

U.S. Ethanol Fall 2022

Perspectives

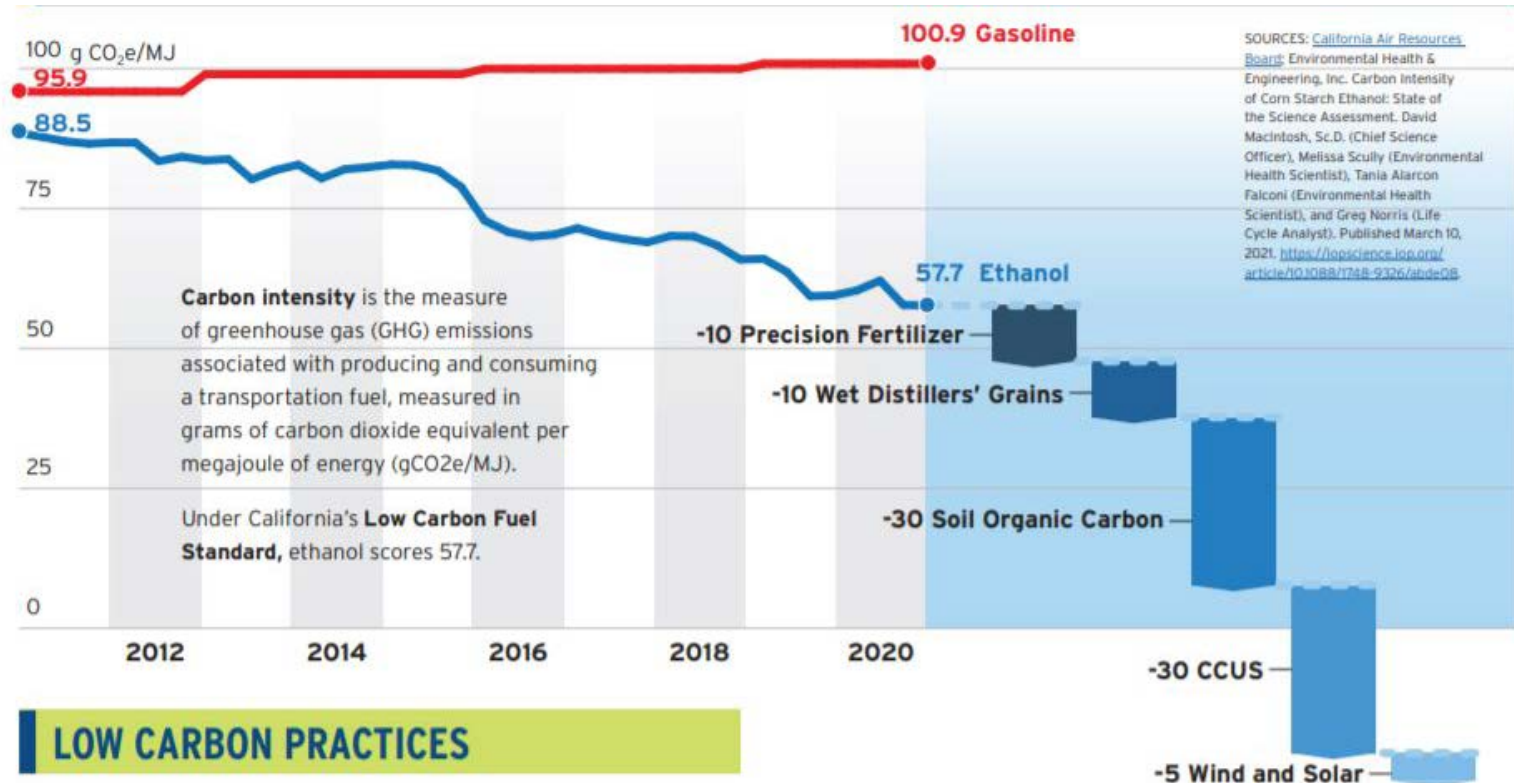
September 2022



U.S. GRAINS
COUNCIL

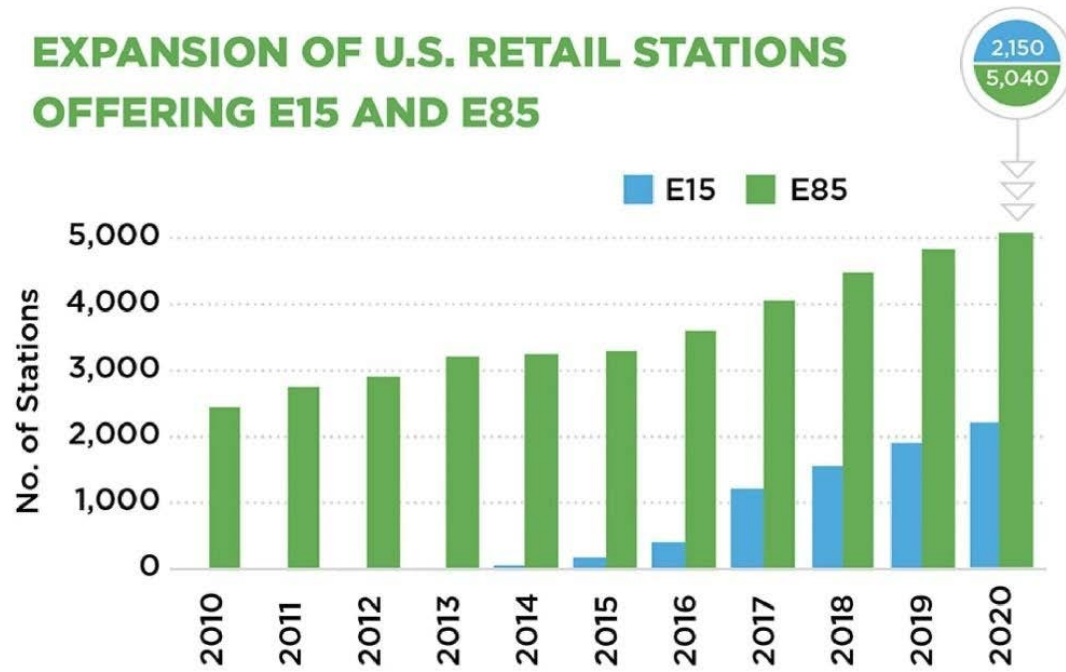
Carbon Intensity of Ethanol Continues to Approach Net Zero

- Average **44-52% lower** CI than gasoline.
- **~57%** in CA market
- Continued improvements in plant efficiency and farming practices to reach **70%** by 2030 and **100%** by 2050



Growing Adoption of Higher Ethanol Blended Fuels

EXPANSION OF U.S. RETAIL STATIONS OFFERING E15 AND E85



Source: RFA

E15 APPROVAL STATUS FOR CONVENTIONAL LIGHT-DUTY VEHICLES

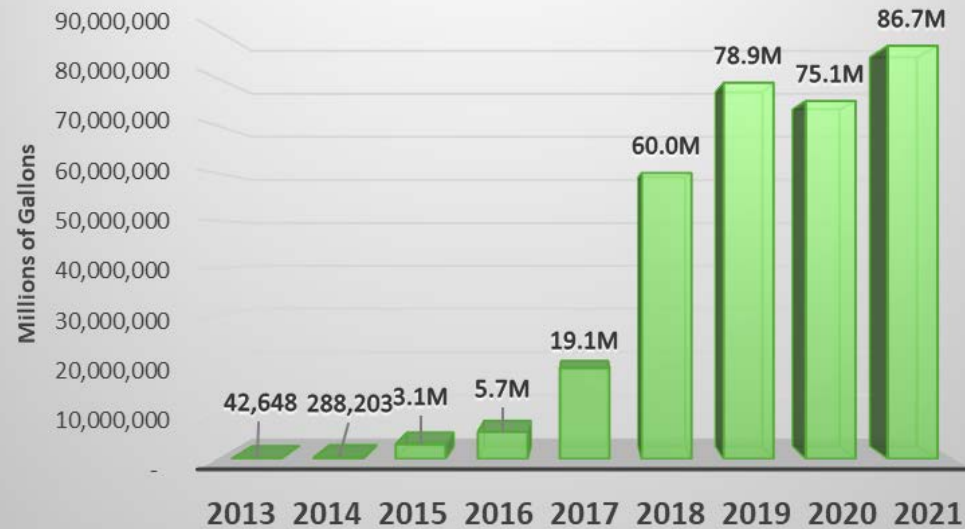
■ E15 Approved by Automaker in ALL Models
 ■ E15 Approved by Automaker in SOME Models
 ■ E15 Approved by EPA only; NOT Approved by Automaker

MODEL YEAR :	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	Market Share
BMW Group**											
BMW											1.9%
Mini											0.2%
Daimler Group (Mercedes-Benz)											
FCA (Chrysler, Dodge, Fiat, Jeep, RAM)											2.3%
Ford Motor Co. (Ford, Lincoln)											12.8%
Ford Motor Co. (Ford, Lincoln)											14.5%
GM (Buick, Cadillac, Chevrolet, GMC)											17.3%
GM (Buick, Cadillac, Chevrolet, GMC)											9.5%
Honda Motor Co. (Honda, Acura)											8.3%
Hyundai Motor Co. (Hyundai, Kia)											1.9%
Mazda											0.7%
Mitsubishi Motors Corp.											
Nissan Motor Co.											
Infiniti											0.6%
Nissan†											6.1%
Subaru†											4.2%
Tata Motors (Jaguar, Land Rover)											0.7%
Toyota Motor Corp.											
Lexus											1.9%
Toyota											12.3%
Volkswagen Group											
Audi											1.3%
Porsche											0.4%
Volkswagen											2.2%
Volvo Car Group											0.7%
All Others											0.2%

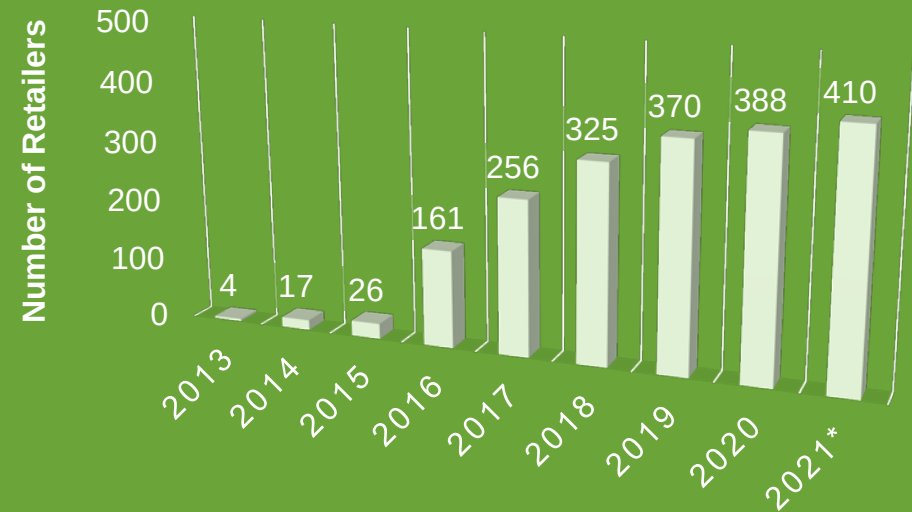
- Increased number of stations providing E15 since 2014
- E15 is approved by in all U.S. vehicles 2001 or newer.
- Biden Admin's decision to expand sales of E15 in summer months to combat prices at the pump.

State Case: Growing E15 Use in Minnesota

Annual Minnesota E15 Fuel Sales



MINNESOTA GROWTH IN RETAILERS OFFERING E15/UNLEADED 88



Station growth reflects higher sales

Biden's SAF Grand Challenge Begins



BRIEFING ROOM

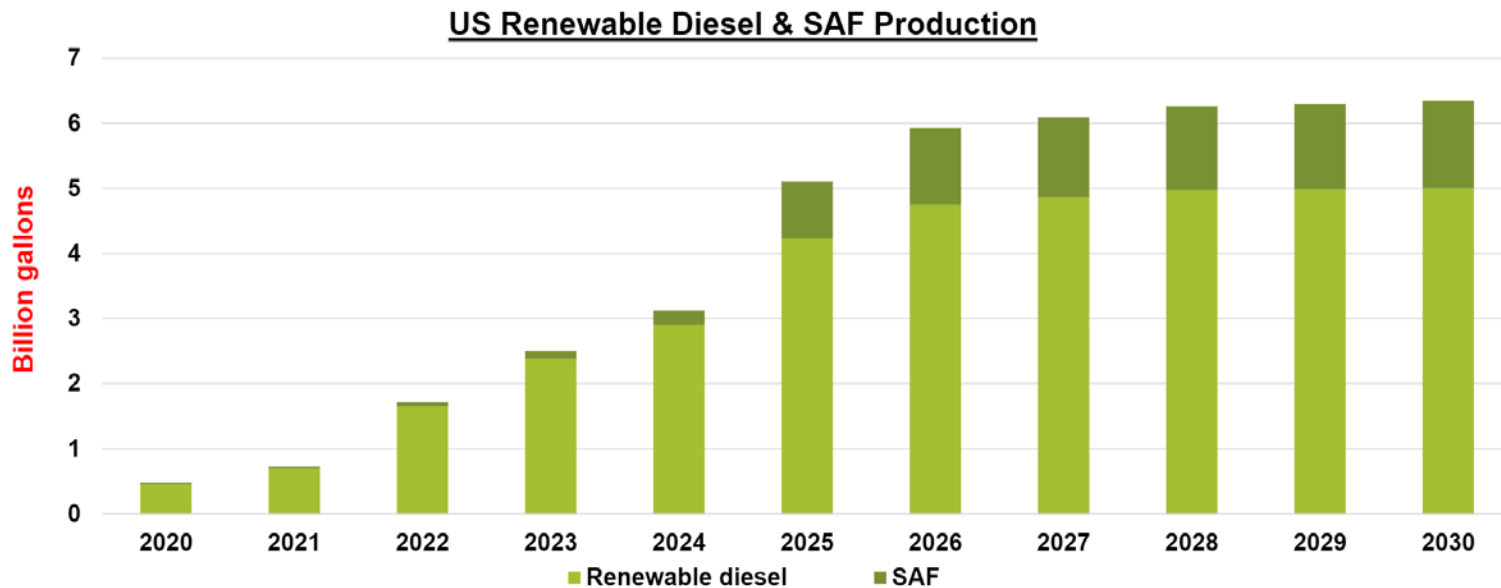
FACT SHEET: Biden Administration Advances the Future of Sustainable Fuels in American Aviation

SEPTEMBER 09, 2021 • STATEMENTS AND RELEASES

- Produce **3 billion gallons** of SAF by 2030
- Reduce aviation emissions **20%** by 2030
- Achieve **50%** GHG emission reduction compared to traditional jet fuel
- Meet **100%** of aviation fuel demand by 2050 (~35 Bgal)

Corn ethanol approved as feedstock in ATJ & ETJ pathways

Sustainable Aviation Fuels Take Flight



Source: S&P Global Commodity Insights

**U.S. Inflation Reduction Act includes credit for SAF production
– but is it enough?**

- U.S. Jet Demand (2021)
~26 Bgal
- U.S. SAF Production (2021) ~
5 Mgal

Barriers:

- Feedstock
 - Availability & cost
- Financial incentives
 - Credits & RD competition
- No enforceable policy

Thank you



U.S. GRAINS
COUNCIL