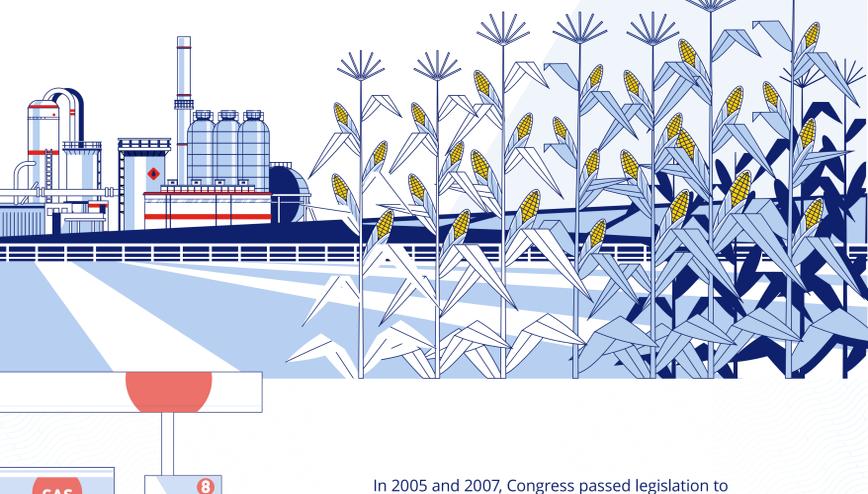


AGING

Biofuel Mandates

OUT OF SYNC WITH NEW TRANSPORTATION LANDSCAPE

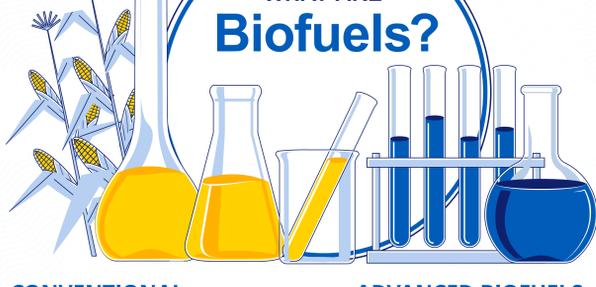


In 2005 and 2007, Congress passed legislation to reduce dependence on foreign energy sources and build a domestic biofuel market.

Those laws formed the **Renewable Fuel Standard (RFS)**, a policy that requires gasoline and diesel fuel sold in the United States to be mixed with increasing amounts of biofuel every year.



Many of the assumptions built into the RFS haven't come to pass, leaving the program in desperate need of modernization.



CONVENTIONAL BIOFUELS

Any fuel derived from starch feedstocks

Example: Corn ethanol



ADVANCED BIOFUELS

Diesel fuel substitutes made from renewable feedstocks

Example: Biomass-based diesel



Any fuel derived from cellulose, hemicellulose or lignin, nonfood-based renewable feedstocks

Example: Cellulosic biofuel



Ethanol and Gasoline are Not Interchangeable

AND WE'VE HIT THE ETHANOL LIMIT

About 70% of RFS regulations are met with conventional corn ethanol that is blended into gasoline.

Because of ethanol's chemical properties and infrastructure constraints, there is a limit to how much the gasoline supply can take. This limit can change with time, but it's extremely difficult.



The vast majority of current U.S. fuel infrastructure, millions of small and water-born engines and most cars on the road are not designed for more than **10% ethanol**.

Exceeding warranty limits with higher ethanol blends can lead to corrosive damage, extensive repairs and engine failure.



The 10% Limit Was Never Supposed to be a Problem

The RFS imposes gallon-specific mandates for biofuel blending.

In 2007, lawmakers set increasing annual biofuel targets through 2022 based on projections available to them at the time. The numbers then suggested that Americans would continue to use increasing amounts of gasoline for decades.

Based on those projections and the biofuel targets set by the RFS (which max out at 15B gallons for ethanol), it is clear that Congress never intended for mandated ethanol blending to exceed 10% of motor gasoline.



WE HAVE A PROBLEM: RFS Mandates Are Too Big

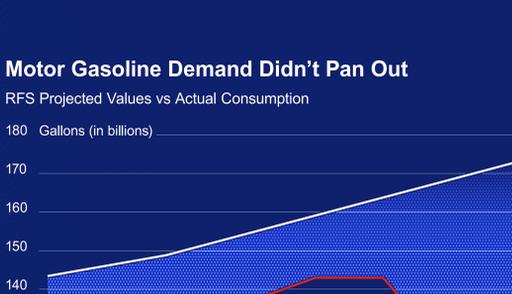
Today, conventional biofuel mandates are several hundred million gallons too big and exceed 10% of motor gasoline.



Gallon-specific RFS mandates don't work in America's new energy landscape where new cars and trucks are twice as efficient as models from the 1970s. Fuel demand is lower today than Congress thought it would be.

Motor Gasoline Demand Didn't Pan Out

RFS Projected Values vs Actual Consumption



Much like weather forecasts, projections aren't guarantees. The projections that informed the RFS in 2007 have been "off" every year since 2008.

Fuel Consumption has decreased, but RFS conventional mandates have not.

Today, the RFS is trying to force the same amount of ethanol into a smaller pool of gasoline. That's causing a number of problems:

Unintended Consequences

A Surge of Foreign Biofuel Displacing American Fuels

When the RFS mandate requires more ethanol than the U.S. gasoline supply can handle (above 10%), refineries compensate with advanced biofuels—paying for higher volumes to be blended with diesel fuel. This leads to higher imports.

Advanced Biofuel Imported Because of the RFS

Cumulative since 2010

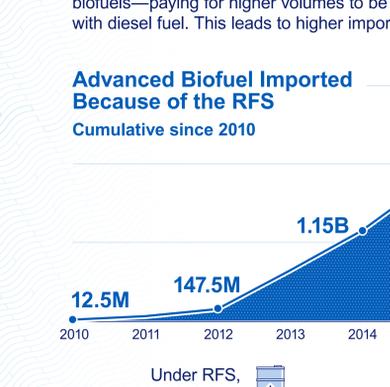


Under RFS, Advanced biofuel imports are nearly 15 times higher (2011 vs. 2020).



Higher Fuel Costs for Consumers

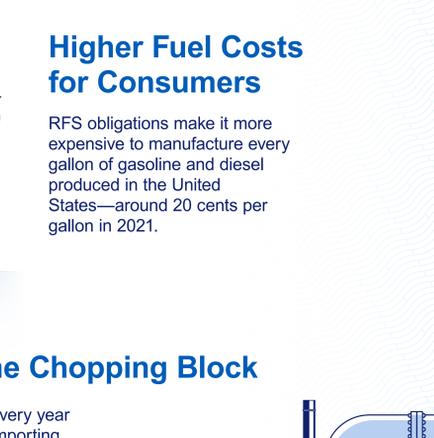
RFS obligations make it more expensive to manufacture every gallon of gasoline and diesel produced in the United States—around 20 cents per gallon in 2021.



Jobs and Facilities on the Chopping Block

Fuel manufacturers spend billions of dollars every year buying compliance credits from traders and importing biofuels to satisfy their RFS obligations.

The weight of RFS to stay competitive, threatening good jobs in communities that rely on the refining industry.



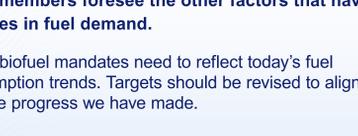
REFORM We Need to Bring RFS Mandates in Line with Reality

Congress couldn't have predicted the major improvements we've seen in vehicle efficiency over the past decade. Nor could members foresee the other factors that have led to changes in fuel demand.

Yearly biofuel mandates need to reflect today's fuel consumption trends. Targets should be revised to align with the progress we have made.



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