Since the 1920s, the Motor Fuel Tax has been central to road construction in Iowa and increased by the General Assembly periodically. Before 1989, the time elapsed since the last fuel tax increase ranged from 1 to 18 years. The last fuel tax increase was in 1989.

Current fuel tax rates<sup>2</sup> per gallon (and gallon equivalency):

• Gasoline	21.0 cents	• Liquid Petroleum	22.5 Cents
• Ethanol (Gasohol)	19.0 cents	• Compressed Natural Gas	21.0 cents
• Diesel	22.5 cents	• Liquefied Natural Gas	22.5 cents
• Aviation Jet Fuel	3.0 cents	• Aviation gas	8.0 cents

<sup>1</sup> Thompson, William H., Transportation in Iowa: A Historical Summary (Iowa Department of Transportation, 1989) 73-75.

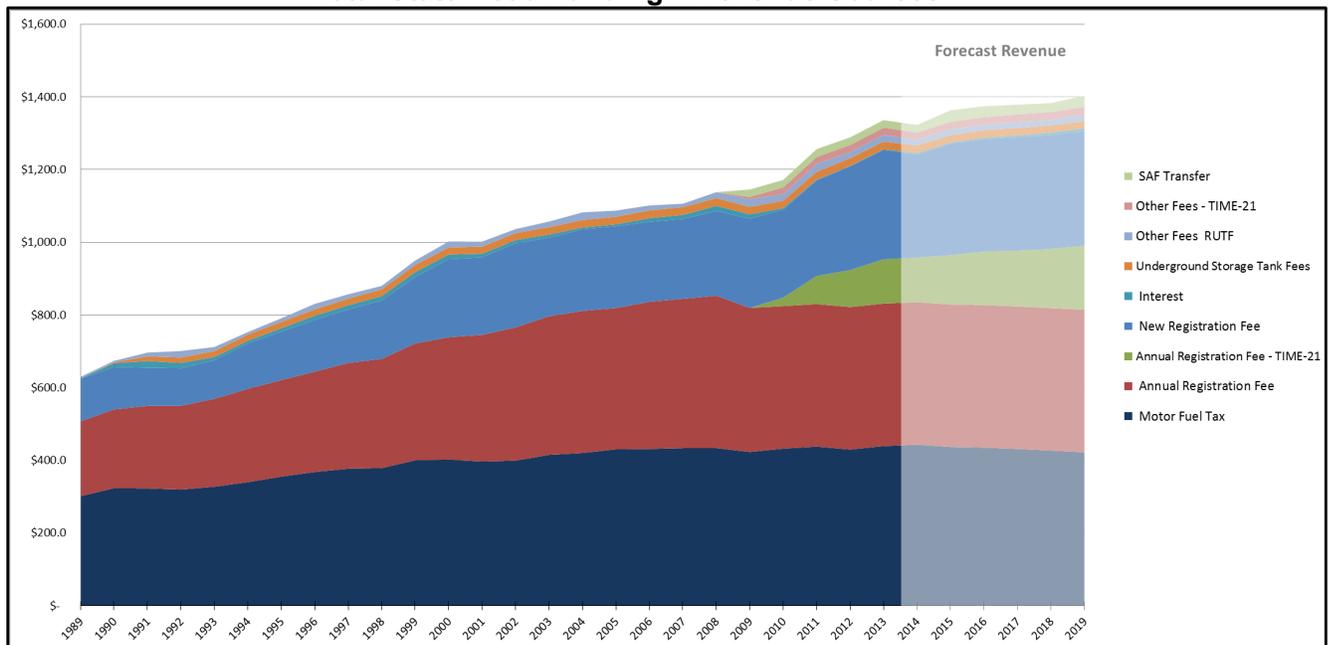
<sup>2</sup> Under current law, fuel tax rates for gasoline and gasohol will change to 20.0 cents in FY 2016. See **Attachment A**. This will be an increase for gasohol and a decrease for gasoline.

In 1942, Iowa established constitutional protections for motor fuel and motor vehicle registration revenue. Iowa Constitution Article VII Section 8 required that:

*All motor vehicle registration fees and all licenses and excise taxes on motor vehicle fuel, except cost of administration, shall be used exclusively for the construction, maintenance and supervision of the public highways exclusively within the state or for the payment of bonds issued or to be issued for the construction of such public highways and payment of interest on such bonds.*

In 1949, the General Assembly established the Road Use Tax Fund (RUTF), the major source of funding for construction, maintenance, and supervision of Iowa’s highways. Fuel tax has been a major revenue source for the fund. The RUTF revenue collected by the State Treasurer and distributed to the DOT, counties, and cities by formula. Over the years, the General Assembly has adjusted the allocation formula. Currently, 47.5% is allocated to the DOT for Primary Roads, 24.5% to counties for Secondary Roads, 8.0% to counties for Farm-to-Market Roads, and 20.0% to cities. Today the RUTF receives revenue from fuel taxes, registration and title fees, new vehicle registration fees, the balance from the Statutory Allocations Fund (SAF),<sup>3</sup> and several other revenue sources. In 2009, the General Assembly created the Transportation Investment Moves the Economy in the 21st Century Fund (TIME-21 Fund), consisting of revenue from annual registration fees, title fees, and trailer registration fees collected due to changes in the TIME-21 Act. Beginning in FY 2010, the TIME-21 Fund began to contribute to road funding. **Chart 1** displays the share of total road funding at the State level from taxes and fees. Due to the increase of several fees and the creation of the TIME-21 Fund, the share of the State road funding from fuel tax has declined from a high of 48.0% in FY 1990 to 32.9% in FY 2013.

**Chart 1<sup>4</sup>**  
**Total State Road Funding – Revenue Sources**



<sup>3</sup> The Statutory Allocations Fund was established in 2008 and receives revenue from trailer, title, driver license, and other vehicle taxes fees. The balance of this fund is transferred to the RUTF at the close of each fiscal year.

<sup>4</sup> Note: The RUTF funded the Iowa State Patrol from FY 1984 until FY 1999. This funding was phased out over four years from FY 1996 – FY 1999. Funding from the RUTF to the State Patrol peaked in FY 1996 at \$33.6 million.

## CURRENT SITUATION

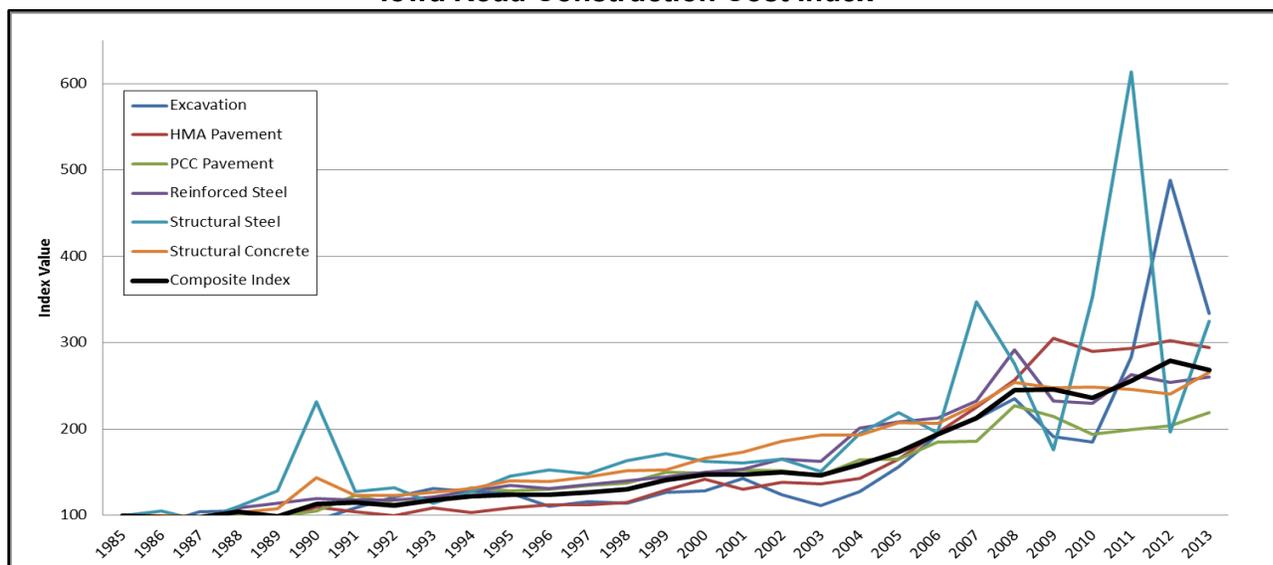
This section will illustrate current and future annual funding needs, fuel efficiencies, and flattening vehicle miles traveled (VMT) that reduce fuel tax receipts.

### Road Studies and Recent Changes

During the 2000s, the DOT conducted four studies that analyzed the needs of Iowa roadways compared to anticipated funding differences (typically referred to as shortfall by the Department). These 20-year studies, completed in 2002, 2006, 2008, and 2011, identified a funding shortfall for the state road system and recommended new revenue and efficiencies. The most recent shortfall of \$215.0 million is often the subject of recent funding proposals.

The 20-year funding need figure includes total estimated funding to cover all maintenance and construction on highways and a subcategory referred to as critical needs that are “necessary to support and grow Iowa’s economy.”<sup>5</sup> The DOT utilized a Federal Highway Administration Model to identify future needs and develop a road needs inventory. Needs are calculated in future dollars, and the estimate includes administration, maintenance, and construction. The model assumes the current transportation system will be maintained. The future value of these projects is estimated by using an average of recent growth in construction costs. The DOT maintains the Iowa Road Construction Cost Index that shows a history of construction cost changes based on types of road construction materials (**Chart-2**).<sup>6</sup>

**Chart 2**  
**Iowa Road Construction Cost Index**



Road funding in Iowa is collected at three levels of government: State, local, and federal. To project the adequacy of revenue to cover roadway needs, the DOT developed 20-year revenue projections. Assumptions adopted in these revenue projections are discussed in **Attachment B**.

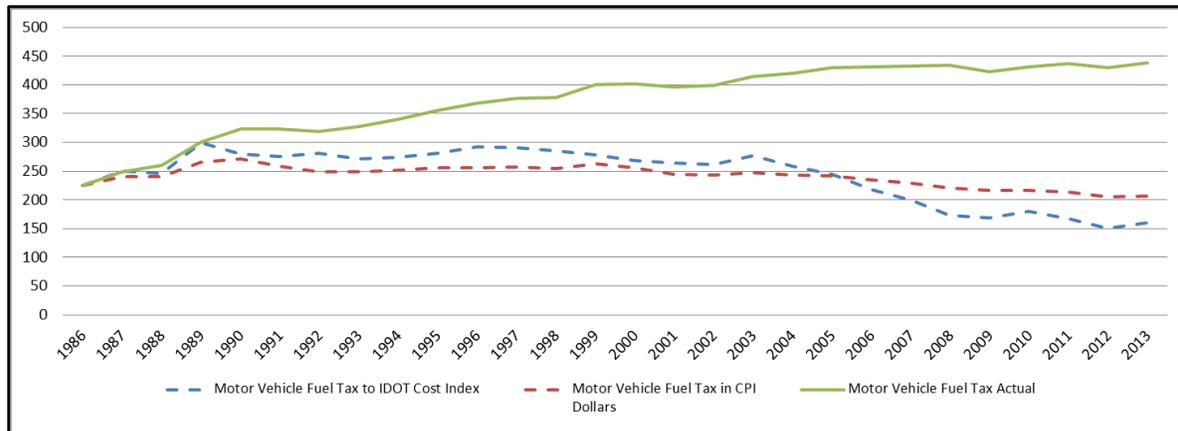
The DOT study also outlined the impact of inflation on the buying power of road funding dollars. **Chart 3** displays actual fuel tax receipts adjusted to the Consumer Price Index and the DOT

<sup>5</sup> Iowa DOT, “[2011 Road Use Tax Fund Study](#)”, 2011.

<sup>6</sup> See [Iowa DOT Construction Cost Index](#).

Construction Cost Index. Fuel tax receipts for FY 2013 totaled \$439.0 million. Adjusting to the DOT Road Construction Cost Index (1986 dollars) receipts totaled \$160.5 million.

**Chart 3**  
**Fuel Tax Collections in 1986 Dollars – CPI/DOT Construction Costs**



### Needs Studies

The 2002 study, typically called the Ad Hoc Study, developed recommendations intended to increase efficiency and maximize funding available for road construction, but it did not address an overall funding shortfall. The General Assembly has adopted several study recommendations (2003 Iowa Acts chapter [144](#)) including:

- Transferred 712 miles of roads to county and city governments.
- Transferred jurisdiction of Farm-to-Market extensions in cities with less than 500 population to counties.
- Allowed counties to classify roads as Area Service System C with the passage of an ordinance or resolution. System C roads have lower maintenance requirements. (Iowa Code section [309.57](#)).<sup>7</sup>

The DOT stated that these changes increased funding available to the DOT by \$45.0 million per year.<sup>8</sup> The LSA does not have the data to confirm this estimate.

The 2006 RUTF study, requested by the General Assembly, reviewed the 20-year needs of Iowa roads compared to estimated revenue based on recent revenue trends and construction costs. The study determined the total 20-year needs of the road system exceeded anticipated revenue by \$27.7 billion (\$1.4 billion per year). Of that amount, \$4.0 billion (\$200.0 million per year) is considered critical by the DOT. Included within this classification was resurfacing, repairing, and replacing pavement and bridges on high-volume roads. The General Assembly adopted several study recommendations (2007 Iowa Acts chapter [200](#), 2008 Iowa Acts chapter [1113](#)) including;

- Raising an additional \$200.0 million per year and allocating new revenue by establishing the TIME-21 Fund, funded by annual registration revenue exceeding of \$392.0 million per year, and trailer and title fees. To date, annual TIME-21 Fund receipts have not exceeded \$141.7 million.
- Distributing TIME-21 Fund money by the following formula, 60.0% to the DOT, 20.0% to counties, and 20.0% to cities.
- Continuing to evaluate road funding sources.
- Regularly assessing the ability of revenue to cover construction and maintenance needs. The DOT is required to conduct this assessment every five years.<sup>9</sup>

<sup>7</sup> Iowa DOT, "[Study of Iowa's Current Road Use Tax Funds \(RUTF\) and Future Road Maintenance and Construction Needs](#)", 2006.

<sup>8</sup> Iowa DOT, "[2011 Road Use Tax Fund Study](#)", 2011.

The DOT stressed that these changes were essential to complete improvements on several significant primary roads.<sup>10</sup>

The DOT published a TIME-21 Fund Study in 2008 that updated funding shortfall figures and provided further options to increase road funding. Unlike the prior study (2006 RUTF Study), the sole recommendation was that additional revenue be secured to fund critical shortfalls. The study estimated the impact of recent TIME-21 Fund fee increases and reanalyzed the total road funding shortfall. The TIME-21 Study found that the annual critical needs shortfall had grown to \$267.0 million, with an overall shortfall of \$1.5 billion per year.<sup>11</sup> Several revenue-raising mechanisms were introduced, but no recommendations were made.

In 2011, Governor Branstad appointed the Governor's Transportation 2020 Citizen Advisory Transportation Commission (CAC) to "assess the condition of Iowa's roadway system while evaluating the current and future funding available to best address system needs."<sup>12</sup> Simultaneously, the DOT released a five-year road study that provided the most recent road funding estimates. The report estimated the annual critical road funding shortfall at \$215.0 million per year and \$1.6 billion for all needs. The CAC made six funding recommendations. Three of the recommendations were adopted and three were not. See the list below.

#### Adopted recommendations

- Review the operation, maintenance, and improvement of Iowa's roadways to increase efficiency. Governor Branstad directed the DOT to identify \$50.0 million in savings per year. The DOT is required to file [efficiency reports](#) with the General Assembly annually.
- Study and identify vehicles and equipment that use Iowa's roadways that either pay no user fee or a reduced fee. The DOT completed a [User Fee Analysis](#) in 2012. The CAC did not recommend fee changes.
- Increase the registration fee for electric vehicles to match other passenger vehicles.

These recommendations have not been adopted.

- Require the DOT to assess road funding adequacy every two years rather than five years.
- Raise a minimum of \$215.0 million annually to cover the critical needs shortfall.
- Allocate new revenue to the TIME-21 Fund up to the \$225.0 million cap.

**Table 1** summarizes total and critical needs for each study.

**Table 1**  
**Road Studies by Year**

	Total Needs (millions)			Critical Needs (millions)		
	2006	2008	2011	2006	2008	2011
<b>20-Year Needs</b>	\$ 67,200	\$ 62,700	\$ 79,800	\$ 43,500	40,600	\$ 51,600
<b>20-Year Revenue</b>	39,500	35,800	47,300	39,500	35,800	47,300
<b>Total Shortfall</b>	(27,700)	(26,900)	(32,500)	(4,000)	(4,800)	(4,300)
<b>Annual Shortfall</b>	\$ (1,385)	\$ (1,494)	\$ (1,625)	\$ (200)	\$ (267)	\$ (215)

Source: Citizen Advisory Transportation Commission Report

<sup>9</sup> Iowa DOT, "Study of Iowa's Current Road Use Tax Funds (RUTF) and Future Road Maintenance and Construction Needs" 2006.

<sup>10</sup> Iowa DOT, "Study of Iowa's Current Road Use Tax Funds (RUTF) and Future Road Maintenance and Construction Needs" 2006.

<sup>11</sup> Iowa DOT, "[TIME-21 Funding Analysis](#)" 2008.

<sup>12</sup> Iowa DOT, 2011.

### Fuel Efficiency

Parallel to ongoing concerns over roadway construction needs is improvement in fuel efficiencies that are reducing fuel tax receipts. Increased fuel efficiency in passenger vehicles, also due to hybrid and electric cars, will further decrease fuel consumption over the next few decades. To encourage further fuel efficiency improvements, in August 2012 the National Highway Traffic Safety Administration (NHTSA) and the Environmental Protection Agency (EPA) issued joint Corporate Average Fuel Economy (CAFÉ) standards for newly manufactured light-duty vehicles. Vehicles covered under CAFÉ standards include passenger cars, sport-utility vehicles, vans, and light-duty trucks. The EPA greenhouse gas standards will limit emissions to 163 grams-per-mile of carbon dioxide in model year (MY) 2025. Translated to miles-per-gallon (MPG), the NHTSA expects the combined average fuel economy for newly sold vehicles to increase to 49.7 MPG by model year 2025.<sup>13</sup> **Table 2** shows the average CAFÉ standard MPG increase from MY 2017 through MY 2025.

**Table - 2**  
**Projected CAFÉ-Standard (Average Combined Fuel Efficiency – MPG)**

2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
32.6	34.1	35.4	36.5	37.7	38.9	41.0	43.0	45.1	47.4	49.7

Although required increases in per-gallon fuel efficiency end with model year 2025, the majority of the existing vehicle fleet will not meet CAFÉ standards for many years. The Congressional Budget Office estimates that the nationwide vehicle fleet will meet CAFÉ standards by 2040, resulting in a 21.0% decrease in federal gasoline tax revenues.<sup>14</sup> Similarly, the Energy Information Agency (EIA) forecasts that by 2040 the light-duty vehicle fleet will consume 25.0% less energy than the 2013 fleet.<sup>15</sup>

For heavy and medium-duty trucks, in 2011 the NHTSA and EPA issued fuel standards that took effect in model year 2014 and will gradually increase until 2018. Again, these fuel standards target greenhouse gas emissions. Fuel efficiency standards for these vehicles are divided into three categories, each required to meet a different standard. Categories include:

- Combination tractors 20% reduction in fuel consumption
- Heavy-duty trucks and vans 15% reduction in fuel consumption
- Vocational vehicles 10% reduction in fuel consumption<sup>16</sup>

The NHTSA estimates that these reductions could reduce fuel consumption by 1.0 to 4.0 gallons per every 100.0 miles.<sup>17</sup> In 2012, heavy trucks in Iowa traveled a total of 2.8 billion miles and consumed 668.2 million diesel gallons.<sup>18</sup> Iowa's heavy and medium-duty vehicle fleet composition is unknown and estimating the exact impact to fuel consumption is difficult. However, approximate NHTSA fuel efficiency improvement estimates provide enough information to calculate estimates. For example, reducing diesel gallons consumed (primarily used by trucks in Iowa) by 1.0 gallon per 100 miles will decrease revenue to the RUTF by roughly \$6.2 million dollars per year.

In February 2014, President Obama directed the EPA and the NHTSA to develop Phase II of the joint fuel standards targeting greenhouse gas emissions. Notice of Proposed Rulemaking is to be issued in March 2015, with the final rules targeted for March 2016. These rules will set further fuel standards for medium and heavy-duty trucks.

<sup>13</sup> Congressional Research Service, "[Automobile and Truck Fuel Economy \(CAFÉ\) and Greenhouse Gas Standard](#)", 2012.

<sup>14</sup> Congressional Budget Office, "[How Would Proposed Fuel Economy Standards Affect the Highway Trust Fund?](#)", May 2012.

<sup>15</sup> Energy Information Agency, "[Annual Energy Outlook](#)", May 7 2014.

<sup>16</sup> "[CAFE and GHG Factsheet](#)", August 28, 2012.

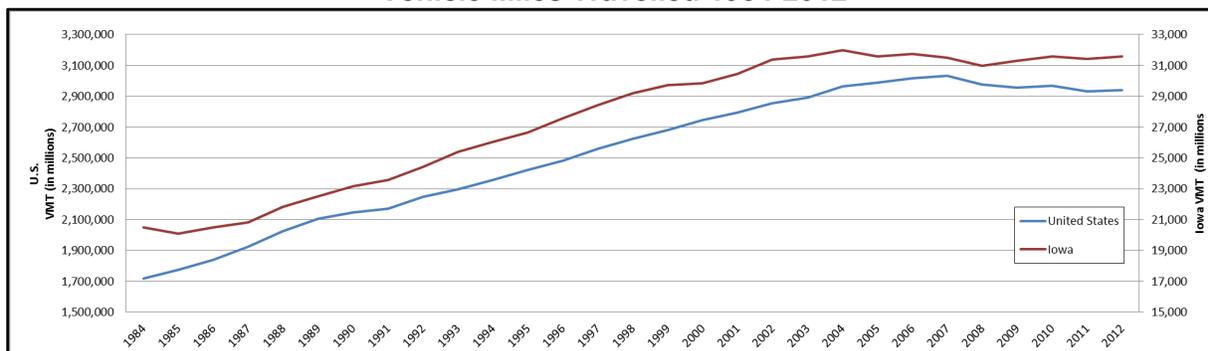
<sup>17</sup> "[CAFE and GHG Factsheet](#)".

<sup>18</sup> See [Iowa DOT VMT data](#).

### Vehicle Miles Traveled

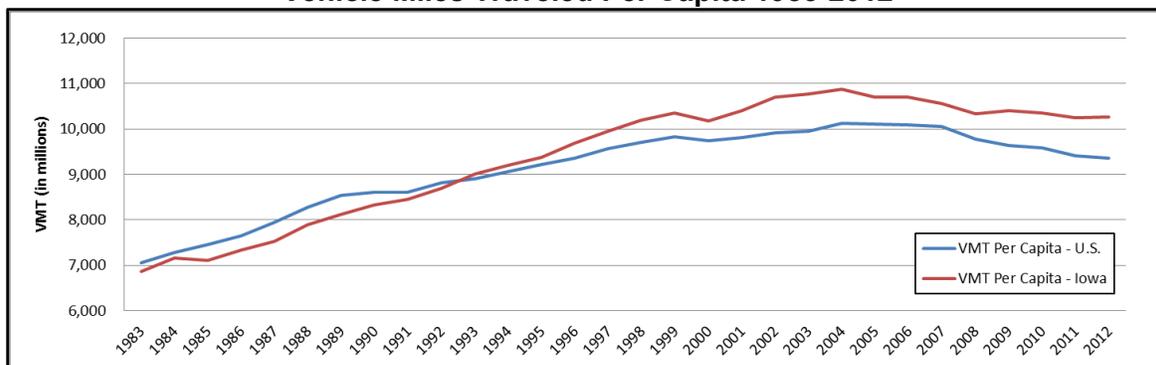
Fuel tax collections are in part driven by the total number of miles traveled on the road system, referred to as Vehicle Miles Traveled (VMT). The VMT is estimated annually for State, county, and city roads by the DOT based on traffic counts combined with roadway length.<sup>19</sup> Historically, the VMT has increased annually across the United States and in Iowa. In turn, increased VMT tends to increase fuel consumption and fuel tax receipts if fuel efficiency is unchanged.

**Chart 4**  
**Vehicle Miles Travelled 1984-2012**



However, in recent years total VMT nationwide and in Iowa have remained relatively flat. As the above **Chart 4** illustrates, VMT increases in Iowa began to slow starting in the early 2000s, a trend mirrored at the national level. From 1983 (earliest available data) to 1999, VMT in Iowa increased at an annual average of 2.6%. Since 2000, VMT has increased by an average of 0.5%. For the United States, these numbers are 3.1% and 0.7%, respectively. In addition to improved fuel efficiency, this trend is reducing fuel receipts.<sup>20</sup> Declines in per capita VMT also portray changing driving habits. Both in Iowa and nationwide per capita VMT peaked in 2004. Notably, Iowa's per capita VMT has declined at a slower annual pace than the national trend, an average decrease of 0.7% for Iowa compared to 1.0% nationally. **Chart 5** shows VMT per capita history since 1983.

**Chart 5**  
**Vehicle Miles Traveled Per Capita 1983-2012**



Declining VMT is a relatively new phenomenon, and projecting future VMT is beyond the scope of this *Issue Review*. The VMT depends on a variety of factors, including fuel prices, economic growth, and demographics. Considering these factors, an Energy Information Agency forecast, discussed below, projects national VMT annual average growth at 0.9% between 2015 and 2024.

<sup>19</sup> See [DOT VMT](#) records.

<sup>20</sup> Robert Puentes, [“Have Americans Hit Peak Travel?”](#), 2012.

### **OPTIONS AND ASSUMPTIONS**

This *Issue Review* assesses five options to change the fuel tax and the capacity to finance road funding shortfalls. Individual calculations share several baseline assumptions, including fuel consumption, prices, economic conditions, and implementation time lines. Although these fuel tax options were proposed either by the DOT or in legislation, this list is not a comprehensive review of all potential fuel tax structures and potential modifications are numbers.<sup>21</sup> Reviewed options include:

- **Current Law:** This option will maintain the current fuel tax structure as exists.
- **Ten Cent Fuel Tax Increase:** This option incrementally increases the Motor Fuel Tax over three years by 10.0 cents. The tax is increased by 3.0 cents in FY 2016, 3.0 cents in FY 2017, and 4.0 cents per-gallon in FY 2018.
- **Sales Tax:** Eliminates the per-gallon fuel tax and replaces it with a tax of 6.0% on the per-gallon retail price of fuel. The DOT identified this tax change option prior to the 2014 Legislative Session.
- **Combination Fuel Tax:** Imposes a tax on motor fuel and special fuel that combines a per-gallon tax and a percentage sales tax. The tax will be 16.0 cents per gallon on gasoline and gasohol, 18.0 cents per gallon of diesel, and a sales tax of 5.0% on the retail price of fuel.
- **Inflation Index:** Adjusts the fuel tax annually by the change in the Consumer Price Index for all urban consumers (CPI-U). The annual adjustment is rounded to the nearest half-cent. Inflationary adjustments are applied to the rounded tax rate from the prior year.
- **Indexed Increase:** Increases the Motor Fuel Tax (MFT) by 10.0 cents over three years and adjusts the fuel tax annually by the annual change in the CPI-U. The tax is increased by 3.0 cents in FY 2016, 3.0 cents in FY 2017, and 4.0 cents in FY 2018. The annual CPI adjustment is rounded to the nearest half-cent. Inflationary adjustments are applied to the rounded tax rate from the prior year. This option was not proposed, but is a combination of a ten cent increase and the inflation index tax changes.

Revenue estimates for these options share a common set of assumptions and utilize Energy Information Agency Annual Energy Outlook to develop estimates. The primary *EIA Energy Outlook scenario* (called *reference scenario*) is a “trend estimate, given known technology and technological and demographic trends.”<sup>22</sup> The *reference scenario* provides the model for estimates discussed in the body of the *Issue Review*. These assumptions are discussed in detail in **Attachment C**. The EIA Energy Outlook does consider alternative assumptions.<sup>23</sup> Two of these scenarios are considered in *high oil price scenario* (**Attachment D**) and *low oil price scenario* (**Attachment E**). These alternative scenarios are referenced in the *Issue Review* main text, but not outlined in detail.

### **Alternative Options**

Additional tax and fee options that leave fuel tax rates unchanged are discussed below. These options are not comprehensive, and are intended to provide complementary or alternative options. Additionally, the administrative functions necessary to implement these options are not addressed. The following list reviews other options that were discussed or studied in Iowa and other studies. The ability to estimate revenue for these options is mixed, and they are not addressed alongside fuel tax proposals in the budget impact section.

- **Mileage-Based User Fees (MBUF)** are levied to drivers for total miles travelled on the road system. Currently, MBUF programs are being piloted and tested in Colorado, Minnesota,

<sup>21</sup> The American Petroleum Institute (API) publishes an [annual summary](#) of state motor fuel taxes.

<sup>22</sup> EIA, “[Annual Energy Outlook](#),” May 7, 2014.

<sup>23</sup> EIA explanation of reference case: “The AEO2014 Reference case projection is a business-as-usual trend estimates, given known technology and technological and demographic trends. EIA explores the impacts of alternative assumptions in other scenarios with different macroeconomic growth rates, world oil prices, and rates of technology progress. The main cases in AEO2014 generally assume that current laws and regulations are maintained throughout the projections. Thus, the projections provide policy-neutral baselines that can be used to analyze policy initiatives.”

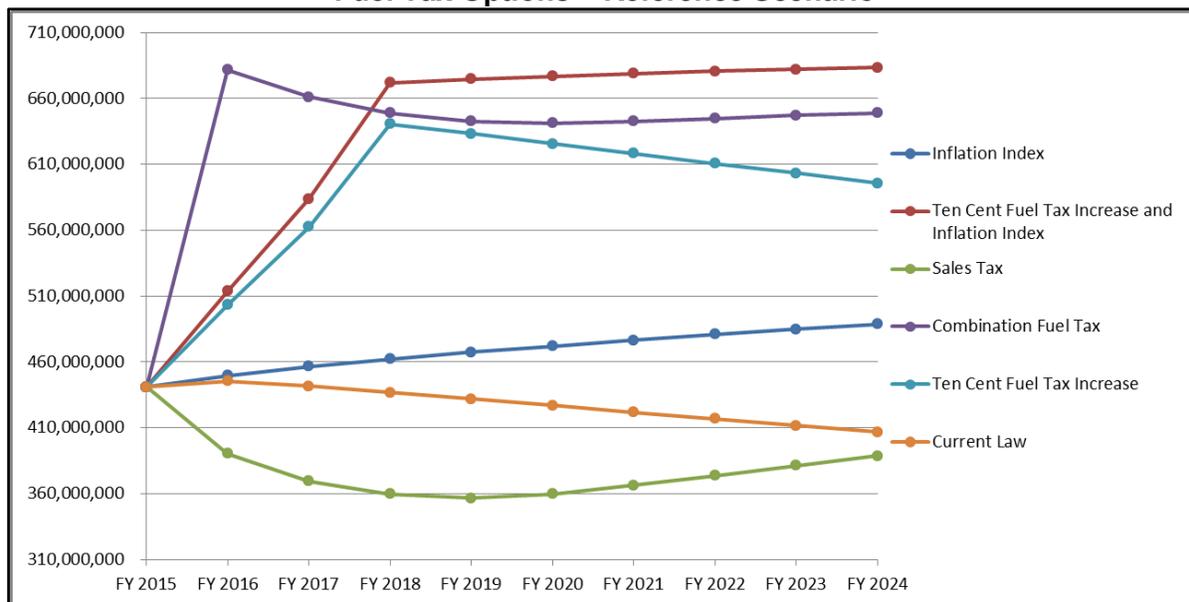
Nevada, Oregon, Texas and Washington. The University of Iowa also conducted a national MBUF study. The programs utilize an on-board computer, smart phone, odometer or GPS device to track the mileage of users. To date, Oregon has developed the largest pilot program. The Oregon pilot is accepting 5,000 volunteer drivers that will pay 1.5 cents per mile travelled. No states have implemented a statewide MBUF program. To date no bills to enact a MBUF pilot in Iowa have been introduced. Revenue estimates are unavailable at this time.

- **Electric and hybrid car fees** could be adjusted to offset revenue reductions due to increased fuel efficiency. According to the National Conference of State Legislatures (NCSL) five states have additional annual registrations fees for electric vehicles. No states have active annual special fees for hybrids. However, Virginia had enacted a special fee for hybrid vehicles that was repealed in early 2014. Annual fees in other states range from \$50 to \$100. In 2013 the DOT identified 41 electric vehicles registered in Iowa. No bills have proposed this change. As of October 2014, there are 223 electric cars and 21,800 hybrids registered in Iowa.
- Increasing the **fee for new registration** is another option that will increase revenue. Currently the purchaser of a vehicle pays 5.0% of the vehicles sales price at the sale. This option has not been proposed in legislation. Increasing this fee to 6.0% will increase revenue by approximately \$60.0 million according to the DOT.
- Eliminate road user fee exemption for agriculture equipment. Currently, agricultural equipment is eligible to use dyed diesel that is exempt from fuel taxes. **Fuel taxes for dyed diesel** could adopt the fuel tax structure in place or adopt a parallel structure. For instance, gallons consumed could be taxed on a flat per gallon rate or by the price of fuel. This option has not been proposed in legislation. The DOT estimated that applying a 6.0% fuel tax will increase revenue by \$38.0 million per year.
- Allow a 1.0% **Local Option Sales Tax** (LOST) on fuel sales. This option has not been proposed in legislation. The DOT estimated that a 1.0% LOST on fuel sales enacted in all local jurisdictions will increase revenue by \$80.0 million per year.

## **BUDGET IMPACT**

This section will review the budget impact of current law and the five fuel tax policies for the *EIA Reference Scenario*. Specifically, this section will discuss revenue changes, behavior compared to other scenarios, flexibility, and uncertainty. **Chart 6** on the following page illustrates total revenue for five fuel tax policies and current law projections based on the *reference scenario*. The model projects declining fuel consumption in the Midwest region and relatively stable fuel prices (**Attachment C**). As previously noted, these fuel tax options are not a comprehensive list of all potential fuel tax structures.

Chart 6  
Fuel Tax Options – Reference Scenario



Under **Current Law** revenue is estimated to increase by 1.1% in FY 2016 when compared to FY 2015. After FY 2016, revenue is projected to decline between 0.8% and 1.2% each year.

A **Ten Cent Fuel Tax Increase** will increase revenue to the RUTF by \$1.6 billion over nine fiscal years. Compared to current law, the change is estimated to increase revenue by \$57.8 million in FY 2016, \$121.0 million in FY 2017, and \$203.7 million in FY 2018, the first year of full implementation. Once fully implemented, tax receipt increases are projected to gradually decline, decreasing to \$189.0 million by FY 2024. Fuel consumption decreases are projected in all three *EIA Scenarios* regardless of assumed fuel prices. Consumption declines are projected to occur faster with high oil prices and slower with low oil prices. This option will fall short of funding the estimated critical needs shortfall, but ranks third among revenue increases. An additional 1.0 cent increase will provide an initial increase large enough to meet the critical needs shortfall.

Replacing a per-gallon tax with a 6.0% **Sales Tax** on the price of fuel has the highest degree of uncertainty. Compared to current law, the *EIA Reference Scenario* projects a revenue loss of \$493.7 million over nine years, with a decrease of \$55.0 million in FY 2016 and \$72.1 million in FY 2017. However, *high and low oil price scenarios* substantially alter revenue projections. The *high oil price scenario* is estimated to increase receipts by \$637.8 million over nine years. Whereas, the *low oil price scenario* is projected to reduce revenue by \$1.3 billion. Based on the above scenarios, a 6.0% sales tax will not meet the critical needs shortfall under all scenarios. This option could be altered to increase revenue projections by raising the tax percentage or setting a price-per-gallon floor. However, to meet the estimated critical needs shortfall, the price-per-gallon floor must be above current gasoline and diesel prices.

In the *reference scenario* a **Combination Fuel Tax** is projected to increase revenue by \$2.0 billion over nine years compared to current law, the largest increase of the proposed policies. This option is less susceptible to fluctuations in the price of gasoline than a straight sales tax, but still varies significantly. Over nine years the revenue difference between the *high and low oil price scenarios* is \$1.1 billion. Consequently, the ability to meet the critical needs shortfall remains dependent on oil prices. Both the *reference scenario* and the *high oil price scenario* will raise enough money to cover the critical needs shortfall. The *reference scenario* will increase

revenue by an average of \$224.5 million per year, whereas the *high oil price scenario* will increase revenue by an average of \$317.7 million per year. The *low oil price scenario* will increase revenue by an average of \$160.9 million per year. This option could be amended to decrease or increase revenue estimates. A floor for the taxed price of gasoline would limit the potential of a *low oil price scenario* to decrease revenue below \$215.0 million. The option could include a ceiling on the price of oil. A price ceiling and floor could be used independently or in concert, and could adjust in future years. Similarly, different taxation levels could be set. This includes considering tax percentages other than 5.0% of the price of fuel or adjusting the per gallon portion of the tax.

The fourth option links fuel tax to an **Inflation Index** to annually adjust the per gallon fuel tax. In the *reference case* this option is projected to provide the fourth largest increase compared to current law. Over nine years, an additional \$399.3 million will be collected in fuel tax. This is an average annual increase of \$44.3 million, short of the critical needs shortfall of \$215.0 million per year. Notably, the *low oil price scenario* is the best environment for total fuel tax collection when the fuel tax is indexed to inflation. The EIA *high oil case* projects steeper declines in fuel consumption due to higher fuel prices. Consequently, the decrease in motor fuel consumption under the *high oil price scenario* will offset larger CPI adjustments that occur in a high-fuel-cost environment. However, an environment with annual inflation below 1.0% prevents annual adjustments to the fuel tax. Such an environment is not forecast in the three *EIA scenarios* presented in this **Issue Review**. An **Inflation Index** could be amended to include a maximum or minimum annual adjustment, or to stagger years when an adjustment may occur.

The final option is to increase the fuel tax by ten cents and annually adjust the tax by inflation (**Ten Cent Fuel Tax Increase** and **Inflation Index**). In the *reference case* this option is projected to increase revenue by \$2.0 billion over nine years compared to current law, the second largest increase of given options. Outside of the 10-year time frame, this option is likely to provide the largest revenue increase. Currently, this option raises less money than the **Combination Fuel Tax** due to a phased implementation. Once fully implemented in FY 2018, this option will increase revenue by an annual average of \$256.9 million per year, ranking first among selected tax policies. After the third year this tax change will surpass the critical needs shortfall of \$215.0 million per year. In the alternative scenarios this tax change will behave identically to the **Inflation Index** fuel tax. An **Indexed Increase** will increase revenue enough to cover the critical needs shortfall in all scenarios. Finally, this option could be amended to include a maximum or minimum annual adjustment, or to stagger adjustment years. Cent-per-gallon increases could also be phased in over a longer period of time.

Any amendments or alterations to tax options listed will change the estimated fiscal impact of the options discussed in this **Issue Review**.

## **CONCLUSION**

Revenue estimates for the five fuel tax options included in this **Issue Review** demonstrate the capacity of potential changes to generate new revenue in three different environments. Changing driving behaviors and increasing fuel efficiency forecasted in all three EIA models, appear poised to decrease fuel consumption as the DOT identifies large unfunded construction and maintenance needs on State roads. **Current law** projections are estimated to reduce revenue by \$32.4 million when comparing FY 2024 to FY 2015. Proposed fuel tax options demonstrate capacity, likelihood, and certainty of funding critical need shortfalls in different environments. Of the five tax changes estimated in this **Issue Review**, two are projected to increase revenue enough to meet an annual critical needs shortfall of \$215.0 million.

A **Combination Fuel Tax** generates the highest level of potential revenue, but has a higher degree of uncertainty due to its relationship to fuel prices. An **Indexed Increase** to the fuel tax has slightly less revenue potential within the nine years projected, primarily due to a phased implementation. Once fully implemented, this option averages the highest annual revenue increase, and lower uncertainty. A **Ten Cent Fuel Tax Increase** is the other option that provides revenue approaching critical funding levels. If altered by adding an additional 1.0 cent, this option will increase revenue by over \$215.0 million, but revenue will decrease over time. **Table 3** summarizes the performance of each option under the *EIA reference scenario*. **Attachment F** compares policies by the EIA *high* and *low oil price scenarios* and the range in estimated revenue between scenarios.

Table 3

Reference Scenario				
Option	Nine-Year Revenue Increase	Average Annual Increase	Critical Needs	Average Yearly Change
Inflation Index	\$399.2 million	\$44.4 million	No	0.9%
Indexed Increase	\$2,006.6 million	\$223.0 million	Yes	0.3%
Sales Tax	(\$493.7 million)	(\$54.9 million)	No	1.3%
Combination Fuel Tax	\$2,020.1 million	\$224.5 million	Yes	0.0%
Ten Cent Fuel Increase	\$1,553.0 million	\$172.6 million	No	-1.2%

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### Motor Fuel Tax Schedule

The 2014 Iowa General Assembly extended the current motor fuel tax schedule that determines fuel tax rates for ethanol-blended gasoline and unblended gasoline in [HF 2444](#). This Act extended current fuel tax rates to June 30, 2015. The tax rate for ethanol-blended gasoline is 19.0 cents per gallon. The tax rate for unblended gasoline is 21.0 cents per gallon. Without this Act, tax rates for ethanol-blended and unblended gasoline would have been 20.0 cents. The Department of Revenue determines the gasoline tax rate based on the market share percentage of ethanol-blended gasoline sold during the previous calendar year (Iowa Code section [452A.3](#)). During calendar year 2013, the percentage remained between 70.0% and 75.0%. The General Assembly has extended the fuel tax schedule by an additional year during each of the last three Legislative Sessions (2012 through 2014). The General Assembly may or may not continue this practice in future legislative sessions. The current fuel tax schedule is displayed below.

Fuel Tax Schedule (Expires June 30, 2015)		
Ethanol-Blended Market Share Percentage	Ethanol- Blended Tax	Unblended Gasoline Tax
0% - 50%	19.0	20.0
50% - 55%	19.0	20.1
55% - 60%	19.0	20.3
60% - 65%	19.0	20.5
65% - 70%	19.0	20.7
70% - 75%	19.0	21.0
75% - 80%	19.3	20.8
80% - 85%	19.5	20.7
85% - 90%	19.7	20.4
90% - 95%	19.9	20.1
95% - 100%	20.0	20.0

## **DOT Revenue Projections**

To project the adequacy of revenue to cover roadway needs the DOT developed 20-year revenue projections. To estimate future revenues the DOT was required to determine revenue at three levels of government: Local, state and federal. Each study presented a single revenue and funding-needs scenario.

For each road study the DOT adopted a similar methodology. The projections adopted the following assumptions:

- State funding, driven by the RUTF, was projected to grow at the same annual rate for each year.
  - RUTF grow rates were intended to account for slower growth due to increased fuel efficiency and declining VMT. However, the revenue projection does not rely on VMT or MPG projections to determine the growth rate.
  - Similarly, revenue projections do not directly account for alternative fuels.
- Federal funding is a constant dollar amount each year. Future federal funding levels are uncertain. Currently, the Federal Highway Trust Fund will be depleted in May 2015. Congressional action is necessary to continue federal aid at current funding levels after May 31, 2015.
- Local funding is a constant dollar amount each year.

For the 2011 road study, road funding for local, federal, and State was estimated to be \$650.0 million (29.5%), \$375.0 million (17.0%), and \$1,180.0 million (53.5 %), respectively.

## Shared Assumption

Each of the fuel tax options utilizes different mechanisms to increase or adjust the fuel tax. However, all revenue estimates rely on the following assumptions:

- The Iowa DOT forecasts gallon consumption to develop the 5-year Transportation Improvement Program, and utilizes the Energy Information Agency (EIA) Annual Energy Outlook to estimate future consumption. This **Issue Review** adopts the DOT's methodology, and expands the time frame by five years. Gasoline and gasohol consumption is projected to decline between 1.5% and 2.4% per year over the 10-year period (shown in **Table 1**). Diesel consumption is projected to increase between 0.5% and 1.7% per year over the same period.

**Table 1**  
**Estimated Fuel Gallons Consumed in Iowa**

	Gasohol	Gasoline	Diesel
FY 2015	1,150,018,465	447,229,403	704,249,492
FY 2016	1,132,768,188	440,520,962	716,221,734
FY 2017	1,113,511,129	433,032,106	721,951,508
FY 2018	1,092,354,417	424,804,496	725,561,265
FY 2019	1,070,507,329	416,308,406	729,189,071
FY 2020	1,048,026,676	407,565,929	732,835,017
FY 2021	1,024,970,088	398,599,479	737,232,027
FY 2022	1,001,395,776	389,431,691	742,392,651
FY 2023	978,363,674	380,474,762	746,847,007
FY 2024	954,882,945	371,343,368	752,074,936

- The LSA projections utilize EIA annual forecasts for future fuel prices and CPI-U. Prices are at the retail level, but do not include State and federal fuel taxes. The primary *EIA Energy Outlook scenario* (called *reference scenario*) is a “trend estimate, given known technology and technological and demographic trends.”<sup>1</sup> However, the EIA Energy Outlook does consider alternative assumptions.<sup>2</sup> Two of these scenarios are considered in *high oil price scenario* (**Attachment D**) and *low oil price scenario* (**Attachment E**). Gasoline and gasohol prices in these scenarios vary by \$1.30 in 2015 and by up to \$2.05 over the course of this projection.
- The retail price, shown in **Table 2**, is assumed to be the price of fuel at the pump minus State and federal taxes.

<sup>1</sup> EIA, “[Annual Energy Outlook](#),” May 7, 2014.

<sup>2</sup> EIA explanation of reference case: “The AEO2014 Reference case projection is a business-as-usual trend estimates, given known technology and technological and demographic trends. EIA explores the impacts of alternative assumptions in other scenarios with different macroeconomic growth rates, world oil prices, and rates of technology progress. The main cases in AEO2014 generally assume that current laws and regulations are maintained throughout the projections. Thus, the projections provide policy-neutral baselines that can be used to analyze policy initiatives.”

**Table 2**  
**Estimated Fuel Prices and CPI-U in Iowa**

	<u>Gasoline/Gasohol</u>	<u>Diesel</u>	<u>CPI</u>
2015	2.77	3.17	1.6%
2016	2.70	3.17	1.6%
2017	2.70	3.21	1.7%
2018	2.74	3.30	1.8%
2019	2.81	3.43	1.9%
2020	2.89	3.54	1.9%
2021	2.98	3.67	1.9%
2022	3.06	3.81	1.9%
2023	3.15	3.92	2.0%
2024	3.24	4.03	2.0%

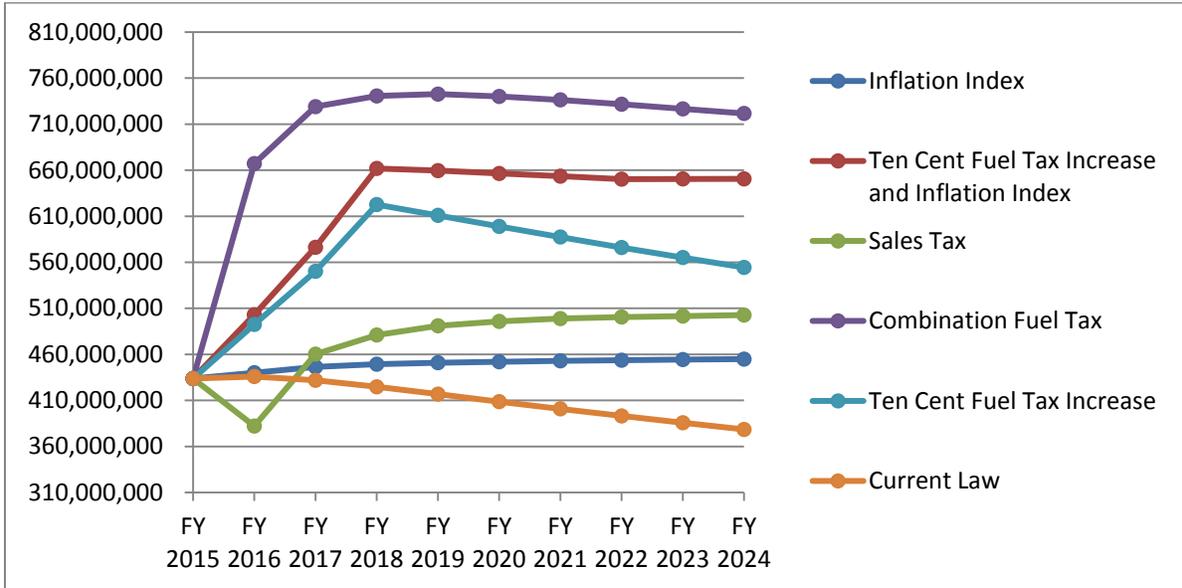
Note: Fuel prices listed are used to calculate fuel tax changes.  
These prices are current year prices for the prior year.

- The **Ten Cent** increase and **Inflation Index** tax changes will maintain the tax schedule for gasohol (ethanol blended) and gasoline (unblended fuel). Gasohol and gasoline market share will remain at 72.0% and 28.0%, respectively. For FY 2012 and 2013, the monthly market share of blended ethanol averaged 71.8%.
- Fuel tax refunds will remain at 6.4% of annual fuel receipts, an average of the last five years of fuel tax refunds.
- Four of the five fuel tax options are adjusted based on either the retail price of fuel or CPI-U. In Iowa, fuel taxes are currently levied at the wholesale level. This **Issue Review** assumes that adjustments to the fuel tax will occur on an annual basis. Fuel taxes based on the price of fuel will not fluctuate like a true sales tax. Rather, they will be adjusted annually based on the price of fuel in the prior year. This will eliminate daily fluctuation in fuel tax receipts and utilize the existing fuel tax infrastructure rather than new mechanisms. Adjustments to CPI-U fuel tax estimates will use similar mechanisms. All adjustments use the most recently calculated price or CPI-U; as a result, adjustments to fuel taxes for FY 2016 will use 2014 fuel prices and CPI-U.

Fuel tax increases are assumed to be deposited in the RUTF rather than the TIME-21 Fund.

### HIGH OIL PRICE SCENARIO

Fuel Tax Policy Options – High Oil Price Scenario - Iowa



Estimated Fuel Gallons Consumed in Iowa – High Oil Price Scenario

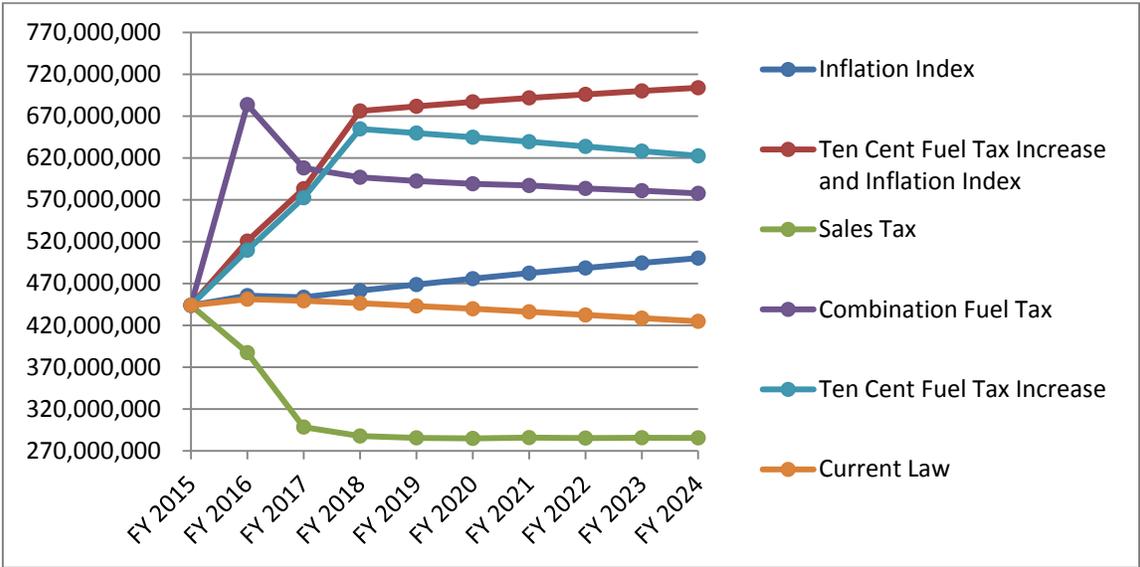
	Gasohol	Gasoline	Diesel
FY 2015	1,137,260,564	442,267,997	686,403,014
FY 2016	1,110,781,714	431,970,667	698,681,716
FY 2017	1,082,919,943	421,135,534	713,620,942
FY 2018	1,053,576,295	409,724,115	716,067,802
FY 2019	1,024,101,035	398,261,514	714,754,189
FY 2020	995,740,523	387,232,425	711,101,380
FY 2021	968,108,332	376,486,573	708,201,109
FY 2022	941,500,838	366,139,215	704,293,568
FY 2023	916,407,878	356,380,841	700,236,186
FY 2024	892,158,029	346,950,344	695,556,127

Estimated Fuel Prices and CPI-U in Iowa – High Oil Price Scenario

	Gasoline/Gasohol	Diesel	CPI
2013	\$ 3.04	\$ 3.41	1.4%
2014	2.93	3.28	1.8%
2015	3.51	4.08	2.9%
2016	3.70	4.40	2.3%
2017	3.80	4.66	2.1%
2018	3.91	4.81	2.1%
2019	4.01	4.93	2.0%
2020	4.09	5.06	2.0%
2021	4.17	5.18	2.0%
2022	4.24	5.31	2.1%

**LOW OIL PRICE SCENARIO**

**Fuel Tax Policy Options – Low Oil Price Scenario - Iowa**



**Estimated Fuel Gallons Consumed in Iowa – Low Oil Price Scenario**

	<b>Gasohol</b>	<b>Gasoline</b>	<b>Diesel</b>
FY 2015	1,159,792,776	451,030,524	707,555,984
FY 2016	1,153,485,731	448,577,784	718,554,469
FY 2017	1,144,066,563	444,914,774	720,952,976
FY 2018	1,131,583,777	440,060,358	722,958,166
FY 2019	1,116,423,449	434,164,675	725,824,458
FY 2020	1,100,005,926	427,780,082	730,106,244
FY 2021	1,082,018,623	420,785,020	735,290,504
FY 2022	1,062,965,692	413,375,547	740,683,281
FY 2023	1,043,426,247	405,776,874	746,967,499
FY 2024	1,023,042,139	397,849,721	754,016,283

**Estimated Fuel Prices and CPI-U in Iowa – Low Oil Price Scenario**

	<b>Gasoline/Gasohol</b>	<b>Diesel</b>	<b>CPI</b>
2013	\$ 3.02	\$ 3.38	1.4%
2014	2.87	3.20	1.8%
2015	2.21	2.50	0.7%
2016	2.14	2.43	1.5%
2017	2.12	2.48	1.6%
2018	2.12	2.52	1.7%
2019	2.14	2.54	1.8%
2020	2.16	2.56	1.8%
2021	2.18	2.59	1.8%
2022	2.19	2.61	1.7%

## FUEL TAX OPTIONS BY EIA SCENARIO

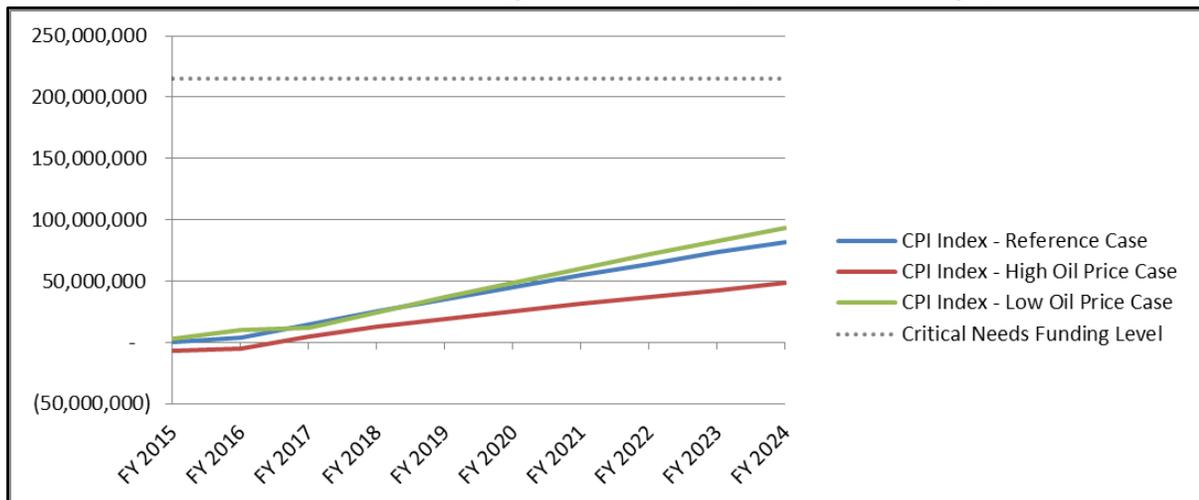
Attachment D compares the performance of individual fuel tax options across *EIA Scenarios*. Charts display the revenue increases compared to the critical needs funding level.

**Table 1**  
**Nine-Year Total Revenue Variance Between EIA Scenarios**

Option	Total Revenue - Difference Between Scenarios <sup>1</sup>	Rank
Inflation Index	\$236.5 million	1
Indexed Increase	\$289.2 million	2
Sales Tax	\$1,617.5 million	5
Combination Fuel Tax	\$1,125.7 million	4
Ten Cent Fuel Tax Increase	397.2 million	3

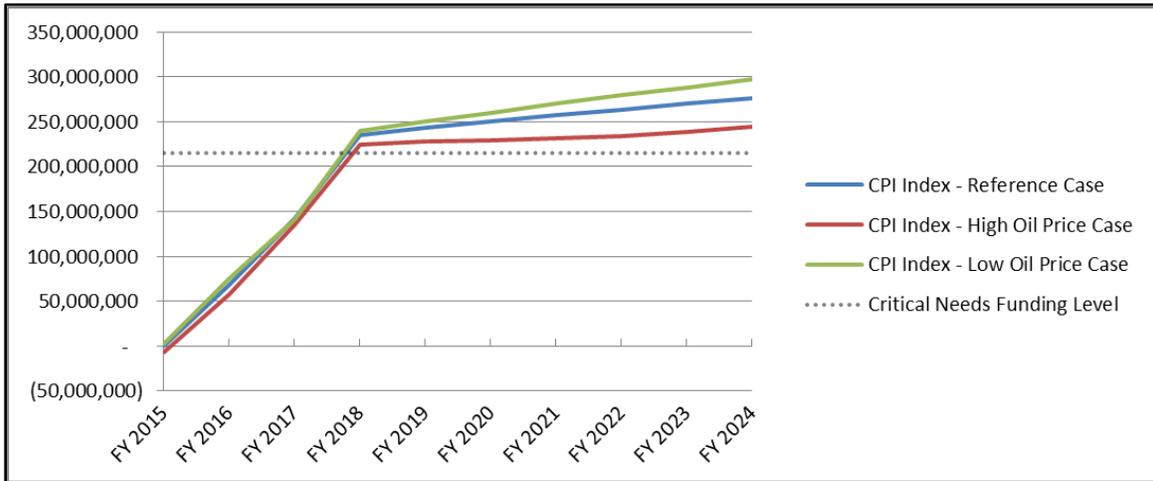
1. Shows the range in estimated total revenue between EIA scenarios for each policy.

**Chart 1**  
**CPI Index - Meeting Critical Needs (Revenue Change)**



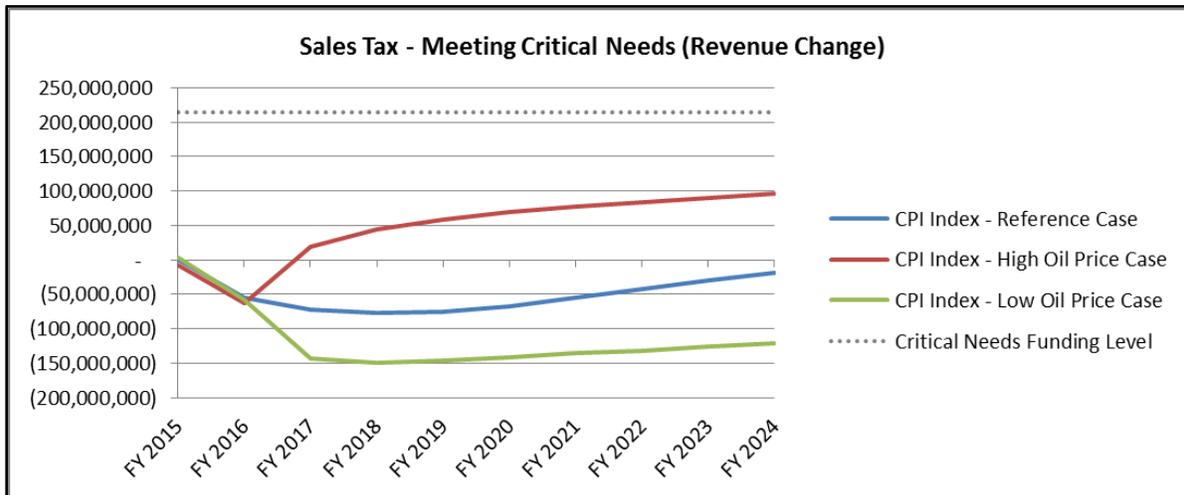
**Chart 1** shows that the **CPI Index** option will fall short of funding critical needs in all *EIA Scenarios*. Projections estimate that lower inflation environments will result in higher fuel tax revenue. Scenarios that assume higher fuel prices will result in higher inflation. However, CPI adjustments are inadequate to offset declining fuel demand in a higher fuel price environment.

**Chart 2**  
**Indexed Increase - Meeting Critical Needs (Revenue Change)**



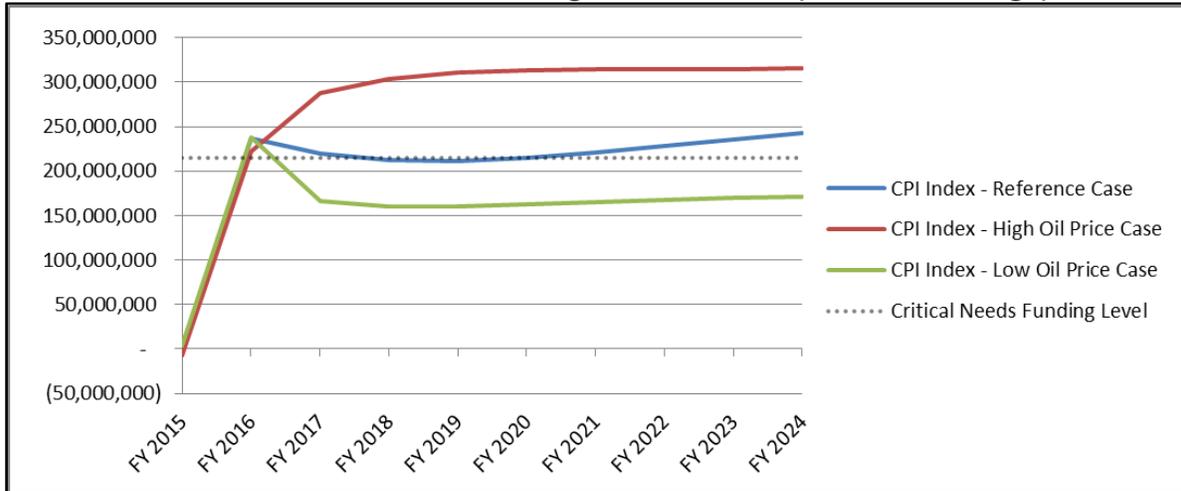
**Chart 2** shows that an **Indexed Increase** fuel tax will fund the critical needs shortfall in all scenarios. Projections estimate that lower inflation environments will result in higher fuel tax revenue. Scenarios that assume higher fuel prices will result in higher inflation. However, CPI adjustments are inadequate to offset declining fuel demand in a higher fuel price environment.

**Chart 3**  
**Sales Tax - Meeting Critical Needs (Revenue Change)**



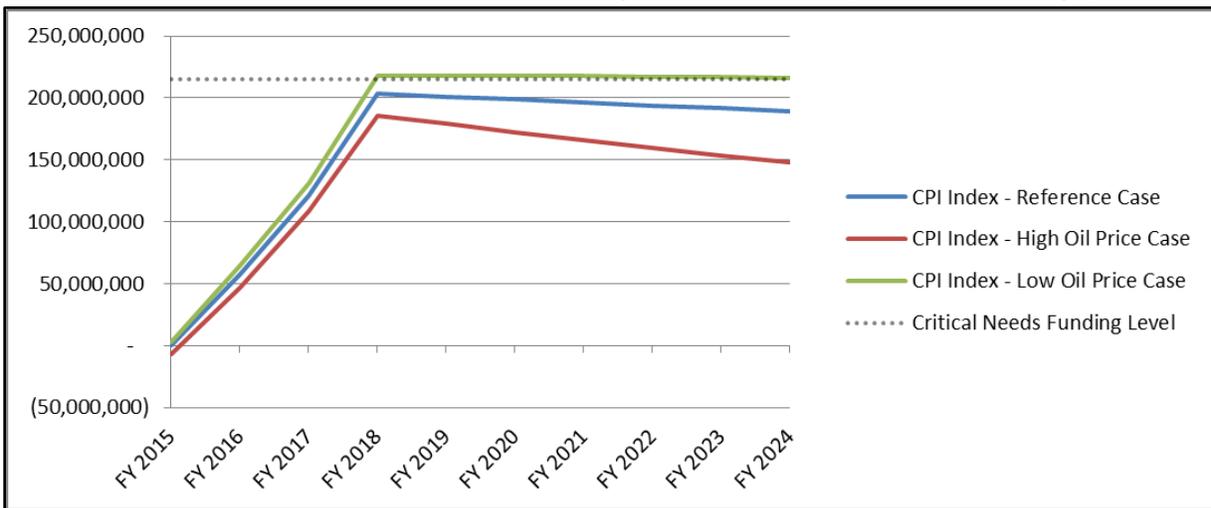
**Chart 3** indicates that a **Sales Tax** will be unable to fund critical needs in all *EIA Scenarios*. Additionally, a **Sales Tax** is estimated to have a high degree of uncertainty. Projections show that moving to a **Sales Tax** will increase the critical funding shortfall under the *Reference and Low Oil Price Scenario*.

**Chart 4**  
**Combination Fuel Tax - Meeting Critical Needs (Revenue Change)**



**Chart 4** shows that a **Combination Fuel Tax** will increase revenue enough to cover the critical needs shortfall in the *EIA Reference* and *High Oil Price Scenario*. The *Low Oil Price Scenario* will fall short of funding critical needs.

**Chart 5**  
**Ten Cent Fuel Tax Increase - Meeting Critical Needs (Revenue Change)**



**Chart 5** shows that a **Ten Cent Fuel Tax Increase** will increase revenue enough to cover the critical needs shortfall only in the *Low Oil Price Scenario*. Under the *Reference Scenario* this option falls short with a revenue increase of \$198.7 million once fully implemented, but revenue will decline thereafter.