

FUTURE OF FUELS

An Analysis of Government Projections Through 2040

2014



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EXECUTIVE SUMMARY

In December 2013, the U.S. Energy Information Administration (EIA) released the early publication of its *Annual Energy Outlook 2014* (AEO2014), providing projections for the energy markets through 2040. NACS used EIA's report to prepare the following analysis.

“Future of Fuels 2014” seeks to determine how EIA's projections will directly affect the retail fuels market, consumer use of specific types of light duty vehicles, and the pace at which alternative fuels may gain market share.

From this analysis, NACS discovered the following:

- The vehicle miles traveled by light duty vehicles (LDV) is projected to increase nearly 29% by 2040. This is lower than last year's forecast of nearly 40% based on EIA's revised method for calculating miles traveled and adjustments made to the demographics and behavior of the driving population.
- The amount of energy required for a LDV to travel one mile is projected to decline approximately 42% by 2040. The vehicles projected to be leaders in increased efficiency will be those powered by gasoline, natural gas and propane — each of which is projected to reduce energy consumption per mile by more than 40%.
- Liquid fuels (consisting of gasoline, diesel fuel and E85) will remain the dominant energy source for transportation, losing only 0.40% share of LDV energy consumption to 99.28% in 2040.
- Gasoline gallons consumed will decline by 24%, while diesel fuel gallons will increase 26% and E85 will expand more than 2,200%. Consequently, gasoline's share of the liquid fuels market is forecast to drop from 71.56% to 59.12%, while diesel will expand from 28.36% to 38.84% and E85 will increase from 0.08% to 2.04%.
- In the vehicle market, the share dominated by gasoline powered vehicles will drop 14% to 79.92%; market share will increase for diesel powered and flexible fuel vehicles (capable of running on gasoline and E85), reaching 4.07% and 10.70%, respectively.
- With respect to renewable fuels, current biofuels — ethanol and biodiesel — are forecast to increase from a 2012 supply of 13.58 billion gallons to 15.87 billion gallons in 2040. By 2040, EIA forecasts the availability of 225 million gallons of cellulosic ethanol.
- Non-liquid fuel alternatives (natural gas, propane, electricity and hydrogen) will increase their total contribution to the light duty vehicle energy consumption by 125%, but still only contribute 0.72% of the energy consumed by 2040.
- Electricity is projected to experience the strongest growth in the non-liquid market, increasing its share of non-liquid LDV energy from 2.45% to 38.47%.
- Hybrid vehicles are forecast to capture the greatest share of the LDV market, growing from 1.1% to 4.4%; plug-in hybrids follow with a 2040 market share of 0.95% and battery electric vehicles capture 0.42%. Natural gas, propane and hydrogen vehicles combine to capture 0.51% of the market.
- On an energy equivalent basis, E85 is reported as the most expensive fuel in 2012, followed by gasoline and diesel fuel. By 2040, there is one change in the three most expensive fuels — diesel becomes the second most expensive behind E85 and above gasoline. Electricity and natural gas are the least expensive fuel choices throughout the forecast.



12

16

12

8

Blank digital display on pump 16

Blank digital display on pump 12

Regular	Plus	Premium
13.9	14.9	15.9

Regular	Plus	Premium
13.9	14.9	15.9

Gasflow

Gasflow



INTRODUCTION

At the end of 2013, the convenience and fuel retailing industry operated 151,282 retail outlets in the United States, of which 126,658 (83.7%) sold motor fuels. In 2012, the industry generated \$700.3 billion in sales, representing one of every \$22 spent in the United States and contributing 4.5% of the nation's Gross Domestic Product (GDP). Further, convenience retailers on average conduct 160 million transactions each day, complete more than 33 million fill-ups and sell more than 80% of the fuel consumed in the United States. Fuel sales represented 77% of the industry's sales and generated 35% of its pretax profits in 2012. Given the importance of the fuels market to the industry, it is critical that convenience retailers understand the potential direction that the market is moving so they can take advantage of emerging opportunities and overcome potential challenges.

Each year the U.S. Energy Information Administration (EIA) publishes an *Annual Energy Outlook*, which provides forecast data for a variety of energy components, including those specifically related to the fuels and vehicles market. In December 2013, EIA made available its interactive data table tool through its *Annual Energy Outlook 2014* (AEO2014), allowing users to conduct a deep dive into the data. NACS has evaluated the EIA data sets relevant to the retail fuels sector of the economy and has assembled in this publication, "Future of Fuels 2014," a series of graphics and analysis to help retailers better understand where the government believes the fuels market is heading.

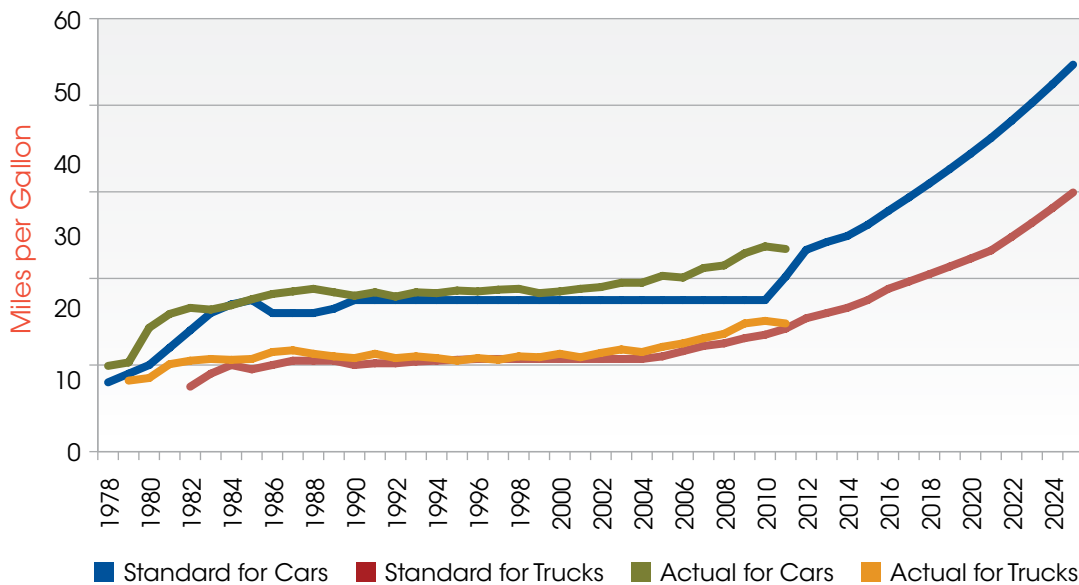
EIA's AEO2014 takes into consideration the full implementation of existing and scheduled regulations, such as the new Corporate Average Fuel Economy (CAFE) standards and the scheduled implementation of the Renewable Fuel Standard (RFS) (excluding the Environmental Protection Agency's proposed adjustment for 2014 required volumes). This presents a credible projection of future trends, barring significant changes in regulations or developments in technologies that would influence future market developments. The data represented in this report, unless otherwise noted, is sourced directly from EIA's AEO2014 Early Release Interactive Table Viewer.

Below are critical regulatory requirements that affect the EIA's projections and will directly affect the fuels and vehicles markets:

CAFE

The U.S. Environmental Protection Agency (EPA) and the National Highway Transportation Safety Administration (NHTSA) are implementing regulations to control greenhouse gas emissions from vehicle tailpipes. These new rules were translated into an estimated effect on required Corporate Average Fuel Economy (CAFE) standards that all vehicles in the United States must meet. The net effect of the policy was to increase the mandated fuel efficiency of the nation's fleet to an average of 54.7 miles per gallon equivalent for passenger vehicles by model year 2025. The actual fuel economy of the fleet is projected to be in the low 40 miles per gallon range, but Chart 1 plots the standard as finalized.

1: Corporate Average Fuel Economy Standards



RFS

Another regulatory requirement that has a significant influence on the composition of the fuels market is the Renewable Fuel Standard (RFS). Originally implemented in 2005, with a requirement that renewable fuels would comprise 7.5 billion gallons of the market by 2012, Congress revised the program in the Energy Independence and Security Act (EISA) of 2007. The RFS now requires a mix of qualified renewable fuels, each delivering a specific reduction in lifecycle greenhouse gas emissions, culminating in a minimum of 36 billion gallons by the year 2022.

Renewable Fuel Standard Implementation Schedule (Billion Gallons)

Year	Renewable Fuels	Advanced Biofuel	Advanced Biofuel as Cellulosic	Advanced Biofuel as Biomass-based Diesel	Total Renewable Fuels
2008	9.0	n/a	n/a	n/a	9.0
2009	10.5	0.6	n/a	0.5	11.1
2010	12.0	0.95	0.1	0.65	12.95
2011	12.6	1.35	0.25	0.80	13.95
2012	13.2	2.0	0.5	1.0	15.2
2013	13.8	2.75	1.0		16.55
2014	14.4	3.75	1.75		18.15
2015	15.0	5.5	3.0		20.5
2016	15.0	7.25	4.25		22.25
2017	15.0	9.0	5.5		24.0
2018	15.0	11.0	7.0		26.0
2019	15.0	13.0	8.5		28.0
2020	15.0	15.0	10.5		30.0
2021	15.0	18.0	13.5		33.0
2022	15.0	21.0	16.0		36.0

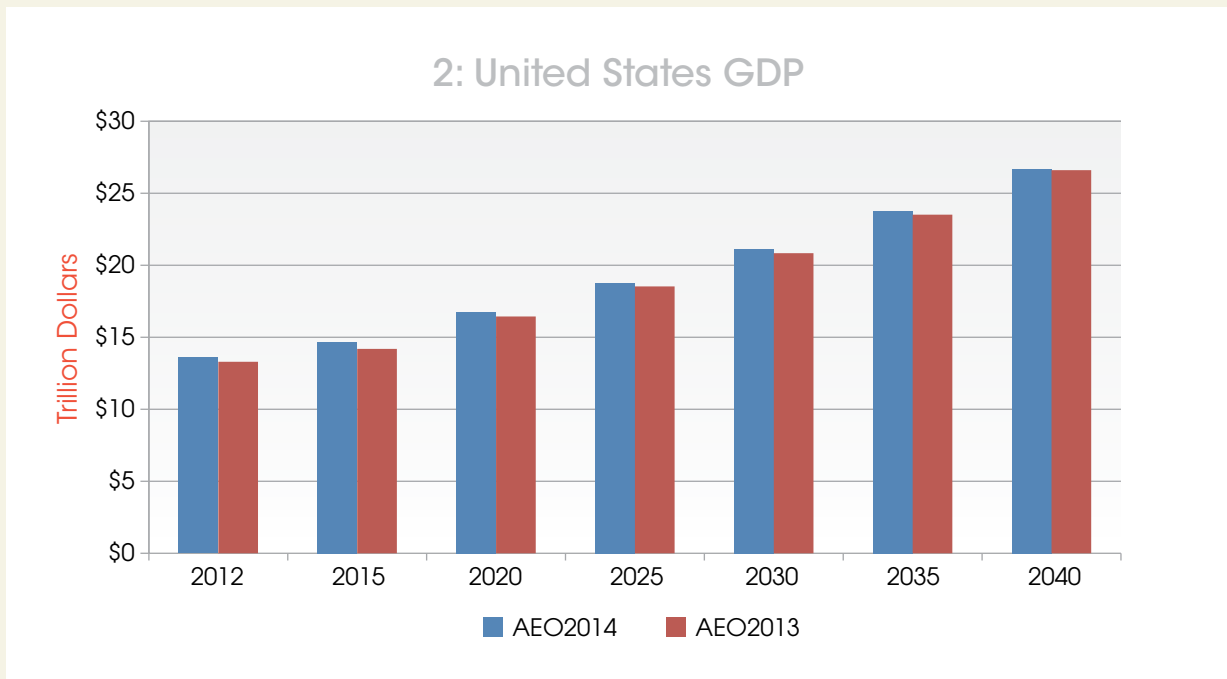
(Source: P.L. 110-140; Energy Information and Security Act of 2007)



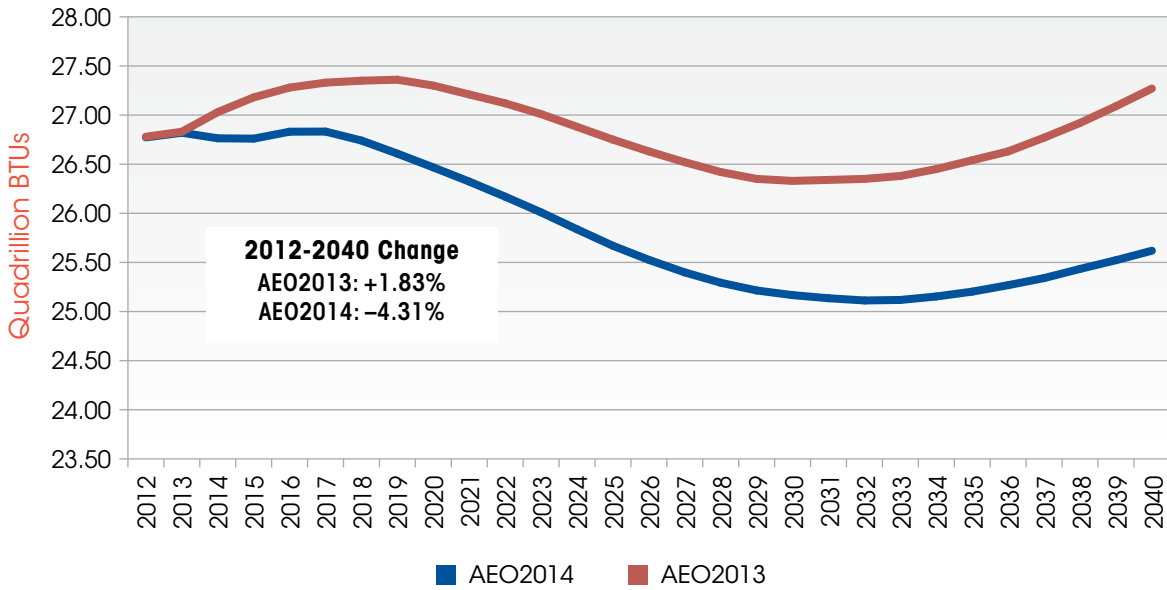
OVERVIEW

The U.S. transportation sector represents 28% of the energy consumed in the United States. The expansion of this sector is heavily influenced by macroeconomic factors. One of the major factors used by most analysts when forecasting fuel and vehicle markets is gross domestic product (GDP). In EIA's AEO2014, GDP is forecast to increase 96.2% through 2040 — down just slightly from the 2013 forecast growth of 100.1%. (Chart 2)

This slight change is due primarily to an adjustment in the reported GDP for 2012 and should not have a significant effect on fuel demand forecasts compared to EIA's 2013 analysis.

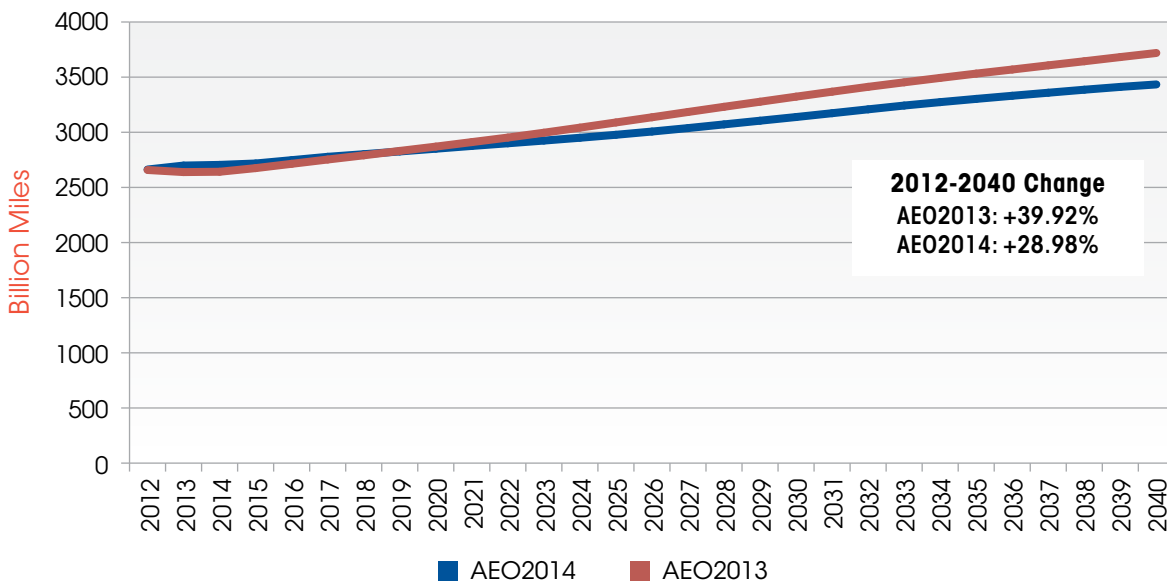


3: Transportation Energy Consumption



Despite the forecast for GDP growth, EIA forecasts a significant reduction of 4.31% in overall transportation energy consumption through 2040. (Chart 3) EIA attributes this drop to “macro-economic factors, higher energy efficiency, changing demographics and a revised calculation of VMT [vehicle miles traveled].” Importantly, EIA has reduced its forecast for growth in total miles traveled by light duty vehicles (LDV) from its 2013 projected 39.92% increase to 28.98%. (Chart 4) EIA reports it “implemented a new approach to VMT projections for LDVs, based on an analysis of VMT by age cohorts and the aging of the driving population over the course of the projection.” Significant influential trends cited by EIA also include decreasing rates of licensing and travel among younger age groups, employment and income factors.

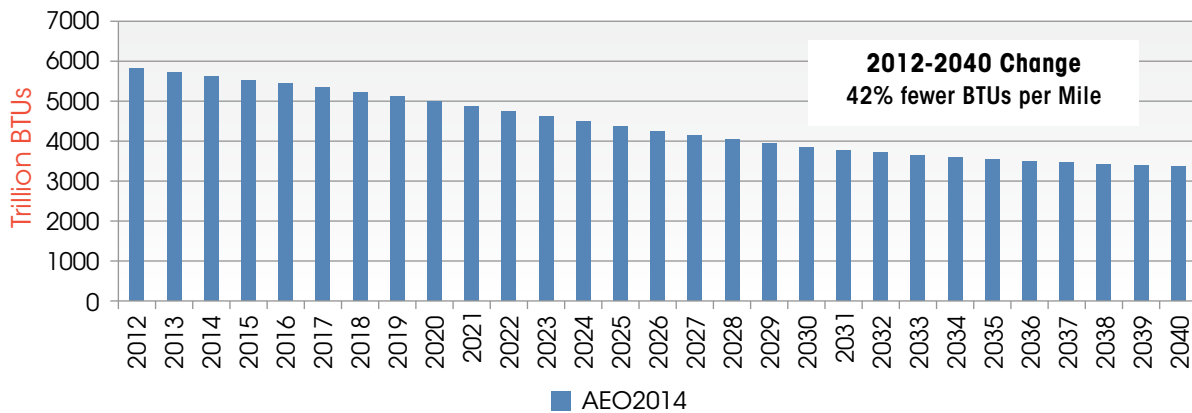
4: Light Duty Vehicle Miles Traveled



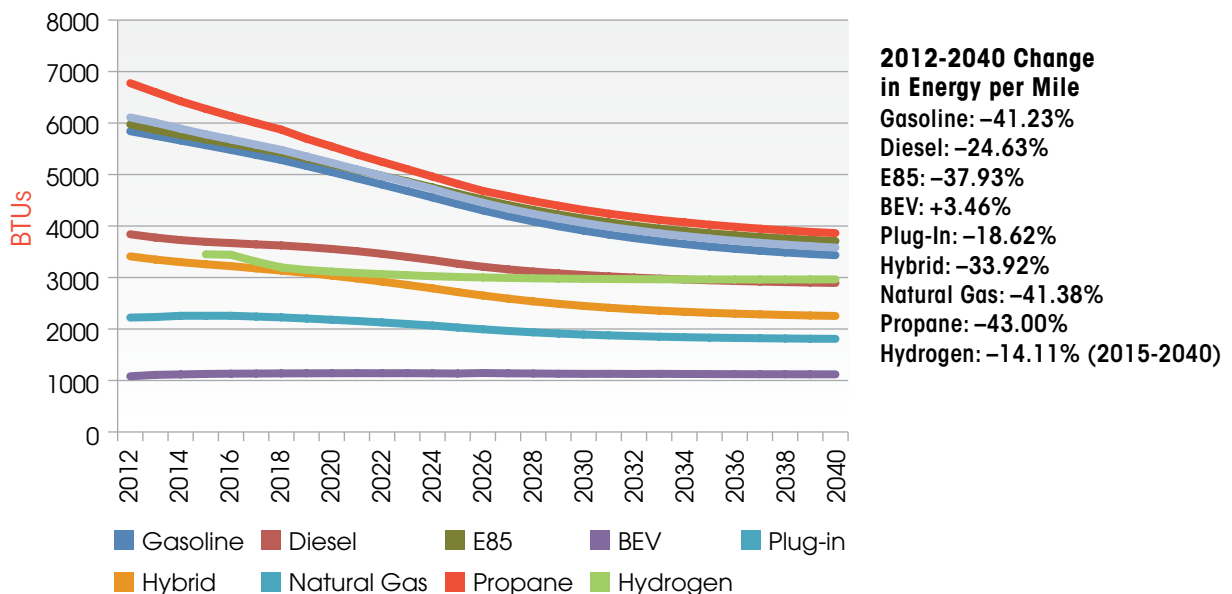
Trends in the transportation energy consumption and driving behaviors are critical to the convenience and fuel retailing industry, which generates 72% of its revenues from the sale of transportation fuels. For the majority of convenience retailers, the primary fuel customer is the driver of LDVs, like automobiles and light trucks. Consequently, understanding the projected market developments as they specifically relate to LDVs and their associated fuel consumption is valuable for the industry — in addition, it is a subset of data that is available in a segmented form from EIA.

Over the next 26 years, despite increasing LDV VMT by 28.98%, consumers will be driving much more fuel efficient vehicles — dropping their energy consumption (measured in British thermal units, or BTUs) per mile by 42%. (Chart 5) The improved fuel efficiency of LDV transportation, however, will not be spread evenly amongst vehicle and fuel types. Only three types are projected to reduce their energy consumed per mile by more than 40% — gasoline, natural gas and propane. (Chart 6)

5: Energy Consumed per Mile (Light Duty Vehicles)

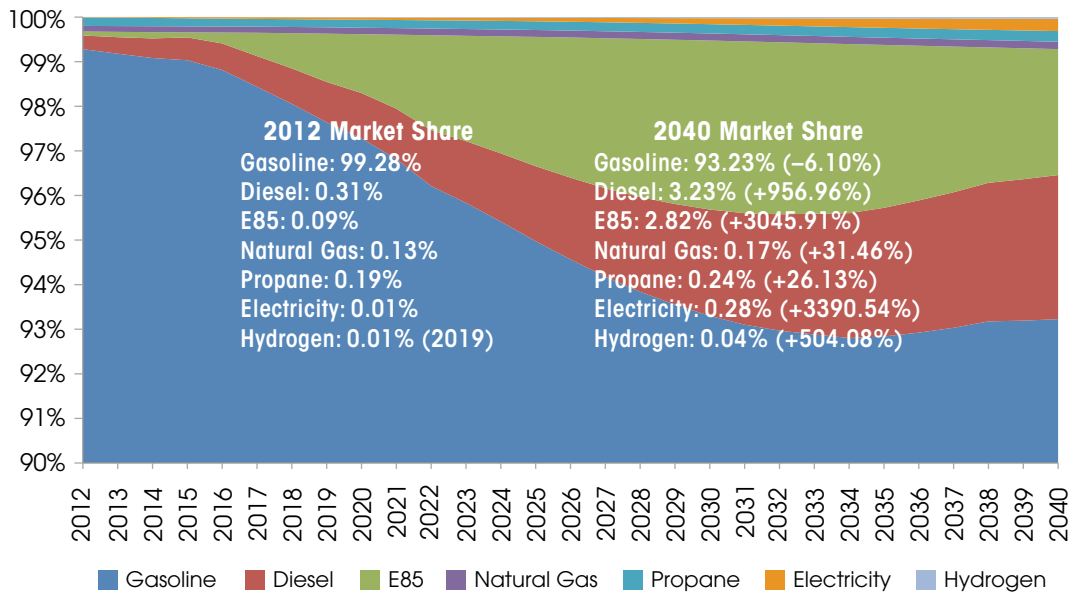


6: Energy per Mile Traveled by Fuel

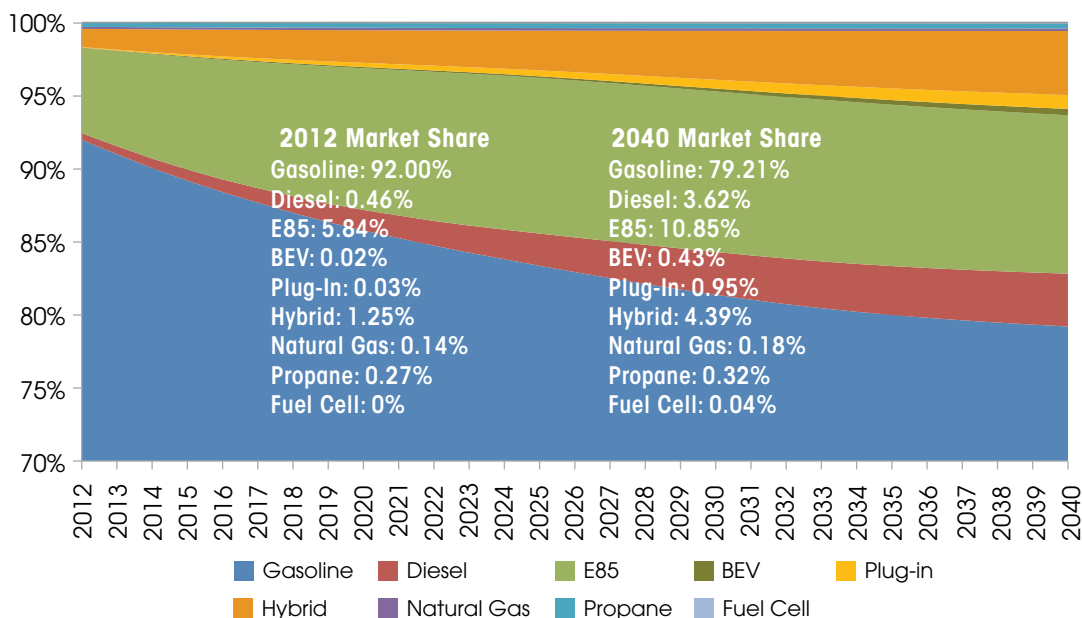


Despite its advances in fuel efficiency, gasoline is forecast to lose some market share over the forecast period. EIA projects consumers will have a greater variety of choices for fueling their vehicles. Although gasoline will remain the dominant energy source for LDVs, its share of energy consumed by LDVs is projected to decline 6.1%. (Chart 7) At the same time, gasoline powered vehicles will lose 12.79% of their market share for total LDV miles traveled. Vehicles expected to take market share away from those powered by gasoline include diesel, flexible fuel vehicles (FFVs — capable of running on gasoline or fuels up to E85), and hybrid gasoline-electric vehicles. (Chart 8)

7: Fuels as a Percentage of LDV Energy (Based on BTUs)



8: Percentage of VMT by Vehicle Type



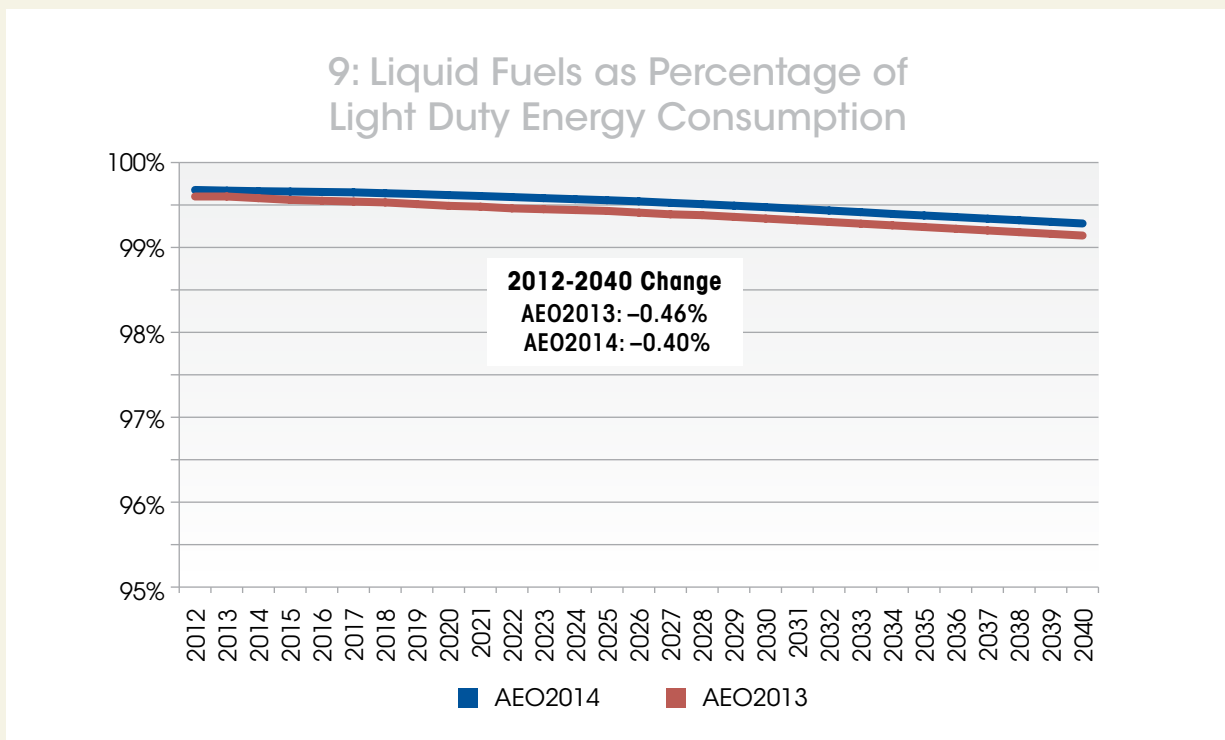




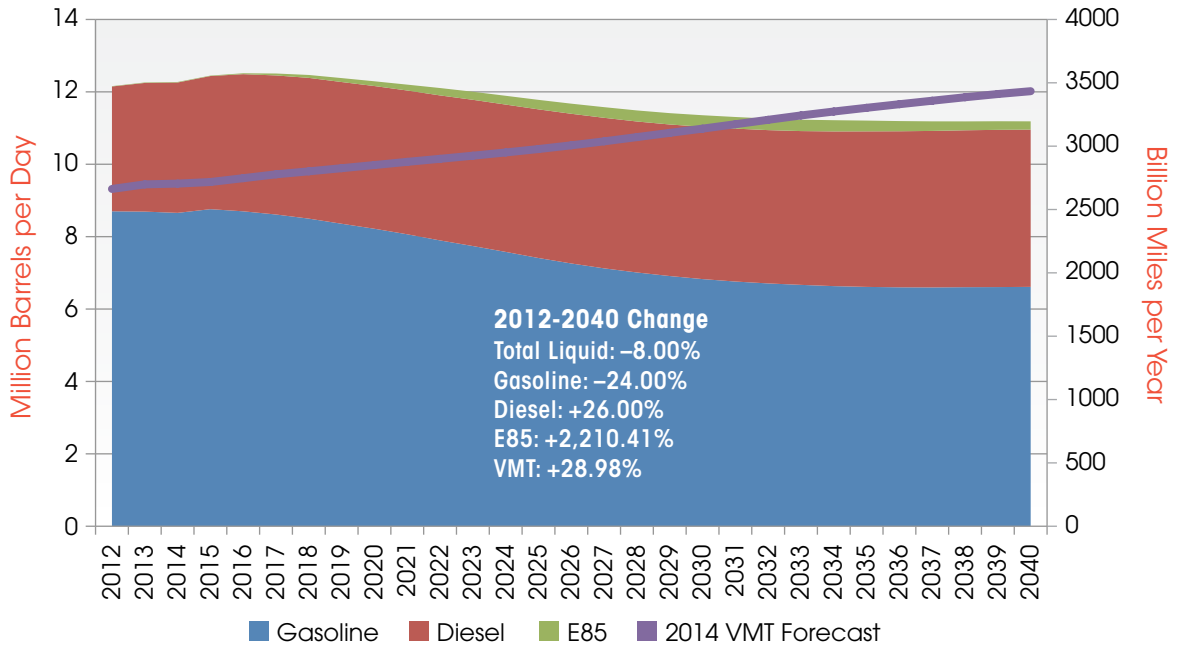
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LIQUID FUELS

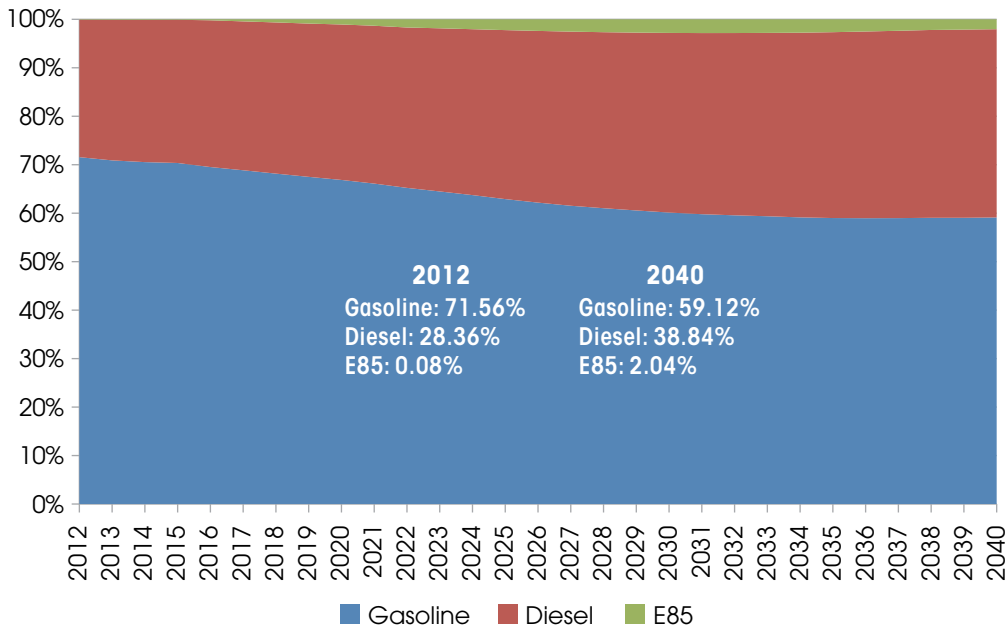
Despite the continued attention paid to alternative fuel vehicles and the forecast explosive growth with some new technologies, liquid fuels (defined here as gasoline, diesel and E85) remain the overwhelmingly dominant energy sources for light duty vehicles, commanding a 99.14% market share. (Chart 9) However, due to improved fuel efficiency, while LDV VMT is projected to increase 28.98%, overall liquid fuel consumption is projected to decline 8.0%. This drop is led by a 24% decrease in gasoline consumption that will be partially offset by a 26.0% increase in diesel consumption and a 2,210.41% increase in E85 consumption. (Chart 10) As a consequence, gasoline's command of the liquid fuels market will drop from a 71.56% market share to 59.12%. (Chart 11) The AEO2013 and AEO2014 projections for consumption volumes for gasoline, diesel and E85 are presented in Charts 12, 13 and 14.



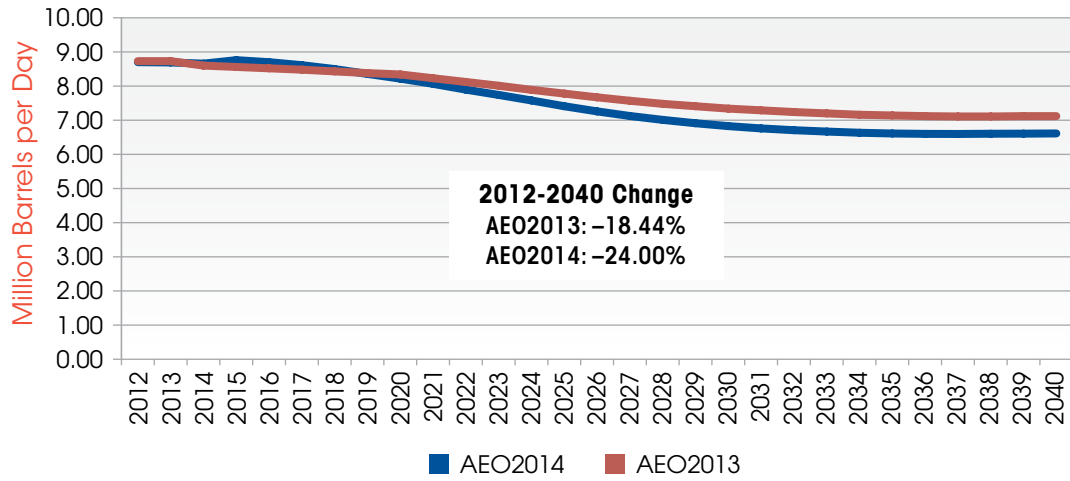
10: LDV VMT vs Liquid Gallons



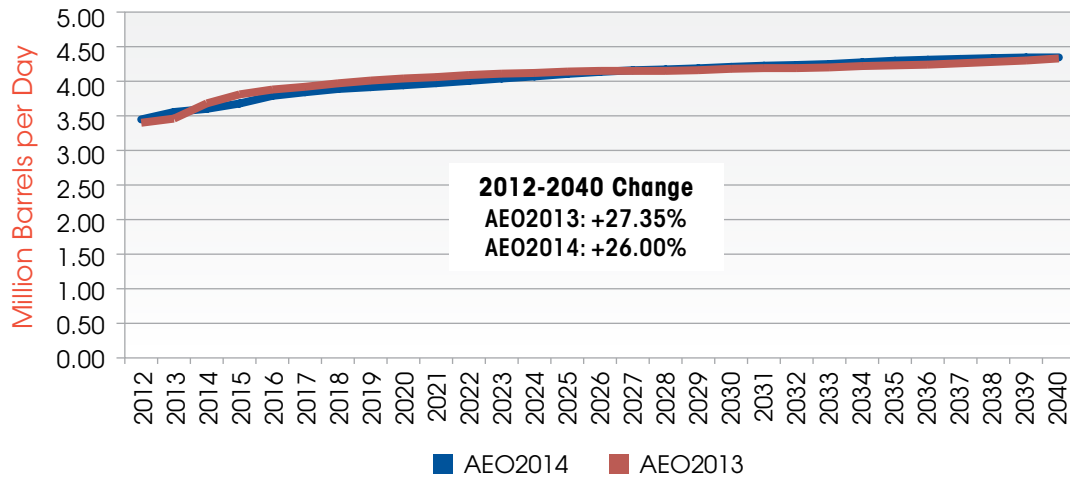
11: Percentage of Liquid Fuels Market



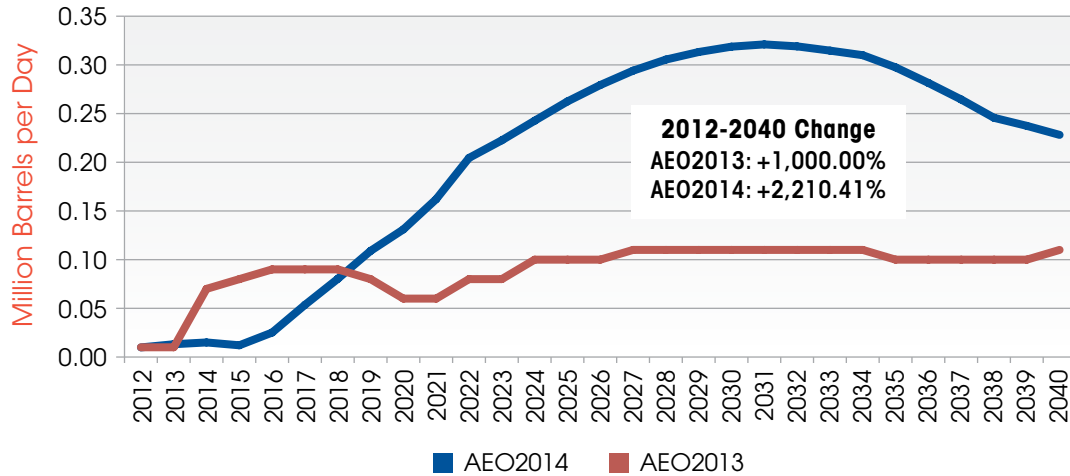
12: Gasoline Volumes



13: Diesel Volumes

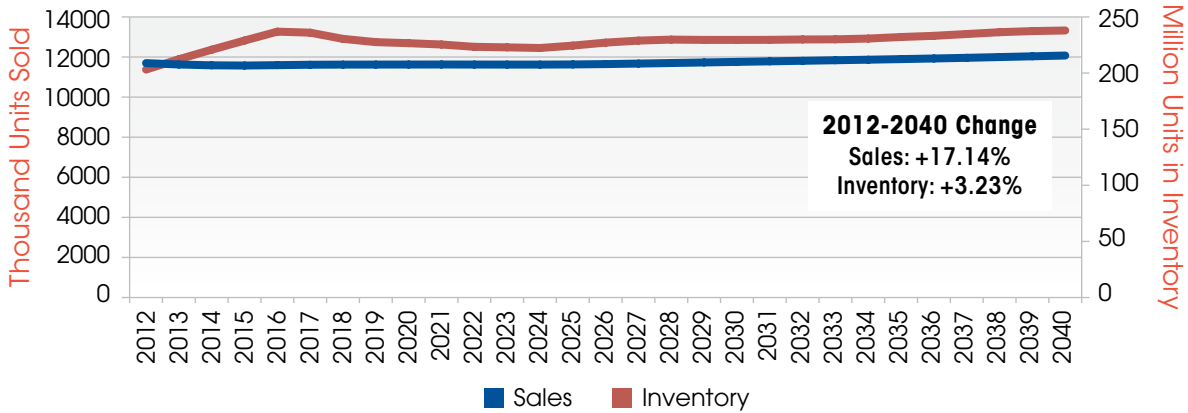


14: E85 Volumes

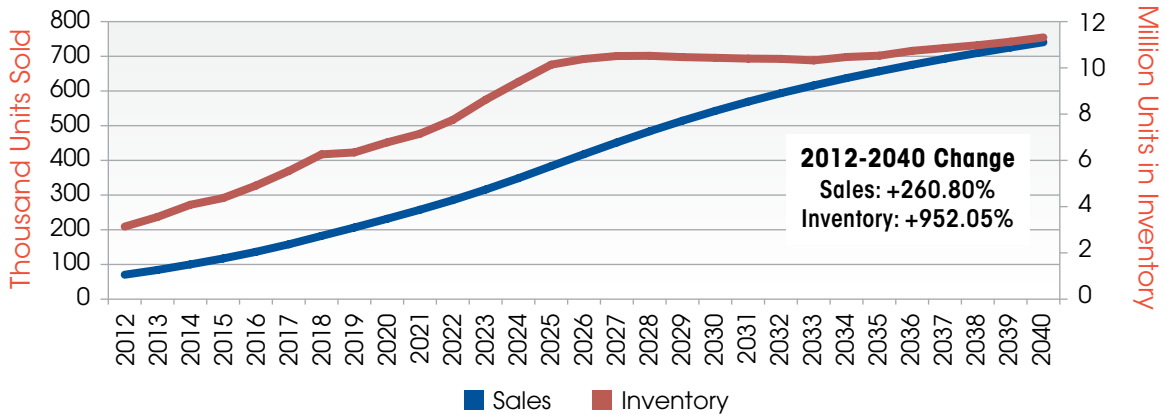


Although gasoline consumption is forecast to decline by 24%, the projected 42% improvement in BTUs per mile helps explain how it is possible for vehicles powered by gasoline internal combustion engines (ICE) to remain popular with sales increasing 17.14% and the total number in the market growing 3.23%. (Chart 15) Meanwhile, the increased reliance of consumers on diesel and E85 powered vehicles is evidenced by the forecast strong increase in vehicle sales and inventories for these two engine-types. (Charts 16 and 17)

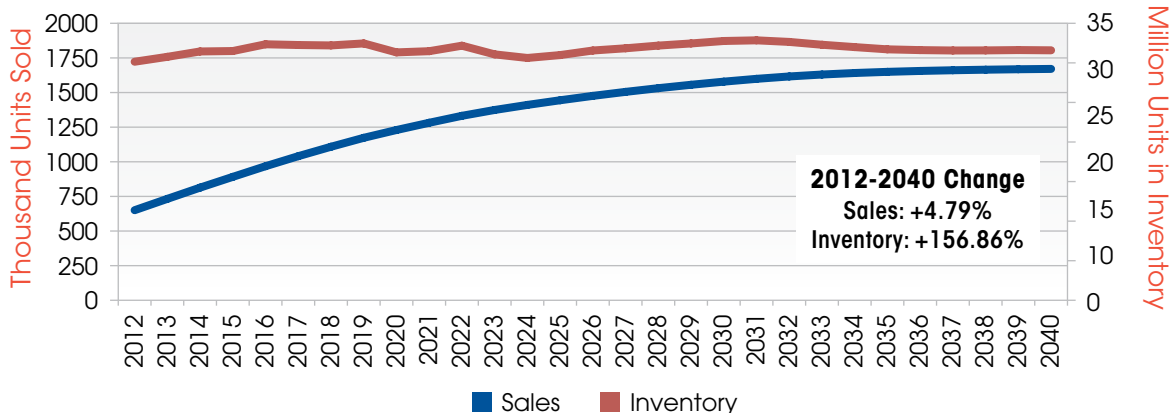
15: Gasoline LDVs



16: Diesel LDVs

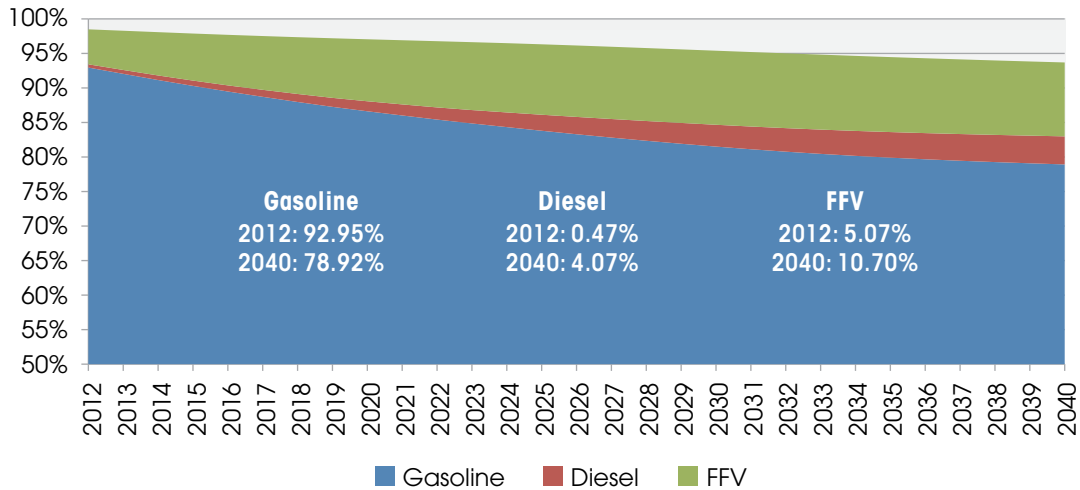


17: FFV LDVs



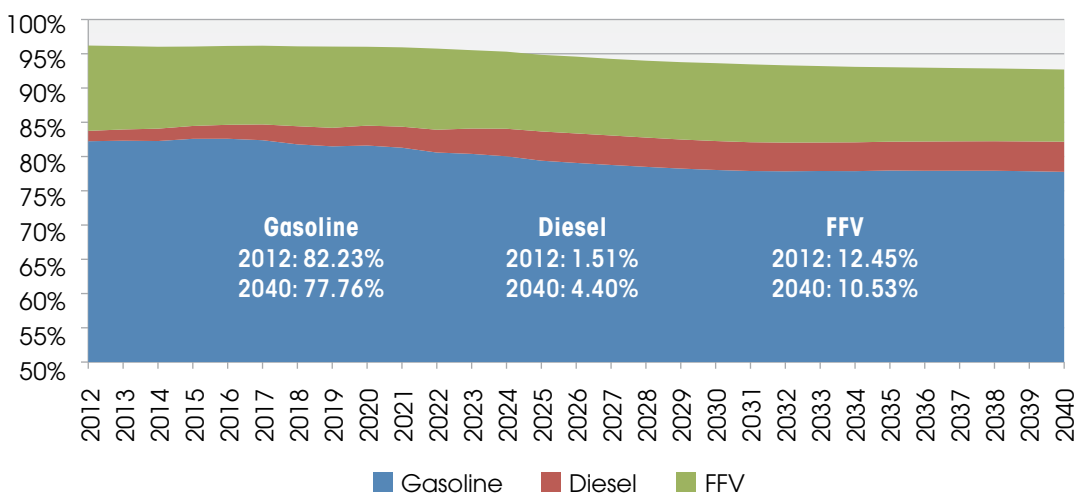
Despite the growth of diesel and E85-powered vehicles, by 2040 they only represent a combined 14.77% of the LDV market. This does, however, represent an increase from 5.54% in 2012 at the expense of gasoline vehicles, which are forecast to lose 14.03% market share by 2040. (Chart 18)

18: Percentage of Total LDV Inventory



It takes approximately 20 years for a vehicle fleet to turn over, meaning that the conversion of vehicle inventories to different fuel systems takes a considerable amount of time. While the number of vehicles on the road is significantly important to project fuel demand, changing consumer mindsets can be better evaluated by looking at forecast sales. From this perspective, it is again clear that gasoline-powered vehicles are projected to lose ground, dropping from an 82.23% share of new LDV sales to 77.76% while diesel is forecast to increase from 1.51% to 4.40%. However, flexible fuel vehicles (FFVs) that can run on E85 are forecast to lose 1.92% of new vehicle sales market share. (Chart 19)

19: Percentage of Total LDV Sales



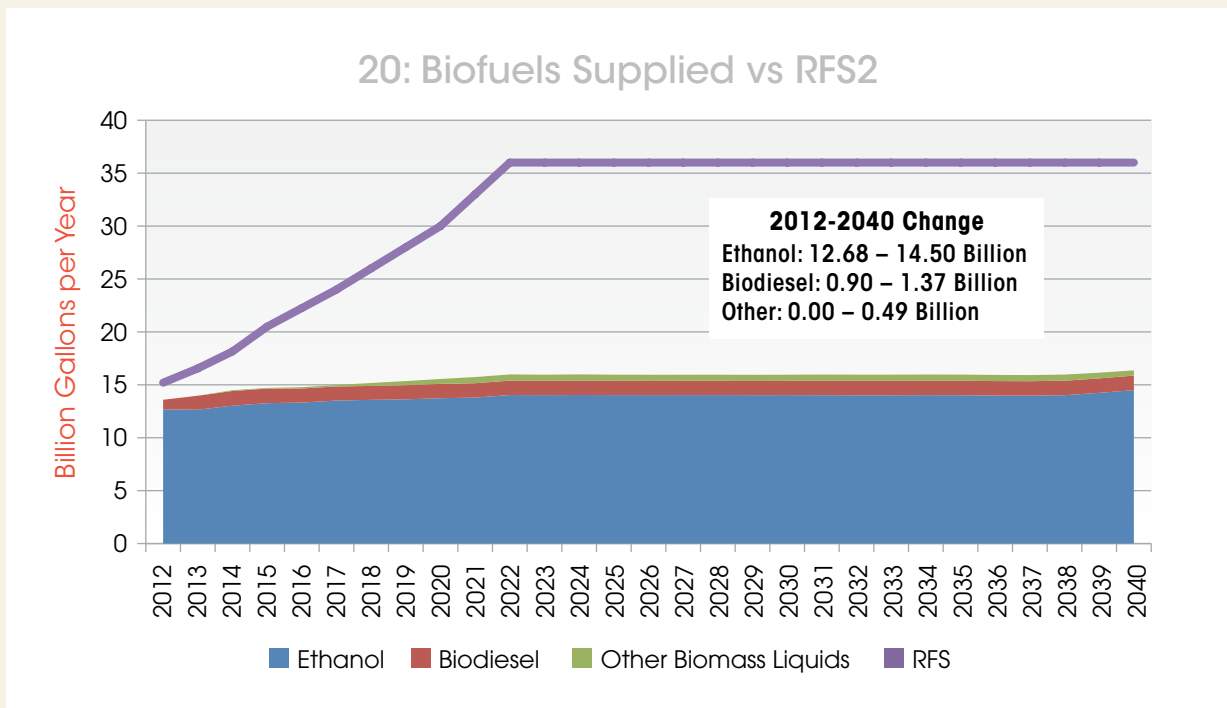
While the market share of gasoline and gasoline-powered vehicles will be challenged over the next several decades, EIA's projections do not indicate any other fuel or technology will overtake gasoline as the primary fuel of choice for American LDV consumers.



RENEWABLE FUELS

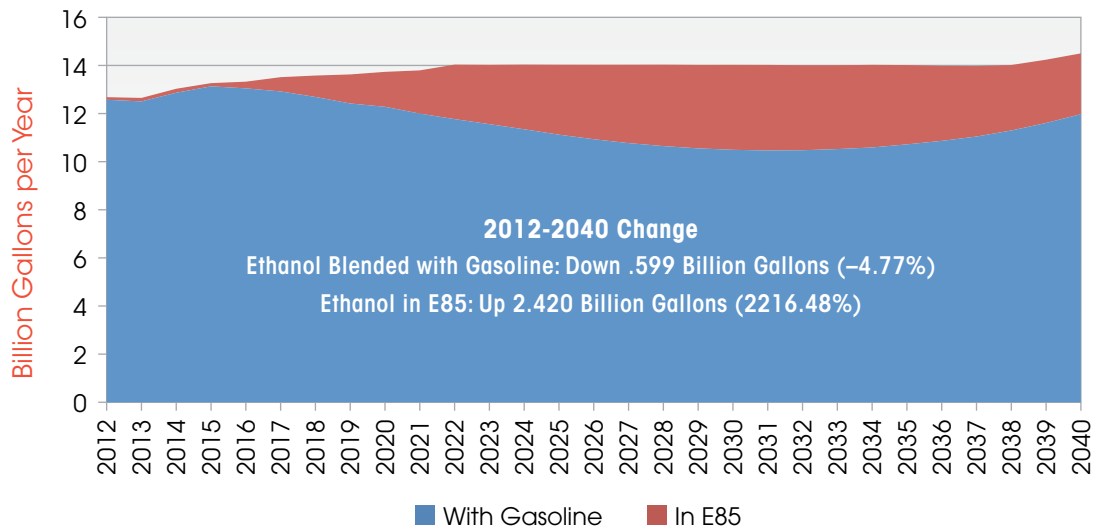
The federal Renewable Fuel Standard (RFS) requires the use of 36 billion gallons of qualified renewable fuels by 2022. For 2014, the Environmental Protection Agency (EPA) for the first time proposed to reduce the overall amount of renewable fuels required under the program. (At press time, the EPA's proposal had not been finalized.) It is expected that the agency will review the market and could potentially adjust the program in future years as well.

There is significant controversy surrounding EPA's actions with respect to 2014. However, the following data comparing the RFS statutory requirements (prior to EPA's actions) with EIA's projections for the supply of ethanol and biodiesel shows a significant challenge facing the market absent some adjustments. According to EIA's projections, there is a significant expected gap between the program's required volumes and the forecast market for current biofuels. (Chart 20)



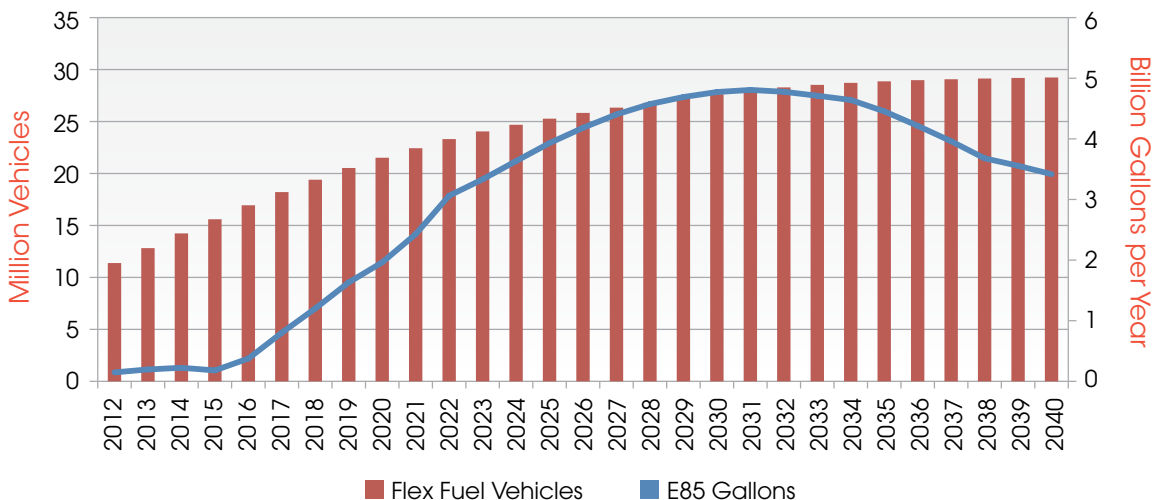
Biodiesel’s contribution to satisfying the RFS is limited for several reasons: 1) the market for diesel fuel itself is relatively small, despite the EIA’s projected growth; 2) biodiesel is typically blended at concentrations less than 5%; and 3) the biodiesel production infrastructure is not expected to ever be large enough to produce billions of gallons. Consequently, ethanol remains the primary fuel used to satisfy the RFS. For this fuel, however, EIA is forecasting a 4.77% reduction in the use of ethanol as a blending component in gasoline. This is offset by the forecast increase in the use of ethanol in E85, using the government’s estimated average blend rate of 74% ethanol per gallon of E85. (Chart 21)

21: Ethanol Gallons



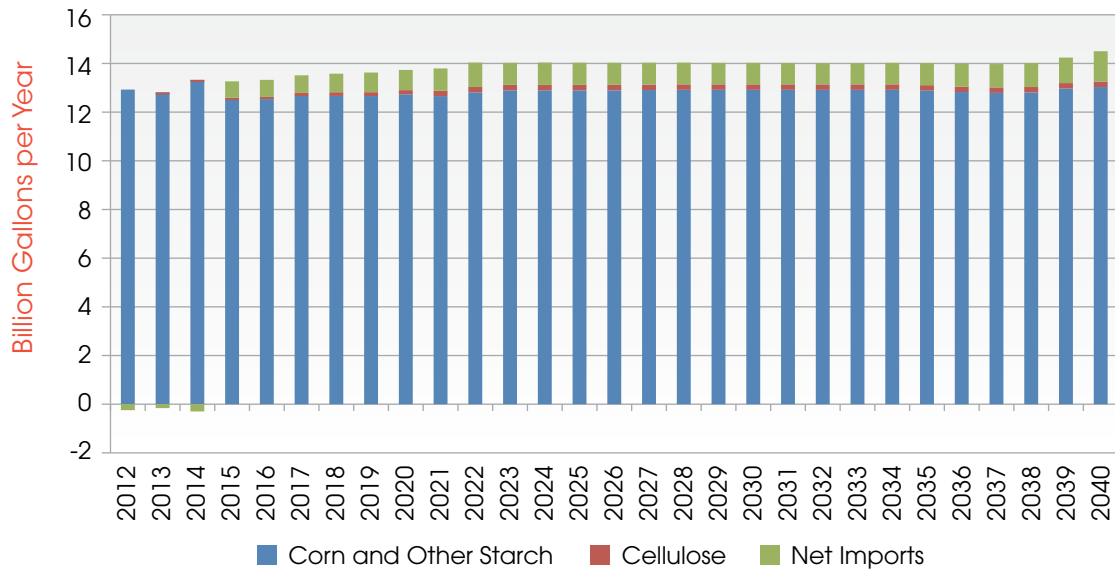
The use of E85 is limited by the number of FFVs on the road. Although EIA projects a significant increase in the consumption of E85, its market expansion is constrained by both infrastructure limitations and vehicles. EIA forecasts a significant increase in the number of FFVs, but even with this growth it projects fewer than 30 million vehicles — less than 11% of the LDV market. (Chart 22)

22: FFVs and E85



Another challenge facing the RFS is the requirement that a significant portion of the renewable fuels used to satisfy the requirement must be advanced biofuels, such as cellulosic ethanol. EPA has three times reduced the required volume of cellulosic ethanol due to its lack of availability. EIA does not forecast this situation changing much through 2040 and the vast majority of ethanol used in the United States will be produced using corn as a primary feedstock. (Chart 23)

23: Sources of Ethanol

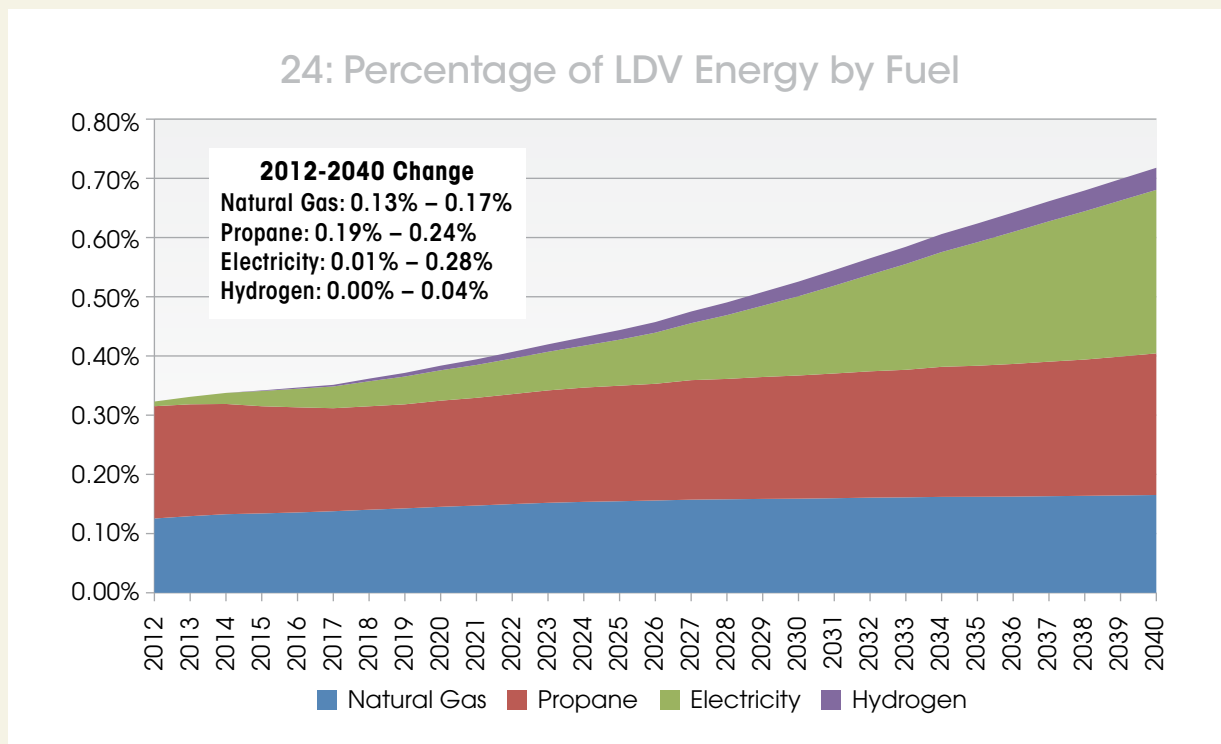


While EIA projects a strong market for renewable fuels through 2040, its forecasts do not meet the requirements of the RFS, which will leave the market and public officials searching for alternative methods to comply with the program.



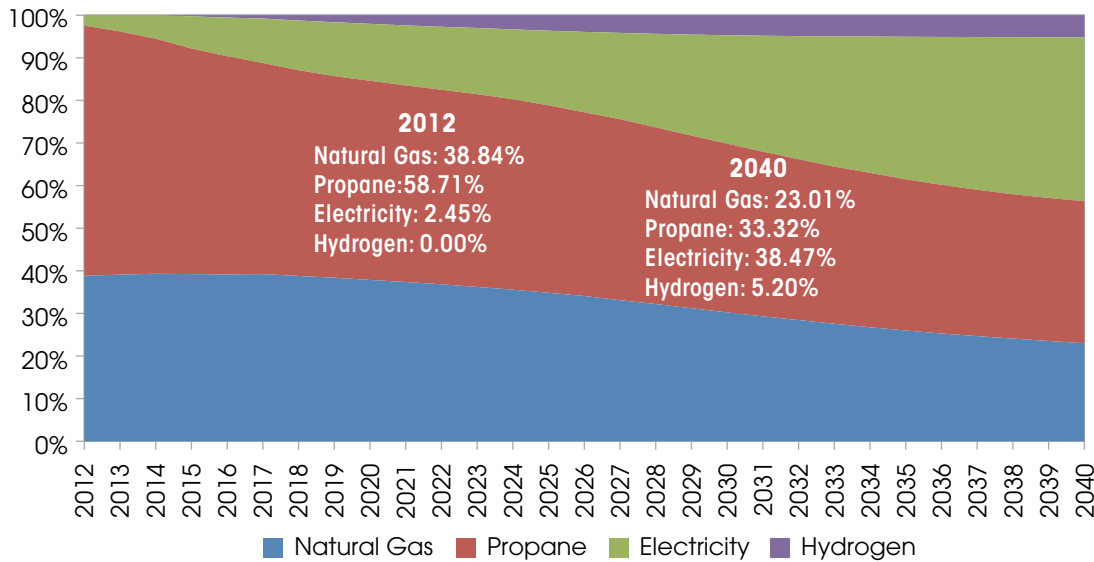
NON-LIQUID FUELS

Despite the dominant role of liquid fuels to power light duty vehicles, there remains considerable interest in the development of markets for alternative vehicles powered by electricity, natural gas, propane and hydrogen. The battle for primacy of each technology is competitive, although EIA forecasts that this battle is for control of just 0.72% of the LDV fuels market and such market share growth is measured in 100ths of a percent. (Chart 24)



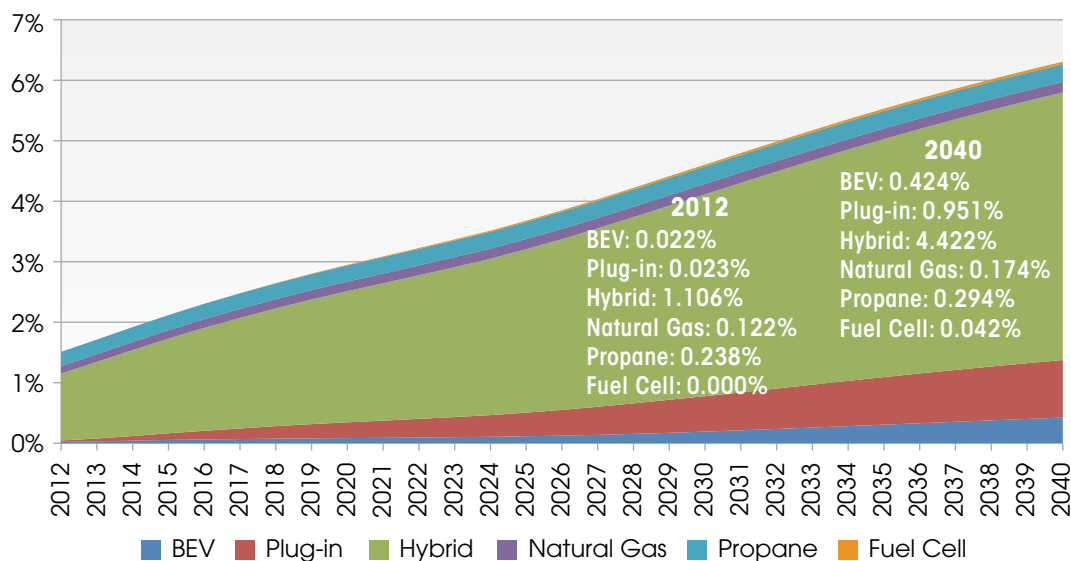
To get a better idea of which alternative fuel in this competitive market shows the most promise, it is useful to evaluate EIA's projections of market share within this sector. In its analysis, EIA is forecasting that by 2040, electricity will edge slightly above propane in LDV market share, while natural gas is forecast to lose some ground. (Chart 25)

25: Percentage of Non-Liquid BTUs

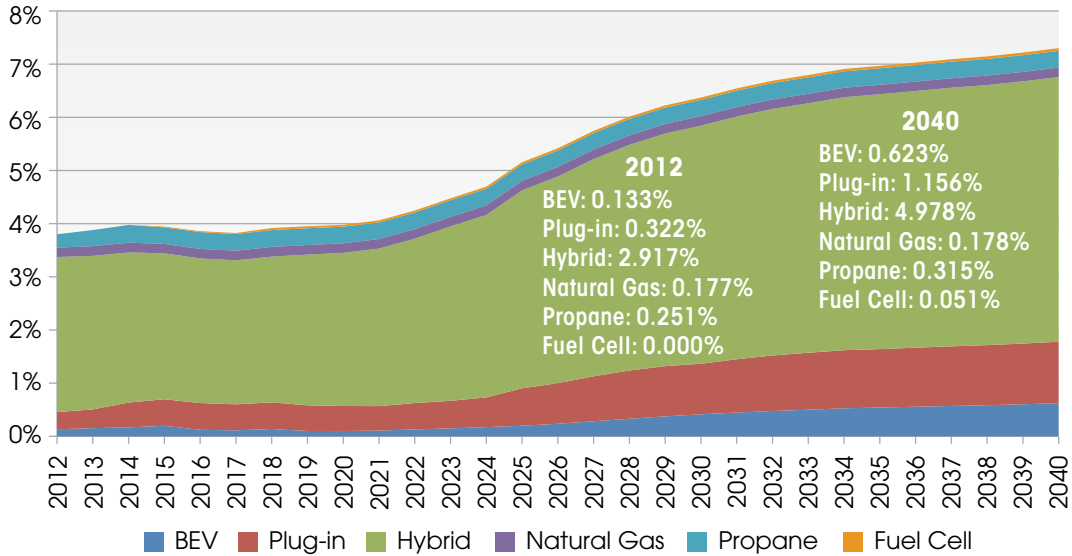


Alternative fuel vehicles are forecast to represent less than 7% of the LDV market by 2040, and if hybrid vehicles are removed from the category, market penetration would be only 1.88%. (Chart 26) Sales are expected to nearly double, from 3.8% of the LDV market to 7.3%. Again, however, if hybrids are taken away from the category, sales will grow from 0.88% to 2.32%. (Chart 27)

26: Percentage of LDV Inventory



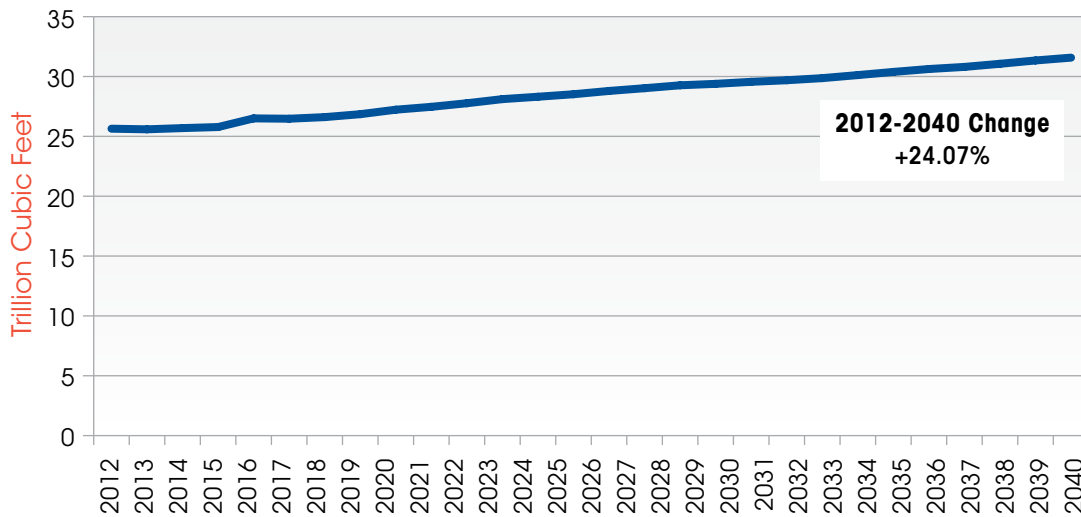
27: Percentage of LDV Sales



NATURAL GAS

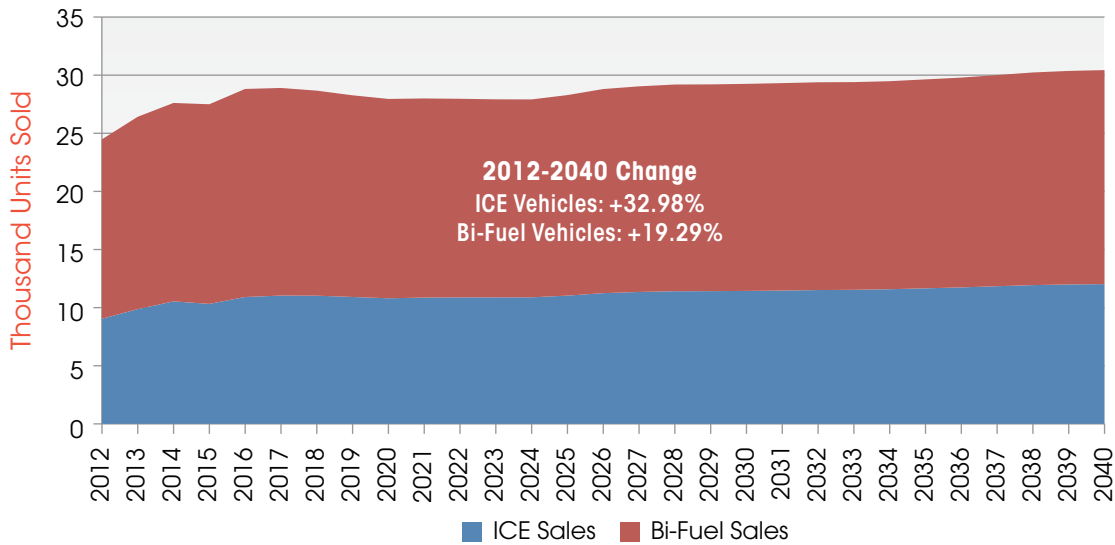
Natural gas continues to attract significant attention in the United States, largely because of the significant reserves located in North America (*Chart 28*), the relatively low price of the product compared to oil and its low emissions profile, especially as it relates to carbon emissions.

28: Total Natural Gas Supply

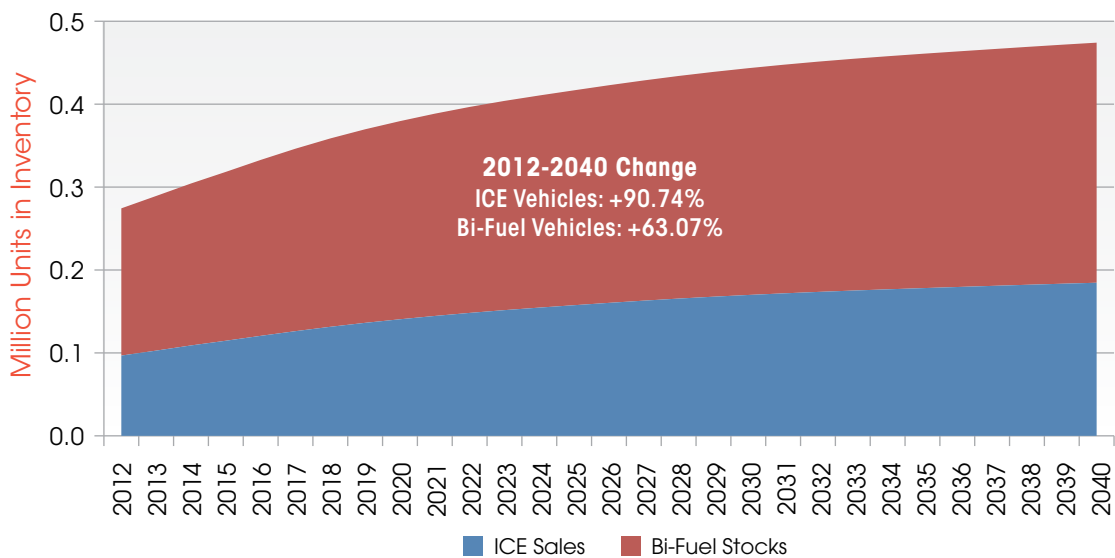


Despite continued strong interest, EIA projects slow development of the natural gas vehicle (NGV) market. NGV sales are projected to increase 19.29% for bi-fuel vehicles (those that run on natural gas or gasoline and are equipped with two separate fuel tanks) and 32.98% for dedicated internal combustion engine (ICE) natural gas vehicles (Chart 29), while inventories are expected to increase 63.07% and 90.74%, respectively. (Chart 30) Overall, however, sales and inventories will remain less than 0.18% of the LDV market. (Charts 26-27)

29: Natural Gas Vehicle Sales

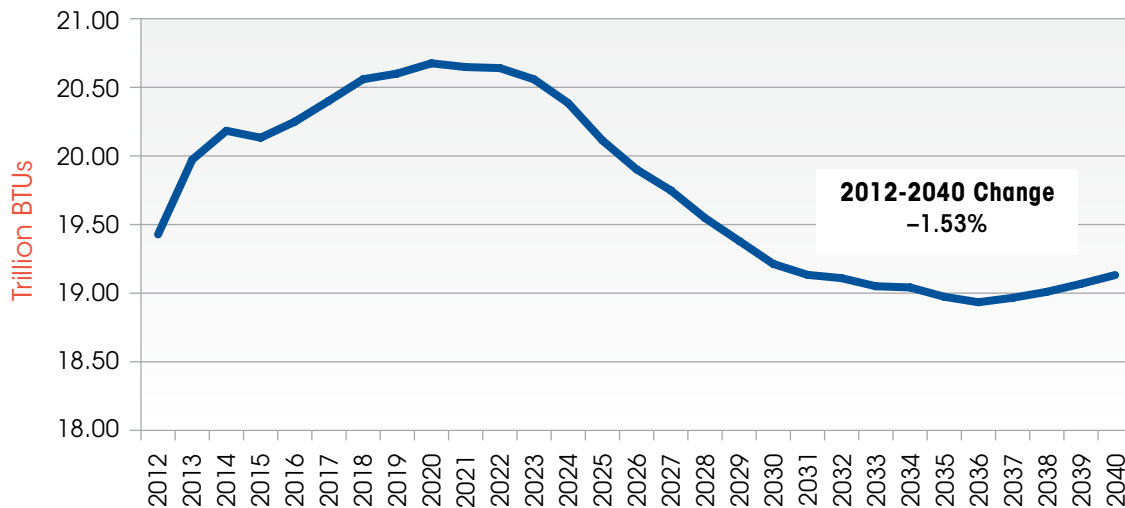


30: Natural Gas Vehicles in Inventory



As a contributor to overall LDV energy consumption, natural gas efficiency is projected to improve, reducing BTUs per mile by 41.38%. (Chart 6) Combined with the increase number of NGVs in the market, this will result in a 1.53% reduction in total LDV energy provided by natural gas. (Chart 31)

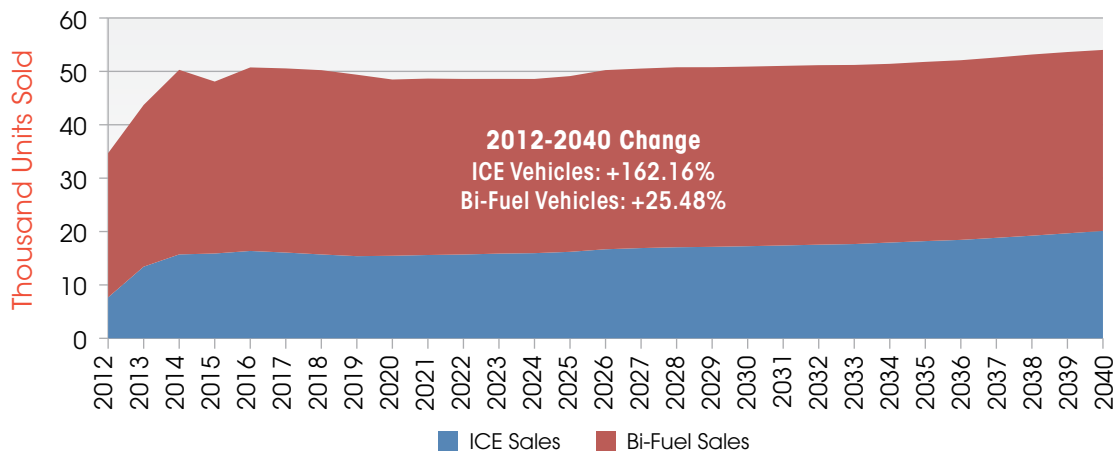
31: LDV Energy Provided by Natural Gas



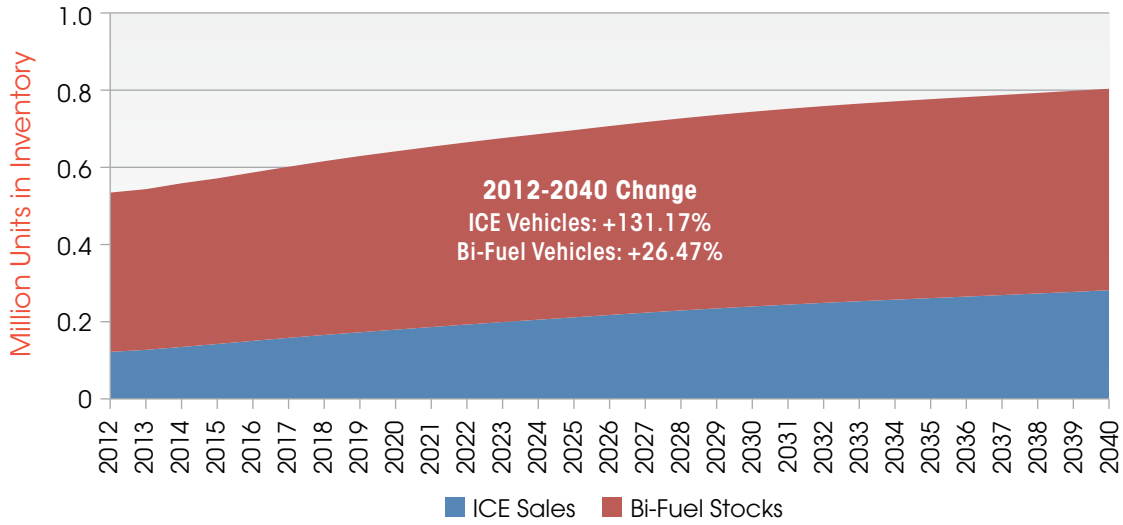
PROPANE

Propane-powered vehicles are among the most plentiful in the non-liquids market (excluding hybrids), representing 0.251% of sales and 0.238% of inventories 2012. (Charts 26-27) EIA forecasts a healthy growth rate through 2040 in both sales and stocks. (Charts 32-33) Propane vehicles are projected to become 43% more efficient over the forecast period (Chart 6), which will contribute to a 5.65% decrease in total LDV energy consumption. (Chart 34) This will not, however, significantly increase propane vehicle market share and won't be enough to prevent it from being downgraded below BEVs and plug-in vehicles in terms of both inventories and sales (Charts 26-27).

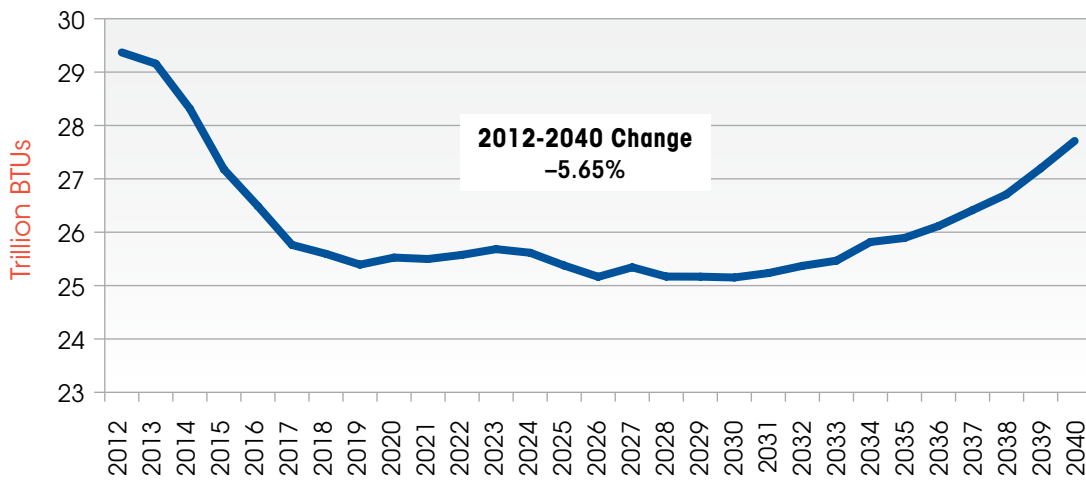
32: Propane Vehicle Sales



33: Propane Vehicles in Inventory



34: LDV Energy Provided by Propane

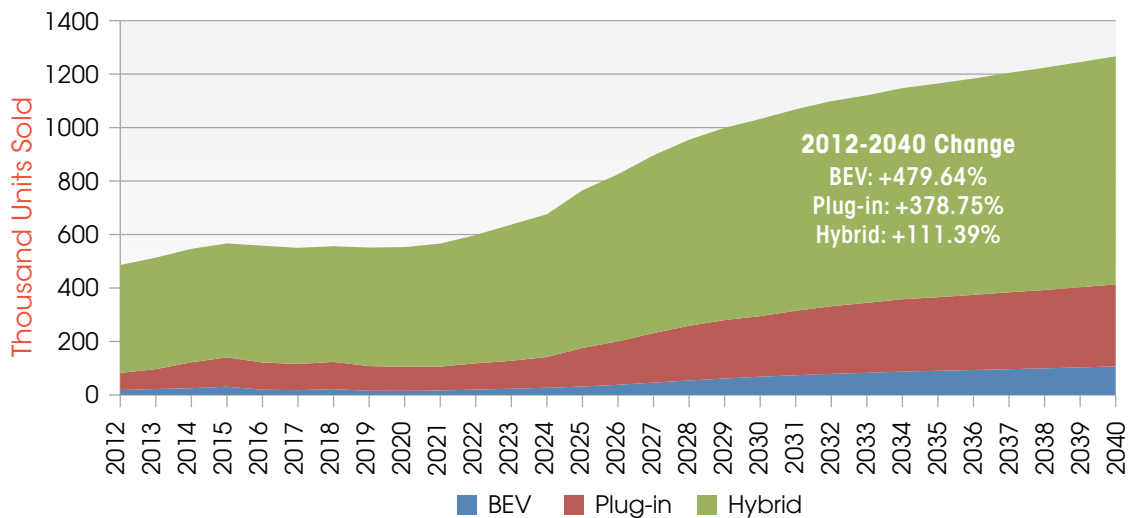


ELECTRICITY

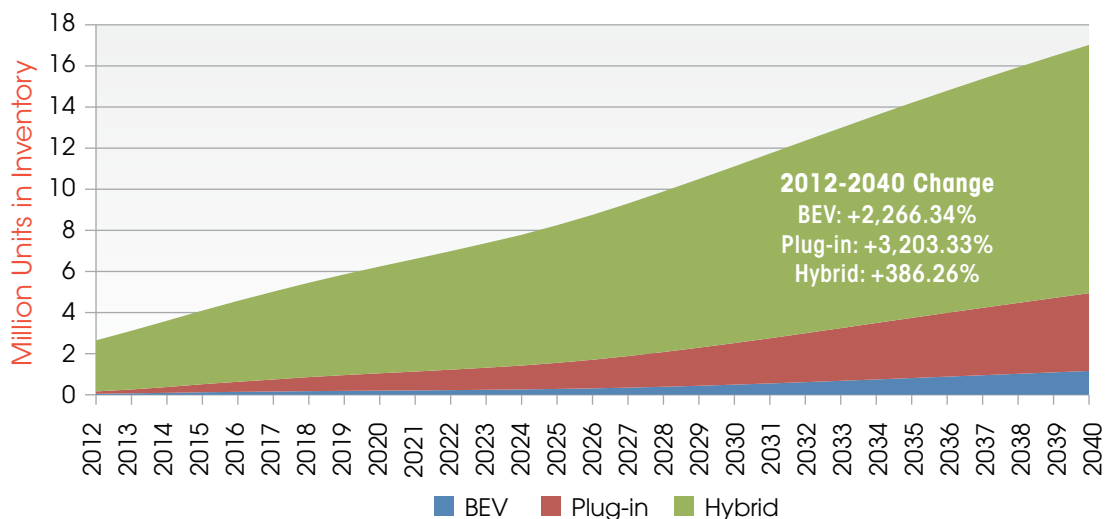
EIA remains bullish on the future of electric-powered vehicles, forecasting BEV inventories to grow in market share from 0.022% to 0.424% (Chart 26) and to quintuple in sales market share from 0.133% to 0.623%. (Chart 27) Despite this growth and the growth of plug-in vehicles, hybrid technology remains the primary source of electric power in the LDV market. Hybrids are projected to increase LDV market share from 1.106% to 4.422%. (Chart 26) Electricity's total contribution to LDV energy consumption is expected to increase substantially by 2511.12%. Yet as a percent of total LDV energy consumption, it will remain a 0.28% contributor. (Chart 24)

Through 2040, electric-powered vehicles of all type are projected to experience triple digit increases in sales. (Chart 35) This will contribute to a 386.26% increase in the inventory of hybrid vehicles and quadruple figure increases in the inventories of BEVs and plug-in vehicles. (Chart 36) Similarly, the total LDV energy contributed by electricity is forecast to increase 2,511.21%. (Chart 37)

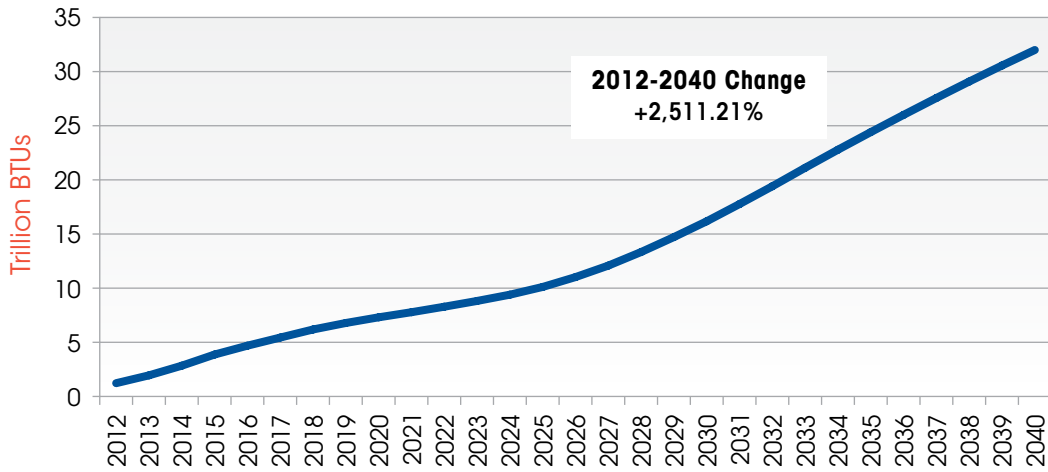
35: Electric Vehicle Sales



36: Electric Vehicles in Inventory



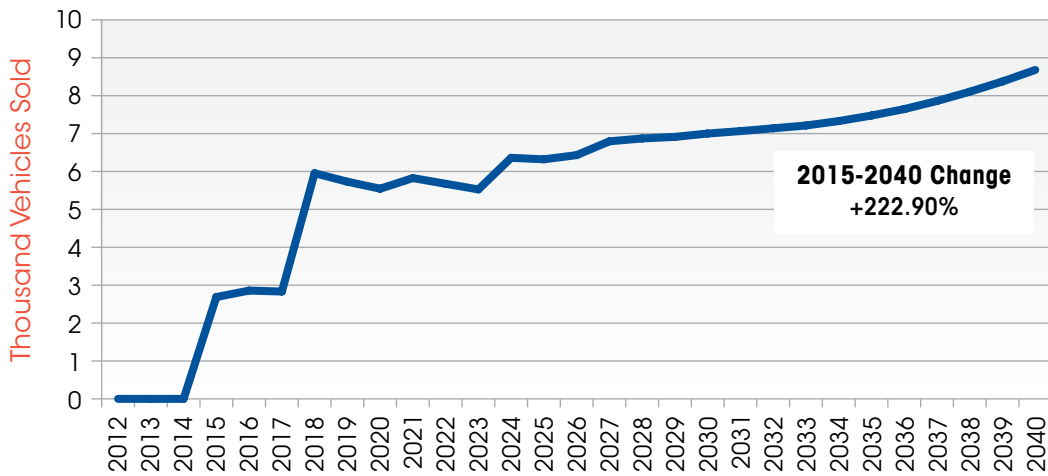
37: LDV Energy Provided by Electricity



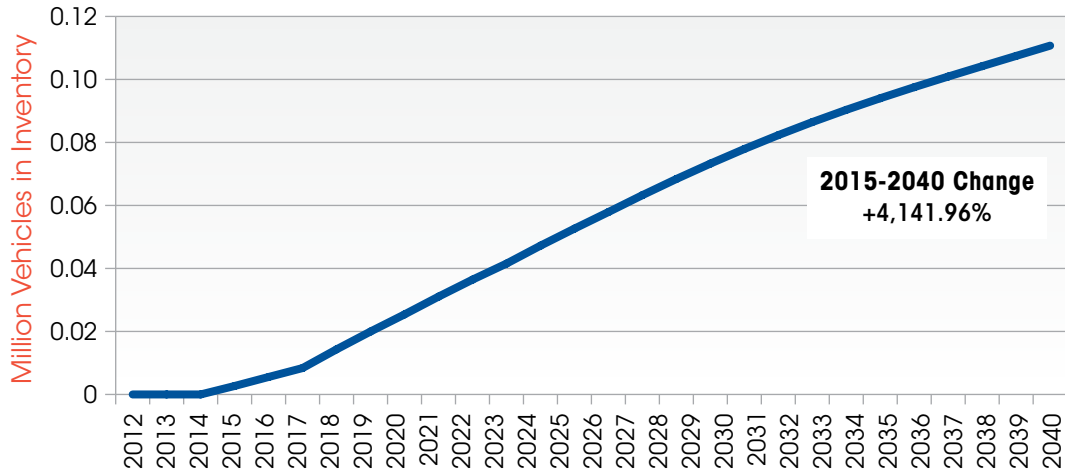
HYDROGEN

Hydrogen fuel cell vehicles (FCV) have yet to enter the market on a commercial basis but are expected to in 2015. Given this late introduction, it is understandable that EIA’s forecast for hydrogen’s contribution to the LDV market is relatively minor. Recognizing that hydrogen is not expected to contribute significantly to the LDV market (in fact, EIA forecasts it will represent only 0.04% of the total energy consumed by LDVs in 2040) (Chart 7), it is more instructive to look at the projected rate of growth for this new technology. In each category — sales, stocks and energy consumption — hydrogen FCVs are projected to enjoy strong growth rates. (Charts 38, 39, 40)

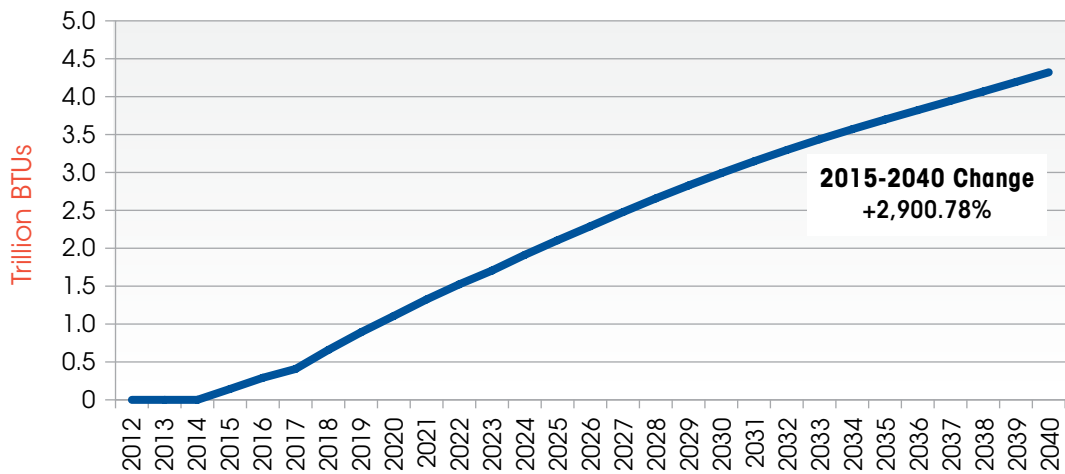
38: Hydrogen Fuel Cell Vehicle Sales



39: Hydrogen Fuel Cell Vehicles in Inventory



40: LDV Energy Provided by Hydrogen



Regular

403 $\frac{9}{10}$

plus

423 $\frac{9}{10}$

Premium

433 $\frac{9}{10}$

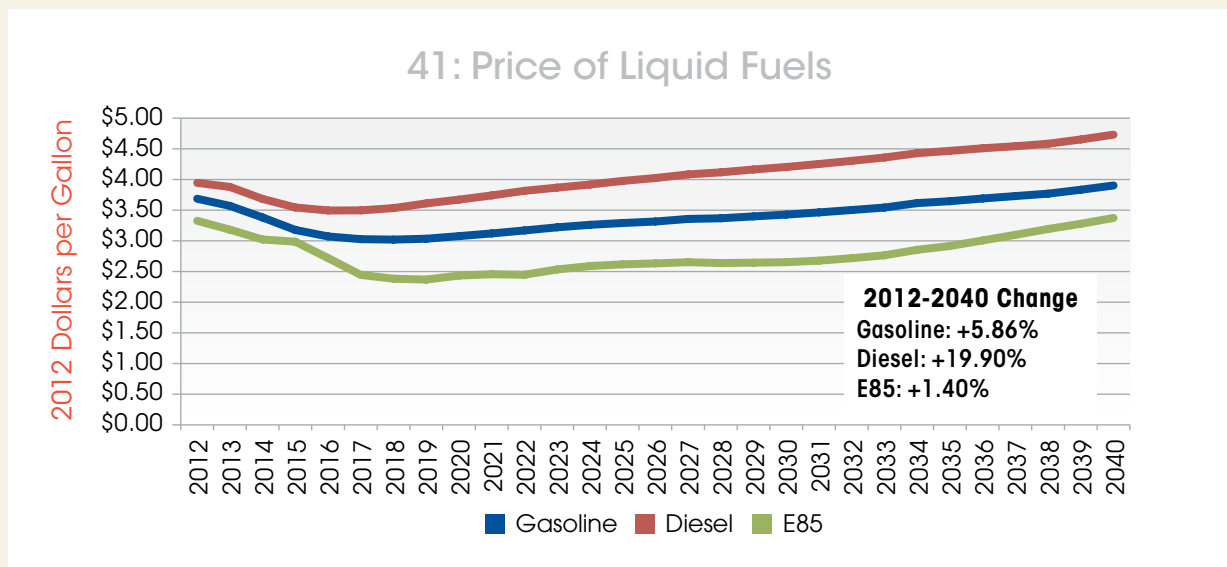
Diesel

489 $\frac{9}{10}$

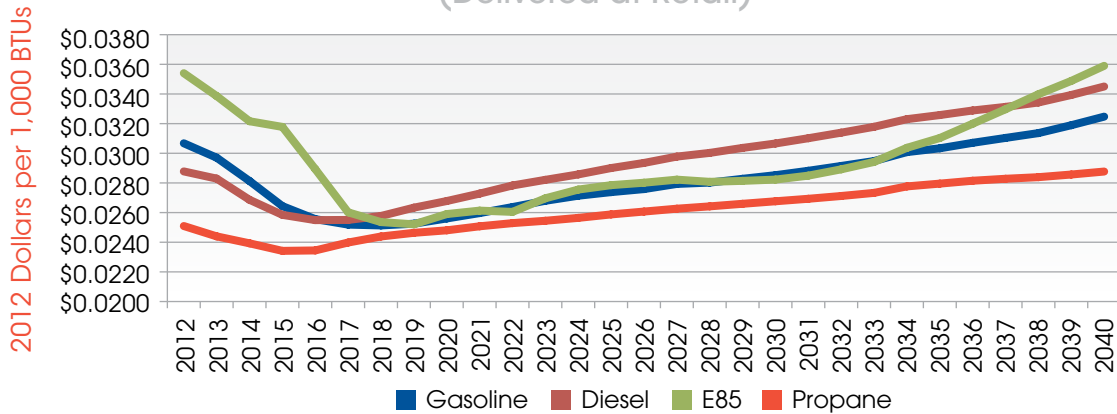
PRICES

The price of fuel commodities will be an influential factor in determining whether consumers will actually adopt new products and AEO2014 forecasts the price of various types of energy. Some of these forecasts can be compared on the basis of like units (i.e. gasoline, diesel fuel and E85 can be compared on the basis of dollars per gallon). In such a comparison, using constant 2012 dollars, EIA forecasts diesel fuel to remain the most expensive option and projects its premium price relative to gasoline and E85 to expand on a straight dollars per gallon basis. Over the forecast period, diesel prices are projected to increase 19.9%. (Chart 41)

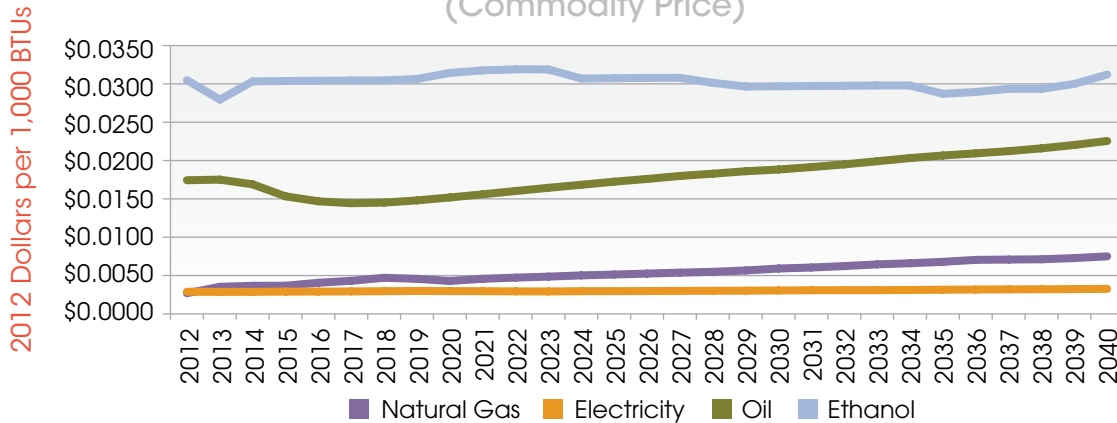
However, while this dollar per gallon comparison is informative and communicates directly to the consumer, each fuel delivers a different level of energy content. As previously discussed, diesel fuel provides the driver with an improvement in miles per gallon, often between 20% and 40%. Further, as new fuels enter the market their prices are often established and marketed in different units. In order to compare these different fuels, reducing them to an average price per like unit — in this case BTU — is necessary.



42: Energy Equivalent Fuel Prices (Delivered at Retail)



43: Energy Equivalent Fuel Prices (Commodity Price)



The final charts in this report (*Charts 42 and 43*) present the various fuels based upon a calculated BTU equivalency — each unit was reduced to its value in dollars per BTU and then presented in one chart for ease of comparison. The BTU values per unit that were used to develop this chart are provided below for reference. In this analysis, on a commodities basis, it is clear that the unit price for electricity and natural gas is the most advantageous for consumers. This price does not include distribution and dispensing expenses, which can be significant.

For fuels at retail, E85 is calculated as the most expensive fuel in 2012, dropping below diesel fuel for a period of time before again edging to the most expensive classification at the end of the forecast period.

It should be noted that fuel price alone is not the only factor that will influence consumer adoption — availability at retail, price and availability of vehicles, familiarity and trust in quality and safety will be other critical factors that will influence consumer choice.

BTU Reference Table

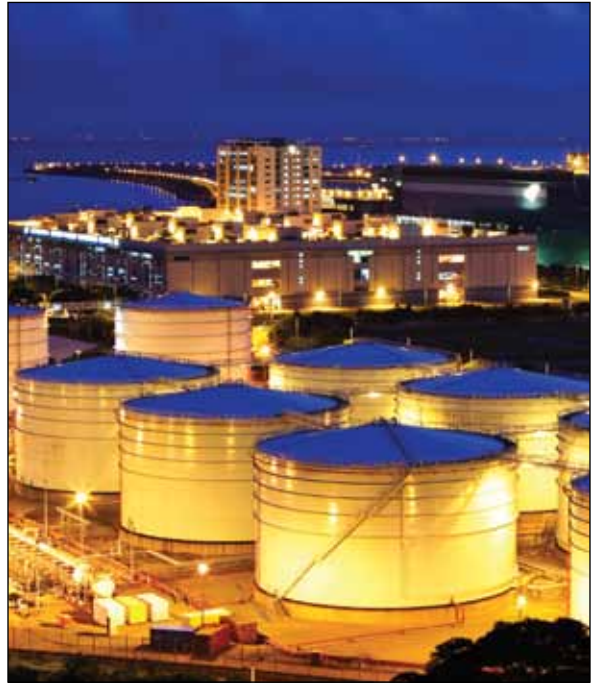
Product	BTU per Unit
Crude Oil	138,095 per gallon
Ethanol	84,762 per gallon
Gasoline	120,190 per gallon
Diesel	137,119 per gallon
E85*	93,973 per gallon
Natural Gas	1022 per cubic foot
Propane	91,502 per gallon
Electricity	3,413 per kWh

*Average E85 = 74% ethanol + 26% gasoline

CONCLUSION

EIA's projections in its AEO2014 provide a valuable baseline for making further evaluations. Like all projections, however, they are subject to the model used, the assumptions made and the data currently available. Technological breakthroughs — in either the vehicle or fuels industries — can dramatically change the outcome of the market.

While some advocates claim that their product or technology can revolutionize the consumer fuels market, they could be looking at the future through rose-colored glasses. Therefore it's important for retailers to understand how the government perceives the future of fuels and use that information to enhance their own opinions of forecasts.



When considering where to invest for the future, it is also incumbent upon every retailer to explore all of the options and rely on multiple sources for information. This report, based on EIA's forecasts, is one such resource.

Many will claim that EIA's forecasts are not accurate. For example, those advocating for expansion of the diesel fuel market will challenge EIA's numbers concerning the number of light duty vehicles equipped with diesel engines. Likewise, the renewable fuels industry will challenge EIA's forecast concerning the ethanol market and its relationship with the volumes mandated by the Renewable Fuel Standard. Hence, retailers should use the EIA numbers as a reference to reach their own conclusions concerning what the future may hold. NACS encourages all retailers to seek additional information and to carefully evaluate the opportunities and challenges associated with any fuel product in the market.

ACRONYMS AND ABBREVIATIONS IN THIS REPORT

AEO2013/AEO2014 – U.S. Energy Information Administration’s “Early Release” Annual Energy Report 2013 and 2014

BEV – Battery Electric Vehicle

BTU – British Thermal Unit, a measurement of energy

CAFE – Corporate Average Fuel Economy

E85 – A motor fuel containing between 51% - 83% ethanol, with the balance comprised of gasoline

EIA – U.S. Energy Information Administration

EPA – U.S. Environmental Protection Agency

FCV – Fuel Cell Vehicle

FFV – Flexible Fuel Vehicle, capable of operating on pure gasoline and ethanol blends up to E85

GDP – Gross Domestic Product

ICE – Internal Combustion Engine

LDV – Light Duty Vehicle (including passenger cars and light trucks)

NGV – Natural Gas Vehicle

NHTSA – The National Highway Transportation Safety Administration

RFS – Renewable Fuel Standard

VMT – Vehicle Miles Traveled

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