



# Clean Fuel Regulations – Credit Market Data Report

June 2024



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# Disclaimer

The document does not in any way supersede or modify the *Canadian Environmental Protection Act, 1999* or *Clean Fuel Regulations*, or offer any legal interpretation of those Regulations. Where there are any inconsistencies between this document and the Act or the Regulations, the Act and the Regulations take precedence.

The *Clean Fuel Regulations* (CFR) require producers and importers of gasoline and diesel (i.e. primary suppliers) to reduce the life cycle carbon intensity of gasoline and diesel used in Canada, thereby reducing greenhouse gas emissions. A life cycle approach accounts for emissions across all stages of fuel production and use, from extraction through processing, distribution, and end use. Reduction requirements for primary suppliers took effect as of July 1, 2023. The CFR are an important part of Canada's climate plan to reduce emissions, accelerate the use of clean technologies and fuels, and support sustainable jobs in a diversified economy.

The Regulations establish a compliance credit market whereby the annual carbon intensity reduction requirements can be met by creating credits through three categories of actions:

- Compliance Category 1 – projects that reduce the life cycle carbon intensity of liquid fossil fuels (e.g. carbon capture and storage, on-site renewable electricity);
- Compliance Category 2 – supply of low-carbon-intensity fuels (e.g. ethanol, biodiesel); and,
- Compliance Category 3 – supply of fuel or energy to advanced vehicle technology (e.g. electricity or hydrogen in vehicles).

This report is the first Annual CFR Credit Market Data Report. It presents data on the compliance credit market, such as credit creation data by category, number of credit transfers, and average price of credit transfers. Credit creation data is presented for credits created for 2022 and 2023 compliance periods (June 21<sup>st</sup>, 2022 to December 31<sup>st</sup>, 2023). Credit transfers are presented for transactions completed from June 30<sup>th</sup>, 2023 to May 31<sup>st</sup>, 2024. The report first highlights key aspects of the credit market, such as credit prices and number of transfers, and then presents more details on credit creation by compliance category.

Some credit creation is reported annually, corresponding to a calendar year, with the exception of 2022, which spanned June 21<sup>st</sup>, 2022 to December 31<sup>st</sup>, 2022. Other credit creation is reported quarterly:

- Q1: January 1 to March 31
- Q2: April 1 to June 30
- Q3: July 1 to September 30
- Q4: October 1 to December 31

The only exception to quarterly reporting is for 2022, which includes one Q3/Q4 combined quarterly report spanning June 21<sup>st</sup>, 2022 to December 31<sup>st</sup>, 2022.

Early credit creation, for the time before the reduction requirement came into force on July 1<sup>st</sup>, 2023, occurred between June 21<sup>st</sup>, 2022 (where applicable) until June 30, 2023.

## **CREDIT MARKET OVERVIEW**

### **Reduction and volumetric requirements for Canada**

The first compliance period during which reductions in carbon intensity for gasoline and diesel were required was July 1<sup>st</sup>, 2023, to December 31<sup>st</sup>, 2023. During this period, the minimum volumetric requirements for low-carbon-intensity fuel of 5% for gasoline and 2% for diesel were also required to be met. Data on these requirements for the first compliance period are submitted in two reports, the first on July 31, 2024, in the Compliance Report, followed by a second, for primary suppliers who did not satisfy their reduction requirements fully in the Compliance Report, in the Complementary Compliance report, due by December 15<sup>th</sup>, 2024 if required.

The data on the annual reduction and volumetric requirements will be included in subsequent publications of the CFR Credit Market Data Report, once available.

### **Credit Transfers**

Table 1 displays credit prices, number of transfers, and number of credits for the CFR for 2022 and 2023 compliance periods.

**Table 1: CFR Compliance credit price and transfers for Canada (compliance periods 2022 and 2023)**

CFR Compliance Periods	Number of Transfers of Compliance Credits with a price <sup>1</sup>	Compliance Credits Transferred with a Price (t CO <sub>2</sub> e)	Average Credit Price (CAD\$) <sup>2</sup>	Minimum Credit Price (CAD\$)	Maximum Credit Price (CAD\$)
2022	77	1,222,594	141.80	9.77	300.00
2023	163	1,780,206	127.30	6.75	300.00
Total	240	3,002,800	133.20	6.75	300.00

<sup>1</sup> Canada CFR data from June 30, 2023 until May 31, 2024 for compliance credits created for 2022 and 2023 compliance periods. The number of transfers of compliance credits does not include transfers performed through an agreement to transfer credit upon creation (Section 108) or transfers reported with a zero or near-zero price under Section 106.

<sup>2</sup> Average credit price weighted by volume of credit per transaction and excluding transfers that were reported without a price or transfers reported with a zero or near-zero price (<\$1).

The CFR credit market is in an early phase of development; the credit pricing information reported will not be economically robust until the market matures. As credits transferred under Section 108 (which do not include a credit price) as well as zero and near-zero transfers under Section 106 are excluded, the credit market data reported only represents the credits sold or transferred with a price on the market.

Additionally, the data does not include credits transferred through a Compliance Credit Mechanism or contributions made to a Registered Emission Reduction Funding Program as this information is not yet available.

**CREDIT CREATION**  
**Overview**

Table 2 displays the number of credits created for each compliance category. Contributions to a Registered Emission Reduction Funding Program are not yet available.

**Table 2: Compliance credits created by category from June 21, 2022 until December 31, 2023**

Compliance Period	Compliance Category 1: Undertaking projects that reduce the life cycle carbon intensity of liquid fossil fuels (t CO <sub>2</sub> e)	Compliance Category 2: Supply of low carbon fuels (t CO <sub>2</sub> e)	Compliance Category 3: Supply of fuel or energy to advanced vehicle technology (t CO <sub>2</sub> e)	Contributions to a Registered Emission-Reduction Funding Program	Renewable Fuels Regulation (RFR) Roll-over (t CO <sub>2</sub> e)	Total
2022 creation	1,116,918 <sup>1</sup>	1,682,902	161,968	-	0	-
2023 creation		5,123,696	463,962	-	2,774,461	-
<b>Total</b>	<b>1,116,918</b>	<b>6,806,598</b>	<b>625,930</b>	<b>-</b>	<b>2,774,461</b>	<b>11,323,907</b>

<sup>1</sup> Data aggregated to 2022 and 2023 for confidentiality reasons. More detail may be provided in future reports.

Table 3 displays the number of credits created for each province and compliance category in compliance periods 2022 and 2023.

**Table 3:** Compliance credits created by province and compliance category in compliance periods 2022 and 2023

Province	Compliance Credits Created (t CO <sub>2</sub> e)		
	Compliance Category 1	Compliance Category 2	Compliance Category 3
<b>2022</b>			
BC	- <sup>1</sup>	82,308	47,568
AB		139,000	2,691
SK		216,889	288
MB		100,310	872
ON		870,581	52,178
QC		263,037	54,951
Atlantic Provinces		10,777	3,335
Territories		0	82
<b>2023</b>			
BC	- <sup>1</sup>	725,855	130,131
AB		636,752	6,766
SK		513,823	612
MB		207,836	2,214
ON		2,065,316	149,201
QC		915,712	167,779
Atlantic Provinces		58,402	6,984
Territories		0	278
<b>Total</b>		<b>1,116,918<sup>1</sup></b>	<b>6,806,598</b>

<sup>1</sup>Data aggregated to 2022 and 2023 for confidentiality reasons. More detail may be provided in future reports.

Table 4 lists the number of credits created for compliance category 2 and 3 with default Carbon Intensities and Carbon Intensities calculated using the *Fuel LCA Model*.

**Table 4:** Compliance credits created by compliance category with default carbon intensities and Fuel LCA Model carbon intensities for compliance category 2 and 3

Carbon Intensity (CI) Used	Compliance Credits Created		
	Compliance Category 2 (t CO <sub>2</sub> e)	Compliance Category 3 (t CO <sub>2</sub> e)	Total Credits Created (t CO <sub>2</sub> e)
<b>2022</b>			
Fixed Default CI	443,246	161,553	604,799
Calculated Default CI	149,975	415	150,390
Fuel LCA Model CI	1,089,681	0	1,089,681
<b>2023</b>			
Fixed Default CI	623,031	463,051	1,086,082
Calculated Default CI	816,285	911	817,196
Fuel LCA Model CI	3,684,380	0	3,684,380

### **Compliance Category 1 – CO<sub>2</sub>e Emission Reduction Projects**

Table 5 provides more detail on Compliance Category 1, including the number of projects approved and the Quantification Methods under which credits are created. The Generic Quantification Method may be used for energy efficiency projects, cogeneration projects, methane conservation projects, and any other projects where there is no project type- specific Quantification Method.

**Table 5: Compliance Category 1 – CO<sub>2</sub>e Emission Reduction Projects (total in 2022 and 2023)**

Number of projects approved in 2022 and 2023 <sup>1</sup>	6
Quantification Methods under which credits are created	Co-processing, Enhanced Oil Recovery, Generic Quantification Method

<sup>1</sup> Data aggregated to 2022 and 2023 for confidentiality reasons. More detail may be provided in future reports.

### **Compliance Category 2 – Supply of Low-Carbon-Intensity Fuels**

Table 6 provides detail on the volumes of low-carbon-intensity fuels supplied (produced and imported), under Compliance Category 2. It lists the volume of different fuels produced and imported, the number of respective credits created, and the weighted average carbon intensity (by low-carbon-intensity fuel volume) of the fuels.



**Table 6:** Volume of low-carbon-intensity fuel (liquid and gaseous) supplied (produced and imported), compliance credits created (Compliance Category 2), and minimum/maximum/volume-weighted average carbon intensity (CI) for 2022 and 2023

Fuel Name	Fuel Produced		Fuel Imported		Fuel Produced/Imported		
	Volume of fuel produced (m <sup>3</sup> )	Number of credits created (t CO <sub>2</sub> e)	Volume of fuel imported (m <sup>3</sup> )	Number of credits created (t CO <sub>2</sub> e)	Min CI used (gCO <sub>2</sub> e/MJ)	Max CI used (gCO <sub>2</sub> e/MJ)	Weighted average CI by volume (gCO <sub>2</sub> e/MJ)
<b>2022</b>							
<b>Liquid low-carbon-intensity fuels</b>							
Cellulosic Ethanol	0	0	0	0	0	0	0
Ethanol	883,209	933,267	1,054,663	369,317	35.0	80.0	60.5
Hydrogenation-Derived Renewable Diesel	0	0	502,095	224,621	36.0	80.0	76.4
Low-Carbon-Intensity Fuel that is Suitable for Use in Aviation	0	0	0	0	0	0	0
Other Low-Carbon-Intensity Fuel <sup>1</sup>	4,868	6,665	298,617	149,032	11.0	80.0	74.3
<b>Gaseous low-carbon-intensity fuels</b>							
Biogas <sup>2</sup>	-	-	-	-	-	-	-
Hydrogen	0	0	0	0	0	0	0
Renewable Propane	0	0	0	0	0	0	0
Renewable Natural Gas <sup>2</sup>	-	-	-	-	-	-	-
<b>2023</b>							
<b>Liquid low-carbon-intensity fuels</b>							
Cellulosic Ethanol	0	0	0	0	0	0	0
Ethanol	1,669,176	1,779,949	2,350,065	1,757,721	33.0	80.0	51.6
Hydrogenation-Derived Renewable Diesel	- <sup>2</sup>	- <sup>2</sup>	1,244,358	1,025,026	15.0	80.0	65.3
Low-Carbon-Intensity fuel that is Suitable for Use in Aviation	0	0	0	0	0	0	0
Other Low-Carbon-Intensity Fuel	13,521	19,204	517,350	496,571	11.0	80.0	61.0
<b>Gaseous low-carbon-intensity fuels</b>							
Biogas <sup>2</sup>	-	-	-	-	-	-	-
Hydrogen	0	0	0	0	0	0	0
Renewable Propane	0	0	0	0	0	0	0
Renewable Natural Gas	26,465,453	24,540	- <sup>2</sup>	- <sup>2</sup>	18.0	80.0	70.1

<sup>1</sup> Includes biodiesel and other self-declared low-carbon-intensity fuels. Data aggregated for confidentiality purposes.

<sup>2</sup> Data unable to be shared for confidentiality reasons. More detail may be provided in future reports.

Table 7 lists the approved carbon intensities for various low-carbon-intensity fuels. The number of approved carbon intensities, as well as the standard average/median carbon intensities are shown for each fuel. For context, the baseline carbon intensity to calculate compliance obligations is 95 gCO<sub>2</sub>e/MJ for gasoline and 93 gCO<sub>2</sub>e/MJ for diesel.

**Table 7: Approved Fuel LCA Model Carbon Intensities**

Fuel Type	Number of Approved Carbon Intensities	Median Approved Carbon Intensity (gCO <sub>2</sub> e/MJ)	Average Approved Carbon Intensity (gCO <sub>2</sub> e/MJ)
<b>Liquid low-carbon-intensity fuels</b>			
Biodiesel	22	21.0	28.9
Cellulosic Ethanol	0	0	0
Ethanol	62	42.0	55.2
Hydrogenation-Derived Renewable Diesel	48	36.0	37.3
Other Low-Carbon-Intensity Fuel <sup>1</sup>	21	56.0	49.4
<b>Gaseous low-carbon-intensity fuels</b>			
Biogas	0	0	0
Hydrogen	0	0	0
Renewable Propane	0	0	0
Renewable Natural Gas	17	31.0	29.7
<i>Baseline carbon intensity for gasoline (to calculate compliance obligations)</i>		95	
<i>Baseline carbon intensity for diesel (to calculate compliance obligations)</i>		93	
<b>Total</b>	<b>170</b>	<b>-</b>	<b>-</b>

<sup>1</sup> Includes low-carbon-intensity fuel that is suitable for use in aviation and other declared low-carbon-intensity fuels. Data aggregated for confidentiality purposes.

Table 8 lists the credits created by the RFR roll-over, classified by credit group. Credits were divided into gasoline and diesel credit groups. The credit type was assigned a carbon intensity based on the fuel that was used to calculate the corresponding volume of low-carbon-intensity fuel.

**Table 8: Credits created by Renewable Fuels Regulation (RFR) roll-over, classified by credit type**

Credit Group	Number of credits created (t CO <sub>2</sub> e)	Corresponding volume of low-CI fuel (m <sup>3</sup> )	CI assigned (gCO <sub>2</sub> e/MJ)
Gasoline Replacement	1,316,007	1,860,727	59
Diesel Replacement	1,458,454	767,555	35
<b>Total</b>	<b>2,774,461</b>	<b>2,628,282</b>	<b>--</b>

### **Compliance Category 3 – Supply of fuel or energy to advanced vehicle technology**

Table 9 lists the number of fuelling stations, volume, number of credits, and average weighted carbon intensity by volume for fuel/energy supplied to fuelling stations.

**Table 9:** Volume of supplied fuel, number of Credits created, and minimum/maximum, volume-weighted average carbon intensity (CI) for fuelling stations (Compliance Category 3) for 2022 and 2023

	Type of fuel/energy source	Number of fuelling stations	Volume (m <sup>3</sup> or kg)	Number of credits (t CO <sub>2</sub> e)	Min CI used (gCO <sub>2</sub> e/MJ)	Max CI used (gCO <sub>2</sub> e/MJ)	Weighted average CI by volume (gCO <sub>2</sub> e/MJ)
<b>2022</b>							
Hydrogen	Compressed	4	15,022	285	80.0	80.0	80.0
Natural Gas	Compressed	59	24,580,736	16,147	69.0	72.0	71.9
	Liquefied <sup>1</sup>	-	-	-	-	-	-
Propane	Compressed	141	33,444	11,166	76.0	76.0	76.0
	Co-Processed Low-CI	0	0	0	0	0	0
	Renewable	0	0	0	0	0	0
Renewable Natural Gas	Compressed	0	0	0	0	0	0
	Liquefied	0	0	0	0	0	0
<b>2023</b>							
Hydrogen	Compressed	5	26,038	495	80.0	80.0	80.0
Natural Gas	Compressed	85	78,661,507	51,666	69.0	72.0	72.0
	Liquefied	11	43,265,974	0	113.0	113.0	113.0
Propane	Compressed	133	62,684	20,938	76.0	76.0	76.0
	Co-Processed Low-CI	0	0	0	0	0	0
	Renewable	0	0	0	0	0	0
Renewable Natural Gas	Compressed <sup>1</sup>	-	-	-	-	-	-
	Liquefied	0	0	0	0	0	0

<sup>1</sup> Data unable to be shared for confidentiality reasons. More detail may be provided in future reports.

Table 10 lists the type of charging stations, energy supplied to electric vehicles, number of credits, and weighted carbon intensity by energy source for public/residential charging stations and charging site hosts.

**Table 10:** Energy supplied to electric vehicles and the number of compliance credits created for 2022 and 2023 compliance periods

Type of charging station	Number of Registered Organizations <sup>1</sup>	Energy (kWh)	Number of Credits (t CO <sub>2</sub> e) <sup>2</sup>
<b>2022</b>			
Charging Site Host	5	148,709	193
General Public Charging	10	89,777,528	111,548
Residential Charging	2	18,330,385	22,629
<b>2023</b>			
Charging Site Host	10	3,814,006	4,437
General Public Charging	11	250,335,841	314,052
Residential Charging	4	58,364,106	72,367

<sup>1</sup> This represents the total number of registered organizations that have created credits during the specified compliance period (i.e. a registered organization that did not create credits in a particular year would not be counted in the number for that year).

<sup>2</sup> In 2022/2023 all compliance credits for electricity supplied to electric vehicles were created using the provincial grid carbon intensities.

## **ORGANIZATION ROLES**

Table 11 provides the number of organizations registered per quarterly compliance period for each organization type. An organization that has multiple roles will be displayed in each of their individual roles.

**Table 11:** Organization registration roles registered by year (as of May 31, 2024)

Type of Entity	2022	2023	2024	Total
Primary Supplier	5	2	1	8
Registered Creator	64	31	2	97
Foreign Supplier	37	16	1	54
Primary Supplier/Registered Creator	23	3	0	26
Registered Creator/Foreign Supplier	6	1	0	7
Foreign Supplier/Carbon-Intensity Contributor	0	1	0	1
Verification Body	0	5	4	9
<b>Total</b>	<b>135</b>	<b>59</b>	<b>8</b>	<b>202</b>

Total number of parties with an annual reduction requirement consists of Primary Suppliers plus Primary Suppliers/Registered Creators (34)

Table 12 provides a break down of the different types of organizations transferring credits.

**Table 12:** Organization type participation in credit transfers

<b>Type of Entity</b>	<b>Transferors</b>	<b>Transferees</b>
Registered Creator	18	6
Primary Supplier/Registered Creator	30	21
Primary Supplier	0	5
Primary Supplier/Registered Creator/Foreign Supplier	0	0
Registered Creator/Foreign Supplier	1	1
<b>Total Number of Organizations Participating in Credit Transfers</b>	<b>49</b>	<b>33</b>