RENEWABLE FUELS REGULATIONS REPORT

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NOTICE

The information contained in this report is compiled from data received by Environment and Climate Change Canada as of August 8, 2018 for the 2015 and 2016 compliance periods, and September 19, 2018 for the 2017 compliance period, submitted by the regulated parties pursuant to the requirements of the Renewable Fuels Regulations under the *Canadian Environmental Protection Act, 1999*. Information submitted to Environment and Climate Change Canada has not been validated in its entirety, may be subject to reporting errors and is subject to ongoing verifications.

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Batch

An identifiable quantity of liquid fuel, with a single set of physical and chemical characteristics.

Biodiesel

In this report, biodiesel refers specifically to mono-alkyl esters (i.e. fatty acid methyl or ethyl esters) produced from vegetable oils or rendered animal fat, and that is suitable for use in a diesel engine.

Biomass-Based Diesel Fuel

Means a fuel that is composed of, or derived from the oils of plants or animals as well as the fats of plants or animals, and that is intended for use in diesel engines. This includes biodiesel, hydrogenation derived renewable diesel (HDRD), and hydrotreated vegetable oil (HVO).

Diesel Fuel

Means a liquid petroleum fuel that is sold or represented as diesel fuel or as a fuel suitable for use in a diesel engine, or is subject to evaporation at atmospheric pressure, boils within the range of 130°C to 400°C and is suitable for use in a diesel engine. For regulatory purposes, diesel fuel is grouped with heating distillate oil, and is collectively referred to as "distillate."

Distillate Pool

A primary supplier's distillate pool is the total volume of the batches of diesel fuel and heating distillate oil that they import and produce at a production facility during a distillate compliance period. It includes fuel both dispatched from the production facility and dispensed into the fuel tank of a vehicle or other mobile equipment within the production facility.

Eastern Canada

A term used throughout the report representing Ontario, Quebec, Nova Scotia, New Brunswick, Prince Edward Island, and Newfoundland and Labrador.

Elective Participant

Anyone, other than a primary supplier, who does one or more of the following in Canada: blends renewable fuel with liquid petroleum fuel, produces a liquid petroleum fuel other than gasoline, diesel fuel and heating distillate oil by using biocrude as a feedstock; imports a liquid petroleum fuel other than gasoline, diesel fuel and heating distillate oil that has renewable fuel content; sells neat renewable fuel to a neat renewable fuel consumer for use as a fuel in a combustion device; and uses neat renewable fuel that they produced or imported as a fuel in a combustion device. An elective participant becomes a part of the trading system when

they register, by sending to the Minister the report that contains the information set out in Schedule 2, at least one day before they first create a compliance unit.

Feedstock

For the purposes of this report, a feedstock can be considered to mean a type of renewable raw material that is converted to a renewable fuel or energy product. This includes, but is not limited to: grains, cellulosic material, starch, oilseeds, sugar cane, sugar beets, potatoes, tobacco, vegetable oils, algae, vegetable materials, plant matter, animal material, animal fats, oils, and greases, animal solid waste, and municipal solid waste.

Gasoline Pool

A primary supplier's gasoline pool is the total volume of the batches of gasoline that they import and produce at a production facility during the gasoline compliance period. It includes gasoline that is dispatched from the production facility and dispensed into the fuel tank of a vehicle or other mobile equipment within the production facility.

Heating Distillate Oil

Means a liquid petroleum fuel that is sold or represented as fuel suitable for use in a domestic-type oil burner, or suitable for use in a domestic-type oil burner. For regulatory purposes, heating distillate oil is grouped with diesel fuel, and is collectively referred to as "distillate."

High-Renewable-Content Fuel

A liquid petroleum fuel whose renewable content is either: greater than 10% and less than or equal to 85% of the volume if it is gasoline, greater than 5% and less than or equal to 80% of the volume if it is diesel fuel, and greater than 25% and less than or equal to 80% of the volume in any other case.

Hydrogenation Derived Renewable Diesel (HDRD)/Hydrotreated Vegetable Oil (HVO)

A renewable diesel fuel that is produced from hydrodeoxygenated vegetable oils or rendered animal fat. For the purposes of the Renewable Fuels Regulations, this fuel is considered to be chemically indistinguishable from liquid petroleum fuel.

Neat Renewable Fuel

Means biodiesel or another renewable fuel produced at a facility that uses only renewable fuel feedstock for the production of fuel, suitable for use in a combustion device, and is chemically indistinguishable from gasoline, diesel, heating distillate oil or any other suitable liquid petroleum fuel.

Primary Supplier

A primary supplier is a person who produces or imports gasoline, diesel fuel, or heating distillate oil. In respect of gasoline, diesel fuel, or heating distillate oil that is produced at a production facility, it is a person who owns,

leases, operates, controls, supervises, or manages the production facility. In respect of gasoline, diesel fuel, or heating distillate oil that is imported, it is the importer.

Producers or Importers of Renewable Fuel

A person who produces in or imports renewable fuel into Canada is a regulated party. Those who produce or import, or who produce without any importation or import without any production, or who produce and import a combined 400 m^3 of renewable fuel during any period of 12 consecutive months in a compliance period are subject to section 34 of the Renewable Fuels Regulations.

Seller of Fuel for Export

A person other than a participant, or a producer or importer of renewable fuel, who, during any year sells for export a batch of renewable fuel, or of liquid petroleum fuel that has renewable fuel content.

Western Canada

A term used throughout the report representing British Columbia, Alberta, Saskatchewan, Manitoba, the Yukon, the Northwest Territories, and Nunavut.

For more definitions to terms that may appear in this report, please refer to the Renewable Fuels Regulations.

1.0 SUMMARY

The objective of the *Renewable Fuels Regulations* ("Regulations") is to reduce greenhouse gas (GHG) emissions by mandating renewable fuel content in gasoline, diesel fuel, and heating distillate oil produced in and imported into Canada, thereby contributing to the protection of Canadians and the environment from the impacts of climate change. As such, the Regulations require fuel producers and importers to have an average renewable content of at least 5% based on the volume of gasoline that they produce and import, as well as 2% based on the volume of diesel fuel and heating distillate oil that they produce and import. The information contained in this report is compiled from the data received by Environment and Climate Change Canada for the 2015, 2016, and 2017 compliance periods[1] pursuant to the requirements of the Regulations. For gasoline and distillate, each compliance period covered January 1 to December 31 of the corresponding calendar year. The following are some key findings that will be discussed in this report.

Based on values reported under Schedule 4: *Information Required from a Primary Supplier* [2] of the Regulations, key findings for the 2015 to 2017 compliance periods include:

	2015	**2016**	**2017**
Gasoline Produced and Imported (billions of litres)	41.3	41.7	41.6
Distillate Produced and Imported (billions of litres)	34.3	27.9	27.6
Gasoline Pool Volume (billions of litres)	40.2	40.8	40.8
Distillate Pool Volume (billions of litres)	27.6	26.7	28.2
Ethanol Produced and Imported (billions of litres)	3.1	3.1	3.1
Biomass-Based Diesel Produced and Imported (billions of litres)	0.790	1.0	1.1
Number of Gasoline Compliance Units Created (billions)	3.0	3.1	3.0
Number of Distillate Compliance Units Created (millions)	528	557	701

[1] Data for the 2015 and 2016 compliance periods was extracted from the Renewable Fuels Electronic Reporting System on August 8, 2018, and data for the 2017 compliance period was extracted on September 19, 2018.
[2] It is suspected that some primary suppliers misreported fuel volumes under Schedule 4: *Information Required from a Primary Supplier*, with respect to their excluded volumes, in certain situations.

Key findings related to compliance with the Regulations over the three compliance periods include:

- The reported average renewable fuel content, as a percentage of the gasoline pool, was approximately 8% for 2015, 8% for 2016, and 7% for 2017[3];
- The reported average renewable fuel content, as a percentage of the distillate pool, was approximately 2% for each compliance period;
- For the three compliance periods, all primary suppliers reported that they achieved the minimum of 5% renewable fuel content in their gasoline pool, as well as the minimum of 2% renewable fuel content in their distillate pool for the 2016 and 2017 compliance periods;
- For the 2015 compliance period, it was determined that one primary supplier did not comply with the minimum of 2% renewable fuel content in its distillate pool; and
- It is suspected that some reports submitted by regulated parties contain errors or deviations from the regulatory requirements. Compliance verification is ongoing, and the results reported here are subject to change. Suspected violations have been referred to Environment and Climate Change Canada's Enforcement Branch.

Key findings related to the overall environmental performance of the Regulations include:

- Lifecycle greenhouse gas emission reductions[4] of 13.1 megatonnes of CO_2 equivalent ($MtCO_2e$) over the three years were estimated to have been achieved based on reported fuel volumes and feedstock data:
    - A reduction of 4.1 $MtCO_2e$ was estimated for the 2015 compliance period;
    - A reduction of 4.4 $MtCO_2e$ was estimated for the 2016 compliance period; and
    - A reduction of 4.6 $MtCO_2e$ was estimated for the 2017 compliance period.

[3] The average renewable fuel contents in the national gasoline and distillate pools are calculated from the volume of compliance units created during the compliance period and the volume of gasoline and distillate pools reported in Schedule 4 of the Regulations. These values do not represent the renewable fuel volume reported by a primary supplier in Schedule 4.
[4] The estimated greenhouse gas emission reductions are based on the volumes of renewable fuels that created compliance units, as reported in Schedule 5 of the Regulations. The emission factors were obtained from GHGenius (version 4.03).

2.0 UPDATES TO THE REGULATIONS

The Regulations were not amended during the 2015, 2016, and 2017 compliance periods. Compliance promotion information, can be accessed online at https://www.canada.ca/en/environment-climate-change/services/managing-pollution/energy-production/fuel-regulations/renewable.html.

3.0 PERFORMANCE OF THE REGULATIONS

This section provides a brief overview of the methodology used to estimate the greenhouse gas (GHG) emission reductions resulting from the implementation of the Regulations. These values were determined using the renewable fuel volumes, reported in Schedule 5: *Information Required from a Participant of the Regulations*, as well as emission factors obtained from GHGenius (version 4.03).

3.1 GREENHOUSE GAS EMISSION REDUCTIONS

It is estimated that lifecycle GHG emission reductions of 4.1, 4.4, and 4.6 $MtCO_2e$ were achieved during the 2015, 2016, and 2017 compliance periods, respectively, as a result of the renewable fuel volumes used to create compliance units. The majority of GHG emission reductions are attributed to the use of ethanol in gasoline, which remained constant over the three compliance periods. The increase in overall reductions is directly linked to the use of renewable fuel in distillate fuels, which increased by 50% from 1.0 MtCO2e in 2015 to 1.5 MtCO2e in 2017. ECCC believes that this increase is due to two key factors. First, 33% more distillate compliance units were created in the 2017 compliance period than in the 2015 period, displacing more liquid petroleum fuel. Second, the use of palm oil as a feedstock to produce the renewable diesel (i.e. HDRD and HVO) that created compliance units decreased from 2015 to 2017, based on the data reported to ECCC and its subsequent analysis. The use of other feedstocks increased the amount of potential GHG reductions per litre of renewable fuel, as demonstrated by Table 3.1 and in subsection 4.4 of this report.

The estimated reductions were calculated using the volumes of renewable fuels blended, the renewable fuel content in imported fuel less the renewable fuel content in exported fuel, and the volume of neat renewable fuel used or sold, as reported in Schedule 5 of the Regulations. The emission factors were obtained from GHGenius (version 4.03). The estimates carry limitations and uncertainties associated with lifecycle assessment modelling. The GHG emission factors used are presented in Table 3.1. The units are in kilograms of carbon dioxide equivalent (CO_2e) reduced (negative number) per litre of renewable fuel used ($kgCO_2e/L$), relative to the baseline gasoline or diesel. This unit accounts for the difference in energy densities between fuels, allowing for easy determination of total emission reductions, based on the amount of renewable fuel used.

Table 3.1: GHG Emission Reduction Factors

Feedstock	GHG Emission Reduction Factors ($kgCO_2e/L$)
Corn-based ethanol	-1.070
Wheat-based ethanol	-1.570
Canola biodiesel	-3.065
Soy biodiesel	-2.597
Tallow biodiesel	-3.927
Corn oil biodiesel	-2.491
Biodiesel from waste grease	-3.065
HDRD and HVO from palm	0.0002
HDRD and HVO from tallow	-3.703

The GHG emission reduction estimates were based on the type of feedstock used to produce the renewable fuels that ultimately created compliance units, as reported in Schedule 5 of the Regulations. When a feedstock type was not reported, it was estimated, and when multiple feedstocks were reported, the volume of fuel produced by each feedstock was estimated.

4.0 DATA FROM ANNUAL REPORTING

This section summarizes the data submitted to Environment and Climate Change Canada regarding the 2015 to 2017 compliance periods. The information presented in this section is based on data that was submitted under Schedule 4, *Information Required from a Primary Supplier*; Schedule 5, *Information Required from a Participant*; and Schedule 7, *Information Required from a Producer or Importer of Renewable Fuel*. The data was submitted to Environment and Climate Change Canada using the Renewable Fuels Regulations Electronic Reporting System, which is a mandatory online reporting system, and reflects any subsequent corrections or revisions received as of August 8, 2018 for the 2015 and 2016 compliance periods, and September 19, 2018 for the 2017 compliance period. Any information submitted after these dates was not considered for this report.

In total, 34 primary suppliers, 13 elective participants, and 46 renewable fuel producers and importers submitted annual reports to Environment and Climate Change Canada for these compliance periods. A list of registered parties and their activities during the compliance periods is provided in Appendix A: *List of Registered Parties with Activity During the Compliance Period*. A dynamic list of registrants can be accessed online at https://www.canada.ca/en/environment-climate-change/services/managing-pollution/energy-production/fuel-regulations/renewable/list-registrants.html.

4.1 LIQUID PETROLEUM FUELS PRODUCED AND IMPORTED

Primary suppliers report on four types of liquid petroleum fuels that they produce and import, which make up their pool: finished gasoline, unfinished gasoline, diesel fuel, and heating distillate oil. Table 4.1a shows the volumes reported for the compliance periods as reported in Schedule 4 of the Regulations. These volumes have been combined to protect confidentiality, when necessary. Tables 4.1c and 4.1d further break down the production and importation of gasoline and distillate by region. To maintain confidentiality, activity was split between Eastern and Western Canada.

The reported production and importation volumes of gasoline have remained stable since the 2013 compliance period. Notably, there was a decrease in the volume of distillate imported into Canada in 2017, compared to past compliance periods. During this period, approximately 60% of gasoline was reported as unfinished gasoline, and approximately 95% of distillate was reported as diesel fuel.

Table 4.1a: Liquid Petroleum Fuel Produced in and Imported into Canada During the 2015 to 2017 Compliance Periods, Not Including Excluded Volumes

	Gasoline (m^3)			Distillate (m^3)		
	2015	**2016**	**2017**	**2015**	**2016**	**2017**
Produced	33,151,820	32,306,866	33,188,512	31,791,689	25,399,113	26,536,422
Imported	8,129,736	9,348,776	8,371,281	2,545,856	2,584,589	1,040,538
Total	41,281,556	41,655,642	41,559,793	34,337,545	27,983,702	27,576,960

Note: These volumes do not include reported volumes excluded under subsection 6(4) of the Regulations.

The pool volumes for each compliance period are shown in Table 4.1b. A primary supplier's renewable fuel obligations are determined from these volumes; a smaller pool volume means that less renewable fuel is required to meet the minimum obligation. The total pool volume (in Table 4.1b) should equal the total fuel produced in and imported into Canada (in Table 4.1a) during the compliance period, not including excluded volumes. For all three gasoline and distillate compliance periods, the values reported by primary suppliers under item 2 and/or 3 of Schedule 4 do not match the values reported by primary suppliers under item 5 of Schedule 4. This is an ongoing issue, and ECCC is working to address these errors. Primary suppliers may exclude volumes from their pool(s) if it is a type of fuel that is listed in subsection 6(4) of the Regulations. These excluded volumes are not to be reported as part of production and import volumes, but it is suspected that some companies misreported and included these excluded volumes. ECCC believes that this is the main reason for the discrepancy between the total volume produced and imported, and the reported pool volume, provided in Table 4.1b. These exclusions are further explained in section 4.2.

Table 4.1b: Gasoline and Distillate Pools Reported for the 2015 to 2017 Compliance Periods

	2015 (L)	2016 (L)	2017 (L)
Gasoline Pool	40,173,284,691	40,883,176,023	40,825,018,276
Distillate Pool	27,574,916,744	26,670,367,971	28,210,627,403

Table 4.1c: Gasoline Produced in and Imported into Canada by Region during the 2015 to 2017 Compliance Periods

Region	Gasoline Produced (m^3)			Gasoline Imported (m^3)		
	2015	2016	2017	2015	2016	2017
Western Canada	13,841,377	14,296,555	14,935,454	1,053,434	1,036,778	656,792
Eastern Canada	19,310,443	18,010,311	18,253,059	7,076,302	8,311,998	7,714,489
Canada	33,151,820	32,306,866	33,188,512	8,129,736	9,348,776	8,371,281

Table 4.1d: Distillate Produced in and Imported into Canada by Region during the 2015 to 2017 Compliance Periods

Region	Distillate Produced (m^3)			Distillate Imported (m^3)		
	2015	2016	2017	2015	2016	2017
Western Canada	15,709,850	14,662,773	16,366,605	441,741	1,600,932	182,087
Eastern Canada	16,081,839	10,736,340	10,169,817	2,104,115	983,658	858,452
Canada	31,791,689	25,399,113	26,536,422	2,545,856	2,584,589	1,040,538

4.2 VOLUMES EXCLUDED FROM POOLS

Subsection 6(4) of the Regulations allows fuels intended for certain uses to be excluded from a primary supplier's gasoline or distillate pool. Primary suppliers must have a record that establishes that these volumes

were sold or delivered for the specified use. These are fuels for use:

- in aircraft;
- in competition vehicles;
- in scientific research;
- as feedstock in the production of chemicals (other than fuels) in a chemical manufacturing facility;
- in the North (Yukon, the Northwest Territories, Nunavut, and Quebec north of 60°N)
- in Newfoundland and Labrador
- for export, or in transit through Canada from a place outside Canada to another place outside Canada; and
- in the case of diesel fuel and heating distillate oil:
    - in military combat equipment;
    - represented as kerosene and sold for or delivered for use in unvented space heaters, wick-fed illuminating lamps, or flue-connected stoves and heaters; and
    - sold for or delivered for use for space heating purposes.

Primary suppliers are required to report these excluded volumes by production or import, and according to liquid petroleum fuel type (finished gasoline, unfinished gasoline, diesel fuel, and heating distillate oil), under Schedule 4 of the Regulations. The fuel excluded under subsection 6(4) of the Regulations may still have renewable fuel content; however, it is not considered for the purposes of this report as the fuel is excluded from the applicable pool established by the Regulations. Due to the limited use of certain provisions, the data presented has been aggregated to maintain confidentiality. Tables 4.2a and 4.2c show the volumes excluded from the pools nationally by liquid petroleum fuel type. Tables 4.2b, 4.2d, and 4.2e show the exclusions by use for each fuel type. There is little variation in the types of excluded gasoline between compliance periods. The vast majority of gasoline excluded from the pool is for the purpose of export, and the volume of distillate excluded is primarily for use in aircraft and for export. In the 2015 compliance period, 15% of the total volume of gasoline was excluded, and 24% of the total distillate fuel was excluded. In the 2017 compliance period, primary suppliers excluded approximately 18% of the total volume of gasoline produced in and imported into Canada, and approximately 40% of the total volume of distillate fuel.

Table 4.2a: Gasoline Pool Exclusions

Excluded from Production and Imports	2015 (m^3)	2016 (m^3)	2017 (m^3)
Gasoline	7,384,693	8,262,626	8,884,015

Table 4.2b: Gasoline Pool Exclusions, by Use

Excluded from Production and Imports, by Use	2015 (m^3)	2016 (m^3)	2017 (m^3)
For Aircraft and/or for competition vehicles, and/or for use in Newfoundland & Labrador, the Territories, and Quebec north of 60°	641,828	652,942	682,812
For Export	6,742,865	7,609,684	8,201,203
Total	7,384,693	8,262,626	8,884,015

Table 4.2c: Distillate Pool Exclusions

Excluded from Production and Imports	2015 (m^3)	2016 (m^3)	2017 (m^3)
Diesel Fuel	14,167,716	13,993,009	14,404,794
Heating Distillate Oil	3,313,648	2,669,764	3,711,951
Total Volume of Distillate Excluded	17,481,364	16,662,773	18,116,745

Table 4.2d: Diesel Fuel Exclusions, by Use

Excluded from Production and Imports, by Use	2015 (m^3)	2016 (m^3)	2017 (m^3)
For Aircraft and for Military Combat Equipment	6,062,554	6,312,378	6,764,979
Specialized Kerosene and space heating purposes	1,221,728	942,694	828,055
For use in Newfoundland & Labrador, the Territories, and Quebec north of 60°	942,404	744,368	810,865
For Export	5,941,029	5,993,569	6,000,896
Total	14,167,715	13,993,009	14,404,795

Table 4.2e: Heating Distillate Oil Exclusions, by Use

Excluded from Production and Imports, by Use	2015 (m^3)	2016 (m^3)	2017 (m^3)
Space heating purposes	1,115,108	1,234,051	1,256,995
Other*	2,198,540	1,435,713	2,454,957
Total	3,313,648	2,669,764	3,711,952

*Other includes exclusions for Newfoundland & Labrador, the Territories, and Quebec north of 60° and for export.

4.3 RENEWABLE FUELS PRODUCED, IMPORTED AND, SOLD

Persons who produce or import greater than 400 m^3 of renewable fuel in a year must report on their renewable fuel volumes produced, imported, sold, and exported, in Schedule 7 of the Regulations. Tables 4.3a and 4.3b summarize the volumes of ethanol and biomass-based diesel that were produced in and imported into Canada during the compliance periods. These volumes do not represent the total amount of renewable fuel blended with liquid petroleum fuel.

Table 4.3a: Ethanol Volumes Produced and Imported

	2015 (m^3)	2016 (m^3)	2017 (m^3)
Produced	1,720,829	1,738,908	1,728,246
Imported	1,368,878	1,355,650	1,401,610
Total Produced and Imported	3,089,707	3,094,558	3,129,856

The use of HDRD as a means to meet the 2% renewable fuel obligation for distillate has been increasing, and its volume exceeded the amount of biodiesel imported for the first time since the Regulations came into force in 2010. No HDRD or HVO was produced in Canada during these compliance periods, based on the Schedule 7 reports submitted to ECCC.

Table 4.3b: Biomass-Based Diesel Volumes Produced and Imported

	2015 (m^3)	2016 (m^3)	2017 (m^3)
Biodiesel Produced	307,034	463,697	397,362
Biodiesel Imported	259,584	278,957	277,906
HDRD + HVO Imported	223,822	261,232	410,751
Total Produced and Imported	790,440	1,003,886	1,086,019

The transactions related to the sale and export of renewable fuel, reported under Schedule 7, are summarized in Table 4.3c and 4.3d. These volumes do not include sales of blended renewable fuels. For clarity, "Produced or Imported for Export" is meant to cover fuel exported by the producer or importer where ownership is transferred outside of Canada, while "Sold for Export" is meant to cover fuel that is sold to another party within Canada that exports it or where ownership of exported fuel changes in Canada. There appears to have been incorrect reporting, with the possibility that the same fuel was reported as "Sold for Export" and as "Produced or Imported for Export." Certain companies reported the exact same volume in both places.

Table 4.3c: Ethanol Volumes Sold or Exported

	2015 (m^3)	2016 (m^3)	2017 (m^3)
Sold	3,900,814	3,855,602	3,766,684
Sold for Blending at Another Facility in Canada	1,326,988	1,305,544	1,307,709
Sold for Export	0	0	0
Produced or Imported for Export	0	*	0

*The small volume of reported fuel is not shown to protect confidentiality.

Table 4.3d: Biomass-Based Diesel Sold or Exported

	2015 (m^3)	2016 (m^3)	2017 (m^3)
Sold	639,186	726,206	825,574
Sold for Blending at Another Facility in Canada	99,271	93,348	135,935
Sold for Export	241,984	364,462	283,688
Produced or Imported for Export	37,561	96,570	81,552

4.4 RENEWABLE FUEL FEEDSTOCKS

Renewable fuel producers and importers are required to report on the type of feedstock that was used to produce their renewable fuel, if known. The feedstock data collected by Environment and Climate Change Canada (ECCC) is limited, since companies are only required to report the feedstock that was used to produce the fuel and not how much fuel was produced from each feedstock. Because of this, in cases where more than one feedstock was reported, ECCC estimated the volumes produced from each feedstock based on what was reported under renewable fuel sold.

In addition, different regulated parties may be misinterpreting the feedstock options in the Regulations. Producers and importers must select the feedstock type(s) as they appear in the definition of *renewable fuel feedstock* in section 1 of the Regulations. The defined feedstock types may aggregate some of the most commonly used feedstocks, which may influence reporting errors. Table 4.4a shows the feedstock types available to select. For example, "Other grains" in this context refers to any grains, excluding corn or wheat, although regulated parties may have used this category to report corn, which should have been reported under the "Starch" category. In addition, "Not reported" is a category that was added during the data aggregation process to reflect that some reports specified renewable fuel volumes without specifying a feedstock type.

Table 4.4a: Feedstocks as Defined in the Regulations

Feedstock
Algae
Animal material
Animal solid waste
Cellulosic material
Municipal solid waste
Oilseeds
Other grains (excluding corn or wheat)
Other vegetable oils (for example canola oil, corn oil, etc)
Palm oil
Potatoes
Soy Oil
Starch (for example corn)
Sugar cane, sugar beets or sugar components
Tobacco
Vegetable materials or other plant materials
Wheat grain

Tables 4.4b and 4.4c and Figures 4.4a and 4.4b show the volumes of ethanol produced in and imported into Canada, by feedstock type, during the 2015 to 2017 compliance periods, which ECCC estimated based on reporting under Schedule 7 of the Regulations. With respect to ethanol feedstocks, ECCC carried out compliance promotion activities to clarify under which category each feedstock should be reported.

Table 4.4b: Estimated Volumes of Ethanol Produced in Canada, by Feedstock

Feedstock	2015 (m^3)	2016 (m^3)	2017 (m^3)
Starch (for example corn)	1,419,890	1,491,513	1,422,452
Wheat grain and Other grains (excluding corn or wheat)	300,939	247,395	305,794
Total	1,720,829	1,738,908	1,728,246

As seen in Figures 4.4a and 4.4b, the vast majority of ethanol is derived from starches, such as corn. This result is consistent for all compliance periods, and for ethanol produced in and imported into Canada.

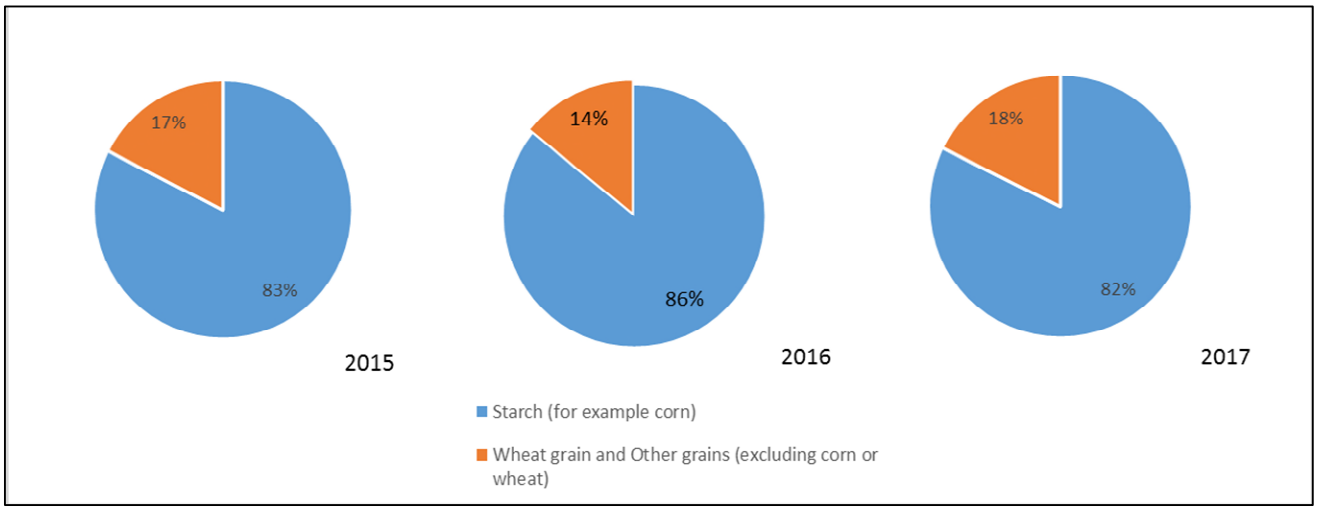

Figure 4.4a: Estimated Volumes of Ethanol Produced in Canada, by Feedstock

Table 4.4c: Estimated Volumes of Ethanol Imported into Canada, by Feedstock

Feedstock	2015 (m^3)	2016 (m^3)	2017 (m^3)
Starch (for example corn)	1,318,973	1,203,803	1,179,708
Other*	49,904	151,847	128,429
Total	1,368,878	1,355,650	1,308,137

To protect confidentiality, values have been aggregated.
*For 2015, "Other" includes Potatoes, and Not reported. For 2016, "Other" includes Other vegetable oils(for example canola oil, corn oil, etc.), Potatoes, and Not reported. For 2017 "Other: includes Other Vegetable Oils, Potatoes, and Not reported.

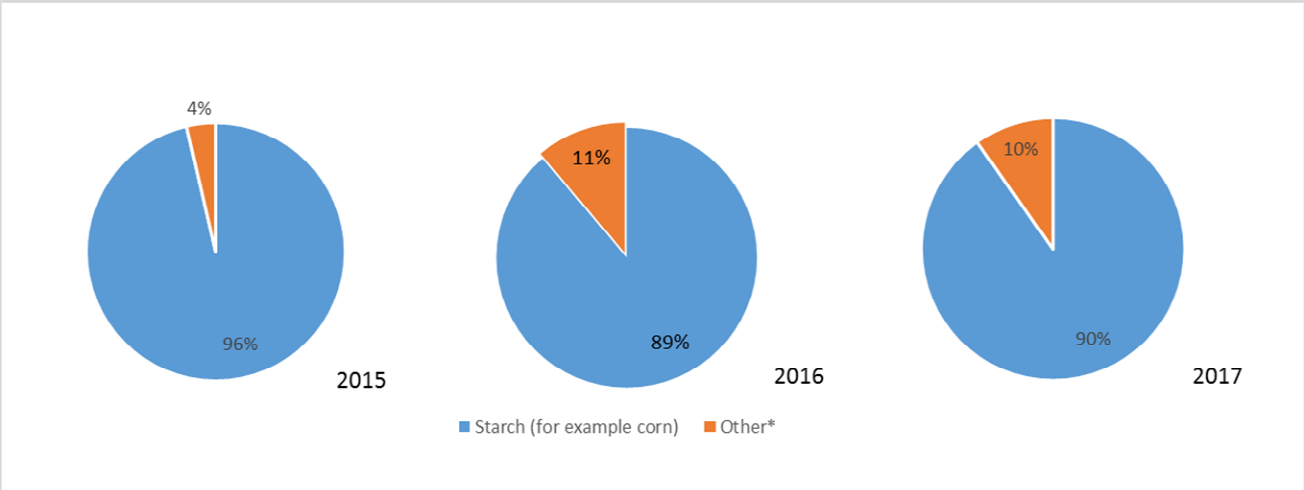

Figure 4.4b: Estimated Volumes of Ethanol Imported into Canada, by Feedstock

Tables 4.4d and 4.4e and Figures 4.4c and 4.4d show the volumes of biomass-based diesel produced in and imported into Canada, by feedstock type, during the 2015 to 2017 compliance periods, which ECCC estimated based on reporting under Schedule 7 of the Regulations. As seen in Figures 4.4c and 4.4d, there is more variation in the feedstocks used for biomass-based diesel.

Table 4.4d: Estimated Volumes of Biodiesel Produced in Canada, by Feedstock

Feedstock	2015 (m^3)	2016 (m^3)	2017 (m^3)
Animal Material	77,797	86,692	96,761
Soy Oil, Oilseeds and Other grains (excluding corn or wheat)*	202,549	273,905	215,226
Other vegetable oils (for example canola oil, corn oil, etc)	26,688	103,100	85,375
Total	307,034	463,697	397,362

To protect confidentiality, values have been aggregated.

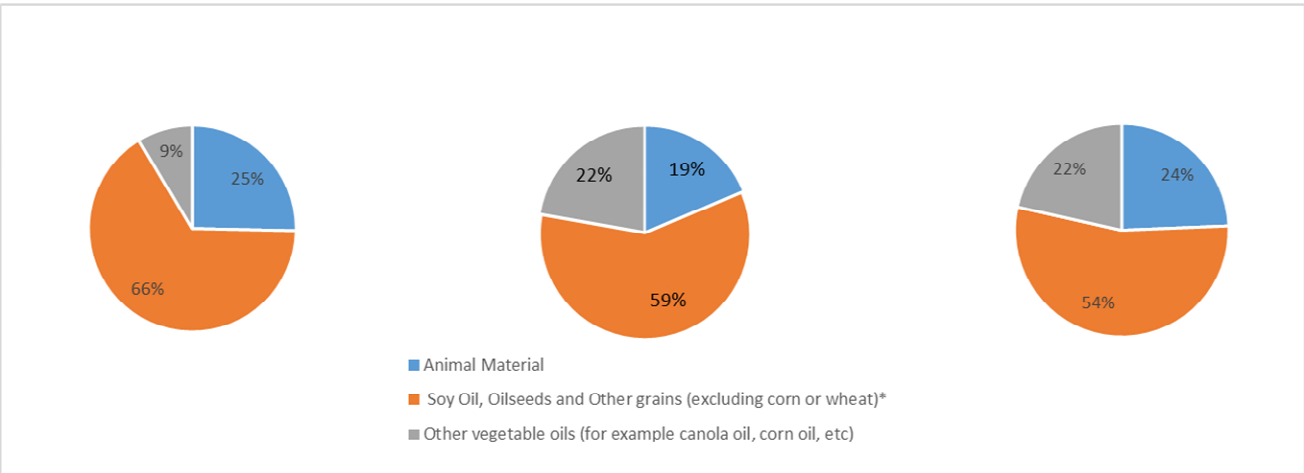

Figure 4.4c: Estimated Volume of Biomass-Based Diesel Produced in Canada, by Feedstock

Table 4.4e: Estimated Volumes of Biomass-Based Diesel Imported into Canada, by Feedstock

Feedstock	2015 (m^3)	2016 (m^3)	2017 (m^3)
Soy Oil and Palm Oil*	84,572	165,222	195,756
Other vegetable oils (for example canola oil, corn oil, etc)	171,670	236,152	319,959
Other**	227,165	138,817	96,410
Total	483,407	540,191	612,125

*To protect confidentiality, values have been aggregated. For 2015, the volume reported is for soy oil, only. For 2017, the volume reported includes volumes that were reported from oil seeds feedstock in addition to soy oil and palm oil

**To protect confidentiality, values have been aggregated. For 2015, "Other" includes animal solid waste, oilseeds, other grains (excluding corn or wheat), palm oil, starch (for example corn) and not reported. For 2016, "Other" includes animal material, other grains (excluding corn or wheat), vegetable material or other plant materials, and not reported. For 2017, "Other" includes animal material, other grains (excluding corn or wheat), vegetables materials or other plant materials, and not reported.

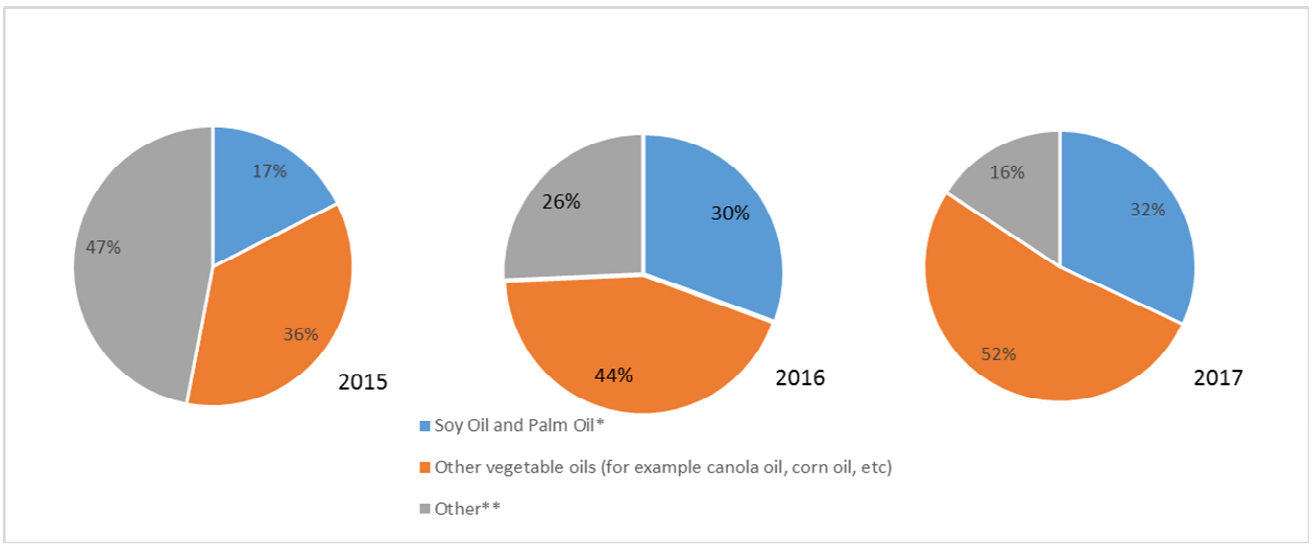

Figure 4.4d: Estimated Volumes of Biomass-Based Diesel Imported into Canada, by Feedstock

5.0 COMPLIANCE WITH THE REGULATIONS

This section summarizes the activities undertaken by primary suppliers and elective participants to comply with the Regulations. In addition to blending renewable fuels, this includes using the compliance unit trading system to acquire compliance units. It also highlights primary suppliers' compliance with the two renewable fuel content requirements.

5.1 COMPLIANCE UNITS

The Regulations include a compliance unit trading system to provide regulated parties with flexible compliance options. In addition to creating compliance units, primary suppliers may also acquire compliance units from other participants. Compliance units represent renewable fuel, with one compliance unit being equal to one litre of renewable fuel. To meet their compliance obligations, primary suppliers must hold sufficient compliance units at the end of the trading period, in respect of a compliance period, to demonstrate compliance with the 2% and 5% renewable fuel content requirements, as the case may be. Gasoline compliance units (GCUs) may only be used to meet the 5% requirement, while distillate compliance units (DCUs) may be used to meet the 2% requirement or may be converted to gasoline compliance units to meet the 5% renewable fuel requirement. A party that may create compliance units is a primary supplier or an elective participant, which are collectively referred to as participants. A participant may create compliance units by:

- Blending renewable fuel with liquid petroleum fuel;
- Importing liquid petroleum fuel with renewable fuel content;
- Using biocrude to produce liquid petroleum fuel;
- Selling neat renewable fuel (as defined in the Regulations) to a neat renewable fuel consumer; or
- Using neat renewable fuel, in a combustion device, that they produced or imported themselves.

The compliance units that were created in the 2015 to 2017 compliance periods are presented in Tables 5.1a and 5.1b for each province and territory. Approximately 3 billion GCUs were reported to have been created in each compliance period. Meanwhile, approximately 528 million, 557 million and 701 million DCUs were created in the 2015, 2016, 2017 compliance periods, respectively. The majority of gasoline compliance units are created in Eastern Canada, and approximately 43% of GCUs are reported to have been created in Ontario. For the 2015 and 2016 compliance periods 67% of distillate compliance units were created in Alberta and British Columbia; however, the creation of DCUs was more distributed across Canada in 2017.

Table 5.1a: Gasoline Compliance Units Created During the 2015 to 2017 Compliance Periods

Provinces	2015 (GCUs)	2016 (GCUs)	2017 (GCUs)
Alberta	379,988,183	355,514,862	350,410,372
British Columbia	339,398,486	363,917,242	361,859,750
Manitoba	147,470,928	148,396,898	150,846,296
Ontario	1,301,220,460	1,314,138,817	1,305,023,802
Québec & New Brunswick*	655,679,432	673,044,804	672,799,551
Saskatchewan	217,122,884	214,212,231	206,113,620
Canada	3,040,880,373	3,069,224,854	3,047,053,391

*GCUs created were combined for these provinces, to protect confidentiality.

Table 5.1b: Distillate Compliance Units Created During the 2015 to 2017 Compliance Periods

Provinces	2015 (DCUs)	2016 (DCUs)	2017 (DCUs)
Alberta	161,742,913	137,760,977	159,220,559
British Columbia	189,496,356	149,684,014	175,824,216
Manitoba	22,876,382	22,973,462	22,362,030
Ontario	9,069,842	75,456,568	112,935,518
Québec & New Brunswick, Nova Scotia*	62,968,499	92,642,128	146,357,888
Saskatchewan	81,768,058	78,245,334	84,543,280
Canada	527,922,050	556,762,483	701,243,491

*DCUs created were combined for these provinces, to protect confidentiality.

The number of GCUs created per compliance period has been stable since 2013 as the gasoline pool has remained stable, and the minimum obligation of 5% has not changed. Nearly all of the compliance units have been created by blending renewable fuel with liquid petroleum fuel. Furthermore, approximately 99% of GCUs and are reported to have been created at a non-mobile blending facility. A small number of units were created by importing blended renewable fuel or by using neat renewable fuel; however, these were aggregated with units created by blending to preserve confidentiality.

Participants that created compliance units by blending renewable fuel with liquid petroleum fuel were also required to report whether high-renewable-content fuel blends were created. In the case of gasoline, this includes fuel blends that contain an ethanol content that is greater than 10% and less than or equal to 85%. In the case of biodiesel blended with diesel or distillate, this includes fuel blends that are greater than 5% and less than or equal to 80% biodiesel. In the case of HDRD or HVO, the definition for high-renewable-content fuel does not apply. The total volumes of fuel blended (renewable fuel and liquid petroleum fuel) are presented in Tables 5.1c and 5.1d below. On average, there is very little activity for blending high-renewable-content gasoline and distillate fuel.

Table 5.1c: Blends of Diesel and Biomass-Based Diesel

Blend Type	2015 (m^3)	2016 (m^3)	2017 (m^3)
Other than High-Renewable-Content Fuel	522,544	540,567	684,274
High-Renewable-Content Fuel (B6 – B80)	3,744	16,147	17,129
Total	526,288	556,714	701,403

In addition to creating compliance units, the Regulations contain provisions that enable participants to trade, carry forward (into the next period), and carry backwards (into the previous period) compliance units. Participants are responsible for recording each transaction and demonstrating compliance with these provisions. The following two tables summarize the compliance unit transactions as reported under Schedule 5 of the Regulations. Compliance units received in trade should equal those transferred in trade, but due to suspected reporting errors, there is a small variance. It is a regulatory requirement for participants to record these transactions accurately and verification is ongoing.

Table 5.1e: Gasoline Compliance Unit Transactions

Transactions	2015 (GCUs)	2016 (GCUs)	2017 (GCUs)
Created During Compliance Period	3,040,880,373	3,069,224,854	3,047,053,391
Received in Trade	964,006,060	1,107,678,839	1,106,749,676
Transferred in Trade	964,006,062	1,107,299,671	1,109,358,997
Cancelled*	1,046,337,720	1,048,972,366	1,006,916,394
Carried Forward (into this period)	406,472,677	408,746,201	386,266,939
Carried Forward (into next period)	408,746,201	386,266,939	382,543,706
Carried Back (into this period)	0	0	0
Carried Back (from this period into preceding period)	0	0	0
Distillate compliance units assigned to gasoline compliance units	0	0	0

*Does not include units cancelled for export of blended fuel.

Table 5.1f: Distillate Compliance Unit Transactions

Transactions	2015 (DCUs)	2016 (DCUS)	2017 (DCUs)
Created During Compliance Period	527,922,050	556,762,483	701,243,491
Received in Trade	241,639,024	243,400,842	319,477,699
Transferred in Trade	241,644,376	243,400,841	321,165,241
Cancelled*	38,484,340	18,519,914	107,817,640
Carried Forward (into this period)	136,582,940	74,670,671	79,410,904
Carried Forward (into next period)	74,670,671	79,414,602	108,127,716
Carried Back (into this period)	0	0	0
Carried Back (from this period into preceding period)	0	0	0
Distillate compliance units assigned to gasoline compliance units	0	0	0

*Does not include units cancelled for export of blended fuel.

Figures 5.1a and 5.1b display the common compliance unit transaction types for the gasoline and distillate pools. In general, a significant number of GCUs are cancelled at the end of every compliance period, relative to the number that are carried forward, due to regulatory limitations on the maximum number of surplus units that can be owned and carried forward. Conversely, very few distillate compliance units are cancelled at the end of a compliance period, and the proportion of traded DCUs is much higher than that of GCUs. Additionally, there is more variance in the number of DCUs carried forward relative to GCUs, as the overall availability of DCUs fluctuates between trading periods.

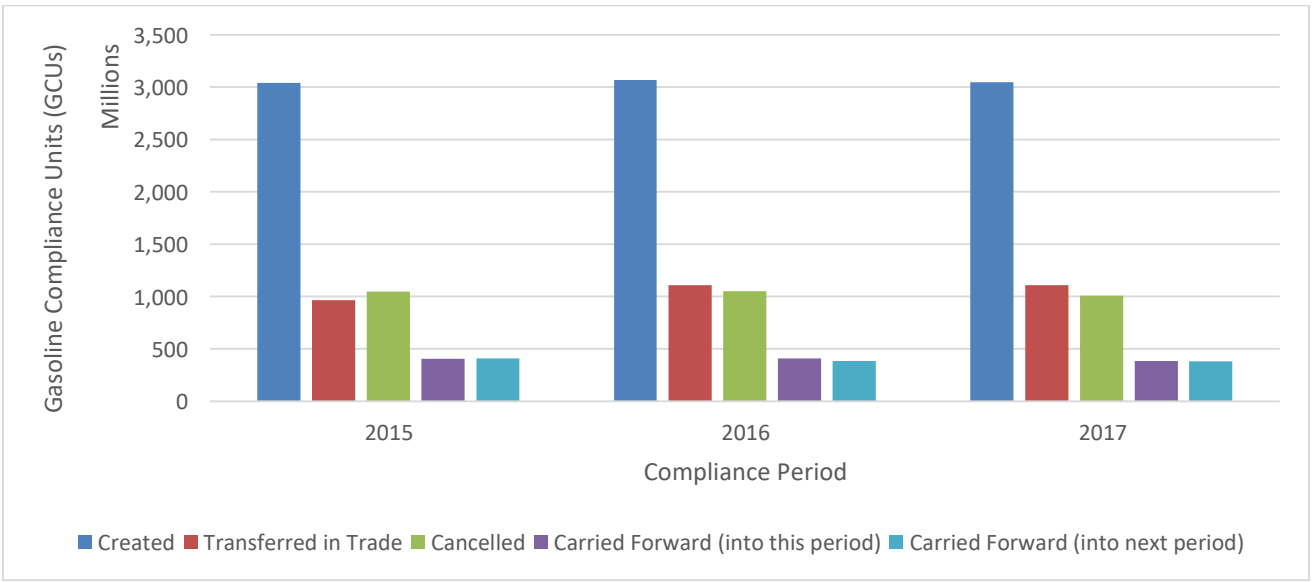

Figure 5.1a Gasoline Compliance Unit Transactions for the 2013 to 2017 Compliance Periods

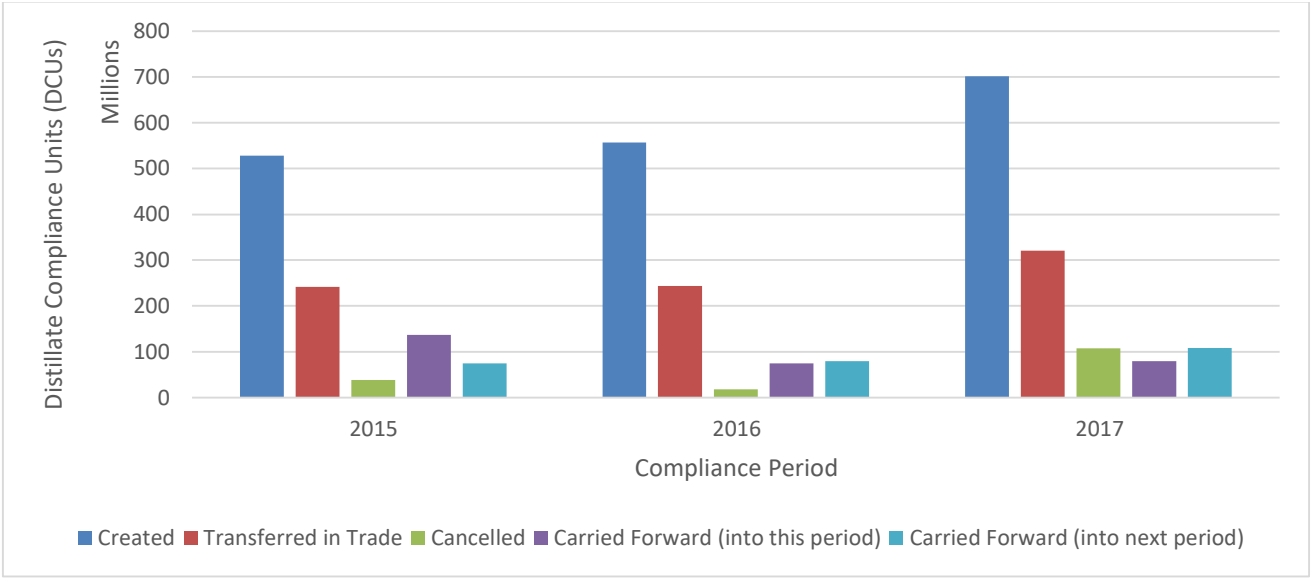

Figure 5.1b: Distillate Compliance Unit Transactions for the 2013-2014 to 2017 Compliance Periods

5.2 COMPLIANCE WITH THE RENEWABLE FUEL REQUIREMENTS

This subsection provides primary suppliers' compliance rates with the two renewable fuel content requirements as well as the reported average renewable fuel content in the national pools for the 2015, 2016, and 2017 compliance periods.

The Regulations require primary suppliers to have renewable fuel equivalent to at least 5% of their gasoline pool and 2% of their distillate pool for each compliance period. The compliance unit trading system may permit primary suppliers to meet their obligations without acquiring or blending any renewable fuel. Furthermore, the Regulations allow for a limited number[5] of excess compliance units to be carried forward into the next compliance period or carried back into the previous compliance period. Thus the renewable fuel content, RF_G for gasoline and RF_D for distillate, are calculated in accordance with subsections 8(1) and 8(2) of the Regulations. These equations account for compliance units that were created, traded, cancelled, carried forward into the compliance period and carried back to the preceding compliance period.

The average renewable fuel content in the gasoline and distillate pools for a compliance period are then calculated as:

$$\%RF_G = RF_G \,/\, Gasoline\ Pool$$

$$\%RF_D = RF_D \,/\, Distillate\ Pool$$

All volumes are expressed in litres.

The compliance results for the 2015 to 2017 compliance periods are presented in Tables 5.2a and 5.2b. For a

[5] In accordance with sections 21 to 23 of the Regulations.

complete list of registered companies and their activities, see Appendix A: *List of Registered Parties and their Activities*.

For the three compliance periods, all primary suppliers reported that they achieved the minimum of 5% renewable fuel content in their gasoline pool, based on information reported under their Schedule 4, and verifications by independent auditors. All primary suppliers, except one in 2015, reported that they achieved the minimum of 2% renewable fuel content in their distillate pool, based on information reported under their Schedule 4, and verifications by independent auditors.

Tables 5.2a and 5.2b show the renewable fuel content in the gasoline and distillate pools for individual primary suppliers. Certain primary suppliers reported renewable fuel content significantly in excess of the regulatory obligation, some of which were within the limits of high-renewable-content fuel. The reason for this is that some companies acquired compliance units that were in excess of their needs from other participants. Some of these excess compliance units may have been carried forward, while others were cancelled. As can be seen in Table 5.1e, many gasoline compliance units were carried forward, but even more were cancelled for these compliance periods.

Table 5.2a: Reported Renewable Fuel Content in Gasoline Pools for the 2015 to 2017 Compliance Periods

Company Name	2015	2016	2017
Chevron Canada Limited	7%	9%	5%
Elbow River Marketing Ltd.	10%	6%	N/A
Elbow River Marketing USA Ltd.	N/A	N/A	9%
Federated Co-operatives Limited	9%	9%	8%
Gale's Gas Bars Limited	N/A	9%	N/A
Greenergy Fuels Canada Inc	10%	11%	10%
Husky Oil Operations Limited	21%	13%	12%
Imperial Oil	8%	8%	8%
Irving Oil Operations GP	8%	7%	6%
Morgan Stanley Capital Group Inc	5%	N/A	N/A
Parkland Refining (B.C.) Ltd.	N/A	N/A	10%
Produits Pétroliers Norcan SENC	6%	6%	5%
Rolympus (US) Commodities Group, LLC	6%	5%	N/A
Shell Canada Products	9%	11%	9%
Shell Trading Canada, an Alberta Partnership	N/A	5%	5%
Suncor Energy Products Partnership	9%	9%	9%
Valero Energy Inc	7%	7%	7%
World Fuel Services Canada, Inc.	6%	10%	N/A

"N/A" means that the regulated party did not have an obligation (a gasoline or distillate pool) during this compliance period.

Table 5.2b: Reported Renewable Fuel Content in Distillate Pools for the 2015 to 2017 Compliance Period

Company Name	2015	2016	2017
1068444 Ontario Limited	2%	2%	N/A
Canadian National Railway Co.	2%	2%	2%
Canadian Natural Resources Limited	2%	2%	3%
Canadian Pacific Railway Company	2%	2%	N/A
Chevron Canada Limited	2%	2%	2%
Corrigan Oil Co. , No. II	*	*	2%
Econo Petroleum Inc.	*	2%	2%
Elbow River Marketing Ltd	N/A	2%	3%
Federated Co-operatives Ltd.	3%	3%	3%
FS Partners, a division of Growmark	2%	2%	*
Gra Ham Energy Ltd.	2%	2%	3%
Greenergy Fuels Canada Inc	2%	2%	3%
Husky Oil Operations Limited	4%	3%	3%
Idemitsu Apollo Corporation	3%	18%	2%
Imperial Oil	2%	2%	4%
Irving Oil Operations GP	2%	2%	2%
Kildair Service ULC	N/A	2%	2%
North West Redwater Partnership	N/A	N/A	2%
Parkland Refining (B.C.) Ltd.	N/A	N/A	2%
Petro-Canada Lubricants Inc.	2%	2%	2%
Produits Pétroliers Norcan SENC	2%	2%	2%
Shell Canada Products	2%	2%	2%
Shell Trading Canada, an Alberta Partnership	N/A	2%	2%
Suncor Energy Oil Sands Limited Partnership	2%	2%	3%
Suncor Energy Products Partnership	2%	2%	2%
Syncrude Canada Ltd.	2%	2%	2%
Valero Energy Inc	2%	2%	2%
World Fuel Services Canada, ULC	2%	2%	N/A

"N/A" means that the regulated party did not have an obligation (a gasoline or distillate pool) during this compliance period.

*The evaluation of the reported renewable fuel content in the distillate pool is still in progress.

The reported renewable fuel content per primary supplier does not accurately reflect how much renewable fuel was actually used in Canada. To determine a more accurate representation, the total number of compliance units created for a given period can be compared to the reported pool volume for the same compliance period by:

%Average RF Content = Sum of Compliance Units Created / Pool

Based on this calculation, the renewable fuel content in gasoline was approximately 8% for the 2015 and 2016

compliance periods, and 7% for the 2017 compliance period. The renewable fuel content in distillate was approximately 2% for all three compliance periods.

5.3 QUALITY OF REPORTING

The reports received by Environment and Climate Change Canada for the 2015, 2016, and 2017 compliance periods contained a significant number of errors, and extensive work was required to verify the data. Compliance verification of this data is ongoing. As such, the preceding analysis was performed on the data as reported, and all aspects of it are subject to change. Environment and Climate Change Canada may consider publishing updated results on the Government of Canada's Open Data Portal here: https://open.canada.ca/data/en/dataset/d9ed24bd-82d9-406a-801c-585c28e6edb1.

Environment and Climate Change Canada continues to provide information to regulated parties to ensure the timeliness and completeness of reports for the coming compliance periods. The Regulatory Implementation and Operations Section hosts several online and in-person information sessions on the federal fuels regulations. These sessions provide regulated parties with information on proper reporting techniques and the opportunity to raise questions and concerns. If you wish to be added to the mailing list for future information sessions, please contact us at ec.carburants-fuels.ec@canada.ca. In addition, ECCC's Enforcement Branch is responsible for the enforcement of regulations created under the *Canadian Environmental Protection Act, 1999* (CEPA) including the Renewable Fuels Regulations. As part of its enforcement activities, enforcement officers conduct inspections and investigations into alleged noncompliance under the Regulations. CEPA regulations are enforced in accordance with the Compliance and Enforcement Policy for the Canadian Environmental Protection Act, 1999; more information can be found on Environment and Climate Change Canada's website at: https://www.canada.ca/en/environment-climate-change/services/canadian-environmental-protection-act-registry.html. Additional details on inspections and investigations numbers as well as enforcement measures taken for CEPA regulations are available at: https://www.canada.ca/en/environment-climate-change/services/canadian-environmental-protection-act-registry/general-information.html.

6.0 CONCLUSION

The data received from regulated parties for the 2015 to 2017 compliance periods indicate that the Regulations are on track to meeting their objective of reducing GHG emissions. Lifecycle greenhouse gas emissions reductions are estimated to be 4.1, 4.4, and 4.6 MtCO2e (13.1 MtCO2e over three years) during the 2015, 2016, and 2017 compliance periods, respectively, as a result of the renewable fuel volumes used to create compliance units. The renewable fuel requirements were met on a national pool basis for each compliance period, with an estimated three-year cumulative renewable content of 8% in gasoline, and 2% in distillate fuel. Furthermore, all primary suppliers reported that they achieved the minimum renewable fuel content of 5% in their gasoline pools, and there was one instance of alleged non-compliance with the 2% minimum renewable fuel content in a primary supplier's distillate pool. This is an improvement over the 2013-2014 compliance period, where two primary suppliers reported instances of alleged non-compliance with the minimum renewable fuel content requirement. With that said, ECCC identified and addressed numerous compliance issues related to these compliance periods.

APPENDIX A: LIST OF REGISTERED PARTIES AND THEIR ACTIVITIES

Table A.1: List of Registered Parties with Activity During the 2015 Compliance Period

Regulated Parties	Primary Supplier: Gasoline Pool	Primary Supplier: Distillate Pool	Elective Participant	Producer or Importer of Ethanol	Producer or Importer of Biomass-Based Diesel
1068444 Ontario Limited		X			
1714141 Alberta Ltd.			X		
1796640 Ontario Limited			X		X
ADM Agri-Industries Company					X
Archer Daniels Midland Company					X
Astra Energy Canada Inc.					X
Atlantic Biodiesel Corporation					X
BioUrja Trading LLC				X	
BIOX Canada Limited					X
BIOX Canada Ltd.					X
C&N Ethanol Marketing Corporation				X	
Canada Clean Fuels Inc			X		X
Canadian National Railway Co.		X			
Canadian Natural Resources Limited		X			
Canadian Pacific Railway Company		X			
Chevron Canada Limited	X	X			
CHS Inc.				X	
Consolidated Biofuels Ltd.					X
Corrigan Oil Co. , No. II		X			
DSM Nutritional Products Canada Inc.					X
Eco-Energy LLC				X	X
Econo Petroleum Inc.		X			
Elbow River Marketing Ltd	X			X	X
Federated Co-operatives Limited	X	X			
FS Partners, a division of Growmark		X			
G&B Fuels Inc			X		
Gra Ham Energy Ltd.		X			
Green Plains Trade Group, LLC				X	
Greenergy Fuels Canada Inc	X	X		X	
GreenField Ethanol of Quebec Inc.				X	
GreenField Specialty Alcohols Inc.				X	
Husky Oil Operations Limited	X	X		X	
Idemitsu Apollo Corporation		X			
Imperial Oil	X	X			X
Innoltek inc.			X		
Integrated Grain Processors Co-operative Incorporated				X	
Irving Oil Operations GP	X	X		X	X

Regulated Parties	Primary Supplier: Gasoline Pool	Primary Supplier: Distillate Pool	Elective Participant	Producer or Importer of Ethanol	Producer or Importer of Biomass-Based Diesel
Kawartha Ethanol Inc.				X	
Les solutions carburants BioMix			X		
Milligan Biofuels Inc.					X
Morgan Stanley Capital Group Inc	X				
Murex LLC				X	
Noroxel Energy Ltd.					X
North West Bio-Energy Ltd.				X	
Parkland Refining Ltd.			X		
Permolex Ltd.				X	
Petro-Canada Lubricants Inc.		X			
Pound-Maker Agventures Ltd				X	
Produits Pétroliers Norcan SENC	X	X			
QFIBIODIESEL			X		X
Rolympus (Canada) Commodities Group ULC			X		
Rolympus (US) Commodities Group, LLC	X				
Rothsay, a Division of Darling International Canada Inc.			X		X
RPMG, Inc.				X	
Shell Canada Products	X	X			X
Shell Trading Canada, an Alberta Partnership				X	X
Suncor Energy Oil Sands Limited Partnership		X			
Suncor Energy Products Inc.				X	
Suncor Energy Products Partnership	X	X			X
Syncrude Canada Ltd.		X			
Terra Grain Fuels Inc				X	
TransMontaigne Marketing Canada Inc.			X		
Valero Energy Inc	X	X		X	
Wilson Fuel Co. Limited			X		
World Fuel Services Canada, Inc.	X				

Table A.2: List of Registered Parties with Activity During the 2016 Compliance Period

Regulated Parties	Primary Supplier: Gasoline Pool	Primary Supplier: Distillate Pool	Elective Participant	Producer or Importer of Ethanol	Producer or Importer of Biomass-Based Diesel
1068444 Ontario Limited		X			
1796640 Ontario Limited			X		X
ADM Agri-Industies Company					X
Archer Daniels Midland Company					X
Atlantic Biodiesel Corporation					X
BIOX Canada Limited					X
C&N Ethanol Marketing Corporation				X	
Canada Clean Fuels Inc			X		X
Canadian National Railway Co.		X			
Canadian Natural Resources Limited		X			
Canadian Pacific Railway Company		X			
Chevron Canada Limited	X	X			
CHS Inc.				X	
Consolidated Biofuels Ltd.					X
Corrigan Oil Co. , No. II		X			
DSM Nutritional Products Canada Inc.					X
Eco-Energy LLC				X	
Econo Petroleum Inc.		X			
Elbow River Marketing Ltd	X	X		X	X
Federated Co-operatives Ltd.	X	X			
FS Partners, a division of Growmark		X			
G&B Fuels Inc			X		
Gale's Gas Bars Limited	X				
Gra Ham Energy Ltd.		X			
Green Plains Trade Group, LLC				X	
Greenergy Fuels Canada Inc	X	X		X	
GreenField Ethanol of Quebec Inc.				X	
GreenField Specialty Alcohols Inc.				X	
Husky Oil Operations Limited	X	X		X	
Idemitsu Apollo Corporation		X			
Imperial Oil	X	X			X
Innoltek inc.			X		
Integrated Grain Processors Co-operative Incorporated				X	
Irving Oil Operations GP	X	X		X	X
Kawartha Ethanol Inc.				X	
Kildair Service ULC		X			
Les Petroles Parkland Ltée			X		
Milligan Biofuels Inc.					X
Murex LLC				X	

Regulated Parties	Primary Supplier: Gasoline Pool	Primary Supplier: Distillate Pool	Elective Participant	Producer or Importer of Ethanol	Producer or Importer of Biomass-Based Diesel
Noroxel Energy Ltd.					X
North West Bio-Energy Ltd.				X	
Parkland Refining Ltd.			X		
Permolex Ltd.				X	
Petro-Canada Lubricants Inc.		X			
Pound-Maker Agventures Ltd				X	
Produits Pétroliers Norcan SENC	X	X		X	
QFIBIODIESEL					X
Rolympus (Canada) Commodities Group ULC			X		
Rolympus (US) Commodities Group, LLC	X				
Rothsay, a Division of Darling International Canada Inc.			X		X
RPMG, Inc.				X	
Shell Canada Products	X	X			
Shell Trading Canada, an Alberta Partnership	X	X			X
Suncor Energy Inc.				X	
Suncor Energy Marketing Inc.					X
Suncor Energy Oil Sands Limited Partnership		X			
Suncor Energy Products Partnership	X	X			X
Syncrude Canada Ltd.		X			
Terra Grain Fuels Inc				X	
TransMontaigne Marketing Canada Inc.			X		
Valero Energy Inc	X	X		X	X
Wilson Fuel Co. Limited			X		
World Fuel Services Canada, ULC	X	X			

Table A.3: List of Registered Parties with Activity During the 2017 Compliance Period

Regulated Parties	Primary Supplier: Gasoline Pool	Primary Supplier: Distillate Pool	Elective Participant	Producer or Importer of Ethanol	Producer or Importer of Biomass-Based Diesel
1796640 Ontario Limited			X		X
ADM Agri-Industies Company					X
AOT Energy Canada Inc.					X
Archer Daniels Midland Company					X
Atlantic Biodiesel Corporation					X
BIOX Canada Limited					X
C&N Ethanol Marketing, LLC				X	
Canada Clean Fuels Inc			X		X
Canadian National Railway Co.		X			
Canadian Natural Resources Limited		X			
Chevron Canada Limited	X	X			
CHS Inc.				X	
Consolidated Biofuels Ltd.					X
Corrigan Oil Co. , No. II		X			
DSM Nutritional Products Canada Inc.					X
Eco-Energy LLC				X	
Econo Petroleum Inc.		X			
Elbow River Marketing Ltd		X		X	X
Elbow River Marketing USA Ltd	X				
Federated Co-operatives Limited	X	X			
Flint Hills Resources, LP				X	
FS Partners, a division of Growmark					
G&B Fuels Inc			X		
Gra Ham Energy Ltd.		X			
Green Plains Trade Group, LLC				X	
Greenergy Fuels Canada Inc	X	X		X	
Greenfield Global Inc.				X	
Greenfield Global Quebec Inc.				X	
Husky Oil Operations Limited	X	X		X	
Idemitsu Apollo Corporation		X			X
Imperial Oil	X	X			X
Innoltek inc.			X		
Integrated Grain Processors Co-operative Incorporated				X	
Irving Oil Operations GP	X	X		X	X
Kawartha Ethanol Inc.				X	
Kildair Service ULC		X			
Les Petroles Parkland Ltée			X		
Modern By-Products Canada Limited					X

Regulated Parties	Primary Supplier: Gasoline Pool	Primary Supplier: Distillate Pool	Elective Participant	Producer or Importer of Ethanol	Producer or Importer of Biomass-Based Diesel
Murex LLC				X	
Noroxel Energy Ltd.					X
North West Bio-Energy Ltd.				X	
North West Redwater Partnership		X			
Parkland Fuel Corporation					
Parkland Refining (B.C.) Ltd.	X	X			
Parkland Refining Ltd.			X		
Permolex Ltd.				X	
Petro-Canada Lubricants Inc.		X			
Pound-Maker Agventures Ltd				X	
Produits Pétroliers Norcan SENC	X	X		X	
Rolympus (Canada) Commodities Group ULC			X		
Rothsay, a Division of Darling International Canada Inc.			X		X
RPMG, Inc.				X	
Shell Canada Products	X	X			X
Shell Trading Canada, an Alberta Partnership	X	X			X
Suncor Energy Inc.				X	
Suncor Energy Marketing Inc.					X
Suncor Energy Oil Sands Limited Partnership		X			
Suncor Energy Products Partnership	X	X			X
Syncrude Canada Ltd.		X			
Terra Grain Fuels Inc				X	
Valero Energy Inc	X	X		X	X
Wilson Fuel Co. Limited			X		
World Fuel Services Canada, ULC					