



Canada's Clean Fuel Regulations

Summary of policy design and insights

May 2021, version 3

Overview

The Clean Fuel Regulations (CFR), previously known as the Clean Fuel Standard, is a proposed federal policy that seeks to reduce the lifecycle carbon intensity of liquid fuels sold in Canada. This document shares some insights about the CFR, explains the policy in detail, and describes how Navius can help in better understanding it.

About Navius Research and gTech

Navius Research is a Vancouver-based consulting firm that uses energy-economy models to analyze the impacts of climate and energy policies. gTech, our flagship model, is ideally suited to analyze complex policies like the CFR because:

- It is a **full economic model** and explicitly simulates the quantity and price for compliance credits created by the CFR. As such, it can report both the quantity and the price of traded credits.
- It is **technologically explicit** and can simulate how the CFR will affect households and firms' adoption of alternative transport technologies (e.g., EVs) and fuels (e.g., biodiesel), both of which generate compliance credits.
- It is **behaviourally realistic** and accounts for non-financial preferences and consumer heterogeneity which can strongly influence technology choice.
- It simulates the **interactions between policies**. The CFR is one of many policies that apply to fossil fuels in Canada (e.g., carbon pricing, biofuel blending). These other policies will influence the CFR market.

What have we learned about the CFR?

We have used gTech to simulate the impacts of the CFR for both provincial governments and industry. We found that:

- **The credit market is sensitive to changes in macroeconomic conditions**, such as variations in global oil prices, and to different technology evolution pathways like the rate at which battery costs may decline in the future.
- **CFR impacts are also sensitive to policy design variations**. Changes to the currently proposed CFR policy design could have a significant impact on policy outcomes. One such example is changing the limits on credits generated via fuel switching to electricity, which provides policymakers with a powerful lever to adjust policy outcomes in response to unforeseen market developments.
- **Credit prices are likely to rise in the earlier years of compliance. They stabilize between 2025 and 2027** as the impacts of the rising carbon price (to \$170/t by 2030) begin to increasingly interact with the CFR and compliance becomes easier to achieve with transport electrification credits.
- **The policy creates a multi-billion dollar credit market**, providing funding for multiple low-carbon reduction initiatives, including biofuels supply, carbon capture and storage deployment, transport fuel switching to electricity and hydrogen, among other actions.

Introduction

CFR policy explained

How can Navius help?

Policy objective

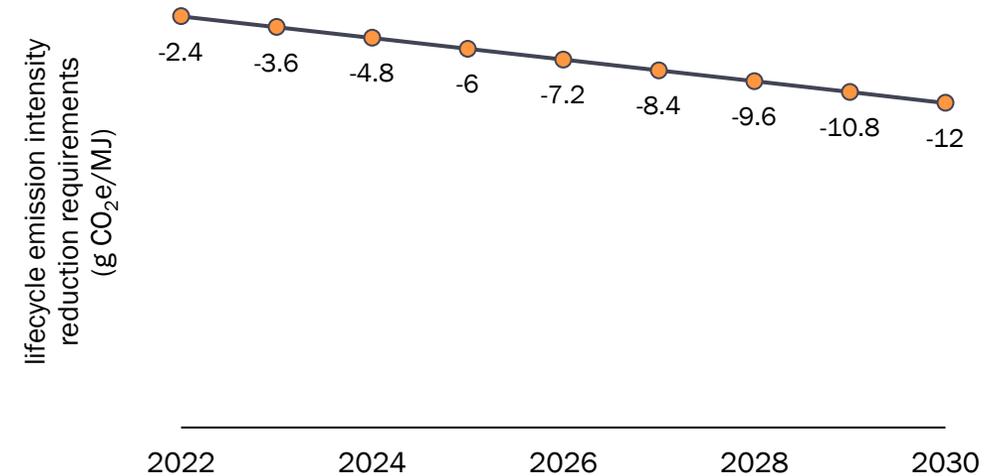
The Clean Fuel Regulations (CFR) is a proposed federal policy that seeks to reduce the lifecycle carbon intensity of liquid fuels sold in Canada. The policy applies to **primary fuel suppliers**, including refineries, upgraders, and fuel importers. The policy requires that regulated entities reduce the annual emission intensity of the liquid fuels they sell by 2.4 g CO₂e/MJ in 2022, up to 12 g CO₂e/MJ in 2030.

Compliance activities

The CFR will create a new market for compliance credits. Regulated entities can either generate credits or purchase them from one of five credit supply pathways, as described in the [next slide](#). Regulated entities with credit deficits at the end of a policy compliance period are required to engage in the three post-compliance period activities discussed in [slide 5](#).

Policy timeline

The policy, which was first conceptualized as the Clean Fuel Standard in November 2016, has evolved significantly over the years. The policy described in this document is based on the version proposed in the Canada Gazette Part I, published in December 2020.



November 2016

The Government of Canada announces its plan to introduce a national low-carbon fuel standard called the Clean Fuel Standard (CFS) in late 2016. A consultation process begins that culminates in the introduction of the first details of the policy.

December 2017

A preliminary regulatory framework for the CFS, released in late 2017, sheds more light on policy design. Publication of the draft regulations are delayed from 2018 to late 2020.

December 2020

The draft regulations for the Clean Fuel Standard are officially published as the Clean Fuel Regulations under the Canada Gazette, Part I.

April 2021

On Earth Day 2021, the federal government announces that it will introduce a more stringent version of the policy to help meet its new, more ambitious emission reduction targets.

CFR policy description

Compliance period

Introduction

CFR policy explained

How can Navius help?

Compliance period activities

To comply, primary liquid fuel suppliers can generate credits by improving their processes or **purchasing credits from other regulated entities that have a surplus of credits** as well as from the following non-mandatory market participants:

- **Fossil fuel firms upstream or downstream from primary fuel suppliers.** Upstream firms can generate credits by reducing emissions from fossil fuel production (e.g., methane leak control). Downstream firms generate credits by reducing emissions from fossil fuel distribution (e.g., using more efficient diesel tube trailers for liquid fuel transport).
- **Low-carbon fuel supply.** Producers or importers can generate credits by supplying liquid low-carbon fuels, which include biomass-based or synthetic fuels.
- **End-use fuel switching in transportation.** Firms can generate credits by selling fuels consumed by alternative fuel vehicles like electric, fuel cell, and natural gas vehicles (both fossil-based and renewable natural gas are eligible for credits).
- **Emission reductions in gaseous and solid fuel classes.** Firms that reduce the carbon intensity of gaseous and solid fuels used in Canada can generate credits that can meet up to 10% of a regulated entities' compliance obligation.

	Credit generating categories and sub-categories	Compliance category 1 (regulated entities)	Compliance category 1 (non-regulated entities)	Compliance category 2	Compliance category 3	Inter-stream credits**
Credit generation	Credit generating market players	Regulated primary fuel suppliers	Upstream and downstream fossil fuel providers	Low-carbon fuel suppliers	End-use fuel switching energy providers	Solid and gaseous fuel producers and suppliers
	Credit generating actions	Excess credits from fuel production emission reductions	Emission reductions upstream or downstream of primary fuel supplier	Low-carbon fuel supply (e.g., ethanol)	End-use fuel switching in transport (e.g., electric vehicles)	Emission reductions in solid and gaseous fuel classes
		Unlimited trading of credits generated			Limits on electrification credits starting in 2030*	Trading limited to 10% of compliance allowance
Credit use	Credit recipients Regulated primary fuel suppliers with credit deficits Compliance options are: (1) purchase credits from any of the above credit generating pathways; or (2) reduce the emission intensity of fuels by the level required by the policy					

* Limits under compliance category 3 only apply to credits generated from residential electric charging.

** Interstream credits is Navius' categorization for solid and gaseous fuel-derived credits subject to 10% limit for compliance. These are either generated under compliance category 1 or compliance category 2.

Introduction

CFR policy explained

How can Navius help?

Post-compliance period activities

At the end of a compliance period, all primary fuel suppliers with a remaining credit deficit must participate in the Credit Clearance Mechanism (CCM) market, in which all available credits must be purchased at or below the \$300/t CO₂e price ceiling. If primary fuel suppliers have credit deficits following their participation in the CCM, they can purchase credits from a compliance fund at \$350/t CO₂e to meet up to 10% of their requirement. Primary fuel suppliers who still have credit deficits can carry up to 10% of their requirements into the next compliance period.

Market stability and liquidity mechanisms

In addition to ensuring that all regulated entities participate in the credit market, post-compliance period activities are designed to stabilize the policy's credit market, avoid credit price spikes, and reduce the overall cost of compliance. The policy also includes an additional market stability and liquidity mechanism in the form of credit banking. The CFR allows regulated entities to bank surplus credits without limit for an indefinite period.

Regulated primary fuel suppliers with credit deficits at the end of a compliance period are required to engage in the following three activities:

1 Participate in Credit Clearance Mechanism market until all available credits are depleted. Credit prices are capped at \$300/t CO₂e.

2 Pay into compliance fund for up to 10% of compliance requirements. Credits are sold for \$350/t CO₂e each.

3 Carry up to 10% of requirements into next compliance period.

How can Navius help understand the CFR?

Introduction

CFR policy explained

How can Navius help?

Questions we can answer

Some of the questions our modeling tools and analyses can help answer include:

For policy makers

- What is the likely GHG reduction impact of the CFR by sector and by province?
- How does the policy interact with other federal and provincial climate policies?
- What will be the impact of the policy on retail gasoline and diesel prices?
- How can different policy design variations increase or decrease the policy's emission reduction impacts?

For the private sector

- What is the size of the market for different credit generating activities?
- What are the investment opportunities created by the policy?
- What is the cost of the policy for industry?

Relevant to all

- How are the CFR credit market and credit prices likely to evolve with tightening policy stringency?
- How do different macroeconomic trends, policy design variation, and technology cost evolutions affect CFR credit prices?
- What will be the impacts of the policy on the adoption of different low-carbon technologies?

Reach out to us

If you'd like to discuss the policy or have any additional questions about it, contact us at Contact@NaviusResearch.com. We'd love to hear from you!

