



## Fueling America's Energy Consumers *Energy and Transportation*

Over the years, fluctuating energy prices have impacted Americans' budgets and lifestyles. People tend to notice energy prices more when they are high, making things they need and want more expensive. By opening up the nation's abundant energy resources to safe and responsible development, we can help avoid fluctuating prices - especially high prices - and benefit even more from the U.S. Energy Revolution that has helped to maintain lower prices for American consumers amid geopolitical turmoil.

*The price of oil directly impacts transportation costs. With the U.S. still importing a little over 10 million barrels of crude oil and other petroleum products per day in 2017 from foreign countries, the price for fuel can rise if there is any slowdown or disruption in the global crude supply. When the price of fuel goes up, it negatively affects American consumers and their ability to work, travel, buy affordable products and pay their bills. High transportation costs also hurt American businesses by increasing their operational expenses and overhead - costs which are often passed on to the consumer through price increases. While fluctuations in global energy markets are part of the problem, American energy resources are the solution. Currently, the United States has large amounts of oil and natural gas resources on federal lands onshore and offshore, as well as technologically feasible renewable energy solutions. Not only can these resources be developed safely, efficiently and responsibly, but also with great care taken to protect the environment. By continuing to support sensible energy policies that responsibly utilize our abundant and affordable domestic energy resources, we can provide further relief to American families and businesses.*



## Powering America's Cars, Planes, Ships and Trains

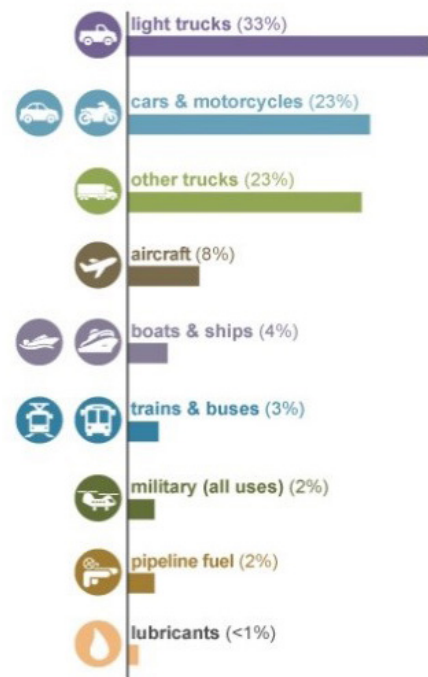
Cars, trucks, planes, ships and trains, which comprise a vast majority of the transportation sector - represent one of the largest energy consuming segments in the U.S. - accounted for nearly 30 percent of the nation's energy use in 2017.<sup>1</sup> In order to keep American families, businesses and the economy moving, the transportation sector relies heavily on oil and natural gas resources. In 2017, oil and natural gas provided approximately 92 percent of the total energy used to power these modes of transportation.<sup>2</sup>

Types of transportation fuel include:

- Gasoline - most passenger vehicles
- Diesel - heavy-duty and tractor-trailer trucks, other commercial vehicles
- Off-road diesel - powers heavy equipment and vehicles that do not operate on roadways (agriculture, construction, marine vessels, carnival rides)
- Propane (liquefied petroleum) - powers gas engine conversions
- Compressed natural gas - powers gasoline or diesel engine conversions
- Biofuel (includes ethanol, made by converting natural products, such as corn, into fuel) - common additive to gasoline<sup>3</sup>
- Electricity - used for electric vehicles and hybrids - often converted from natural gas power plants

Family cars, trucks and motorcycles consume the largest share of transportation fuels.

## Transportation energy use by type



Source: U.S. Energy Information Administration, *Annual Energy Outlook 2017*, Reference case, Table 36, estimates for 2016

1 U.S. Energy Information Administration, "U.S. Energy Facts Explained: The United States uses a mix of energy sources," [https://www.eia.gov/energyexplained/index.php?page=us\\_energy\\_home](https://www.eia.gov/energyexplained/index.php?page=us_energy_home).

2 U.S. Energy Information Administration, "U.S. Energy Facts Explained: The United States uses a mix of energy sources," [https://www.eia.gov/energyexplained/index.php?page=us\\_energy\\_home](https://www.eia.gov/energyexplained/index.php?page=us_energy_home).

3 Waspy Truck Stop, "Types of Fuels Used in Vehicles," <https://www.waspytruckstop.com/types-fuels-used-vehicles/>.



## Price at the Pump

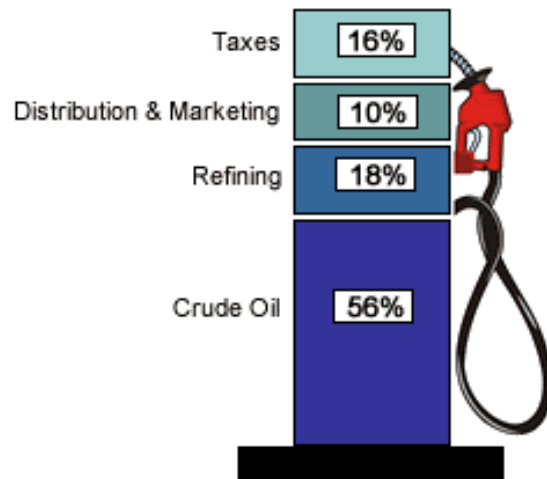
In June 2018, Americans paid an average of \$2.89 for a gallon of gasoline.<sup>4</sup> The price of gasoline is determined by items including:

- Price of crude oil
- Refining costs
- Distribution and marketing costs
- Federal, state and local taxes

Crude oil prices are determined by global demand and supply. If an oil producing country stops or slows its production, this change disrupts the international and domestic crude oil supply, causing prices to increase. Such a disruption can be caused by geopolitical events. Recent actions have caused an already unstable Middle East to become even less predictable. While American consumers are now much well-insulated from these events thanks to increased domestic production brought about by the U.S. Energy Revolution, these incidents have directly affected global energy markets and will continue to do so here in the U.S., as long as oil is transported into the country from foreign nations.<sup>5</sup>

In April, the U.S. Energy Information Administration (EIA), stated that 2018 summer crude oil prices would average more than \$10 higher per barrel compared to last summer – a change that would be reflected in prices at

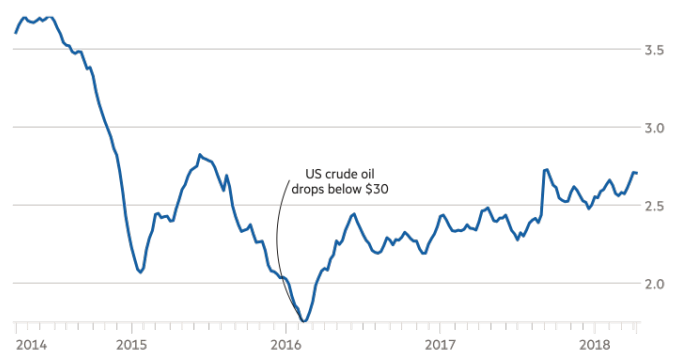
Regular Gasoline (May 2018)  
Retail Price: \$2.90/gallon



Source: U.S. Energy Information Administration. Gasoline and Diesel Fuel Update. July 30, 2018. <https://www.eia.gov/petroleum/gasdiesel/>

### Fuel costs are rising for US drivers

Average retail price of petrol (\$ per gallon)



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Source: Financial Times, "Rising fuel costs erode benefits of Trump tax cut." <https://www.ft.com/content/59019f1a-41cf-11e8-803a-295c97e6fd0b>

<sup>4</sup> U.S. Energy Information Administration, "Gasoline and Diesel Fuel Update," July 30, 2018. <https://www.eia.gov/petroleum/gasdiesel/>.

<sup>5</sup> Domm, Patti. "Attack on Saudi tanker signals escalation in Yemen war, and it could mean higher oil prices." CNBC. April 5, 2018. <https://www.cnbc.com/2018/04/05/attack-on-saudi-tanker-could-mean-higher-oil-prices.html>.





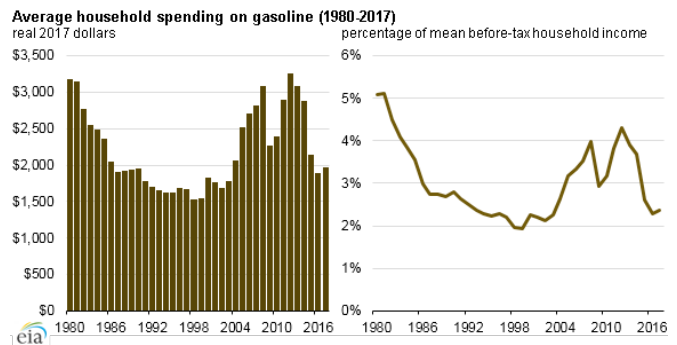
the pump by as much as 2.4 cents more per gallon.<sup>6</sup> Americans witnessed this increase firsthand during this summer’s hot vacation travel months, with the cost to fill up pinching not only consumers’ wallets at the pump, but also in the air as airlines adjust for the rising cost of jet-fuel through higher airfare.

Seasonal fuel blend requirements also impact gasoline prices during the summer months. These requirements aim to reduce emissions that contribute to smog and ozone that form more easily during warmer weather. These requirements also force refineries to shut down as they transition from winter to summer blend stock, increasing refining costs which are passed down to consumers.

In 2017, the average American household spent around \$1,765 on gasoline. This year, however, the cost of gasoline is expected to increase by \$133 per household - setting families back nearly \$1,900.<sup>7</sup> At the same time, underscoring the progress that was made following the renaissance in American energy production. During peak gasoline prices in 2008, the average American family paid a whopping \$2,700+ annually for gasoline.<sup>8</sup>

While the increase may only be a few cents more per gallon at the pump, the impact on household expenses for American families is still significant. As oil prices rise, the cost to fuel up the family car takes more and more of their take home pay. For some this is an expense they can tolerate, but for many it can be unbearable. In 2016, 40.6 million Americans lived in poverty.<sup>9</sup> For most of these families, reducing the amount they spend on gasoline is not an option. All too often, this usually means choosing between filling up on gasoline for work and other day-to-day commutes or paying for household essentials, such

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Source: U.S. Energy Information Administration, Short-Term Energy Outlook, and U.S. Census Bureau and Bureau of Labor Statistics

6 U.S. Energy Information Administration, “Summer Fuels Outlook.” April 2018. [https://www.eia.gov/outlooks/steo/special/summer/2018\\_summer\\_fuels.pdf](https://www.eia.gov/outlooks/steo/special/summer/2018_summer_fuels.pdf).

7 GasBuddy, “Fuel Price Outlook 2018,” <https://business.gasbuddy.com/wp-content/uploads/2018/01/2018fueloutlookvUSF.pdf>.

8 U.S. Energy Information Administration, “Today in Energy: U.S. household spending for gasoline is expected to remain below \$2,000 in 2017,” <https://www.eia.gov/todayinenergy/detail.php?id=33232>.

9 U.S. Census Bureau, “Income and Poverty in the United States: 2016,” September 12, 2017. <https://www.census.gov/library/publications/2017/demo/p60-259.html>



as groceries or rent. During the last significant gas price spike of the 2000's, the National Bureau of Economic Research found that consumers made up for the higher costs of fuel by buying lower-cost items at the grocery store.<sup>10</sup> For families who live paycheck-to-paycheck, that means spending less on items like healthy grocery options, medicines and daycare or going into debt.

High energy costs also affect how consumers view the economy and their finances. A study by economists at IHS Markit found that a 10 percent increase in gasoline prices decreases consumer confidence in the economy by about 1.5 percent. On the other hand, when fuel costs are lower and families can both spend and save more money, they feel much better about the economy.<sup>11</sup>

### Moving America's Freight

Like American families, small businesses and commercial industries, including trucking, are also sensitive to fluctuations in transportation fuel costs.

Fundamental to the U.S. economy, the trucking industry is responsible for transporting 71 percent of all the freight tonnage - things like consumer products, food, and industrial supplies and more - that moves throughout the United States.<sup>12</sup>

According to the American Trucking Association, more than 3.6 million heavy-duty trucks are needed to move the 10.5 billion tons of freight that are transported across the nation on an annual basis. Moving all of that freight requires more than 15 billion gallons of gasoline and nearly 39 billion gallons of diesel fuel every year. In 2015, the trucking industry paid more than \$105 billion for diesel fuel,<sup>13</sup> with the average heavy-duty truck consuming almost 13 thousand gallons.<sup>14</sup> Behind the cost of labor, diesel fuel is the second highest expense for truckers - making up as much as 20 percent of their total operating costs.<sup>15</sup>

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10 The National Bureau of Economic Research, "Revisiting the Income Effect: Gasoline Prices and Grocery Purchases." November 2007. <http://www.nber.org/papers/w13614>.

11 U.S. Energy Information Administration, "Today in Energy: U.S. gasoline prices in 2016 were the lowest since 2004," <https://www.eia.gov/todayinenergy/detail.php?id=29452>.

12 American Trucking Association, "Reports, Trends & Statistics." June 12, 2018. [http://www.trucking.org/News\\_and\\_Information\\_Reports\\_Industry\\_Data.aspx](http://www.trucking.org/News_and_Information_Reports_Industry_Data.aspx).

13 American Trucking Association, "Reports, Trends & Statistics." June 12, 2018. [http://www.trucking.org/News\\_and\\_Information\\_Reports\\_Energy.aspx](http://www.trucking.org/News_and_Information_Reports_Energy.aspx).

14 U.S. Department of Energy, Energy Efficiency & Renewable Energy, Alternative Fuels Data Center, "Average Annual Fuel Use of Major Vehicle Categories," <https://www.afdc.energy.gov/data/10308>.

15 American Trucking Association, Reports, Trends & Statistics, [http://www.trucking.org/News\\_and\\_Information\\_Reports\\_Energy.aspx](http://www.trucking.org/News_and_Information_Reports_Energy.aspx), June 12, 2018



When the price of fuel goes up for the trucking or transport industry, the consumer makes up for those costs passed onto businesses by paying more for food, goods and other products.<sup>16</sup>

Ocean cargo vessels are also impacted by rising fuel prices. Approximately 50 to 60 percent of a vessel's expenses are allocated for fuel costs. A typical Trans-Pacific cargo carrier can expect a fuel bill of over \$3.3 million for a 28-day voyage,<sup>17</sup> and with the expansion of global markets, the use of cargo ships will only continue.

## Feeding America

The U.S. Department of Agriculture estimated in 2016 that 3.6 cents of every dollar Americans spent on food was to cover the cost of transportation.<sup>18</sup> Therefore, it's not surprising that as little as a one-cent increase in the average price of diesel fuel can add up to another \$350 to \$370 million per year in fuel costs across the shipping industry - eventually making its way across the supply chain and into the price of products we purchase at the grocery store.<sup>19</sup> Joe Glauber, a former USDA Chief Economist and a senior research fellow at the International Food Policy Research Institute, stated that shipping companies are forced to pass these costs along to retailers. Ultimately, "consumers end up shouldering more of the burden."<sup>20</sup>

## Vacation Travel

Leisure travel accounted for almost 80 percent of all U.S. domestic travel in 2017.<sup>21</sup> However, a May 2018 GasBuddy survey indicated that the increase in fuel prices at the pump will curb many Americans' vacation plans now and into the end of summer. Patrick DeHaan, head of petroleum analysis for GasBuddy said, "What especially rings true is that with such a big jump in prices, motorists are absolutely

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16 Reuters, "Corporate America's new dilemma: raising prices to cover higher transport costs." February 26, 2018. <https://www.reuters.com/article/us-usa-freight-transportation-insight/corporate-americas-new-dilemma-raising-prices-to-cover-higher-transport-costs-idUSKCN1GA0DS>.

17 Stratiotis, Elizabeth. "Fuel Costs in Ocean Shipping." MTS Logistics, Inc. <https://www.morethanshipping.com/fuel-costs-ocean-shipping/>

18 U.S. Department of Agriculture, "Food Dollar Series." <https://www.ers.usda.gov/data-products/food-dollar-series/documentation.aspx>.

19 RealClear Policy, "High Fuel Costs Not Just a Drag on Commuters." March 26, 2012. [https://www.realclearpolicy.com/articles/2012/03/27/high\\_fuel\\_costs\\_not\\_just\\_a\\_drag\\_on\\_commuters\\_97.html](https://www.realclearpolicy.com/articles/2012/03/27/high_fuel_costs_not_just_a_drag_on_commuters_97.html).

20 Reuters Staff, "RPT-INSIGHT-Corporate America's new dilemma: raising prices to cover higher transport costs," <https://www.reuters.com/article/usa-freight-transportation/rpt-insight-corporate-americas-new-dilemma-raising-prices-to-cover-higher-transport-costs-idUSL2N1QG02W>.

21 U.S. Travel Association, "U.S. Travel and Tourism Overview (2017)," [https://www.ustravel.org/system/files/media\\_root/document/Research\\_Fact-Sheet\\_US-Travel-and-Tourism-Overview.pdf](https://www.ustravel.org/system/files/media_root/document/Research_Fact-Sheet_US-Travel-and-Tourism-Overview.pdf).





becoming more price conscious as they make plans this summer.”<sup>22</sup> For states like Florida and North Carolina that rely heavily on tourism, higher pump prices have a direct and tangible negative impact on their economies.

Just as gasoline is affected by high oil prices, so too is jet fuel. Amid geopolitical tensions overseas and related global oil price instability, the price of jet fuel has increased over 58 percent from June 2017 to June 2018.<sup>23</sup> For every dollar-per-barrel increase in the cost of oil, the airline industry’s fuel bill goes up by \$420 million.<sup>24</sup> The International Air Transport Association reported that jet fuel prices are expected to increase by \$25 billion, or 25 percent, in 2018 because of rising crude oil prices. Because of this, the airline industry anticipates that their total profits in 2018 will be cut by almost 12 percent.<sup>25</sup>

Additionally, as a result of rising fuel prices, airlines are considering either increasing fares or cutting back on services. American Airlines Chief Executive Officer Doug Parker told investors in early 2018 that the company is adjusting its business plan. He noted that, “As the cost of production goes up, the cost of the product generally follows. I would expect you would see higher fares to consumers over time.”<sup>26</sup>

Rising fuel prices also impact capital improvements associated with air travel, such as refurbishing airport lounges and upgrading older aircraft. However, Airlines for America believes that stabilizing jet fuel costs could help maintain affordable airfare for consumers. It could also encourage investment in alternative fuels, advancement in aircraft technology and environmentally friendly jet fuel supplies.<sup>27</sup>

For people who prefer a more leisurely pace to life, cruise travel is also very sensitive to fuel prices. According to Cruise Market Watch, ship fuel costs accounted for nearly 11 percent, or \$193, of cruise lines’ expenses per passenger in 2018.<sup>28</sup> As with other travel industries, when faced with increasing expenses, cruise lines will pass the bill for rising fuel costs on to their customers. During the 2008 fuel price spike, Carnival Corporation, Royal Caribbean Cruises Ltd., Norwegian Cruise Line and Oceania Cruises began charging a \$5 to \$7 per person per day surcharge to their passengers. When implementing the 2008 fee policy, Oceania Cruises President Bob Binder said, “At the time that we set our current pricing, oil was trading at approximately \$60 per barrel and it is now quickly approaching \$100

22 GasBuddy, “Gas Prices Rise, Summer Travel Plans Plunge,” <https://business.gasbuddy.com/gas-prices-rise-summer-travel-plans-plunge/>.

23 International Air Transport Association, “Jet Fuel Price Monitor,” <https://www.iata.org/publications/economics/fuel-monitor/Pages/index.aspx>

24 RealClear Policy, “High Fuel Costs Not Just a Drag on Commuters.” March 26, 2012. [https://www.realclearpolicy.com/articles/2012/03/27/high\\_fuel\\_costs\\_not\\_just\\_a\\_drag\\_on\\_commuters\\_97.html](https://www.realclearpolicy.com/articles/2012/03/27/high_fuel_costs_not_just_a_drag_on_commuters_97.html).

25 CNN Money, “Higher oil prices are taking a toll on airline profits.” June 4, 2018. <http://money.cnn.com/2018/06/04/investing/iata-airline-profits-oil/index.html>.

26 Williams, Joe. “Higher jet-fuel prices may crimp your summer travel budget,” Washington Examiner Magazine, <https://www.washingtonexaminer.com/business/higher-jet-fuel-prices-may-crimp-your-summer-travel-budget>

27 Airlines for America, “Policy Priority: Energy & Environment,” <http://airlines.org/policy-priorities-learn-more/#energy>.

28 Cruise Market Watch, “Financial Breakdown of Typical Cruiser,” <https://www.cruisemarketwatch.com/home/financial-breakdown-of-typical-cruiser/>.



per barrel. This is the first time we have implemented a surcharge and I hope our guests will understand the root cause of this necessary action.”<sup>29</sup>

## The Burden of Imports

The United States has undergone an energy revolution in the past several years due to an increase in domestic energy production, keeping prices much lower than they would otherwise be. At the same time, the U.S. is still importing a fair amount of crude oil and petroleum products from other nations to meet our country’s demand. In 2017, the U.S. imported a little more than 10 million barrels of crude oil and petroleum products a day.<sup>30</sup>

Since oil and natural gas still provide most of the energy used in the transportation sector, a steady and stable supply of oil is important to make sure that American consumers and businesses can meet their transportation needs. As stated before, when the price of oil rises due to external factors like supply disruptions and geopolitical events, that means the price of transportation fuel also rises. In fact, the U.S. is expected to spend nearly \$365 million on gasoline in 2018 – an increase of more than \$60 million since 2016.<sup>31</sup>

Importing crude oil from foreign countries is expensive too, as it takes a lot of fuel to carry those resources across the ocean. The average supertanker, which is longer than the Empire State Building laid on its side, uses an engine that burns more than 1,600 gallons of fuel per hour.<sup>32</sup> At its peak, it costs some of the larger tankers more than \$90,000 per day to deliver fuel across oceans to Asia.<sup>33</sup> Considering that a supertanker takes nearly 30 days to make a round-trip journey from West Africa to the U.S. Gulf Coast,<sup>34</sup> tankers coming from the Persian Gulf carrying up to 2 million barrels of oil – or enough to fill up gas tanks in 5 million average sized cars only one time – requires a significant amount of fuel just to make the trip to U.S. ports.<sup>35</sup>

29 Frommer Media LLC, “Welcome to \$100 Oil: Cruise Industry Ups Prices to Defray Fuel Costs,” <https://www.frommers.com/tips/cruise/welcome-to-100-oil-cruise-industry-ups-prices-to-defray-fuel-costs>.

30 U.S. Energy Information Administration, “How much petroleum does the United States import and export?” April 4, 2018. <https://www.eia.gov/tools/faqs/faq.php?id=727&t=6>.

31 GasBuddy, “Fuel Price Outlook 2018,” <https://business.gasbuddy.com/wp-content/uploads/2018/01/2018fueloutlookvUSF.pdf>.

32 Charpentier, Will. “How to Calculate Fuel Consumption in Cargo Shipping.” Bizfluent. September 26, 2017. <https://bizfluent.com/how-6539027-calculate-fuel-consumption-cargo-shipping.html>.

33 Brennan, Morgan. “The booming business of oil tankers.” CNBC. September 21, 2015. <https://www.cnbc.com/2015/09/21/the-booming-business-of-oil-tankers.html>.

34 Brennan, Morgan. “The booming business of oil tankers.” CNBC. September 21, 2015. <https://www.cnbc.com/2015/09/21/the-booming-business-of-oil-tankers.html>.

35 American Petroleum Institute. “Tankers: Fueling American Life.” <https://www.api.org/~media/files/oil-and-natural-gas/tankers/tankers-iores.pdf>





## How Energy Policies Can Hurt

Contributing to the pain at the pump are energy policies that add more unnecessary regulations to fuel production and restrict access to U.S. resources. Increasingly, activist groups are calling for politicians to oppose all oil and natural gas, while at the same time failing to offer alternative energy solutions that realistically meet demand or even acknowledge how important these energy resources are to the daily fabric of our entire civil society.

More specifically, over time, federal actions, regulations and efforts by anti-energy activists have closed off access to significant energy resources on federal lands and waters. Many of those federal actions have recently been reconsidered or reversed, to the benefit of the American consumer. Removal of such restrictions will lessen the impact of overseas events that disrupt the transport of domestic fuel supplies and the flow of reliable, affordable energy to American families and small businesses.

## Refining Regulation

Refining regulations have the potential to pass on additional costs to consumers. New and expanded regulations can also affect the ability of refiners to affordably manufacture fuels and petrochemical products. The Renewable Fuel Standard (RFS) is supposed to increase the volume of renewable fuels, like corn ethanol and advanced cellulosic ethanol, into the national fuel pool. However, as the RFS program has grown, it is widely viewed that the standard needs significant legislative revisions to make it work as it was originally intended. Revisions would also address other issues to acknowledge that some vehicles may not be able to handle higher ethanol blends, that American fueling infrastructure may not be able to deal with higher ethanol blends yet or that projected levels of available cellulosic ethanol may not be sufficient to meet higher standards.

## Access to Oil & Gas

In recent years, a number of onshore and offshore areas were closed to energy production either because of federally restricted access to land and marine areas or delayed government permitting and environmental reviews that allow development. Unreasonable habitat, wilderness and the antiquities designations, also known as the National Monuments Act, have also hindered oil and natural gas development through burdensome restrictions, regulations and increased uncertainty. Additionally, more resources are needed to run the various regulatory agencies that oversee U.S. oil and natural gas activity so that permitting and environmental reviews can avoid unnecessary delays. Recent federal actions to reverse and reconsider these restrictions can help American consumers and businesses by further reducing our dependency on foreign imports and keeping transportation costs down.



## How Energy Policy Can Help

More U.S. energy production simply means lower energy costs, expanded economic output and greater domestic growth. This reality cannot be argued. Any policy that helps directly expand U.S. energy development while providing ongoing environmental protection is good for American families and businesses.

## Fuel Reform

Fuel reform measures should focus on ensuring that American fuel consumers have access to affordable, reliable fuel supplies. Congress and the Administration need to make certain that federal fuel programs benefit consumers by 1) leveraging advancements made with regards to vehicle technologies; 2) recognizing and accommodating the market impact of declining fuel demand, especially as this relates to requirements within the RFS; and 3) mitigating challenges associated with potential fuel incompatibility with infrastructure and vehicles. In addition, the federal government should support the research, development, and demonstration of advanced biofuels to ensure their commercial success.

## Access to Oil & Gas

The single largest factor in the price of gasoline and diesel at the pump is the price of oil. In order to foster responsible development of domestic oil supplies, the federal government should recognize the significant oil and natural gas resources on federal lands, ensure appropriate access to those resources and work with the energy industry and state governments to make sure reasonable efforts are made to protect wildlife and their habitats without heavy-handed regulation. State governments should continue to maintain their ability to manage their own onshore energy resources. The federal government should also open up offshore areas in the Mid- and South Atlantic and Alaskan Arctic, as well as expand offshore access in the Gulf of Mexico.

Supporting and examining additional areas for development means also supporting complementary pipeline systems that will help ensure U.S. consumers have access to domestic energy resources. The federal government should also provide better resources for its regulatory agencies, so they can better carry out environmental studies, issue clear business and operating requirements and move forward with leasing and permitting activities. The federal government needs to make sure it can help support a growing and evolving domestic oil and natural gas industry while also protecting our environment.

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Federal and state energy policies that encourage safe and environmentally responsible oil and natural gas development will help maintain energy supplies and stable prices for American consumers and businesses. In fact, as oil and natural gas production in the U.S. has increased, consumers have seen cheaper prices at the pump, which in turn has given them more money to spend on other necessities. By fully utilizing our domestic energy resources, we can help American gasoline consumers by making prices less vulnerable to possible supply disruptions.

### Protecting the Environment

In recent years, steps have been taken by regulators and the energy industry to increase safety and environmental protections with onshore and offshore development, including hundreds of new exploration, production, safety and environmental management standards.

Not only does the development of domestic energy resources help American consumers and businesses with lower fuel costs, it helps minimize the environmental costs of contracting out overseas energy production. That's because U.S. energy producers have been able to reduce their environmental impact with industry-driven technological advances. They have also been working with U.S. regulators to implement reasonable measures to protect wildlife and their habitats during development. Conversely, guaranteeing environmentally responsible energy development is much more difficult when importing oil and natural gas resources because there is no way to guarantee that foreign governments have put the proper environmental safeguards in place.

Moreover, the energy industry is advancing technology that lowers environmental impacts with more accurate and effective exploration and production methods. Oil and natural gas operators are also making strides toward reducing emissions by investing in more efficient equipment and finding better ways to detect leaks, with investments that totaled \$90 billion between 2000 and 2014.<sup>36</sup> Even more recently, some companies have been looking at the use of drones to monitor wells and detect unexpected emission releases.<sup>37</sup>

Industry innovation is also making exploration more effective, clean and environmentally safe with the use of artificial intelligence and other digital technologies.<sup>38</sup> The use of artificial intelligence could help develop a more efficient way to extract and produce oil and natural gas resources while improving

<sup>36</sup> Bentley, Tracee. "Oil and Gas Industry Address Climate Change via Innovation." Rigzone. March 14, 2018. [https://www.rigzone.com/news/wire/oil\\_and\\_gas\\_industry\\_addresses\\_climate\\_change\\_via\\_innovation-14-mar-2018-153878-article/](https://www.rigzone.com/news/wire/oil_and_gas_industry_addresses_climate_change_via_innovation-14-mar-2018-153878-article/).

<sup>37</sup> Boman, Karen. "Innovation Here to Stay as Oil, Gas Industry Seeks Competitive Edge." Rigzone. December 7, 2016. [https://www.rigzone.com/news/oil\\_gas/a/147682/innovation\\_here\\_to\\_stay\\_as\\_oil\\_gas\\_industry\\_seeks\\_competitive\\_edge?all=hg2](https://www.rigzone.com/news/oil_gas/a/147682/innovation_here_to_stay_as_oil_gas_industry_seeks_competitive_edge?all=hg2).

<sup>38</sup> Bentley, Tracee. "Oil and Gas Industry Address Climate Change via Innovation." Rigzone. March 14, 2018. [https://www.rigzone.com/news/wire/oil\\_and\\_gas\\_industry\\_addresses\\_climate\\_change\\_via\\_innovation-14-mar-2018-153878-article/](https://www.rigzone.com/news/wire/oil_and_gas_industry_addresses_climate_change_via_innovation-14-mar-2018-153878-article/).





efforts to conserve natural resources and safeguard the environment.<sup>39</sup> Enhanced seismic imaging helps companies more accurately locate oil and natural gas resources in the ground, which both protects the environment and reduces un-needed digging or drilling – lowering development costs and its associated risks, helping to keep prices lower for consumers.<sup>40</sup> Money is also being used for research and development to advance biofuels, energy-efficiency processes and materials, and to better understand environmental life cycles.<sup>41</sup>

## Moving Forward

American families and businesses rely on affordable, reliable and secure energy resources to meet their transportation needs, ensuring they have affordable access to all of the basics such as clothing, food, fuel, etc. While greater production of domestic petroleum resources has helped ease transportation energy costs, geopolitical tensions overseas, regulatory challenges and protest efforts led by anti-energy activists have stalled access to America’s abundant energy resources on federal lands and waters. When these challenges are coupled with attempts to delay or limit the transportation of domestic fuel supplies, American families and small businesses have found themselves unable to easily access reliable, affordable energy. To balance out or reduce transportation and fuel costs, it is important that efforts continue to restore and maintain access to domestic oil and natural gas resources be restored and maintained.

39 Mitchell, Julian. "How Big Data, AI and Other Tech Trends Are Disrupting the Oil Industry." Forbes. January 22, 2018. <https://www.forbes.com/sites/julianmitchell/2018/01/22/how-big-data-ai-and-other-tech-trends-are-disrupting-the-oil-industry/#21a1dd366543>.

40 Bentley, Tracee. "Oil and Gas Industry Address Climate Change via Innovation." Rigzone. March 14, 2018. [https://www.rigzone.com/news/wire/oil\\_and\\_gas\\_industry\\_addresses\\_climate\\_change\\_via\\_innovation-14-mar-2018-153878-article/](https://www.rigzone.com/news/wire/oil_and_gas_industry_addresses_climate_change_via_innovation-14-mar-2018-153878-article/).

41 Bentley, Tracee. "Oil and Gas Industry Address Climate Change via Innovation." Rigzone. March 14, 2018. [https://www.rigzone.com/news/wire/oil\\_and\\_gas\\_industry\\_addresses\\_climate\\_change\\_via\\_innovation-14-mar-2018-153878-article/](https://www.rigzone.com/news/wire/oil_and_gas_industry_addresses_climate_change_via_innovation-14-mar-2018-153878-article/).