

# *From volume to carbon intensity: Trends in Canadian low carbon fuel policy*

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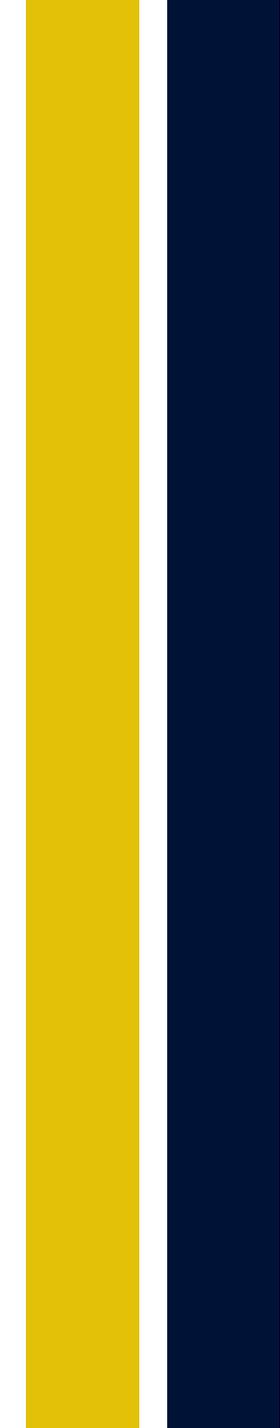
## INTRODUCTION

As policy makers aim to meet global climate commitments, policy in Canada has been evolving quickly. More than ever, carbon intensities of fuels matter.

This presentation provides an overview of three different kinds of clean fuels policy to show how Canadian policy has changed over time and what challenges lay ahead.

*Strict volume mandates – Hybrid volume/CI mandates – Low carbon fuel standards*





## Federal Renewable Fuel Regulations

- Federal Renewable Fuel Regulations are intended to reduce GHG emissions by requiring an average of:
  - 5% renewable fuel content in gasoline and;
  - 2% renewable fuel content in the diesel pool
- Provides a list of eligible feedstocks for renewable fuel, including:
  - Grains, starch, oilseeds, algae, animal fats, municipal solid waste, cellulosic materials, etc.
- Includes compliance and enforcement provisions, such as recording and reporting requirements





## Proposed Quebec mandates

Proposed for July 2021

- 10% ethanol in gasoline
- 2% biomass based diesel in diesel

To be increased in July 2025 to 15% and 4% respectively.

Note that this draft regulation is **molecule specific** for the gasoline pool.

Flexibility mechanism: If a 1% blend of cellulosic ethanol is used, a total 9% blend achieves compliance. However, the draft regulations had no provisions if over 1% cellulosic ethanol were used.

**Ultimately, this draft regulation will be replaced by a new version** which is planned to be published this fall, with substantial modifications. Alignment with Ontario is expected.



## ON – Greener diesel and gasoline

### Greener Diesel Regulation (as of 2017)

- 4% biomass-based diesel; coupled with a
- 70% GHG reduction compare to standard petroleum diesel

### Greener Gasoline Regulation (as of Jan. 2020)

- 10% bio-based fuel requirement; coupled with a
- 45% reduction in GHG

### Average adjusted volume key to both regulations

- As your carbon intensity improves, less bio-based fuel is required for compliance.





## ON – Greener Gasoline Regulation – some details

Relatively new regulation, particularly compared to Greener Diesel, with **some stakeholders still adapting to the market signal being sent for a lower CI product.**

For the purpose of this regulation, carbon intensity (CI) is calculated using GHGenius 4.03

The CI of gasoline is set at 83.9gCO<sub>2</sub>e/MJ, therefore the percent reduction of GHG emissions of a renewable fuel can be calculated as follows:

**$[(83.9 - CI) \div 83.9] \times 100 = \text{percent reduction compared to fossil gasoline}$**

Obligated parties can average out the carbon intensities of the different renewable fuel that they have purchased to meet the target of a 45% GHG reduction. Compliance can come from higher volume and lower GHG reduction, or vice versa.



## ◆ ON – Greener Gasoline Regulation – required blend level

### Examples of compliance

- 90% GHG reduction; 5% blend
- 60% GHG reduction; 7.5% blend
- 30% GHG reduction; 15% blend
- 22.5% GHG reduction; 20% blend

Percent renewable fuel blend =  $450 \div$  percent GHG reduction  
(note: this is simplified version)

### The path forward – 15% volume

- The Ford government’s Made-in-Ontario Environment Plan commits to “increasing the ethanol content of gasoline to 15% as early as 2025”.



## The Proposed Clean Fuel Standard

First announced in 2016 as part of the Pan-Canadian Framework. CFS targets 30 MT of GHG reductions.

The purpose of the CFS is to reduce the CI of **fuel that is used in Canada**. Full flexibility is given to achieve this goal, be it through reducing the CI of the fossil fuel itself through production efficiencies, capturing carbon from fuels and sequestering it, blending low carbon fuels, switching to a lower carbon fuel like electricity, etc.

Typically, this kind of program takes aim at transportation, however, **the CFS targets liquid, gaseous and solid fuels**.

Liquid fuel regulations are most advanced at the moment, and will be the focus here.

### PAN-CANADIAN FRAMEWORK



### on Clean Growth and Climate Change

Canada's Plan to Address Climate  
Change and Grow the Economy



## CFS – Mechanics

### Credit generators

- Fossil fuel suppliers;
- Canadian low carbon fuel producers ;
- Low carbon fuel importers;
- EV charging networks; etc.

Low carbon fuel producers, EV charging networks, and others, will generate credits but will have no obligation under the policy. These credits will therefore be sold to the obligated parties under the CFS: Fossil fuel suppliers.

Agriculture and forestry sectors also stand to benefit as suppliers of raw materials.

The CFS is intended to create a credit market that favours the lowest cost of abatement. In some cases, a fuel could have a negative cost of abatement.

- Example: ethanol



## CFS – Timelines

Next steps for the liquid fuels component of the CFS (gaseous and solid fuels to follow about 12 months later).

Fall 2020

Draft regulations – liquids

Late 2021

Final regulations – liquids

Mid-2022

Coming into force – liquids



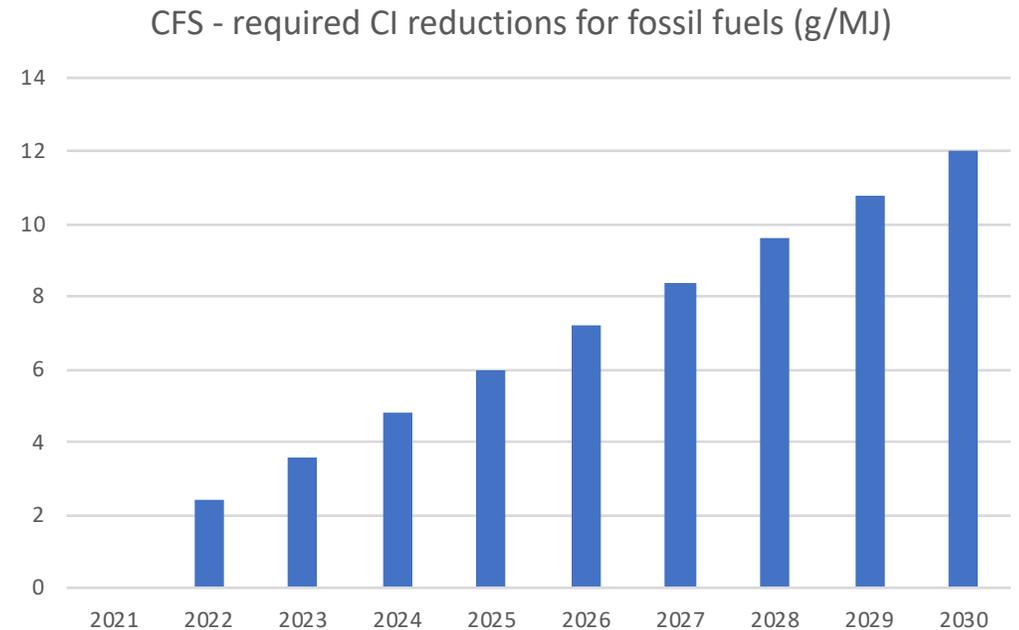
## CFS – Stringency/Compliance curve

CFS is molecule and volume agnostic in that it does not stipulate a required blend level for any specific fuel. Exception: RFR to be rolled into the CFS.

Latest compliance curve announced by Environment and Climate Change Canada (ECCC), as of June 2020, shows stringency starting at a 2.4 g/MJ reduction in 2022, increasing to **12 g/MJ in 2030**.

ECCC is developing a **lifecycle analysis model** that will be released in full when the regulation is finalized.

Current projections show **11% biomass-based diesel** and **15% ethanol use in 2030**.



## CONCLUSION

Policy in Canada is mostly trending towards some form of **CI measurement**.

Volume mandates remain important at the **provincial level**. Coupled with sufficient incentive to lower the CI of renewable fuels, these policies can be quite successful at addressing GHG emissions in a specific fuel pool.

**Volume still matters for investment**. Even when there is no volume requirement (CFS), volume projections send market signals.

CFS could be a game changer for Canadian low carbon fuel policy. With more than a year left before the proposed regulation is finalized, the **implementation of the CFS could rely on the current Liberal government remaining in power**.



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