

October 3, 2023

Prince Edward Island Regulatory and Appeals Commission
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Via Email: Petrollnquiries@irac.pe.ca

Dear Commission staff

Re: Clean Fuel Regulations Carbon Cost Adjuster

Introduction

Advanced Biofuels Canada is a national trade association which advocates for increased use and production of advanced biofuels in Canada. We represent a wide range of low carbon intensity fuels (LCIF), including renewable synthetic fuels.

Our members operate production, distribution, and research facilities in all regions of Canada, including Atlantic Canada.

We provide stakeholders, including provincial and federal governments, with expert data and analysis regarding options to decarbonize light and heavy-duty on- and offroad transportation, information operability of LCIF, costs to incorporate these fuels into gasoline, diesel, and jet fuel, and abatement costs under carbon-intensity moderated fuel regulations.

It is our understanding that the Island Regulatory and Appeals Commission is investigating the application of a cost of carbon adjustor mechanism in regulated fuel prices, potentially comparable to approaches taken by New Brunswick, Nova Scotia, and Newfoundland and Labrador.

Background Information – LCIF

The Clean Fuel Regulations define three primary categories of activities that are eligible for creating credits that obligated parties ('primary suppliers' or PS) are required to submit and retire annually to demonstrate compliance. Primary suppliers are refined petroleum product producers and importers.

The compliance categories available to primary suppliers are broadly:

1. actions that reduce the carbon intensity of the fossil fuel throughout its lifecycle;
2. the supply of renewable and other low-carbon intensity fuels (LCIF); and,
3. selected end-use fuel switching (e.g., electric vehicle charging, hydrogen and renewable natural gas fuelling).

LCIF are biofuels and renewable synthetic fuels; biofuel blending is responsible for the majority of credit generation under existing provincial mandates for all provinces outside Atlantic Canada. The BC Low Carbon Fuel Standard annual reportingⁱ shows LCIF credit generation.

Credit generation from electrification (EV charging networks), renewable natural gas, and hydrogen are likely to contribute to CFR credit generation in Atlantic provinces. These crediting opportunities are expected to be relatively limited in initial program years, as evidenced by data from the BC LCFS market and current state of these clean fuel's use in the region.

CFR Compliance Options – Prince Edward Island

The three primary LCIF used for CFR compliance in Canada are ethanol, biodiesel (fatty acid methyl ester), and renewable diesel. The latter is a renewable hydrocarbon fuel that is largely chemically indistinguishable from diesel fuel and can be used as a complete (i.e., 100%) substitute for diesel. Biodiesel is typically blended into diesel at rates between 5% and 20%; blend levels vary seasonally, with 20% blends most commonly used in US statesⁱⁱ in warmer months. Ethanol is blended into many Canadian retail stations at 10% levels, but almost all light-duty vehicles on Canadian roads – produced from 2001 onward - are compatible with 15% blends (per US EPA – see Supplemental).

Primary suppliers are obligated to reduce the carbon intensity of the gasoline and diesel they sell or import into Canada. They are under no obligation to provide low-CI fuels in a particular region or location (i.e., PEI) absent a provincial requirement to do so. Nor are PS required to directly place clean fuels into the market; a PS can purchase credits from another entity that sells LCIF, whether that other entity has a CFR obligation or not.

A primary supplier operating wholesale distribution terminals outside PEI can, for example, blend LCIF at those locations (e.g., St. John or Dartmouth) if they do not have biofuel blending capacity in PEI. Primary suppliers in PEI may find it less expensive or logistically advantaged to blend some biofuels at other locations. Gasoline and diesel is shipped via vessel to PEI; where storage and blending assets are in place, biofuels can be blended at the point of origin of these shipments (e.g., E15 at Irvin's Halifax Harbour Terminal).

Wholesale distribution 'racks' in PEI currently do not sell ethanol-blended gasoline. There are generally no logistical or cost barriers to incorporating ethanol into gasoline at 10% and 15% levels. Wholesale rack upgrades to accommodate biofuel blending can typically be accomplished in a 12-18 month timeframe. Retail sites typically require little to no physical upgrades to sell E10, and for newer sites, replacing E10 with E15 is a nominal cost undertaking.

CFR Compliance Options – Comments on NBEUB carbon cost adjuster

Based on testimony from fuel suppliers, NBEUB determined that the only compliance option available to NB fuel suppliers is renewable diesel. On the basis of that decision, retailers are permitted to add to their pre-tax maximum price a carbon charge that assumes 100% of compliance will come from renewable diesel.



Renewable diesel fuel is the most expensive LCIF, in part because it is in high demand in global clean and low carbon fuel markets such as California, exceeding supply. Canadian buyers pay the opportunity cost to ‘bid’ these fuels away from high-demand markets.

Biodiesel is relatively less expensive than renewable diesel, but Canadian buyers still face US market pricing for imports into Canada.

Ethanol is both less expensive to produce, and supply exceeds demand, even for low carbon intensity product. As a result, Canadian primary suppliers are able to import ethanol (from other provinces, but primarily from the US) and sell ethanol-blended gasoline at substantial discount to straight gasoline at the wholesale rack.

This chart shows the basis for calculating wholesale purchase costs for LCIF. The CA LCFS and RIN (Renewable Identification Number) values are imbedded into renewable diesel and biodiesel but not generally for ethanol. This is a general rule; costs vary according to market conditions, and also by delivery point in Canada according to transportation costs and provincial low carbon fuel regulation stringency.

	Pass-through CA LCFS	Pass-through RFS RIN (D4 or D6)	Carbon intensity premium
Ethanol	nil	nil	Nil*
Biodiesel	~80%	full	Per CA LCFS
Renewable diesel	full	full	Per CA LCFS

It should be noted that the cost for a wholesaler to acquire LCIF is not necessarily the price that a wholesaler will charge a retailer or end user. In other regions of Canada, large-volume LCIF purchasers are able to negotiate purchases of renewable diesel – a relatively high cost LCIF – at price parity to fossil diesel. These commercial arrangements are possible because large consumers of LCIF provide a service to primary suppliers; consuming the LCIF provided by fuel suppliers allows them to meet their provincial and federal clean fuel obligations.

On the other end of the cost spectrum, ethanol is a no-cost or low-cost compliance option. For instance, the posted wholesale price at the Quebec City rackⁱⁱⁱ of a major supplier to eastern Canada shows premium gasoline with 10% ethanol (‘EPUL’) at a 6.4% discount to ethanol-free gasoline (‘PUL’) despite ethanol comprising only 10% of the blend. (The discount is \$0.085/litre below the Premium unleaded E10 price of \$1.331/litre.) Other fuel suppliers^{iv} posted wholesale prices show either price parity between E10 and straight gasoline, or a discount of several cents per litre for E10.

The NBEUB approach to CFR costs for fuel suppliers is problematic.

1. Fuel suppliers currently blend ethanol into gasoline available at NB wholesale terminals. Ethanol blending creates CFR credits, but NBEUB did not take this into account in its cost passthrough mechanism. Ethanol is less expensive than gasoline. As a result, NB motorists are overpaying for



CFR compliance (and fuel suppliers may be realizing windfall margins.)

2. The NBEUB approach allows CFR cost pass-through at retail. However, fuel retailers are not CFR obligated parties; the responsibility for deciding how to comply with the CFR rests with wholesale fuel suppliers. To the extent that a wholesaler can add ~\$0.06/litre to a retailers fuel cost, regardless of whether they are using a \$0.06/litre or a \$0.01/litre compliance option (using ethanol), there is no incentive for wholesalers to innovate or to use the lowest cost compliance options.

Based on the experience of LCIF supply to provincial clean fuel mandates, Advanced Biofuels Canada assessed the cost for Atlantic Canada primary suppliers to meet their CFR obligations under a plausible scenario of region-wide 10% ethanol in gasoline, and 2% renewable diesel in diesel fuel. This pro-forma calculation shows annual compliance cost of ~\$0.002/L across all fuel pools. This contrasts with the assumption that renewable diesel will be utilized to meet all obligations, resulting in an NBEUB-approved cost as of date of \$0.0504/litre (gasoline) and \$0.0562/litre (diesel).

Recommendations

Advanced Biofuels Canada supports IRAC's mandate under the Petroleum Products Act, namely to determine petroleum product prices that are fair and reasonable for residents of Prince Edward Island.

We present these recommendations regarding the treatment of CFR costs.

1. A carbon cost adjuster should be set and added to the Wholesale Selling Price.
2. IRAC should establish a generic compliance profile that utilizes a plausible range of LCIF, electric mobility, renewable gases, etc.. Calculated LCIF costs can be developed (see NBEUB/Grant Thornton) and adjusted periodically.
3. The carbon cost adjuster should reflect a generic compliance profile, and set at a level sufficient to incent innovations in fuel production and supply. In unregulated fuel markets under more competitive commercial conditions, primary suppliers seek cost effective solutions to meet low-carbon requirement obligations.
4. IRAC should require wholesale fuel suppliers to provide (on a confidential basis) to IRAC:
 - a. Volumes and carbon intensity of LCIF supplied to PEI fuel retailers and other wholesalers
 - b. Data on credit generation for Compliance Categories 1 and 3
 - c. Credits exchanged on the federal Credit and Tracking System^y (CFR-CATS.)

All of these data are currently created by PS for their CFR reporting obligations. Absent access to these data, it will be difficult for IRAC to administer a fact-informed adjuster mechanism.



5. Should regional fuel suppliers lack sufficient LCIF distribution infrastructure, IRAC could set a reasonable but assertive timeframe for primary suppliers to upgrade infrastructure.
6. Lastly, IRAC should ensure that a hearing to establish a CFR cost adjuster has available to it expertise not only from petroleum product suppliers but also expertise from entities that provide primarily clean fuels. This will reduce the risk that IRAC does not have available to it full and accurate information about the full range of regional CFR compliance options.
7. An adjuster mechanism should reflect (back out) that LCIF sold in blends >5% in diesel and >10% in gasoline are exempt from the GGPPA carbon charge on fuels^{vi}. As of date, the rate for gasoline is \$0.1432/litre and diesel is \$0.1738/litre.

Broadly, IRAC should aim to balance fuel suppliers' interests and fuel consumers' interests. A cost passthrough mechanism that removes any incentive to innovate by relying on the most expensive compliance option may protect fuel suppliers from costs that cannot be passed on to motorists, but does so at the cost to consumers who do not make compliance decisions but are directly impacted by fuel suppliers' decisions.

We note that the 2016-2022 CFR development timeline provided the region's primary fuel suppliers ample time to complete distribution infrastructure upgrades to provide a range of LCIF to Atlantic Canada. For instance, Irving Oil now has the capacity to provide wholesale E15 ethanol blends at its Halifax Harbour Terminal^{vii}, and other fuel suppliers can make comparable upgrades in a timely manner.

In summary, the assumption that Atlantic Canada's compliance pathways are limited to renewable diesel is contradicted by extensive evidence of over a decade in the US and Canadian markets.

SUPPLEMENTAL INFORMATION

E15 Ethanol Blends

In the course of the NBEUB CFR hearings, an intervenor asserted that ethanol has an ‘accepted 10% ‘blend wall.’

This claim is a decade out of date, is incorrect, and is contradicted by widely available data from the US fuels market where 15% blends have been available for a decade.

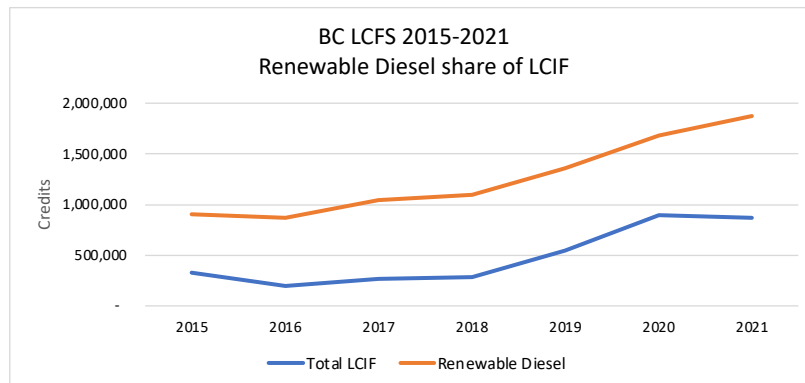
- The US EPA approved the use of E15 in every light duty vehicle of MY2001 and later.
- Since EPA approval in 2011, US motorists have driven more than 75 billion miles on E15 blends with no incidence of engine or vehicle impact, and major independent US brands cover E15 under the same fuel quality guarantees provided for all other products.^{viii}
- EPA’s E15 approval covers 95% of light duty vehicles registered in the US, and 98% of VMT (vehicle miles travelled) as of date.^{ix} Canadian light duty vehicles have been identical to US vehicles since the ECCC adoption of US Tier 2 tailpipe emission standards.
- US refiners such as Shell acknowledge the suitability of E15 in the vast majority of vehicles on the road, offering it at dozens of US retail stations.^x E15 is available at ~2,800 US retail stations.^{xi}
- The American Petroleum Institute publicly supports the adoption of a national standard for the year-round sale of E15 in the US.^{xii}

Plausible Regional LCIF Compliance Scenario

The BC Low Carbon Fuel Standard (LCFS) has operated since July 2013. This table shows the use of LCIF to meet compliance.^{xiii}

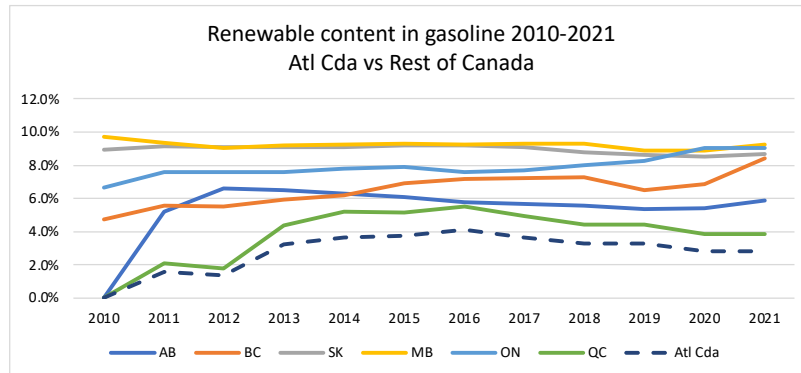
	BC LCFS 2013-2021 average credit generation	BC LCFS 2021 credit generation	NBEUB <i>assumed</i> credit generation
Ethanol	31%	21%	-
Biodiesel	27%	22%	-
Renewable diesel	38%	46%	100%
Co-processed renewable diesel & renewable gasoline	3%	11%	-

Furthermore, renewable diesel as a share of total LCIF (Ethanol plus biodiesel plus renewable diesel plus co-processed renewable diesel and gasoline) has *declined in 2021* (and based on preliminary 2022 BC data, in 2022 also).

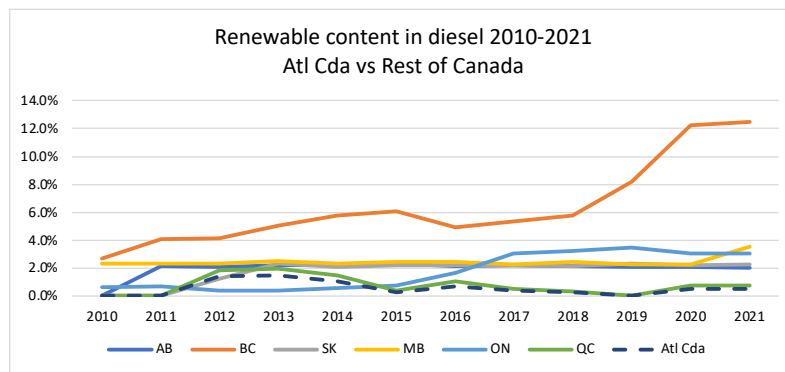


These BC data - and other data - show that:

- i. Atlantic Canada has available to it options beyond renewable diesel
- ii. Atlantic Canada does not lack fewer compliance options than the rest of Canada on the basis of the claim that it lacks Compliance Category 1 (upstream) and Compliance Category 3 (EV, RNG, hydrogen) crediting options.
 - a. For instance, the St. John refinery is investigating low-carbon intensity hydrogen for hydrotreating (CC1 credits)
 - b. The St. John refinery could undertake upgrades to produce LCIF, such as those at refineries in BC and Alberta. (e.g., co-processed gasoline and diesel).
- iii. Because Atlantic Canada has lacked regional mandates, LCIF infrastructure is under developed relative to the rest of Canada.
 - i. Rack (wholesale) infrastructure for distribution of ethanol and biodiesel can be commissioned in 18 to 24 months
 - ii. Adapting retail stations to E15 blends, in the case of many newer urban stations, can be accomplished inexpensively and relatively rapidly (requiring only a change of dispenser labels). Emerging E15 retail deployment strategy — ‘replacement’ — is seeing regular unleaded gasoline (E10) replaced entirely by E15. Vehicles older than 2001, and equipment that requires E10, can be serviced by retail stations with capacity to do both E15 and E10 based on underground storage tank configurations, or simply stations that offer E10 (do not upgrade to E15).
- iv. The Canadian average LCIF content in gasoline is 6.9% (including Atlantic Canada), but only 2.8% in the region. In the diesel pool, it’s 3.5% in Canada, 0.5% regionally.
 - iii. Atlantic Canada has more opportunity than any other region in the country to expand ethanol blending, and based on evidence provided by large scale suppliers of US ethanol to Canada, ethanol presents a zero compliance cost credit generation opportunity for regional fuel suppliers.



Regarding biodiesel blending, Atlantic Canada has, again, more opportunities than most other regions of the country to increase blending levels (and new credit generation). Note that effective 1/1/2023, Quebec’s Low Carbon Intensity Fuel Regulation^{xiv} requires 5% renewable content in diesel by 2025.



- v. Biodiesel blends up to 20% (B20) are in widespread use in a range of climatic conditions in the US:
 - iv. As of July 2023, 435 interstate trucks stops operated by just three brands – Love’s Travels Stops, travel centres of America, and pilot flying J – offered B16-B20 blends at 435 of their locations.^{xv} Dispensers are labeled, “May contain up to 20% biodiesel.”
 - v. Any two of these three fuel distributors sell more diesel fuel than the entire Canadian refining complex produces annually; they are multi-billion dollar enterprises who will not sell fuels that are not fit for purpose and compatible with heavy duty vehicles on the road today.
 - vi. The US fuel sector broadly acknowledges the suitability of 20% biodiesel blends in almost all medium heavy duty diesel vehicles on the road.
 - vii. US Department of Energy: “B20 and lower-level blends can be used in many diesel vehicles without any engine modification.”^{xvi}

ENDNOTES

- i [BC LCFS](#)
- ii US [B6-B20 blends July 2023](#)
- iii [Valero Rack prices 03.10.2023](#)
- iv [PetroCanada rack prices 03.10.2023](#)
- v CFR [Credit and Tracking System \(2022\)](#)
- vi [GGPPA Federal Fuel Charge Rates 2023-2030](#)
- vii [Irving Oil Sustainability Report 2022](#)
- viii Growth Energy [Retailer's Hub](#)
- ix [Growth Energy](#)
- x Shell USA [E15 stations](#)
- xi E15 availability [Growth Energy Retail Footprint](#)
- xii American Petroleum Institute [API Supports Legislation](#)
- xiii BC RLCFRR [Annual Summary RLCF-007-2021](#)
- xiv Government of Quebec [Low Carbon Intensity Fuel Regulation](#)
- xv Travel Centers of America, Love's Travel Stops, Pilot Flying J - [US B6-B20 Availability \(July 2023\)](#)
- xvi US Department of Energy [Biodiesel Basics](#)