

ACE 2023 FLY-IN

& Government Affairs Summit



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American Coalition for Ethanol

The American Coalition for Ethanol (ACE) is the nation's grassroots ethanol advocate. Our nearly 300 members are the heart and soul of the ethanol industry. They include owners and investors in U.S. biorefineries, farmers, and people supplying goods and services. ACE members put a human face on the benefits of ethanol.

Over the past five years, ACE has been leading the effort to ensure ethanol and farmers are part of the solution to reduce carbon pollution. Our work involves policy development and validation of the real-world carbon savings modern-day corn and ethanol production can deliver at scale.

Today's average corn ethanol reduces greenhouse gas (GHG) emissions by 50 percent compared to gasoline, so we do not need to wait for electric vehicles, and an entirely new supply chain to support them, to immediately tackle climate change.

Greater carbon savings are right around the corner. Climate-smart farming, ethanol production technology innovations, and the capture and sequestration of CO₂ puts ethanol on a near-term trajectory to reach both net-zero and net-negative GHG emissions, something no other low carbon fuel can match.

As policymakers consider steps to curb carbon pollution, ACE members believe these policies must reward farmers and ethanol producers for being part of the solution.

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PRIORITY ISSUES

1

E15 YEAR-ROUND

As the June 1, 2023 summer driving season approaches, we urgently need nationwide market access for E15 on a year-round basis so U.S. motorists can benefit from ethanol's ability to reduce pump prices and vehicle pollution.

Last year, several Midwest states petitioned EPA to allow E15 for the 2023 summer driving season, but the Agency proposed to postpone the effective date for these states to 2024. EPA's delay will force people in conventional gasoline areas of the country to pay more at the pump unless the emergency steps taken by President Biden last year are implemented for 2023. The delay also makes a permanent, nationwide solution for E15 even more critical.

We urge the Biden administration to issue a nationwide emergency waiver allowing continued use of E15 during the summer of 2023.

ACE also strongly encourages Congress to support S. 785 and H.R. 1608, The Consumer and Fuel Retailer Choice Act of 2023, bipartisan, bicameral legislation to extend the Reid vapor pressure (RVP) volatility waiver to ethanol blends above 10 percent to allow for the year-round, nationwide sale of E15.

2

NEXT GENERATION FUELS ACT

The Next Generation Fuels Act would overcome barriers standing in the way of higher ethanol blends such as E25/30 and E85. This legislation would improve vehicle efficiency and reduce emissions through new high octane fuel standards, require future vehicles to be compatible with high octane ethanol blends, restore incentives for automakers to produce Flexible Fuel Vehicles, limit harmful aromatics in gasoline, ensure all blends of ethanol receive the same RVP treatment as E10, and make sure fuel stations are compatible with high octane ethanol blends.

ACE strongly encourages Congress to support the Next Generation Fuels Act, S. 944, bipartisan, bicameral legislation to establish a high octane fuel standard to help lower pump prices and emissions, while enabling greater engine efficiency and low carbon fuel demand.

3

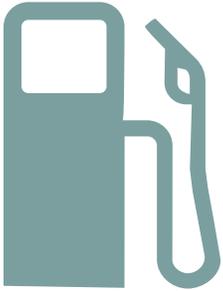
FARMERS AND ETHANOL ARE PART OF THE SOLUTION TO REDUCE GHGS

ACE is part of the Drive Clean Initiative, a diverse group of stakeholders who support a technology-neutral, performance-based national clean fuel standard. Federal clean fuel legislation would build upon the Renewable Fuel Standard and new tax credits to decarbonize transportation fuels.

As Congress considers steps to curb carbon pollution such as a clean fuel standard, these policies must reward farmers and ethanol producers for being part of the solution through carbon credits for climate-smart agriculture and ethanol production technology innovations.

Congress must take additional steps to meaningfully reduce carbon pollution from transportation and can do so by supporting a Clean Fuel Standard based on the Drive Clean principles and incorporating credits for climate-smart agriculture to enable rural America to be part of the solution.

E15 YEAR-ROUND



July 2021: The D.C. Circuit reverses EPA's 2019 regulation. Congress quickly introduces legislation that extends the 1-psi RVP waiver to fuel blends containing gasoline and 'over 10 percent ethanol.'

April 2022: President Biden directs EPA to issue a temporary, emergency waiver so E15 can be sold during the 2022 summer driving months and EPA follows through.

May 30, 2019: EPA finalizes a rule extending the 1-psi Reid vapor pressure (RVP) waiver to fuel blends containing gasoline and up to 15 percent ethanol (E15). Oil refiners challenge the in the D.C. Circuit in an attempt to cling to their status-quo market share.

April 2022: Several Midwestern governors formally request EPA promulgate a rule to ensure retailers can continue to sell E15 without interruption in their states.

March 2023: EPA finally issues a proposed rule in response to the April 2022 petitions from a bipartisan group of Midwest governors but sets the effective date to 2024.

Postponing E15 in Midwest states means many consumers will be forced to pay more at the pump this year and retailers who want to offer lower cost E15 will be penalized unless the emergency steps taken by President Biden last year are implemented for 2023. **We urge the Biden administration to issue a nationwide emergency waiver allowing continued use of E15 during the summer of 2023.**

Ultimately, a national, permanent solution for E15 year-round is best done through Congress. Not only does the ethanol industry strongly endorse bipartisan and bicameral legislation to permanently allow E15 use across the entire nation, so does the American Petroleum Institute (API). **We urge for Congressional support of The Consumer and Fuel Retailer Choice Act of 2023 (S. 785, H.R. 1608).**

BACKGROUND

The Clean Air Act prohibits the sale of gasoline with a Reid vapor pressure (RVP) in excess of 9 psi during the high ozone "summer" season (June 1 - Sept. 15). To allow the use of E10 year-round, Congress amended the Clean Air Act in 1990 to provide a 1-psi RVP waiver for fuel blends "containing gasoline and 10 percent ethanol" (the highest ethanol content in gasoline at the time).

In 2011, EPA approved E15, a fuel with slightly lower evaporative emissions than E10, for use in all light-duty vehicles made in model year 2001 and after. EPA did not allow an RVP waiver for E15 at the time. Because EPA only has volatility limits in conventional gasoline areas during the "summer" season, E15 can be sold outside the June 1 - Sept. 15 time frame. E15 has slightly lower evaporative emissions than E10.

Today, 97 percent of all U.S. vehicles are approved to use E15 and nearly 25 million flexible fuel vehicles (FFVs) can operate on blends of ethanol and gasoline up to E85. Most vehicles under warranty today were built to run on E15. Travelers Motor Club and Association Motor Club Marketing, with more than 20 million members in all 50 states, report no engine damage from ethanol and endorse E15 as safe and affordable.

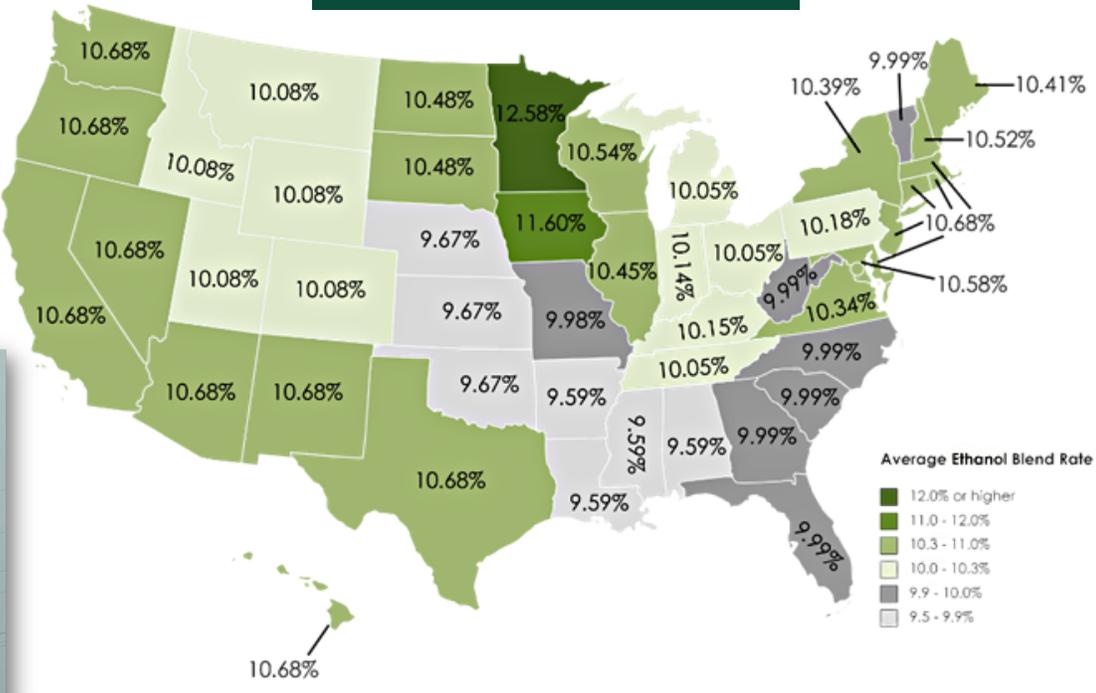
E15 typically costs 5 to 15 cents per gallon less than E10 and 40 to 75 cents less than non-ethanol gasolines. E15 also has a higher octane rating, so allowing the sale of this fuel would give consumers the option to buy a higher quality product and save money at the pump.

MAJORITY OF STATES

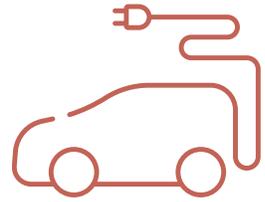
ALREADY USE MORE THAN 10% ETHANOL

Source: Fuel Consumption by State & Ethanol Blends %
EIA - State Energy Data System - Reflects Full Year 2021
Locations - Renewable Fuels Association

5,600 E85 Locations
2,800 E15 Locations



ELECTRIC OBSESSION

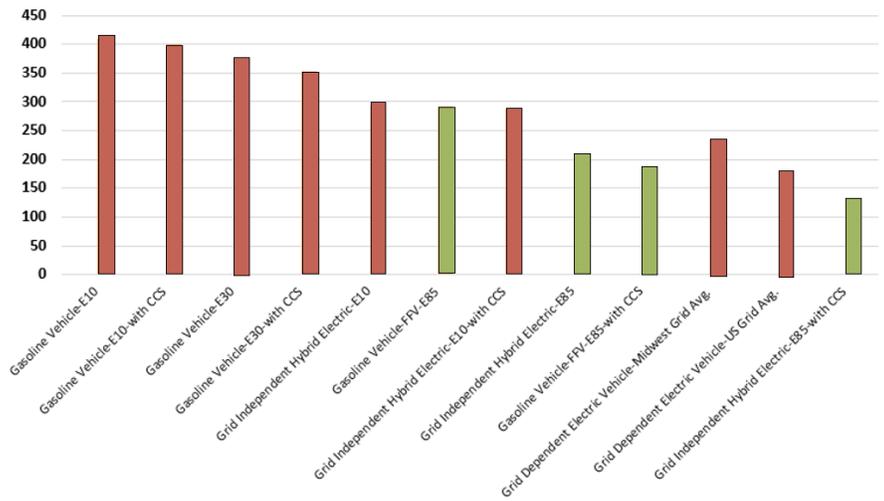


Although battery electric vehicle (BEV) sales have increased dramatically in recent years, focusing only on electric vehicles as THE climate solution ignores huge reductions in carbon pollution that can be achieved using more ethanol in the gasoline powered vehicles fleet still making up more than 99 percent of cars and light trucks on the road today.

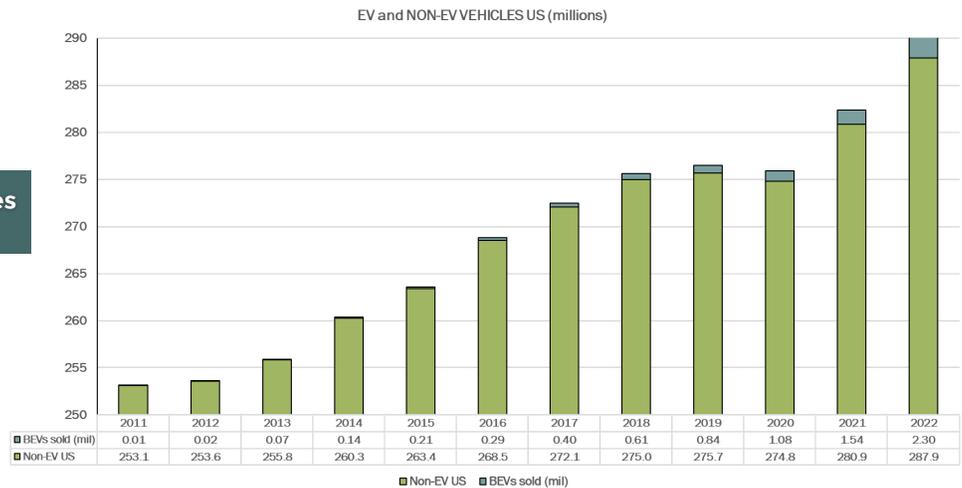
An increase of only 1 percent ethanol use nationwide in the current U.S. vehicle fleet would reduce lifecycle greenhouse gas emissions as much as adding 4 million new BEVs, and incentivizing E85 use in more cars and light trucks – especially hybrids and plug-in hybrids – could achieve larger reductions in a much shorter time frame.

We don't have to choose between electricity and ethanol. Ethanol has been reducing carbon pollution in the U.S. for decades and can continue to do so as part of an aggressive future carbon reduction strategy.

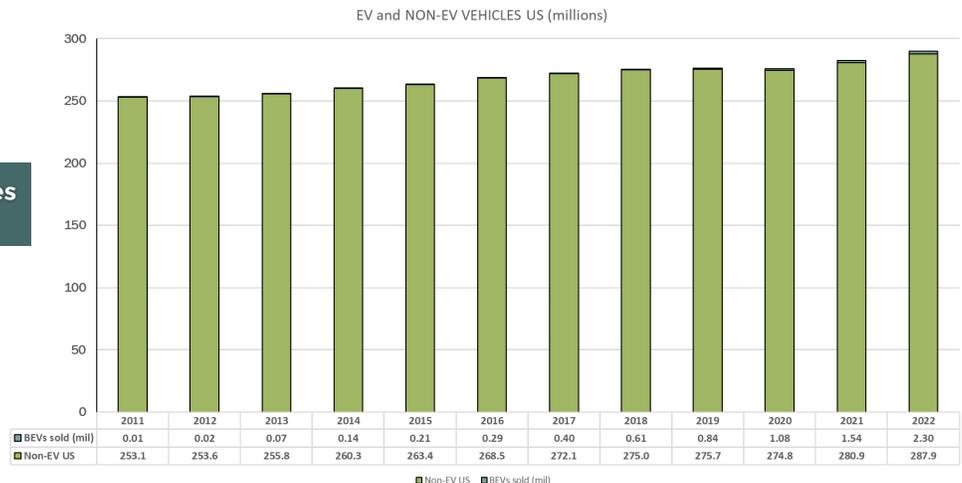
Grams GHGs per Mile from Various Vehicle and Fuel Combinations



U.S. Registered Vehicles Emphasis on EV Fleet



U.S. Registered Vehicles Actual EV Share



Next Generation Fuels Act

Phasing in higher gasoline octane levels through greater use of low carbon renewable fuels would:

- 1.Reduce greenhouse gas (GHG) emissions to help decarbonize transportation.
- 2.Improve air quality for better health outcomes.
- 3.Increase vehicle fuel efficiency to meet stricter fuel economy standards.
- 4.Support rural economies with low carbon biofuel and corn demand.

Notable Provisions

High-Octane Vehicles

Beginning with model year (MY) 2028, manufacturers must design new vehicles to use fuel with a 95 Research Octane Number (RON) or higher. The requirement increases to 98 RON with MY 2033, provided EPA has determined 98 RON fuel can be readily available nationwide. EPA has a Dec. 31, 2031, deadline to make the determination. Beginning with MY 2028, automakers must warrant new vehicles to operate with up to E25. The warranty requirement increases to blends up to E30 for MY 2033 and later vehicles.

E40 Retail Infrastructure Standard

Requires new refueling infrastructure to be compatible with higher ethanol blends of at least 40 percent effective Jan. 1, 2026. Fuel dispensers are already certified for ethanol blends up to 25 percent, and manufacturers are now certifying dispensers for up to E40 following new testing.

Removes Reid Vapor Pressure (RVP) Barriers for Ethanol Blends Above E10

Ensures all blends (including E15) enjoy the same RVP treatment as E10. The RVP language mirrors H.R. 1608, S.785, the Consumer and Fuel Retailer Choice Act text.

Clean Octane Standard

The bill limits the aromatic hydrocarbons in gasoline to 17.5 percent by volume beginning Jan. 1, 2027. Also requires additives used to produce 95 RON or higher fuel must result in at least 40 percent fewer GHG emissions than baseline gasoline.

Flexible Fuel Vehicles

The bill re-establishes incentives for automakers to increase the number of flexible fuel vehicles (FFVs) on the road able to operate on up to E85.

CORN ETHANOL PATH TO NET-ZERO & NET-NEGATIVE CARBON POLLUTION

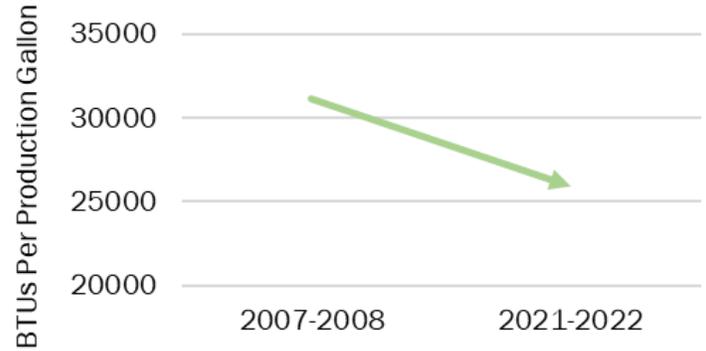
Since the RFS2 was enacted, farmers are producing more corn on about the same number of acres thanks to higher yields.

Similarly, ethanol producers are processing 1 bushel of corn (56 pounds) into:

- **2.9 gallons** of denatured fuel ethanol
- **15.1 pounds** of distillers grains animal feed (10% moisture)
- **0.9 pounds** of corn distillers oil
- **16 pounds** of captured biogenic carbon dioxide*

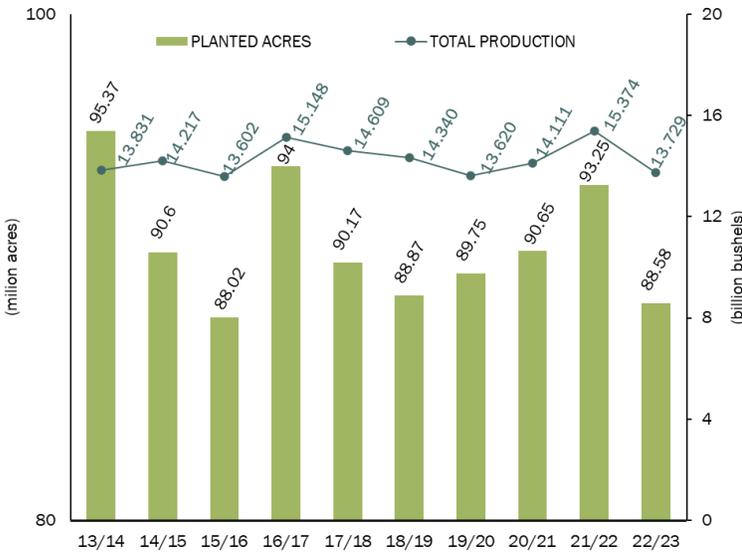
*In 2022, ethanol plants captured roughly 2.8 million tons of CO₂, which was used for dry ice production, bottling, food processing and other uses.

ENERGY USED FOR ETHANOL PRODUCTION



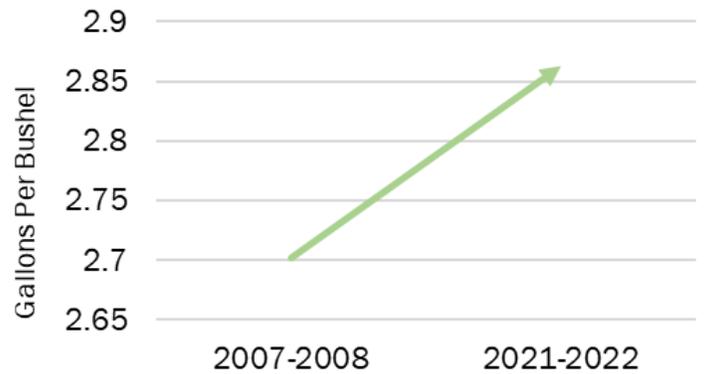
Source: Christianson Benchmarking, LLC

US CORN PRODUCTION

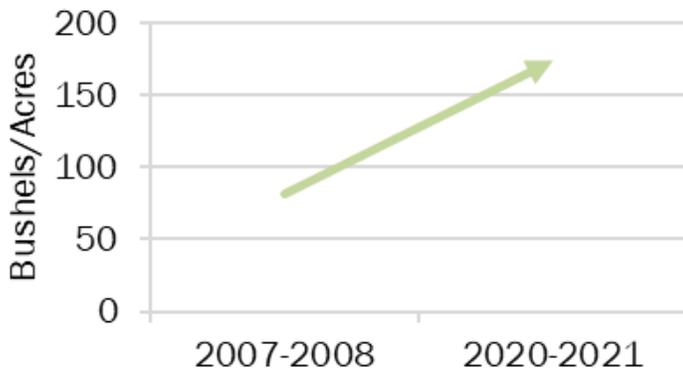


Source: USDA January 2023 WASDE

ETHANOL YIELD

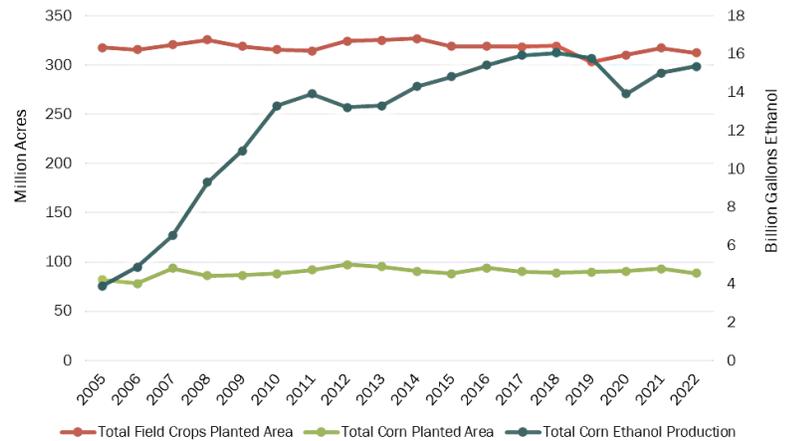


CORN YIELD



Source: USDA, NASS, Crop Production 2021

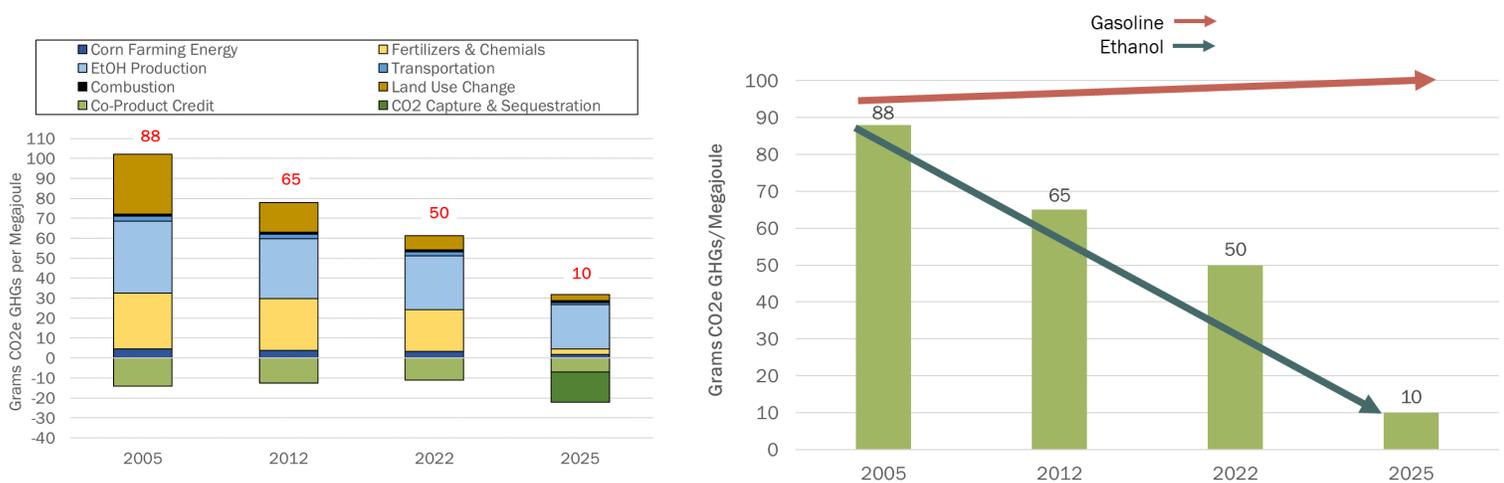
HISTORICAL TRENDS IN CROPLAND, CORN ACRES & ETHANOL PRODUCTION



Source: USDA National Agriculture Service Quick Stats U.S. Energy Information Agency

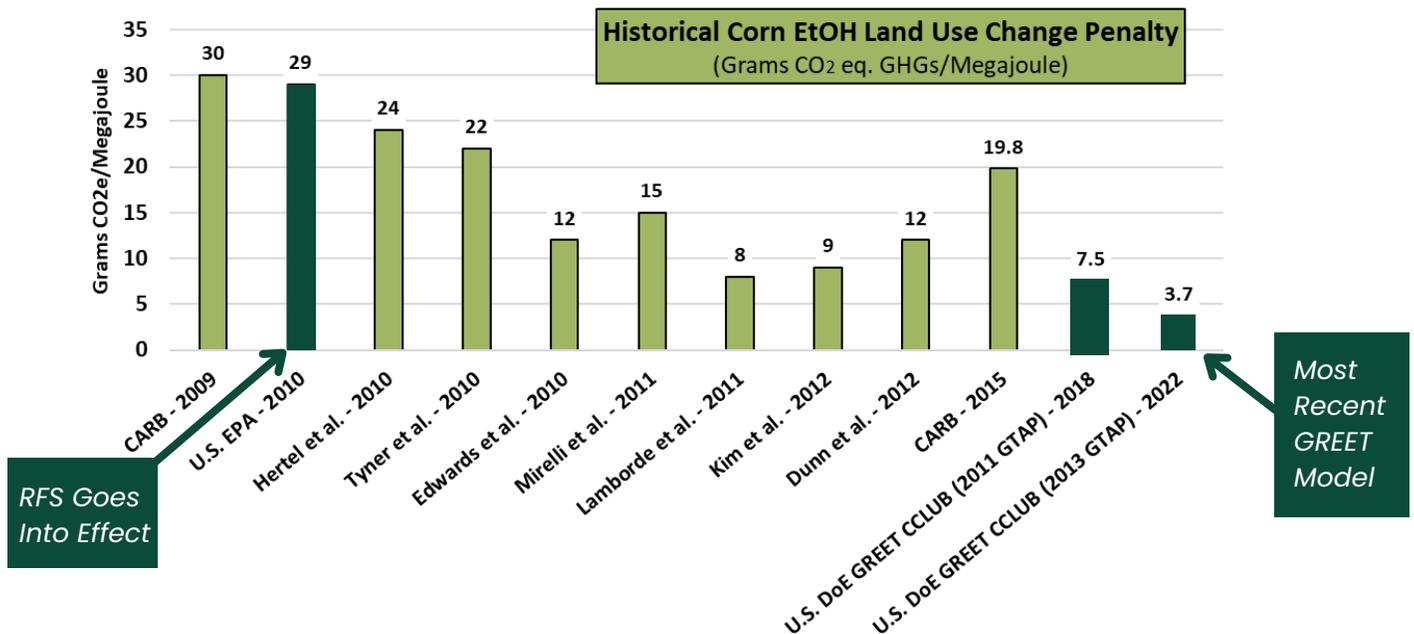
ETHANOL CARBON FOOTPRINT IS IMPROVING, GASOLINE IS NOT

Since the RFS was enacted, ethanol's carbon intensity has continued to drop while gasoline's has increased. **Today, average corn ethanol has 50 percent lower GHG emissions than gasoline and the trend is ethanol's friend.** Ultimately, the combination of climate-smart farming practices, constant improvements and efficiencies within ethanol facilities, and carbon capture and sequestration (CCS) puts corn ethanol on a unique trajectory to reach both net-zero and net-negative emissions, putting farmers and biofuel producers in a position to be a meaningful part of the solution to climate change.



Source: Showing historical U.S. Department of Energy Argonne National Labs GREET Model Corn Ethanol Carbon Intensity. 2025 Estimation assumes 50% of Corn Ethanol Plants have CCS and Climate Smart Farming Practices are used.

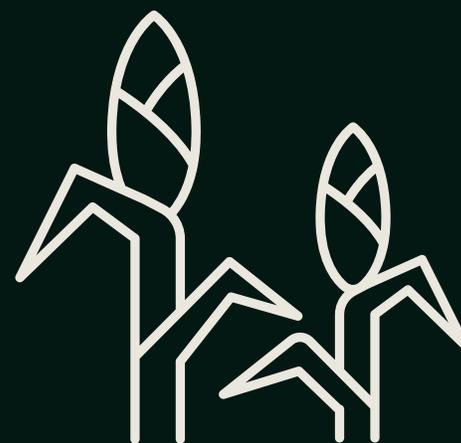
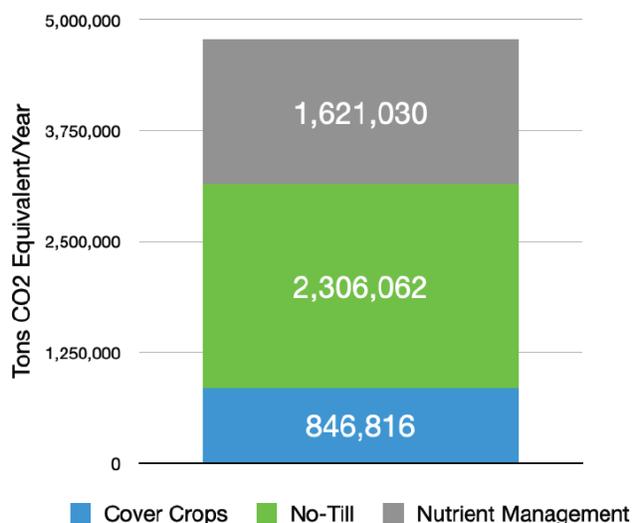
Since U.S. corn ethanol production capacity exceeds 15 billion gallons, scientists have measured actual land use change (or lack thereof) and the facts refute the hype.



ENSURING FARMERS AND ETHANOL BENEFIT FROM CLIMATE-SMART AGRICULTURE

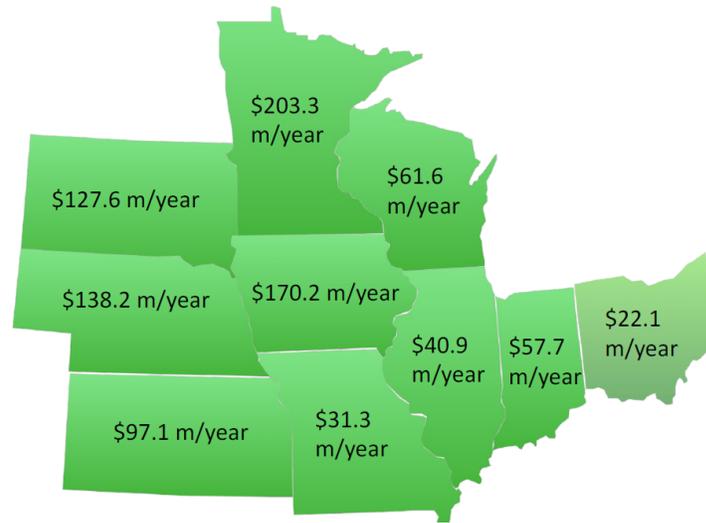
ACE believes farmers should have the opportunity to monetize climate-smart practices by selling their corn to an ethanol plant which has a pathway into a clean fuel market at the state or federal level. Historical credit prices in these markets generate more than enough revenue to justify making changes to their farming practices.

ACE is currently engaging state clean fuel market regulators on the West Coast, as well as those developing legislative proposals for new markets in Midwest states, to enable ethanol producers and farmers to generate carbon credits based on nutrient management, cover crops and reduced tillage. The potential economic opportunities can be illustrated through California's Low Carbon Fuel Standard (LCFS). Argonne National Laboratory found that **changing tillage practices and incorporating cover crops could result in a \$279/acre premium in the California LCFS program** if these carbon benefits counted toward compliance.

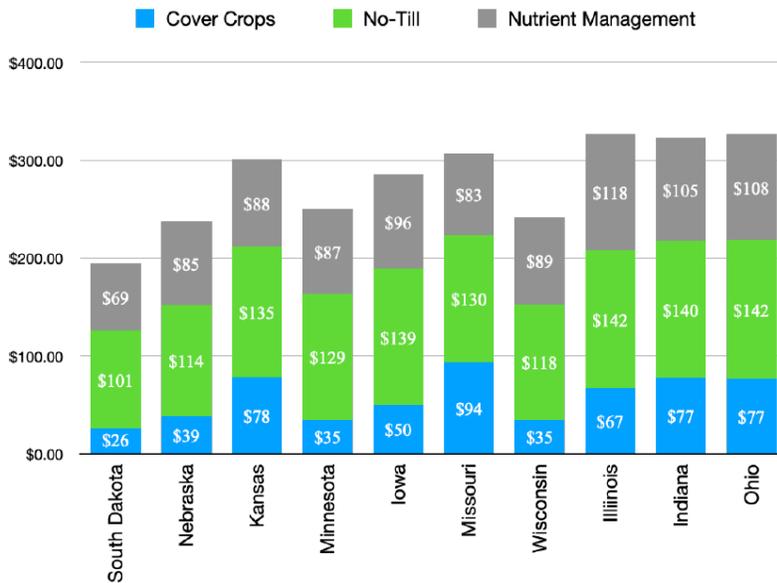


POTENTIAL STATE OPPORTUNITIES

At the three-year average pricing of carbon in California's LCFS program, ACE completed an analysis to show what the maximum potential economic benefit would be for our member plants and the farmers supplying corn to them if the full suite of climate-smart practices were monetized in a clean fuel market. With proper CFS market access, farm level carbon benefits could be worth up to \$257/acre (\$950 million/year). That's the potential to reduce 4,773,908 tons of CO₂ equivalent/year or remove 1,028,630 passenger cars from the road each year.



- \$950 million/yr
- \$0.53/gallon



Average of:
 \$257/acre
 or
 \$1.48/bu

NEW POLICIES MUST REWARD, NOT HARM, FARMERS AND BIOFUEL PRODUCERS

Any action by Congress to reduce carbon pollution from transportation through a Clean Fuel Standard must be technology neutral and incorporate credits for climate-smart agriculture to enable rural America to be part of the solution.

ACE is leading an effort to generate a non-proprietary system to validate the carbon intensity reductions from climate-smart agriculture practices, by leveraging Farm Bill conservation funds to incent farmer adoption of practices and for land grant and Department of Energy scientists to validate the GHG benefits of these climate-smart farming practices. By demonstrating scientific rigor of GHG benefits related to climate-smart farming practices at scale, our project will increase confidence in existing models and enable farmers and ethanol producers to monetize the farm-level GHG reductions in regulated low carbon or clean fuel markets.

WHY AMERICA NEEDS A NATIONAL CLEAN FUEL STANDARD NOW



**DRIVE
CLEAN**
DRIVECLEAN.US

A national Clean Fuel Standard (CFS) would open markets for new clean technologies to help build U.S. energy independence.

WHAT IS A CLEAN FUEL STANDARD?

A national Clean Fuel Standard (CFS) would be a **technology-neutral policy** that would create a program to gradually reduce the carbon intensity of transportation fuel sources over time to **decarbonize the entire transportation sector.**

WHY NOW?

Transportation-related emissions are the largest source of U.S. greenhouse gas emissions today.

Existing federal incentives for clean transportation are helpful but there is more to be done. **To meet our mid-century decarbonization goals, the country needs a new approach to decarbonizing transportation.**

A well-designed CFS will:

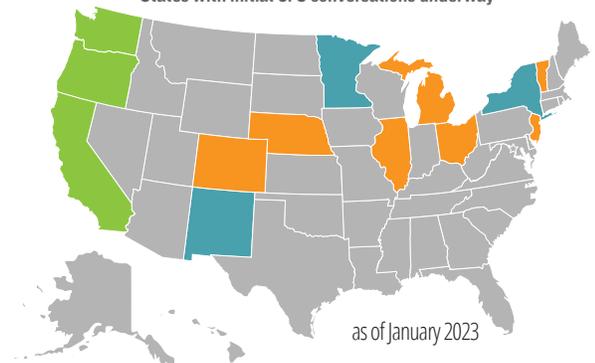
- Spur American technology innovation
- Unleash clean, green, home-grown fuel sources
- Increase U.S. energy independence

HOW DO WE KNOW THIS POLICY WORKS?

California, Oregon, and Washington

have already implemented a CFS, helping create a market for clean fuels, setting an example for other states and our federal government to follow.

- States that have passed a Clean Fuel Standard (CFS)
- States considering a CFS
- States with initial CFS conversations underway



27%

**OF TOTAL U.S. EMISSIONS
COME FROM TRANSPORTATION**

**DECARBONIZE ACROSS ENTIRE
TRANSPORTATION SECTOR**



**PROMOTE ENERGY INDEPENDENCE &
SPUR INNOVATION FOR U.S. PRODUCTS**



**LOWER GAS PRICES FOR CONSUMERS
WHILE EXPANDING THEIR FUEL CHOICES**



A CFS HAS PROVEN TO:



Create good paying jobs and bolster economic growth



Benefit both urban and rural communities



Reduce air pollution and improve health outcomes

HOW DOES A CFS WORK?

Each fuel source is assigned a **carbon intensity score** based on its lifecycle greenhouse gas (GHG) emissions.

Fuels are measured against an **annual carbon intensity target:**

- Fuels with carbon intensity scores below the target **(lower emissions) receive credits**
- Fuels with carbon intensity scores above the target **(higher emissions) generate deficits**

Over time, the carbon intensity targets are tightened until decarbonization goals are met.

Surplus credits can be sold to companies in deficit or saved for the future.

Fuel makers can:

- Produce credit-generating fuels
- Purchase credit-generating fuels
- Purchase credits (but not the fuel) from parties in surplus.

**IT'S TIME FOR AMERICA TO
DRIVE CLEAN.**

**IT'S TIME FOR A NATIONAL
CLEAN FUEL STANDARD.**

OUTCOMES FROM STATE PROGRAMS

**AVOIDED 55 MILLION TONS
OF CARBON POLLUTION**

from being emitted on
Oregon and California roadways

**\$100 MILLION REDUCTION
IN HEALTH-RELATED COSTS**

annually from reduced air
pollution in Oregon and California

\$2.8 BILLION GROWTH

in California's clean fuels market,
benefiting rural communities nationwide
where feedstocks are grown and
renewable fuels are produced

**13.3% REDUCTION IN
PREMATURE EXCESS DEATHS**

caused by vehicle pollution in Oregon

Sources: Oregon Department of Environmental Quality (OR DEQ);
Low Carbon Fuels Coalition (LCFC); California Air Resources Board (CARB).



The DriveClean U.S. Initiative is a group of multi-sector stakeholders who support the creation of a national technology-neutral Clean Fuel Standard (CFS) to decarbonize the U.S. transportation sector.

 [DRIVECLEAN.US](https://driveclean.us)

 [@DriveClean_US](https://twitter.com/DriveClean_US)

**DRIVE
CLEAN**

A NEW PHASE OF THE RENEWABLE FUEL STANDARD

The goal of the RFS has always been to increase the use of low cost renewable fuels and reduce greenhouse gas (GHG) emissions in the U.S.

According to a study commissioned by the Renewable Fuels Association, adding ethanol to the nation's gasoline supply saved the average American household more than \$750 per year. The study by economists from the University of California-Berkeley and others concluded the average discount per gallon to be \$0.77 between 2019 and 2022. Ethanol's lower cost and ability to pressure oil prices by extending fuel supplies saves consumers, and much of this is attributed to the RFS. Another RFA analysis shows the RFS has reduced GHG emissions by 1,212 million metric tons over its life so far.

The RFS has reached a new phase whereby Congress provided EPA with more authority over future volume determinations. Recently the Agency closed a comment period on their so-called "Set" proposal for what the RFS will look like for 2023 through 2025. As with most RFS rulemakings, some parts are good, while others fall short.

WHAT'S GOOD?

- Setting an "effective" conventional biofuel requirement of 15.25 billion gallons for 2023 through 2025;
- Restoring the final 250-million-gallon remedy from the "blend wall" lawsuit for 2023;
- The multi-year nature of the Set rule because it provides market participants certainty to plan for the future; and
- No Small Refinery Exemptions for 2023 through 2025.

WHAT'S NOT SO GOOD?

- EPA suggesting it may retroactively waive blending levels with an "alternative approach" to reduce conventional biofuel blending for 2024 and 2025, and expressing doubt about the ability for higher blends of corn ethanol to fulfill the implied conventional biofuel targets of the RFS; and
- EPA breaking precedent by giving Tesla and other vehicle manufacturers the ability to generate eRINs when all other RINs are generated by the producer of the renewable fuel.

WHAT WOULD IT MAKE IT BETTER?

- Finalize 15.25 billion gallons minimum for conventional biofuel blending for 2023 through 2025;
- Ensure any increase to advanced volumes be accompanied by a corresponding increase in total renewable fuel so refiners must use higher blends of ethanol instead of paper RINs;
- Adopt GREET for its lifecycle modeling, consistent with what Congress required of Treasury in the Inflation Reduction Act 45Z clean fuel production tax credit;
- Require stronger traceability and verification standards to avoid fraud and abuse of eRINs; and
- Prioritize approving corn kernel fiber pathway registrations in 2023.

WE NEED IMPROVEMENTS IN THE FINAL RFS SET RULE TO UNLEASH ETHANOL'S LOW CARBON POTENTIAL.

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