

PRODUCE LOWER-CARBON FUELS FOR VEHICLES

The transition to a zero-emission vehicle fleet will not happen overnight. Even after every car sold is zero-emission, it would still take 10 years for the fleet to reach 70% ZEV and 15 years for the fleet to reach 90% ZEV.²⁶³ Some parts of the transportation sector may rely on alternative fuels for the long term. Congress should consider opportunities to use low-carbon fuels, with appropriate guardrails to prevent conversion of non-agricultural lands into cropland, to shrink the carbon footprint of internal combustion engine vehicles.

Building Block: Build on the Renewable Fuel Standard with a Transition to a Low Carbon Fuel Standard

Congress established the Renewable Fuel Standard (RFS) in 2005 and amended it in 2007 to reduce the country's oil consumption and greenhouse gas emissions in the transportation sector. The program requires U.S. transportation fuels to contain minimum volumes of conventional biofuels, such as corn ethanol, and advanced biofuels. Federal statute outlines specific volumetric requirements through the year 2022 for total renewable fuels, advanced biofuels, cellulosic biofuels, and biomass-based diesel. After that date, the EPA must determine the required volumes.²⁶⁴

The 2022 date offers an opportunity to build on the RFS and transition to a program that encourages the development and production of liquid fuels that meet certain carbon emissions standards. The California Low Carbon Fuel Standard (LCFS), for example, assesses fuels based on a lifecycle carbon intensity benchmark—the amount of emissions per unit of energy output—that declines over time. The lifecycle assessment considers the direct greenhouse gas emissions associated with producing, transporting, and using the fuel and indirect emissions associated with changes in land use for some biofuels. Fuels with a carbon intensity below the benchmark generate credits, while fuels with a carbon intensity above the benchmark generate deficits.²⁶⁵

To comply with the California LCFS, transportation fuel suppliers, such as refiners, must demonstrate that the mix of fuels they supply for use in California meets the carbon intensity benchmarks. They can blend low-carbon fuels into the petroleum-based fuels they sell, buy credits generated by producers and users of low-carbon fuels, or both.²⁶⁶ In both 2018 and 2019, biodiesel, renewable diesel, and ethanol generated about 75% of the state's LCFS credits.²⁶⁷

California's LCFS policy has supported the growth of electricity as a transportation fuel and reinforced the states ZEV sales mandate. Electric utilities, for example, can generate credits for residential

²⁶³ Center for American Progress analysis of Trieu Mai et al, *Electrification Futures Study: Scenarios of Electric Technology Adoption and Power Consumption for the United States* (National Renewable Energy Laboratory, 2018) available at <https://www.nrel.gov/docs/fy18osti/71500.pdf>. (Specifically, Maximum Technical Potential scenario). As cited in John Podesta, Christy Goldfuss, et al, *A 100 Percent Clean Future* (Center for American Progress, 2019) at 31.

²⁶⁴ 42 U.S. Code § 7545.

²⁶⁵ California Air Resources Board, "Low Carbon Fuel Standard," available at <https://ww2.arb.ca.gov/our-work/programs/low-carbon-fuel-standard/about>. Accessed June 2020.

²⁶⁶ *Ibid.*

²⁶⁷ Analysis of data from California Air Resources Board, "Low Carbon Fuel Standard," Data Dashboard, available at <https://ww3.arb.ca.gov/fuels/lcfs/dashboard/dashboard.htm>. Accessed June 2020.

electric vehicle charging based on the difference between California’s average grid carbon intensity and average gasoline carbon intensity. California requires utilities to use revenue from selling these credits to provide rebates to residential customers who own or lease EVs. Owners of fueling supply equipment for non-residential EV charging, including public, workplace, and fleet charging, also can generate LCFS credits. For off-road transportation modes, electric forklifts, electric cargo handling equipment, electric transportation refrigeration units, and shore power at-berth oceangoing vessels can generate credits for equipment owners.²⁶⁸

In addition to California, a broad coalition of agriculture, environmental, renewable liquid fuel, and electricity stakeholders have developed a framework for a Midwest Clean Fuel Standard to significantly reduce transportation greenhouse gas emissions and generate economic benefits for the region.²⁶⁹

As the U.S. economy moves toward a net-zero by 2050 goal, low-carbon liquid fuels will have an important role to play in reducing oil consumption in the transportation sector and averting greenhouse gas emissions. The conversion to electric or other zero-emission vehicles will not happen overnight. Harder-to-decarbonize sectors where electrification may not be cost-effective, such as shipping, aviation, and long-haul trucking, could look to low-carbon liquid fuels as a potential solution. Highly efficient engines also could drive new demand for high-octane, low-carbon fuels.

Recommendation: Congress should develop a Low Carbon Fuel Standard to build on the Renewable Fuel Standard. The standard should set a technology- and feedstock-neutral benchmark for liquid and non-liquid fuels tied to a lifecycle assessment of the carbon intensity of the fuels. The carbon intensity standard should become more stringent (lower) over time. The lifecycle assessment should reflect the best-available science about the carbon intensity of fuel production, farming practices, land use changes, and crop productivity. The standard should include guardrails to prevent conversion of any non-agricultural lands into cropland, particularly sensitive lands with high carbon sequestration and biodiversity value. For renewable liquid fuels, the LCFS should reward entities in the value chain, including farmers and producers, that use climate-smart practices that reduce carbon emissions, store soil carbon, and reduce nitrous oxide emissions.

As described in more detail later in this section, an LCFS should allow low-carbon shipping and aviation fuels that meet the carbon intensity standards to qualify for credits. These sectors could become potential growth areas for low-carbon fuel demand.

Congress should ensure the LCFS complements the national ZEV program and greenhouse gas emissions standards for on-road vehicles, as they do in California.

Committee of Jurisdiction: Energy and Commerce

²⁶⁸ California Code of Regulations, 17 CA ADC § 95483.

²⁶⁹ Midwestern Clean Fuels Policy Initiative, *A Clean Fuels Policy for the Midwest* (January 2020), <https://www.betterenergy.org/wp-content/uploads/2020/01/Clean-Fuels-Policy-for-the-Midwest.pdf>.