

# ACHIEVING NET-ZERO ETHANOL

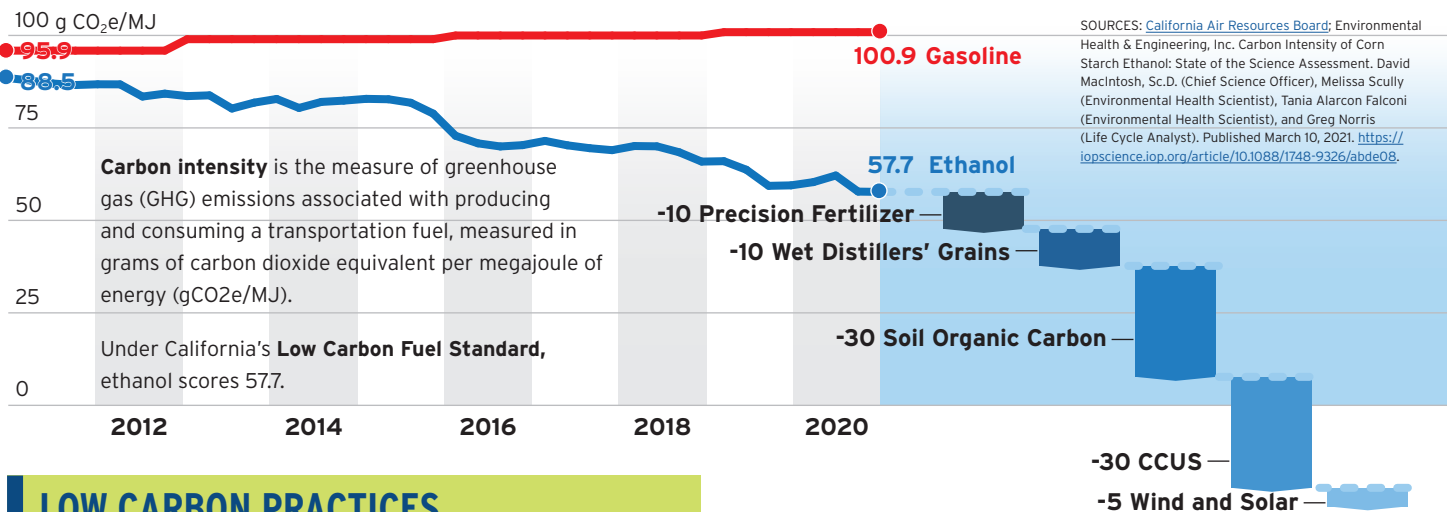
For years biofuel producers have been at the forefront of decarbonizing the transportation sector. That's why they're consistently making technological improvements to reduce the carbon intensity (CI) of ethanol. According to California regulators, ethanol's CI has dropped 33% in the last ten years. **We can reach net-zero ethanol and achieve negative carbon emissions with today's technology.**

## GROWTH ENERGY'S ASKS

Implement important low-carbon incentive policies, including:

- **Clean Fuel Production Credit:** Incentivizes renewable fuel producers to reduce the carbon intensity of their fuel on a technology-neutral basis
- **Sustainable Aviation Fuel (SAF):** Incentivizes the production of SAF to help aviation reach carbon goals
- **45Q Improvements:** Increase the value of 45Q incentive, provide an option for direct pay, and reduce the qualification threshold
- **USDA Infrastructure:** Provide USDA with resources to help build out retail infrastructure to ensure American drivers have access to low-carbon, low-cost ethanol

## CARBON INTENSITY OF ETHANOL CONTINUES TO APPROACH NET-ZERO



## LOW CARBON PRACTICES

**PRECISION FERTILIZER:** Fertilizer intensity has dropped significantly in the last 20 years. Using less fertilizer through precision agriculture technologies lowers nitrogen use and improves ethanol's CI score.

**100% WET DRIED DISTILLERS' GRAINS:** Drying DDGs, an ethanol coproduct used for livestock feed, requires burning natural gas. Ethanol plants can reduce their CI by reducing or eliminating the use of these dryers.

**SOIL ORGANIC CARBON:** The CI of ethanol can be further improved through the use of updated, accurate modeling, which accurately reflect carbon sequestered with the planting of corn. Further improvements can be made by feedstock producers

adopting techniques like no-till and planting cover crops which help keep nutrients in farm soil.

### CARBON CAPTURE, UTILIZATION, AND STORAGE (CCUS):

At least 25% of the ethanol industry captures carbon dioxide. Whether through utilization or permanent sequestration, increased CCUS use throughout the industry significantly lowers CI.

**WIND AND SOLAR:** Energy intensity (megajoules per bushel of corn) has dropped. More use of renewable energy sources like wind and solar at biorefineries will bring further CI benefits to ethanol.