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SULPHUR IN LIQUID FUELS REPORT

JANUARY 1, 2013 TO DECEMBER 31, 2016



Canada 

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NOTICE

The information contained in this report is compiled from data submitted, as of August 22, 2018, by the producers and importers of liquid fuels in Canada pursuant to the requirements of the federal *Fuels Information Regulations, No. 1*. When data gaps were presented, information was taken from data submitted pursuant to the *Sulphur in Diesel Fuel Regulations* and the *Sulphur in Gasoline Regulations*.

Submissions have been assessed for plausibility but may be subject to reporting errors.

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1. SUMMARY

This report summarizes the annual data on the sulphur content in liquid fuels originating from crude oils, coal or bituminous sand for 2013-2016. The information was provided annually to Environment and Climate Change Canada by producers and importers of liquid fuels pursuant to the federal *Fuels Information Regulations, No. 1* under the *Canadian Environmental Protection Act, 1999*. The reports received by Environment and Climate Change Canada contained a significant number of errors, and extensive work was required to verify the data. When data gaps were present, information was taken from data submitted pursuant to the *Sulphur in Diesel Fuel Regulations* and the *Sulphur in Gasoline Regulations*. As such, the proceeding analysis was performed on the data as reported, and all aspects of it are subject to change. As part of their enforcement activities, Environment and Climate Change Canada's enforcement officers conduct inspections and investigations into alleged exceedances under the *Sulphur in Gasoline Regulations* and the *Sulphur in Diesel Fuel Regulations*, in accordance with the Compliance and Enforcement Policy for the *Canadian Environmental Protection Act, 1999*.

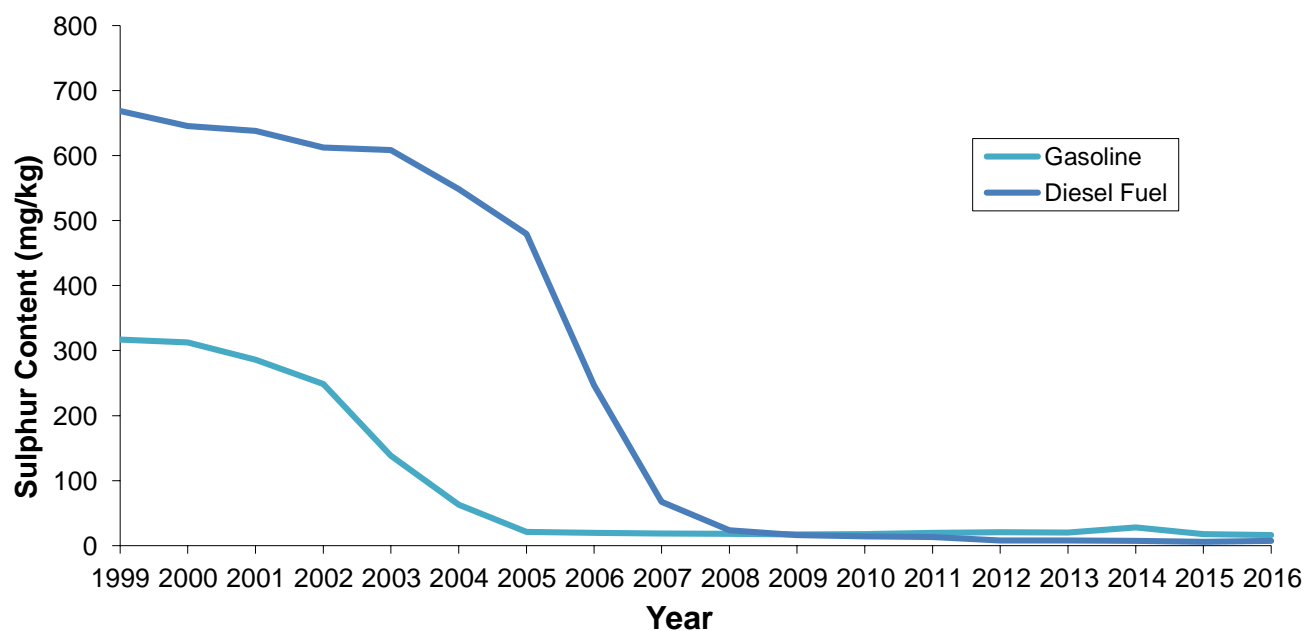


Figure 1.1: National Trends of Sulphur Content 1999-2016 (includes motor and aviation gasoline for all years, and any Blendstock for Oxygenate Blending (BOB) reported for the years 2003-2016)

In 2013, 2014, 2015 and 2016, the national average of sulphur content in gasoline was 20 milligrams per kilogram (mg/kg), 28 mg/kg, 18 mg/kg and 16 mg/kg, respectively, indicating that the national average has decreased from 2013 to 2016. Figure 1.1 shows the trends in the levels of sulphur in gasoline nationally from 1999 to 2016.

In 2013, 2014, 2015, and 2016 the national average sulphur content in diesel fuel (including ultra-low, low and high sulphur diesel) was determined to be 8 mg/kg, 8 mg/kg, 6 mg/kg and 8 mg/kg respectively, indicating that the national average has stayed relatively consistent from 2013 to 2016. Figure 1.1 shows the trend for sulphur content in diesel fuel nationally for the period of 1999 to 2016.

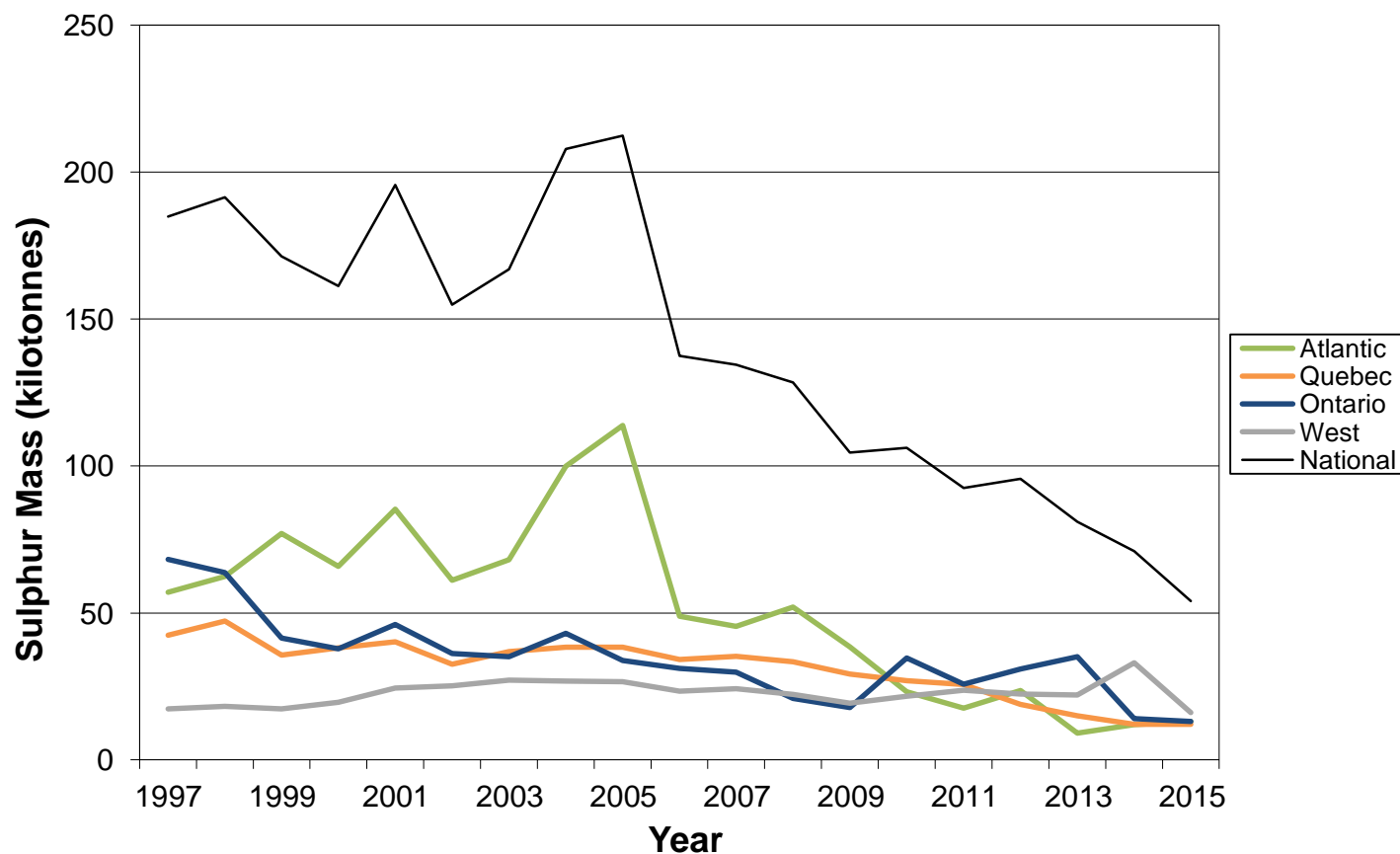


Figure 1.2: Sulphur Mass in Liquid Fuels by Region and Nationally, 1998-2016.

In 2013, the reported mass of sulphur content in all liquid fuels nationally decreased by 15% from 2012 values, as shown in Figure 1.2. In the Atlantic, Quebec and West¹ regions, the sulphur levels decreased by 62%, 20% and 2% respectively, while levels in Ontario increased by 13%. In 2014, the reported mass of sulphur content in all liquid fuels nationally decreased by 12% from 2013 values, as shown in Figure 1.2. In the Quebec and Ontario regions, the sulphur levels decreased by 20% and 60% respectively, while levels in the Atlantic and the West

¹ The territories are included in the West region.

increased by 33% and 50% respectively. In 2015, the reported mass of sulphur content in all liquid fuels nationally decreased by 24% from 2014 values, as shown in Figure 1.2. In the Atlantic region, the sulphur levels increased by 8%, while the sulphur level in Quebec remained the same. In Ontario and the West, the sulphur levels decreased by 7% and 52% respectively. In 2016, the reported mass of sulphur content in all liquid fuels nationally decreased by 33% from 2015 values, as shown in Figure 1.2. In the Atlantic, Quebec and Ontario regions, the sulphur levels decreased by 62%, 50% and 38% respectively, while levels in the West increased by 6%.

In 2013, the largest reported volume of liquid fuel produced in or imported into Canada was motor gasoline², which constituted about 47% of all products by volume and accounted for about 0.7% of the sulphur mass in all liquid fuels. Heavy fuel oil constituted about 5% by volume of the total liquid fuels and contained about 76% of the total sulphur mass in Canada. In 2014, the largest reported volume of liquid fuel produced in or imported into Canada was motor gasoline, which constituted about 49% of all products by volume and accounted for about 0.8% of the sulphur mass in all liquid fuels. Heavy fuel oil constituted about 5% by volume of the total liquid fuels and contained about 75% of the total sulphur mass in Canada. In 2015, the largest reported volume of liquid fuel produced in or imported into Canada was motor gasoline, which constituted about 50% of all products by volume and accounted for about 1.2% of the sulphur mass in all liquid fuels. Heavy fuel oil constituted about 1.7% by volume of the total liquid fuels and contained about 53% of the total sulphur mass in Canada. In 2016, the largest reported volume of liquid fuel produced in or imported into Canada was motor gasoline, which constituted about 55% of all products by volume and accounted for about 2.6% of the sulphur mass in all liquid fuels. Heavy fuel oil constituted about 1.5% by volume of the total liquid fuels and contained about 87% of the total sulphur mass in Canada.

² Motor gasoline includes gasoline used in passenger cars and trucks, motorcycles, outdoor power equipment, recreational marine vessels, and off-road recreational vehicles.

Table 1.1 shows the national summary of data compiled from Form 1, Report on Sulphur Content, which fuel producers and importers are required to submit to Environment and Climate Change Canada under the *Fuels Information Regulations, No. 1* for 2013-2016.

Table 1.1: National Summary of Fuel Production/Imports and Sulphur Content for 2013-2016

Type of Fuel	2013		2014		2015		2016	
	Fuel Production / Imports	Distribution of Sulphur in Products	Fuel Production / Imports	Distribution of Sulphur in Products	Fuel Production / Imports	Distribution of Sulphur in Products	Fuel Production / Imports	Distribution of Sulphur in Products
	(% of total)	(%)	(% of total)	(%)	(% of total)	(%)	(% of total)	(%)
Aviation Turbo Fuel	9.41%	4.27%	5.29%	2.25%	7.95%	4.85%	5.67%	5.72%
Motor Gasoline	46.95%	0.70%	49.26%	0.75%	50.23%	1.23%	54.55%	2.58%
Aviation Gasoline	0.09%	0.00%	0.08%	0.00%	0.00%	0.00%	0.00%	0.00%
Kerosene/Stove oil	0.06%	0.00%	0.38%	0.02%	0.28%	0.01%	0.10%	0.01%
Ultra-Low Sulphur Diesel	35.43%	0.17%	37.27%	0.20%	34.91%	0.34%	36.23%	0.71%
Low-Sulphur Diesel Fuel	0.17%	0.01%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
High-Sulphur Diesel Fuel	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Light Fuel Oil	1.02%	1.15%	0.95%	1.27%	1.84%	1.55%	1.94%	3.49%
Heavy Fuel Oil	5.16%	75.87%	5.27%	75.11%	1.70%	52.65%	1.48%	87.26%
Plant Consumption/Other	1.72%	17.82%	1.51%	20.40%	3.10%	39.37%	0.04%	0.23%
TOTAL	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%

¹ When less than three companies are reporting, the volume is not included to protect confidential information.

² Total volume excludes the volume not included, as per 1 above.

³ In the Type of Fuel category, "Plant Consumption" and "Other" were combined for 2013, 2014, 2015 and 2016. Fuels reported under these categories included pitch, intermediate fuel oils, marine bunker, heavy fuel oil, furnace fuel oil, diesel fuels and unspecified liquid fuels.

⁴ For data relating to the annual volume-weighted sulphur content (in mg/kg) and volumes for gasoline, diesel fuel, fuel oils and jet fuel during the period 1995 to 2016 for each Canadian refinery and importer, visit the Open Data portal <https://open.canada.ca/data/en/dataset/6839cb7a-d2d4-4239-94e8-bf0aa3984a36>.

2. INTRODUCTION

2.1 FUELS INFORMATION REGULATIONS, NO.1

The *Fuels Information Regulations, No. 1* were published in 1977 to provide Environment and Climate Change Canada with information on liquid fuel composition in order to estimate sulphur dioxide (SO₂) emissions from combustion. The Regulations require annual reporting, for all producers in Canada and all importers into Canada of more than 400 cubic metres (m³) of fuel within a calendar year, on sulphur levels in fuels and one-time reporting of information on non-lead fuel additives. Additional reporting is required for fuel additives when there are changes. The Regulations apply to all fuels³ in liquid form that originate from crude oils, coal or bituminous sands. Environment and Climate Change Canada uses the reported values to estimate the mass of sulphur in Canadian fuels.

The Regulations were last amended on June 2, 2017, to enable electronic reporting, update units of measurement and make changes to Form 1 in order to be consistent with the regulatory text, increase clarity, and align both the English and French fuel names with those used in the standards established by the Canadian General Standards Board (CGSB). The full text of the *Fuels Information Regulations, No. 1* is available at the Department of Justice's website at the following link: https://laws-lois.justice.gc.ca/eng/regulations/C.R.C.,_c._407/FullText.html.

³ Throughout this document, the word "fuel(s)" applies only to those fuels which are in liquid form and petroleum-based.

2.2 REGULATIONS AND OTHER MEASURES TO ADDRESS SULPHUR LEVELS IN FUELS

2.2.1 Sulphur in Gasoline Regulations

In 1999, the federal government established regulations limiting the amount of sulphur in gasoline. The *Sulphur in Gasoline Regulations* limit the sulphur content in gasoline produced in or imported into Canada to 40 mg/kg until December 31, 2016, 14 mg/kg as of January 1, 2017 and 12 mg/kg after January 1, 2020. The Regulations also allow an annual average option of 30 mg/kg until December 31, 2016 and 10 mg/kg as of January 1, 2017. As per subsection 2(3) of the *Sulphur in Gasoline Regulations*, the concentration of sulphur in gasoline sold is not to exceed the maximum sales cap of 80 mg/kg.

In 2015, Environment and Climate Change Canada published the *Regulations Amending the Sulphur in Gasoline Regulations* in Canada Gazette, Part II. The Amendments are available for reference at: <http://www.gazette.gc.ca/rp-pr/p2/2015/2015-07-29/html/sor-dors187-eng.html>. The full text of the *Sulphur in Gasoline Regulations* is available at the Department of Justice's website at the following link: <https://laws-lois.justice.gc.ca/eng/regulations/SOR-99-236/FullText.html>

2.2.2 Sulphur in Diesel Fuel Regulations

The *Sulphur in Diesel Fuel Regulations* set maximum limits for sulphur in diesel fuel for use in on-road, off-road, rail (locomotive), vessel, and stationary engines.

In 2012, the *Regulations Amending the Sulphur in Diesel Fuel Regulations* (referred to as “the Amendments”) were published in Canada Gazette, Part II. The Amendments introduced new categories and sulphur limits for diesel fuel produced, imported and sold for use in stationary engines and large (marine) vessels. Refer to Section 2, Table 2.1 for sulphur limits in diesel fuel and effective dates. The Amendments allow large ships to obtain diesel fuel with a maximum sulphur content of 1 000 mg/kg, in order to align with Transport Canada regulations to implement the North American Emission Control Area (ECA) and international standards through the International Maritime Organization. In June 2017, the *Sulphur in Diesel Fuel Regulations* were amended to include minor administrative changes. The full text of the *Sulphur in Diesel Fuel Regulations* is available at the Department of Justice's website at the following link: <https://laws-lois.justice.gc.ca/eng/regulations/SOR-2002-254/FullText.html>.

Table 2.1: Limits on Sulphur in Diesel Fuel and Effective Dates

Diesel fuel for use in:	Regulated Activity	Sulphur Limit (mg/kg)
On-road vehicles	Production, import, sales	15
Off-road engines	Production, import, sales	15
Locomotive/vessel engines ⁴	Production, import	15
Locomotive engines	Sales	500
Vessel engines ⁵	Sales	500 (before May 31, 2014) 15 (after May 31, 2014)
Vessel engines ⁶	Production, import, sales	1 000 (after May 31, 2014)
Small stationary engines	Production, import, sales	15 (after May 31, 2014)
Large stationary engines	Production, import, sales	1 000 (after May 31, 2014)

2.2.3 Canadian General Standards Board

The Canadian General Standards Board (CGSB) sets voluntary commercial standards for fuels to ensure the fuel's suitability for a particular purpose. Some of these standards have been adopted by provincial regulations. The standards for sulphur in fuels vary considerably among the various fuels. CGSB standards are revised periodically to reflect developments in product, usage and manufacturing technology along with federal and provincial regulations.

2.3 PERIOD COVERED

This report covers the four-year period from January 1, 2013 to December 31, 2016.

Under the *Fuels Information Regulations, No. 1*, producers and importers of over 400 m³ of fuel(s) are required to submit information, for each quarter of the calendar year, to Environment and Climate Change Canada on or before January 31 of the following year.

⁴ Locomotive engines or engines used to power vessels, not including engines installed on vessels propelled by a large diesel engine.

⁵ Other than those installed on a vessel propelled by a large diesel engine.

⁶ Vessel engines installed on a vessel propelled by a large diesel engine.

Under the *Sulphur in Diesel Fuel Regulations*, every person who produces or imports diesel fuel is required to submit information on the level of sulphur in diesel. This information is provided on an annual basis for each calendar year during which diesel fuel is produced or imported, within 45 days after the end of that calendar year. The *Sulphur in Gasoline Regulations* require annual reporting on the level of sulphur in gasoline, which must be submitted on or before February 15, and for the sulphur compliance unit trading system, an annual report due on or before April 30. Failure to submit the data on time, incomplete data or unsigned forms are offences under the *Canadian Environmental Protection Act, 1999* (CEPA).

2.4 COMPLIANCE WITH THE REGULATIONS

According to information reported, one primary supplier reported an instance of alleged non-compliance with the prescribed sulphur limits under the *Sulphur in Gasoline Regulations* in 2013.

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 department's 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. Enforcement Branch is responsible for the enforcement of regulations created under the CEPA including the *Fuels Information Regulations, No.1*, the *Sulphur in Gasoline Regulations* and the *Sulphur in Diesel Fuel 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>.

2.5 COMPANY-SPECIFIC SULPHUR LEVELS

ECCC publishes summary data on Open Data (<https://open.canada.ca/data/en/dataset/6839cb7a-d2d4-4239-94e8-bf0aa3984a36>). This presents data on the annual volume-weighted sulphur content (in mg/kg) for gasoline, diesel fuel, fuel oils and jet fuel during the period 1995 to 2016 for each Canadian refinery and

importer.

3. VOLUMES OF LIQUID FUELS PRODUCED/IMPORTED AND FUEL SULPHUR CONTENT

3.1 NATIONAL AND REGIONAL SUMMARIES

The figures and tables in this section summarize the data compiled from reports submitted pursuant to the *Fuels Information Regulations, No. 1* for 2013-2016 on a national and regional level. Nationwide, these regions are defined as: the Pacific and Yukon Region, which includes British Columbia and the Yukon, the Prairie and Northern Region, which includes Alberta, Saskatchewan, Manitoba, the Northwest Territories and Nunavut, the Ontario Region, the Quebec Region, and the Atlantic Region, which includes Newfoundland & Labrador, Nova Scotia, New Brunswick and Prince Edward Island.

Note that for the purpose of this section, the terms “production” and “refiner” include blenders and upgraders reporting under the *Fuels Information Regulations, No. 1*.

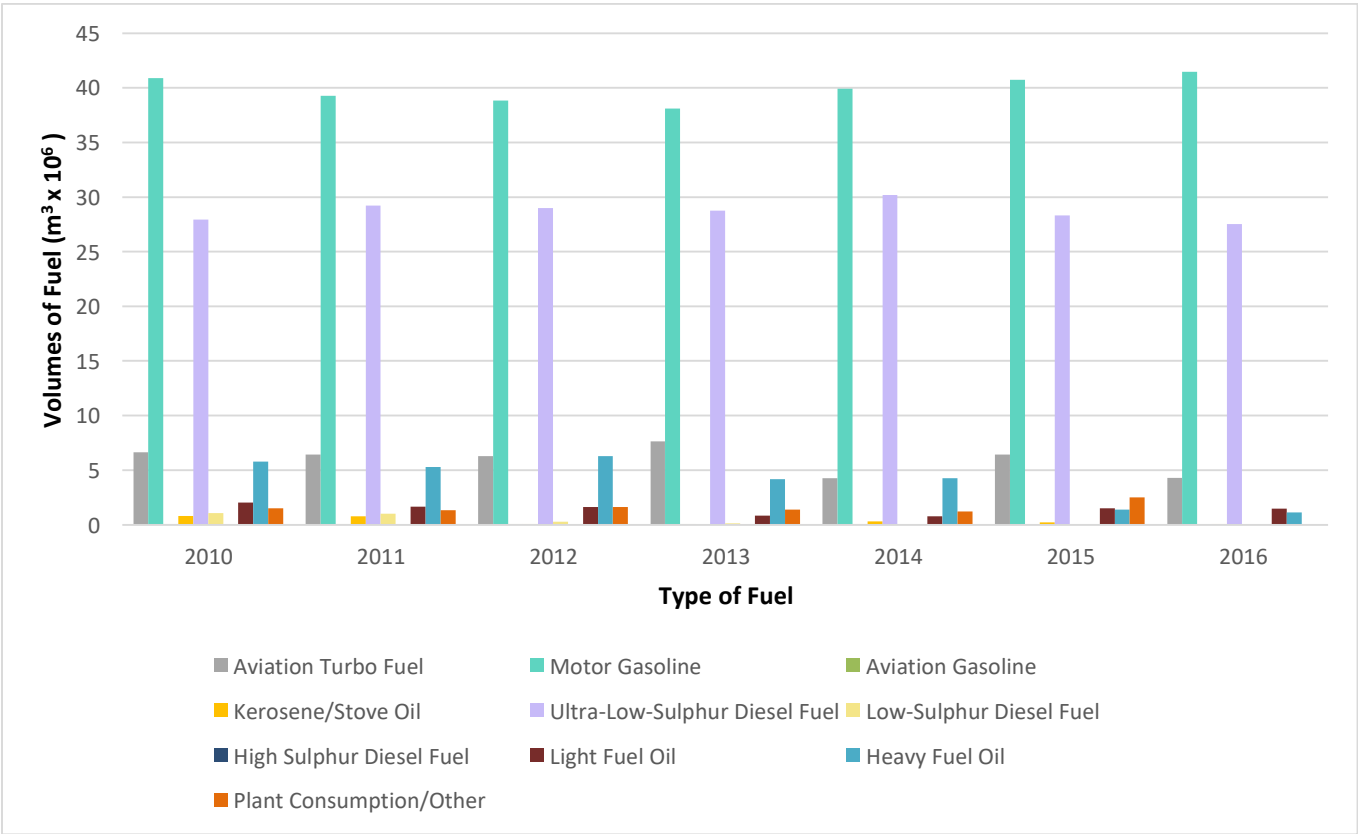


Figure 3.1: National Liquid Fuel Production/Imports in 2010-2016

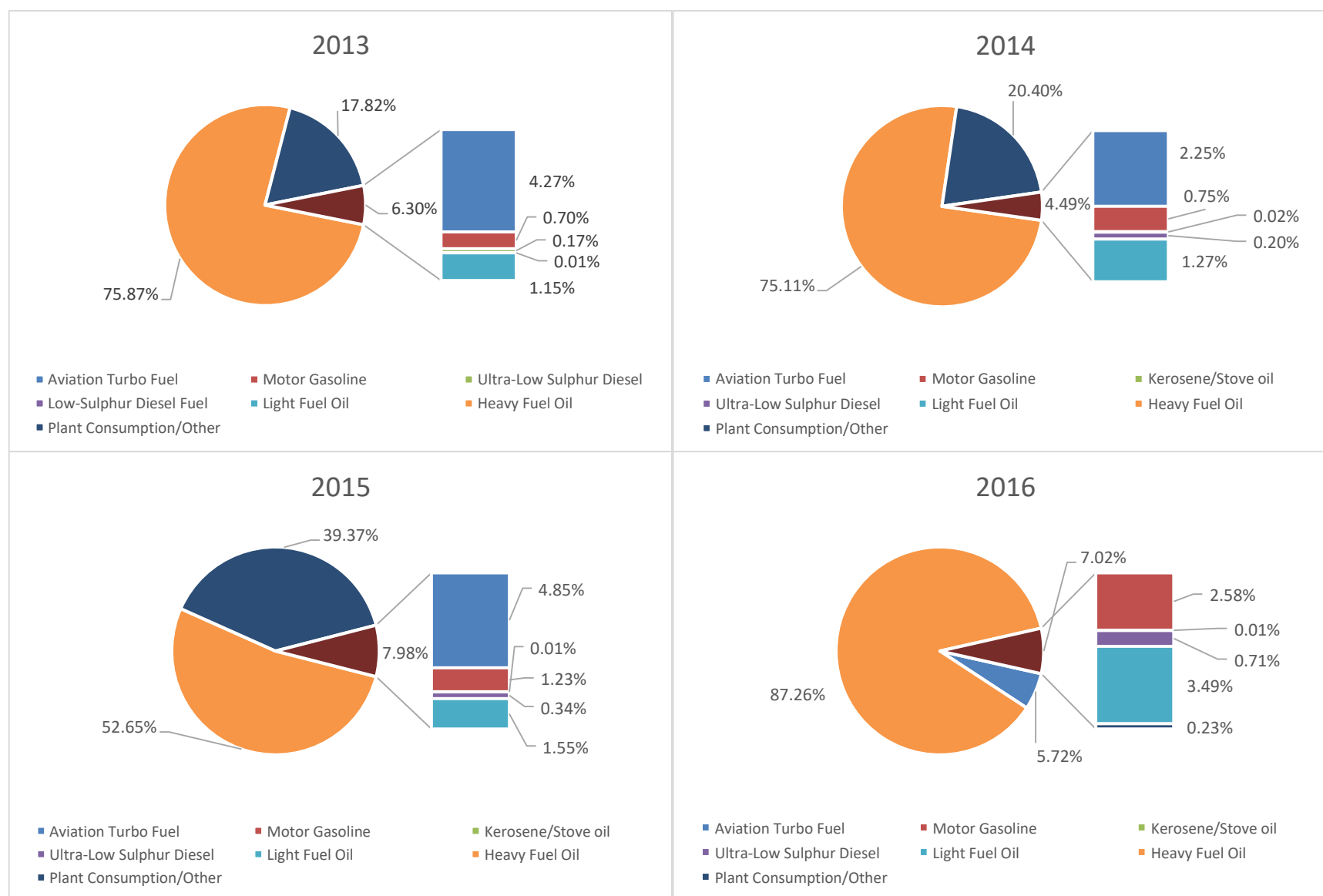


Figure 3.2: Percent Sulphur in Liquid Fuels in 2013-2016

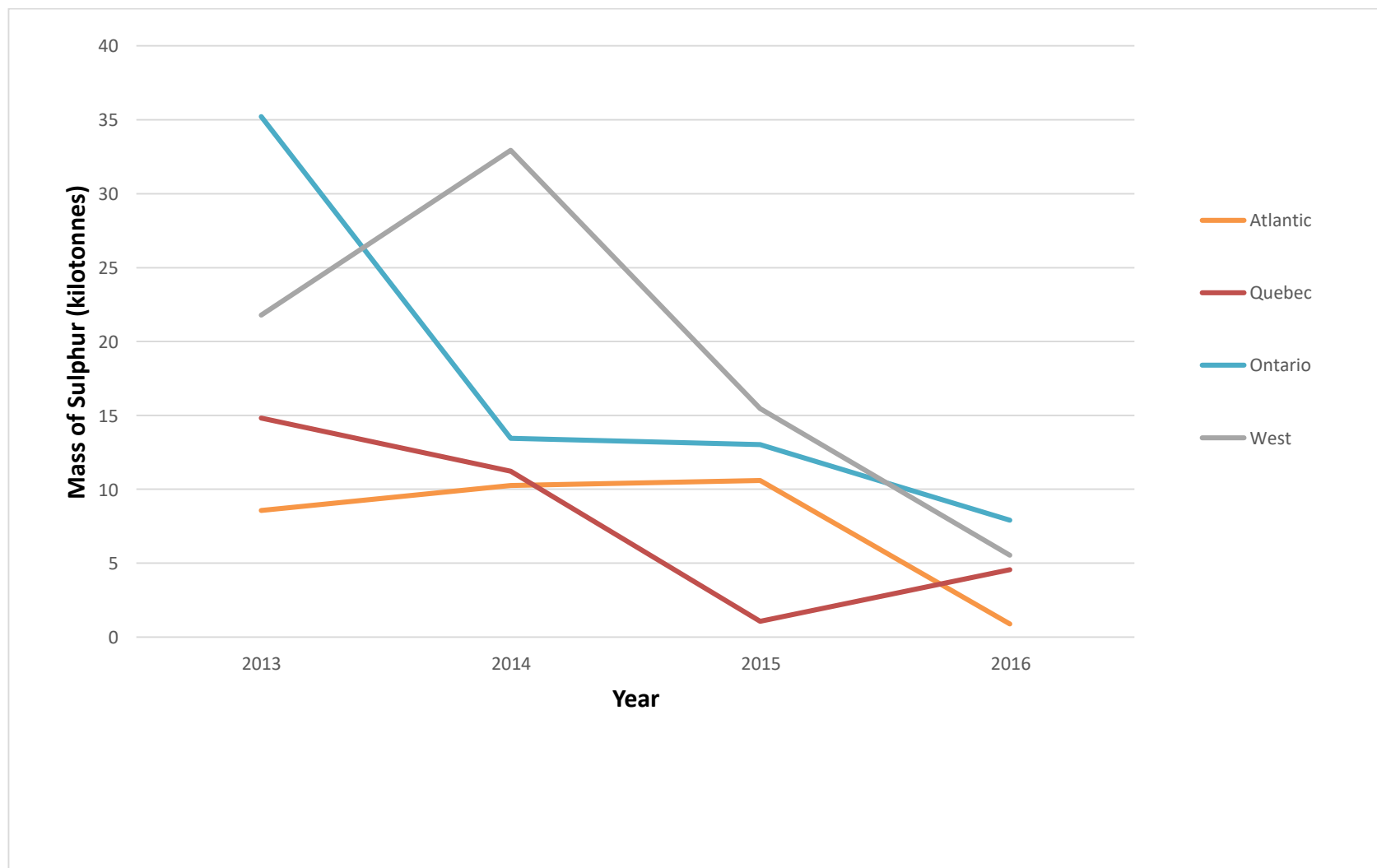


Figure 3.3: Mass of Sulphur in Liquid Fuels Produced/Imported in 2013-2016 by Region

Table 3.1: Atlantic Region Summary of Fuel Production/Imports and Sulphur Content for 2013-2016

Type of Fuel	Atlantic Region							
	2013		2014		2015		2016	
	Fuel Production / Imports	Distribution of Sulphur in Products	Fuel Production / Imports	Distribution of Sulphur in Products	Fuel Production / Imports	Distribution of Sulphur in Products	Fuel Production / Imports	Distribution of Sulphur in Products
	(m ³)	(%)	(m ³)	(%)	(m ³)	(%)	(m ³)	(%)
Aviation Turbo Fuel	438,928	6.27%	419,476	5.04%	440,938	2.56%	374,348	27.57%
Motor Gasoline	2,970,825	0.65%	2,667,082	0.35%	2,846,023	0.29%	3,150,969	4.10%
Aviation Gasoline	0	0.00%	N/A ¹	N/A	0	0.00%	0	0.00%
Kerosene/Stove oil	N/A ¹	N/A	0	0.00%	N/A ¹	N/A	N/A ¹	N/A
Ultra-Low Sulphur Diesel	2,326,166	0.18%	2,479,481	0.11%	2,310,376	0.12%	2,372,120	1.33%
Low-Sulphur Diesel Fuel	0	0.00%	0	0.00%	0	0.00%	0	0.00%
High-Sulphur Diesel Fuel	0	0.00%	0	0.00%	0	0.00%	0	0.00%
Light Fuel Oil	809,455	10.45%	706,928	7.07%	668,372	4.79%	678,019	67.00%
Heavy Fuel Oil	570,685	56.95%	703,972	87.42%	735,227	92.24%	N/A ¹	N/A
Plant Consumption/Other	336,287	25.51%	N/A ¹	N/A	N/A ¹	N/A	N/A ¹	N/A
TOTAL	7,452,346²	100.00%	6,976,939²	100.00%	7,000,936²	100.00%	6,575,456²	100.00%

¹ When less than three companies are reporting, the volume is not included to protect confidential information.

² Total volume excludes the volume not included, as per 1 above.

³ Totals may not add up due to rounding.

⁴ In the Type of Fuel category, "Plant Consumption" and "Other" were combined for 2013, 2014, 2015 and 2016. Fuels reported under these categories included pitch, intermediate fuel oils, marine bunker, heavy fuel oil, furnace fuel oil, diesel fuels and unspecified liquid fuels.

⁵ For data relating to the annual volume-weighted sulphur content (in mg/kg) and volumes for gasoline, diesel fuel, fuel oils and jet fuel during the period 1995 to 2016 for each Canadian refinery and importer, visit the Open Data portal <https://open.canada.ca/data/en/dataset/6839cb7a-d2d4-4239-94e8-bf0aa3984a36>.

Table 3.2: Québec Region Summary of Fuel Production/Imports and Sulphur Content for 2013-2016

Type of Fuel	Quebec Region							
	2013		2014		2015		2016	
	Fuel Production / Imports	Distribution of Sulphur in Products	Fuel Production / Imports	Distribution of Sulphur in Products	Fuel Production / Imports	Distribution of Sulphur in Products	Fuel Production / Imports	Distribution of Sulphur in Products
	(m³)	(%)	(m³)	(%)	(m³)	(%)	(m³)	(%)
Aviation Turbo Fuel	2,058,215	5.24%	N/A ¹	N/A	2,050,928	76.13%	N/A ¹	N/A
Motor Gasoline	12,345,844	1.27%	13,040,528	1.43%	13,297,283	14.10%	13,856,607	3.05%
Aviation Gasoline	0	0.00%	0	0.00%	0	0.00%	0	0.00%
Kerosene/Stove oil	45,344	0.00%	65,734	0.05%	N/A ¹	N/A	N/A ¹	N/A
Ultra-Low Sulphur Diesel	6,719,489	0.26%	7,198,730	0.30%	7,016,486	3.20%	6,996,695	0.85%
Low-Sulphur Diesel Fuel	0	0.00%	N/A ¹	N/A	0	0.00%	N/A ¹	N/A
High-Sulphur Diesel Fuel	0	0.00%	0	0.00%	0	0.00%	0	0.00%
Light Fuel Oil	N/A ¹	N/A	N/A ¹	N/A	796,921	6.58%	700,467	0.50%
Heavy Fuel Oil	1,469,427	93.24%	1,409,143	98.22%	N/A ¹	N/A	422,870	95.60%
Plant Consumption/Other	0	0.00%	0	0.00%	N/A ¹	N/A	N/A ¹	N/A
TOTAL	22,638,319²	100.00%	21,714,135²	100.00%	23,161,618²	100.00%	21,976,639²	100.00%

¹ When less than three companies are reporting, the volume is not included to protect confidential information.

² Total volume excludes the volume not included, as per 1 above.

³ Totals may not add up due to rounding

⁴ In the Type of Fuel category, "Plant Consumption" and "Other" were combined for 2013, 2014, 2015 and 2016. Fuels reported under these categories included pitch, intermediate fuel oils, marine bunker, heavy fuel oil, furnace fuel oil, diesel fuels and unspecified liquid fuels.

⁵ For data relating to the annual volume-weighted sulphur content (in mg/kg) and volumes for gasoline, diesel fuel, fuel oils and jet fuel during the period 1995 to 2016 for each Canadian refinery and importer, visit the Open Data portal <https://open.canada.ca/data/en/dataset/6839cb7a-d2d4-4239-94e8-bf0aa3984a36>.

Table 3.3: Ontario Region Summary of Fuel Production/Imports and Sulphur Content for 2013-2016

Type of Fuel	Ontario Region							
	2013		2014		2015		2016	
	Fuel Production / Imports	Distribution of Sulphur in Products	Fuel Production / Imports	Distribution of Sulphur in Products	Fuel Production / Imports	Distribution of Sulphur in Products	Fuel Production / Imports	Distribution of Sulphur in Products
	(m³)	(%)	(m³)	(%)	(m³)	(%)	(m³)	(%)
Aviation Turbo Fuel	1,660,828	1.63%	1,749,983	4.36%	1,739,200	3.84%	1,819,245	6.57%
Motor Gasoline	9,909,724	0.45%	10,016,261	1.22%	10,122,014	0.97%	9,834,385	1.70%
Aviation Gasoline	0	0.00%	0	0.00%	0	0.00%	0	0.00%
Kerosene/Stove oil	N/A ¹	N/A	0	0.00%	N/A ¹	N/A	N/A ¹	N/A
Ultra-Low Sulphur Diesel	5,179,831	0.09%	5,382,012	0.25%	5,504,427	0.27%	4,887,578	0.38%
Low-Sulphur Diesel Fuel	N/A ¹	N/A	N/A ¹	N/A	N/A ¹	N/A	N/A ¹	N/A
High-Sulphur Diesel Fuel	0	0.00%	0	0.00%	0	0.00%	0	0.00%
Light Fuel Oil	N/A ¹	N/A	N/A ¹	N/A	0	0.00%	0	0.00%
Heavy Fuel Oil	1,577,634	93.27%	611,364	80.79%	382,419	57.53%	364,552	90.81%
Plant Consumption/Other	97,848	4.56%	210,685	13.38%	240,717	37.40%	27,233	0.54%
TOTAL	18,425,865²	100.00%	17,970,305²	100.00%	17,988,777²	100.00%	16,932,993²	100.00%

¹ When less than three companies are reporting, the volume is not included to protect confidential information.

² Total volume excludes the volume not included, as per 1 above.

³ Totals may not add up due to rounding.

⁴ In the Type of Fuel category, "Plant Consumption" and "Other" were combined for 2013, 2014, 2015 and 2016. Fuels reported under these categories included pitch, intermediate fuel oils, marine bunker, heavy fuel oil, furnace fuel oil, diesel fuels and unspecified liquid fuels.

⁵ For data relating to the annual volume-weighted sulphur content (in mg/kg) and volumes for gasoline, diesel fuel, fuel oils and jet fuel during the period 1995 to 2016 for each Canadian refinery and importer, visit the Open Data portal <https://open.canada.ca/data/en/dataset/6839cb7a-d2d4-4239-94e8-bf0aa3984a36>.

Table 3.4: Western Region Summary Fuel Production/Imports and Sulphur Content for 2013-2016

Type of Fuel	Western Region							
	2013		2014		2015		2016	
	Fuel Production / Imports	Distribution of Sulphur in Products	Fuel Production / Imports	Distribution of Sulphur in Products	Fuel Production / Imports	Distribution of Sulphur in Products	Fuel Production / Imports	Distribution of Sulphur in Products
	(m³)	(%)	(m³)	(%)	(m³)	(%)	(m³)	(%)
Aviation Turbo Fuel	3,478,915	7.11%	2,113,718	1.29%	2,212,520	2.36%	2,111,554	5.65%
Motor Gasoline	12,878,288	0.73%	14,181,805	0.45%	14,470,695	1.22%	14,607,006	3.22%
Aviation Gasoline	74,452	0.00%	64,011	0.00%	N/A ¹	N/A	N/A ¹	N/A
Kerosene/Stove oil	N/A ¹	N/A	238,551	0.02%	227,155	0.03%	74,657	0.04%
Ultra-Low Sulphur Diesel	14,530,103	0.25%	15,135,841	0.17%	13,480,154	0.36%	13,269,107	0.94%
Low-Sulphur Diesel Fuel	136,817	0.03%	N/A ¹	N/A	0	0.00%	N/A ¹	N/A
High-Sulphur Diesel Fuel	N/A ¹	N/A	N/A ¹	N/A	N/A ¹	N/A	N/A ¹	N/A
Light Fuel Oil	18,612	0.15%	60,164	0.42%	26,411	0.28%	93,975	0.58%
Heavy Fuel Oil	573,273	43.36%	1,548,886	61.09%	257,488	25.04%	335,448	89.58%
Plant Consumption/Other	960,134	48.38%	1,012,725	36.57%	2,269,191	70.71%	N/A ¹	N/A
TOTAL	32,650,594²	100.00%	34,355,701²	100.00%	32,943,614²	100.00%	30,491,747²	100.00%

¹ When less than three companies are reporting, the volume is not included to protect confidential information.

² Total volume excludes the volume not included, as per 1 above.

³ Totals may not add up due to rounding

⁴ In the Type of Fuel category, "Plant Consumption" and "Other" were combined for 2013, 2014, 2015 and 2016. Fuels reported under these categories included pitch, intermediate fuel oils, marine bunker, heavy fuel oil, furnace fuel oil, diesel fuels and unspecified liquid fuels.

⁵ For data relating to the annual volume-weighted sulphur content (in mg/kg) and volumes for gasoline, diesel fuel, fuel oils and jet fuel during the period 1995 to 2016 for each Canadian refinery and importer, visit the Open Data portal <https://open.canada.ca/data/en/dataset/6839cb7a-d2d4-4239-94e8-bf0aa3984a36>.

4. CONCLUSION

This report summarizes the data on the sulphur content in liquid fuels originating from crude oils, coal or bituminous sand for 2013-2016. The information was provided to Environment and Climate Change Canada by producers and importers of liquid fuels pursuant to the federal *Fuels Information Regulations, No. 1* under the CEPA. The reports received by Environment and Climate Change Canada contained a significant number of errors, and extensive work was required to verify the data. When data gaps were present, information was taken from data submitted pursuant to the *Sulphur in Diesel Fuel Regulations* and the *Sulphur in Gasoline Regulations*. As such, the preceding analysis was performed on the data as reported, and all aspects of it are subject to change. One primary supplier reported an instance of alleged non-compliance with the prescribed sulphur limits under the *Sulphur in Gasoline Regulations* in 2013.

Appendix A: Canadian General Standards Board Standards for Sulphur Content in Fuels

Specification Number	Fuel Category	Maximum Sulphur Content (mg/kg)
CAN/CGSB-3.5-2016 (Amend. No. 1 Jan. 2017)	Gasoline Unleaded, Automotive	80
CAN/CGSB-3.511-2016 (Amend. No. 1 Jul. 2018)	Oxygenated Unleaded Automotive (containing Ethanol) (E1-E10)	80
CAN/CGSB-3.512-2018	Automotive Ethanol Fuel (E50-E85 and E20-E25)	80
CAN/CGSB-3.23-2018 CAN/CGSB-3.22-2012 (R Sep. 2017) CAN/CGSB-3.24-2018	Aviation Turbine Fuel Kerosene Type (Jet A, Jet A-1)	3 000
	Wide Cut Type (Jet B)	3 000
	Military Grades (F-34, F-37 and F-44)	3 000
CAN/CGSB-3.3-2014 (COR Mar. 2014)	Kerosene Type No. 1-K	400
	Type No. 2-K	3 000
CAN/CGSB 3.6-2010 (withdrawn Feb 2016)	Diesel Fuel Off-Road Diesel Fuel	Withdrawn
CAN/CGSB-3.517-2017	Diesel Fuel	15
CAN/CGSB-3.18-2010 (R May 2016)	Diesel Fuel for Locomotive-Type Medium-Speed Diesel Engines	500
CAN/CGSB-3.520-2017	Automotive Diesel Fuel Containing Low Levels of Biodiesel Esters (B1–B5)	15
CAN/CGSB-3.522-2017	Diesel Fuel containing Biodiesel (B6-B20)-Type B	15
CAN/CGSB-3.16-99 (withdrawn Jun 2013)	Mining Diesel Fuel	Withdrawn
CAN/CGSB-3.2-2017	Heating Fuel Oil Type 0 Type 1 Type 2 Type 4	3 000 3 000 5 000 No limit
	Type 5 Type 6	No limit No limit
CAN/CGSB-3.11-2017	Naval Distillate Fuel	15
CAN/CGSB-3.27-2018	Naphtha Fuel	5