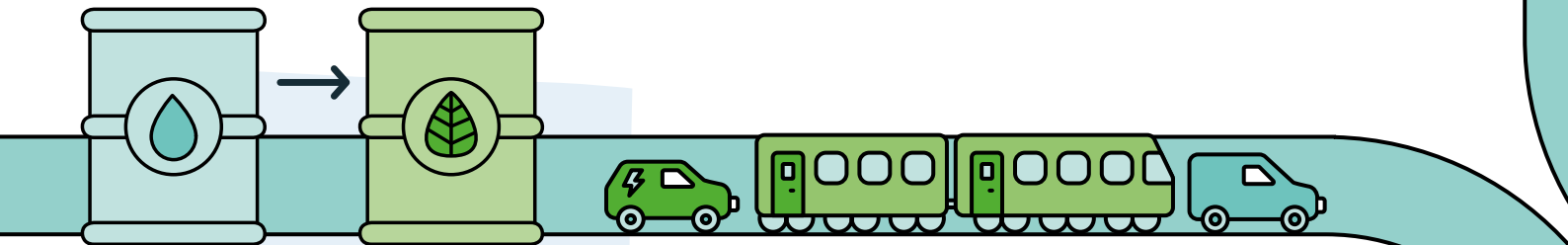


California Low Carbon Fuel Standard Policy Case Studies



California has implemented a market-based mechanism to incentivise the use of low carbon fuel in transport.



Policy Type: Market Based Mechanism

Key Features

A carbon intensity of fuel target is set annually, and obligated fuel suppliers can comply by either acquiring certificates on a traded market or by supplying low carbon fuel.

Sectors Covered

Transport.

Sectors Not Covered

Power, Industry, Agriculture, Forestry, Waste, Buildings.

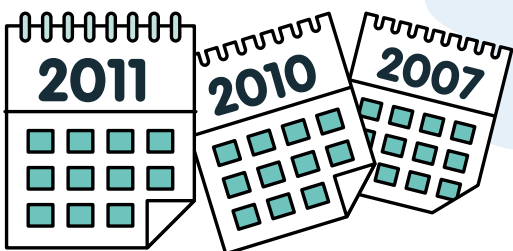
Emissions Covered

37%



Point of Regulation

Upstream. Obligation placed on fuel suppliers.



Key Dates

California's Low Carbon Fuel Standard (LCFS) was created by Executive Order in 2007, however implementation only began in 2010 with compliance starting at the beginning of 2011.

Carbon Price
US\$115
/tCO₂e in
January 2018
(~£83.30)¹

"When you set out on these programmes you cannot be confident in predicting which route compliance is going to take if you allow flexibility!"

Mike Scheible,
Deputy at California
Air Resources Board

¹Exchange rate January 2018: US\$1: £0.724. Source: <http://www.ofx.com>, accessed 19/07/2018.

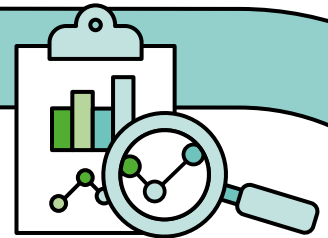
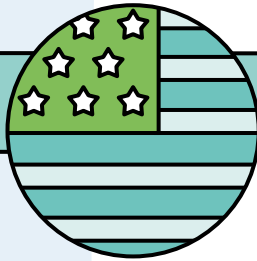
Introduction

The Californian Low Carbon Fuel Standard (LCFS) is a market-based mechanism with a strong economic incentive at its core. It combines an obligation to reduce the greenhouse gas intensity of transport fuels with a trading mechanism for related credits.

The California Air Resources Board (CARB) sets a carbon intensity standard for fuels supplied. Suppliers of fuels lower in carbon intensity than the standard earn credits that can be traded with suppliers of fuels above the standard. The standard is calculated through a Life Cycle Analysis (LCA), which accounts for all emissions associated with the extraction and supply of the fuel, as well as its combustion.

The LCFS experienced significant resistance from the fossil fuel industry and two significant legal challenges. In the first, industry argued it gave Californian suppliers of low-carbon fuel an unfair advantage over those outside the state. This was not upheld, however. The second questioned the robustness of the science underlying the LCA, highlighting the difficulties in measuring emissions from indirect land use change from the production of biofuels. This was upheld and led to revisions of the methodologies used.

Moreover, a number of additional design revisions have been implemented to enhance the policy's effectiveness, such as more stringent targets and the adoption of cost containment measures, which provides another compliance option should there be a shortfall in credits.



Key Findings

Price Signals

- Creating a stable and sufficient price signal is key to stimulate investments in low carbon intensity fuels. The signal should be high enough to pay back investment in advanced renewable fuel technologies. The volatile and low prices seen in the early phases of the LCFS were related to the legal challenges to the policy, which reduced confidence in its durability.

Mechanism Design Revisions

- As the carbon intensity standards have become more stringent, the price of credits has increased in line with expectations about future increased compliance costs.
- Price volatility in the LCFS was reduced with the inclusion of a cost containment mechanism, which provided another compliance option. Should there be a shortfall in credits, the mechanism allows for the sale of additional credits at a fixed price to suppliers who are in deficit. Further, any outstanding deficits may be carried over for up to five years.

Life Cycle Analysis

- While the use of LCA fully accounts for the emissions involved in fuel production and removes the risk of emissions leakage, the methodologies used were contentious. These had to be revised to account for stakeholder concerns as well as advances in the science.

Complementary Policies

- As the price of LCFS credits increases, the price at the pump should also increase, creating an economic incentive for demand side behaviour such as buying alternative fuel cars. However, for years the price has not been strong enough to influence the consumer. As such, fiscal policy such as tax rebates have been used to complement the LCFS, in order to drive consumer uptake of certain technologies such as electric vehicles.



Definitions

Point of Regulation

The point in a chain of emission producing activities at which a regulator places the obligation to comply with emission reduction policy. The point is defined relative to the point of emission, either up or downstream from this.