

Availability of Biofuels:
**Clean Fuel Standard Supply
and Demand Implications**

[From the Report: ICF Canada, Clean Fuel Standard
Supply & Demand Implications (2020)]¹

September, 2020

THE CLEAN FUEL STANDARD

The Clean Fuel Standard (CFS) currently under development by Environment and Climate Change Canada (ECCC) aims to reduce Canada's greenhouse gas emissions (GHG) through the increased use of lower-carbon fuels, energy sources, and technologies. The CFS is additional to the Pan-Canadian Framework for Clean Growth and Climate Change and will be applied as a performance-based approach with the expectation to achieve annual reductions of 30 million tonnes of GHG emissions by 2030.

One of the key compliance options and credit generators under the CFS will be the reduction of lifecycle carbon intensity of fossil fuels by blending low-carbon intensity fuels with fossil fuels or using low-carbon intensity fuels on their own, both in the liquids and in the gaseous streams (Compliance Category 2). However, **biofuel availability to meet the increased demand under the CFS is a significant concern.**

Canada would have to increase domestic capacity and/or increase imports in order to meet the potential **quadrupling of demand for biofuels** by 2030.

KEY CONSIDERATIONS: LACK OF DOMESTIC CAPACITY, HIGH COST OF IMPORTS

1. Liquid Fuel Stream

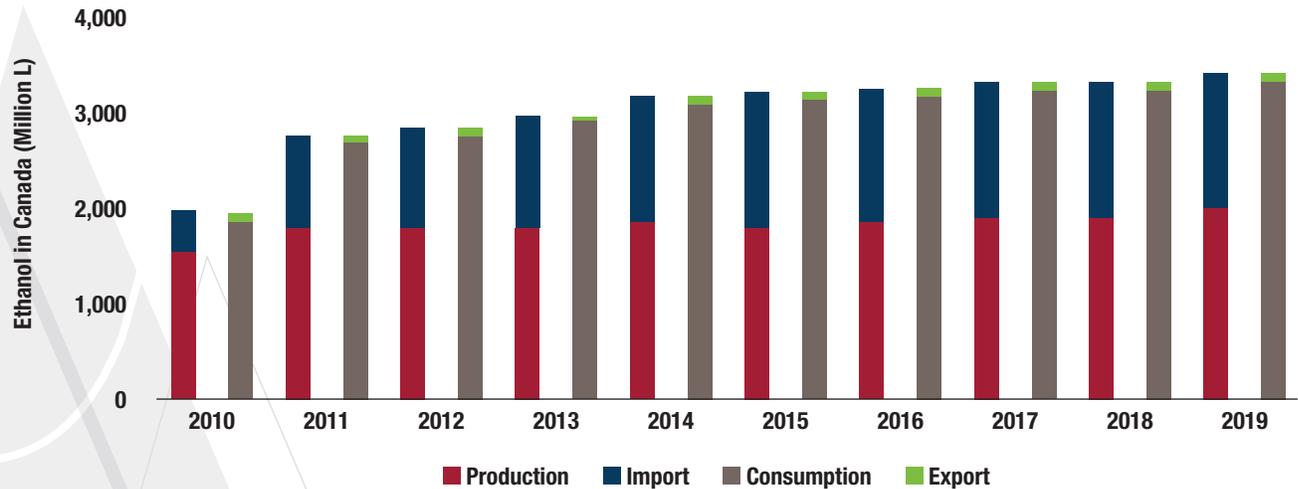
Fuels covered under the CFS make up about 70 per cent of Canada's end-use energy consumption. Given the GHG abatement expectations of the CFS, very significant quantities of low-carbon fuel will be required to fulfill the carbon intensity reduction requirements. Between the low and high case, ICF Canada² estimates that between 81 to 456 petajoules (PJ) of liquid low-carbon fuels will be required annually by 2030 to meet CFS demand. This is compared to current domestic biofuel demand levels of 108 PJ³.

Today, much of the biofuel supply to meet current blending requirements is imported. From 2010 to 2019, Canada's low-carbon fuel demand more than doubled, with about half the demand met by imports rather than domestic production.

- **Ethanol** - As of 2019, Canada sourced 60 per cent of national ethanol demand domestically. Given that almost 70 per cent of the growth in Canadian ethanol demand since 2011 has been met through imports from the U.S. - 98 per cent of Canada's ethanol imports originate there - and that the U.S. continues to be over-supplied with ethanol, it would seem likely that much of the incremental ethanol demand driven by CFS would be met by U.S. imports⁴.
- **Diesel** - As of 2019, Canada sourced 55 per cent of national biodiesel demand domestically, and relies on imports to supply current renewable diesel consumption⁵. The U.S. is by far the largest supplier of biodiesel to Canada, but some is also imported from Europe, primarily Germany, and also from Argentina. From 2010 to 2019, Canada has had no renewable diesel production capacity - everything consumed has been imported. Some studies estimate renewable diesel may cost about 20 to 30 per cent more to produce than petroleum-derived diesel⁶.

ETHANOL IN CANADA, 2010 - 2019 (MILLION L)

Source: ICF Canada, Clean Fuel Standard Supply & Demand Implications (2020)



2. Gaseous Fuel Stream

ICF Canada estimates up to 542 PJ of low-carbon gaseous fuels will be required under the CFS. **This will be first instance of any jurisdiction in the world adopting a national CFS for gaseous fuels.** In Canada, domestic demand for low-carbon gaseous fuels is currently limited to renewable natural gas (RNG) in B.C. and Quebec. Canada currently has about 5 PJ of domestic renewable natural gas production capacity.

RNG costs vary significantly depending on the project type, scale and location. Costs range from \$8/GJ to \$15-20/GJ. Costs of RNG, even at the low end of the estimates, are significantly higher than fossil fuel based natural gas. The average AECO-C price for natural gas in 2018 was \$1.48/GJ⁷. For illustrative purposes, at \$8/GJ RNG would be more than \$6/GJ more expensive or more than five times the cost of natural gas. Using the carbon intensities evaluated in the ICF analysis, blending RNG with natural gas increases the cost of this gaseous fuel stream by up to 30 per cent.

CAPP OBSERVATIONS FROM ICF RESEARCH: CRITICAL IMPACTS FOR CANADA

Demand for low carbon fuels has and will be met by imports of biofuel and renewable fuel for liquids; market response is difficult to predict on gaseous fuels. **The research suggests that CFS will:**

- Lead to higher fuel costs for businesses and ordinary Canadians,
- Result in compliance investment money moving outside of the Canadian economy,
- Displace Canadian-made fuels, which will need to be exported in an already constrained energy transport system, and
- Cause credit shortages or lack of supplies of RNG.

CAPP Recommends the Following:

1. Respect provincial jurisdiction on energy and climate policy by engaging provinces and territories in assessing the cost and benefits of the CFS, including regionally, to more accurately assess impacts and how to mitigate them.
2. Take time to fully evaluate the impact of the CFS on Canada's economic recovery from COVID-19 and consult on the 2020 reference case that is meant to capture COVID-19 impacts. Canada continues to manage the pandemic and recovery is expected to begin just as the liquids stream of the CFS come into force in 2022.
3. Exclude gaseous and solid fuels from the CFS carbon intensity reduction obligation, but enable credit generation from these streams within the liquid fuel stream.
4. Implement EITE competitiveness protection mechanisms that have been suggested by the CFS EITE working group created by government.
5. Enable innovation by removing CFS barriers to low cost solutions and investment, recognizing credits are required for compliance:
 - Ensure the process for the development of new quantification methodologies can be advanced in a practical manner.
 - Increase the proposed initial credit generation periods.
 - Expand the 10 per cent of the compliance fund limit to allow for more access so it can provide some market stability and offer a plausible additional compliance pathway.
 - Remove the 10 per cent limit to cross-stream trading.
 - Revisit the penetration rate of 5 per cent on emission reduction projects.
 - Increase the IRR (currently 10 per cent) of the financial barrier test.

CAPP's assessment of the CFS can be found here: <https://bit.ly/2FSKzZu>

APPENDIX

1. ICF Canada, Clean Fuel Standard Supply & Demand Implications (2020). Online: <https://www.capp.ca/wp-content/uploads/2020/08/Clean-Fuel-Standard-Supply-and-Demand-Implications-374344.pdf>
(Learn more about ICF at <https://www.icf.com/company/locations/canada>).
2. ICF Canada, Clean Fuel Standard Supply & Demand Implications (2020).
3. ICF Canada, Clean Fuel Standard Supply & Demand Implications (2020).
4. ICF Canada, Clean Fuel Standard Supply & Demand Implications (2020).
5. ICF Canada, Clean Fuel Standard Supply & Demand Implications (2020).
6. ICF Canada, Clean Fuel Standard Supply & Demand Implications (2020).
7. Canadian Gas Association, The Renewable Natural Gas Roadmap, 2014. Online: <http://www.cga.ca/wp-content/uploads/2015/04/The-Renewable-Natural-Gas-Technology-Roadmap.pdf>
8. Alberta Energy Regulator, AECO-C Price, May 2019. Online: <https://www.aer.ca/providing-information/data-and-reports/statistical-reports/st98/prices-and-capital-expenditure/natural-gas-prices/aeco-c-price>



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