ETHANOL: A Low-Carbon Solution in the Fight Against Climate Change

Ethanol has a proven track record of cutting GHG emissions from transportation.

- ❑ The use of ethanol and other biofuels under the Renewable Fuel Standard (RFS) reduced U.S. transportation sector GHG emissions by **1.2 billion metric tons (MT)** from 2008 to 2022, according to a report by Life Cycle Associates.
- ❑ In 2024 alone, ethanol reduced GHG emissions by **54.7 million MT,** equivalent to taking **11.9 million cars** off the road for an entire year.

Today's corn ethanol reduces GHG emissions by HALF compared to gasoline.

- ❑ According to the Department of Energy's Argonne National Laboratory, typical corn ethanol provides a **44-52% GHG savings** compared to gasoline.
- ❑ Similarly, researchers from Harvard, MIT, and Tufts concluded that corn ethanol offers an average **GHG reduction of 46%** versus gasoline.
- ❑ **Indirect land use change emissions** estimates have been **sharply reduced** over time, now accounting for **only 12%** of total ethanol emissions according to Argonne.

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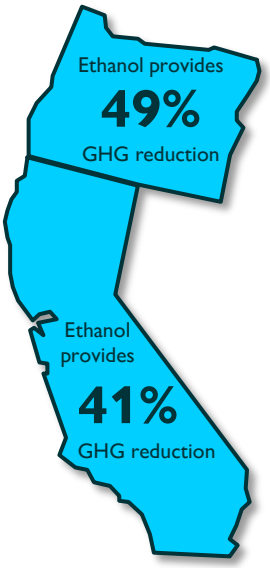
44-52%

GHG reduction versus gasoline.



Ethanol has generated substantial carbon reductions under the California Low Carbon Fuel Standard (LCFS).

- ❑ From 2011 to 2023, ethanol cut GHG emissions from the California transportation sector by **38 million MT**.
- ❑ According to the California Air Resources Board, ethanol used in the state in 2023 reduced GHG emissions by **41%** compared to gasoline.

Ethanol is also a major source of carbon reductions under the Oregon Clean Fuel Standard (CFS).

- ❑ From the 2016 inception of the CFS to 2023, the use of ethanol has reduced GHG emissions by more than **4 million MT.**
- ❑ According to the Oregon Dept. of Environmental Quality, ethanol used in the state in 2023 cut GHG emissions by **49%** compared to gasoline.

Ethanol is on a path to achieve net zero GHG emissions by 2050 or sooner.

- ❑ With the adoption of carbon capture and sequestration; biogas substitution; and climate-smart farming practices, corn ethanol is expected to achieve net zero emissions, on average, by 2050 or sooner.

RFA
RENEWABLE FUELS ASSOCIATION