



TRANSPORTATION DEEP DIVES

Clean Fuel Standard

Overview

A clean fuel standard (CFS) requires the producers and importers of fuels used in transportation to reduce their greenhouse gas (GHG) emissions over time. As a performance-based standard, a CFS encourages the use of low-carbon transportation fuels based on their carbon intensity (CI), or their lifecycle GHG emissions per unit of energy.

Under a CFS, the federal government sets decreasing annual CI targets but does not mandate how fuel providers meet them. Fuels whose CI does not exceed the benchmark generate credits, while fuels whose GHG emissions are too high generate deficits. Producers and importers comply with the CFS by providing a mix of fuels that generates more credits than deficits.

Producers of low-carbon fuels can use them to offset their own deficits or sell them to other fuel providers. Credits can be bundled and sold with low-carbon fuels. They can also be traded separately, generating revenue for the fuel producer and minimizing the total cost of achieving the CI reductions.

Policy Principles

Generating Credits: In a CFS, there are three ways to generate credits:

1. Providers of low-carbon fuels generate credits by attaining a certified CI. Credits are calculated relative to the annual CI benchmark and are verified by a third party.
2. Project-based credits are generated through actions that reduce GHG emissions in the petroleum supply chain, including carbon capture using direct air capture (DAC). Crediting for projects is based on lifecycle emission reductions and verified by a state-approved verifier.
3. Deployment of Zero-Emission Vehicle (ZEV) infrastructure generates credits based on the capacity of the hydrogen station or EV charging site, minus the emissions of the fuel dispensed.



Covered Entities: Every provider of transportation fuel in the U.S. should be required to comply with the CFS. Providers include electric utilities, natural gas utilities, and suppliers of liquid and gaseous fuels used in aviation, marine, on-road, and off-road applications. Petroleum importers, refiners, and wholesalers are also required to participate. Zero- and low-carbon fuel providers can opt in if they wish.

Targets/Ambition: A CFS should aim to decarbonize U.S. transportation fuels completely by 2050. To provide regulatory certainty, a CFS policy should establish a schedule for CI benchmarks that outlines the average CI that fuels replacing gasoline and diesel must meet at any given time.

Qualifying Technologies: Technologies available that already comply with the CFS include ethanol from grains and sugars, biodiesel and renewable diesel, biogas, compressed natural gas (CNG), liquid natural gas (LNG), electricity, hydrogen, lignocellulosics, and classic Fischer-Tropsch fuels.

Tech Neutrality: A CFS is technology neutral: it provides a strong price signal for the development and deployment of the lowest-carbon fuels without choosing winners or losers. The scope of the standard should capture the diverse fuel portfolio available both today and in the near future.

CI Determination: The CFS asks fuel providers to determine the CI of the fuels they sell and report that information to EPA for review and approval.

Trading: Credit trading is a central tenet of a CFS. It promotes economic efficiency and provides a revenue stream for low-carbon fuel providers. Trading also provides flexibility by making it possible for fuel providers to bank credits for future compliance. The federal government should establish a trading platform to facilitate and verify these trades and monitor the market.

Price Collar: Providing a stable, long-term price signal is key to achieving deep decarbonization under a CFS. A carefully designed price collar can promote stability in the credit market and make clear the total cost of compliance. In some applications, a price collar can also provide access to additional pools of credits, providing compliance flexibility when short-term imbalances exist in credit supply and demand.

A CFS policy should establish a credit-price ceiling that increases through 2050, along with a mechanism that ensures no credits are sold above that ceiling. By providing certainty as to the highest potential credit price, fuel providers can make cost-effective investment decisions related to the generation and sale of credits. Similarly, A CFS policy should also establish a credit-price floor and a mechanism that guarantees no credits are sold below that price. This also provides certainty about the lowest potential cost of credits, which fuel providers can use to obtain long-term contracts and bank financing for capital projects.

Emissions Accounting and Verification: The federal government must estimate the lifecycle GHG emissions of all transportation fuels in the U.S. Third-party experts should verify these estimates to make sure the CFS is successfully reducing CI and emissions.



Driver Impacts: A CFS should be designed to protect drivers from excessive fuel costs and provide equitable access to clean fuels, specifically in communities that are disproportionately impacted by the effects of climate change and air pollution. At the same time, revenues generated from the sale of zero- and low-carbon fuels should provide benefits to all Americans, including reducing co-pollutants and mitigating health inequalities in historically marginalized communities.

Air Quality Impacts: A CFS should include provisions that incentivize air quality improvements in communities with poor air quality. The standard can include design elements to prioritize electrification in and near low-income and historically disadvantaged communities while promoting a wide portfolio of clean fuels across the U.S. A CFS must conform to equity principles and prioritize direct environmental and economic benefits in disadvantaged communities.