The use of renewable and low carbon fuel in 2012 resulted in the avoidance of 904,868 Tonnes of CO_2e greenhouse gas emissions into the environment, the equivalent of about 190,499 cars being removed from the road.

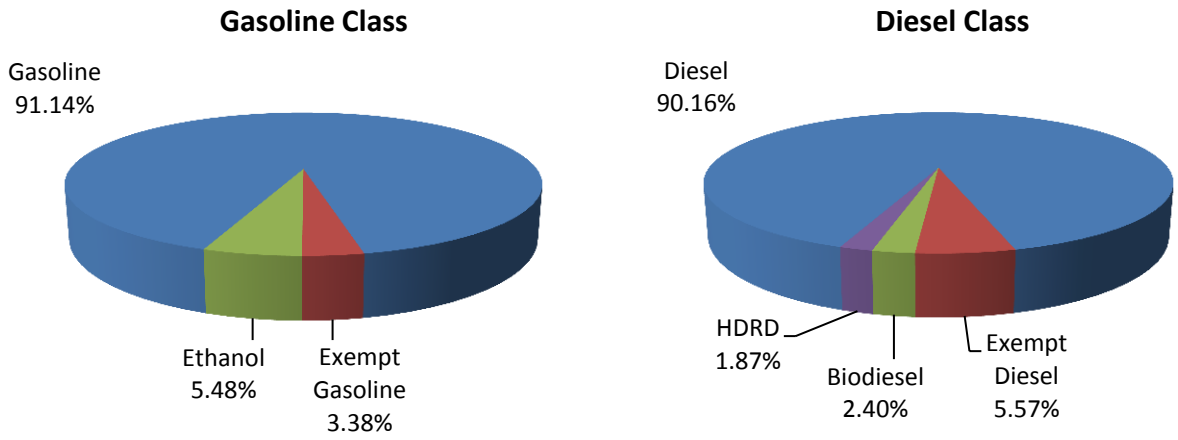
This summary highlights benefits achieved in 2012 under the *Greenhouse Gas Reduction (Renewable and Low Carbon Fuel Requirements)* Act (the Act) and the Renewable and Low Carbon Fuel Requirements Regulation (the Regulation).

In 2012, all fuel suppliers were in compliance with the Regulation.

The Act has two parts that reduce the greenhouse gas emissions from fuel: Part 2 sets requirements for renewable content; Part 3 requires greenhouse gas emission intensity reductions. For 2012 the Part 2 fuels compliance period was 12 months, ending December 31, 2012, while the Part 3 fuels compliance period was 18 months, ending June 30, 2013. Part 3 quantities reported for 2012 are calculated as 2/3 of the values reported for the Part 3 compliance period.

Part 2: Renewable Fuel

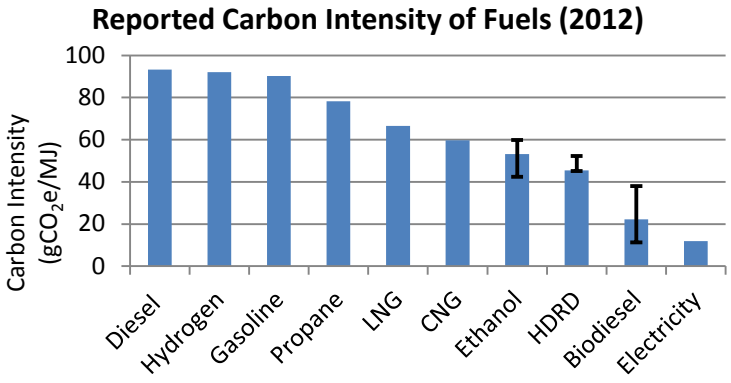
Part 2 of the Act requires fuel suppliers to include renewable content in the gasoline and diesel pools. In 2012, suppliers were required to include five percent renewable content in the gasoline pool, and four percent renewable content in the diesel pool. The renewable fuel requirements apply to fuel that is used for transportation or heating. Companies who supplied less than a total of 75 million litres of gasoline and diesel class fuels in 2012 were exempt from the Regulation, and accounted for less than five percent of all of the fuel supplied.



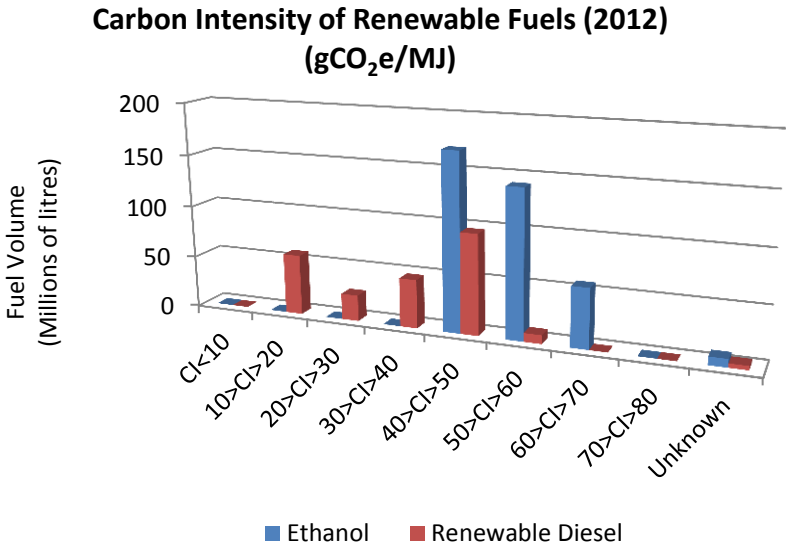
Part 3: Carbon Intensity

Part 3 of the Act requires fuel suppliers to reduce greenhouse gases by reducing the carbon intensity of the fuel mix that they supply. This provides a strong incentive to supply fuels with low carbon intensity.

Renewable and low carbon fuels have a range of carbon intensities. The blue bars in this chart illustrate the weighted average carbon intensity for all fuels supplied in British Columbia in 2012. The black bars show the range of carbon intensities reported for ethanol, biodiesel and HDRD.



In 2012, while there was no requirement to achieve any specific carbon intensity, fuel suppliers were required to report the quantities and carbon intensities of the fuels they supplied. The chart below illustrates the amount of fuel supplied in a number of ranges of carbon intensity. The volume of fuel supplied in each range will vary as fuel suppliers develop strategies to comply with the Regulation.



Tonnes of CO_2e Emissions Avoided

As of July 1, 2013 the Act requires that credits or debits be calculated using the equation:

Credit (or Debit) = (CI class x EER fuel –CI of fuel) x EC fuel /1,000,000

Where:

Credit (or Debit) = the number of credits generated, if the number is positive, or the number of debits incurred, if the number is negative, for the compliance period.

CI class = the prescribed carbon intensity limit for the compliance period for the class of fuel of which the fuel is a part.

EER fuel = the prescribed energy effectiveness ration for that fuel in that class of fuel.

CI fuel = the carbon intensity of the fuel.

EC fuel = the energy content of the fuel calculated in accordance with the regulations.

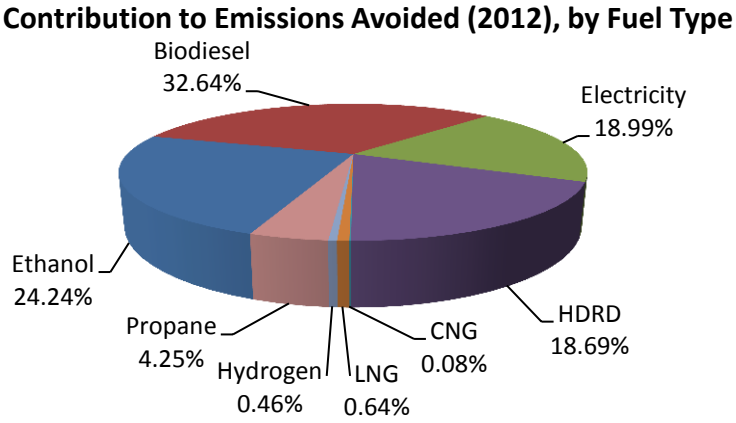
For consistency with the requirements that came into force on July 1, 2013, the quantity of greenhouse gases avoided through implementation of the low carbon fuel requirements is calculated using the initial gasoline class carbon intensity of 90.21 gCO_2e/MJ and the initial diesel class carbon intensity of 93.33 gCO_2e/MJ.

Fuel	Quantity	Average Reported Carbon Intensity (gCO_2e/MJ)	Greenhouse Gases Avoided (Tonnes)
Gasoline	4,068,725,682 litres	90.21	
Ethanol	250,766,877 litres	53.11	219,375
CNG	642,969 m^3	59.74	750
Propane	126,014,695 litres	78.29	38,439
Diesel	3,372,484,672 litres	93.33	
Biodiesel	89,110,336 litres	22.26	295,387
HDRD	69,579,348 litres	45.42	169,126
Hydrogen	282,251 Kg	92.06	4,152
Electricity	178,076,452 KWh	11.94	171,840
LNG	2,413,025 Kg	66.54	5,799

* The 2012 quantities are 2/3 of 2012/13 quantities for Part 3 fuels

The use of renewable fuel resulted in the avoidance of 683,888 Tonnes of CO_2 equivalent greenhouse gases. The use of other low carbon fuels resulted in the avoidance of another 220,980 Tonnes, for a total of 904,868 Tonnes of CO_2 equivalent greenhouse gases avoided through the use of low carbon fuels.

The primary consumer of electricity for transportation was TransLink for use in trolley buses and SkyTrain for use in the Vancouver LRT system. Hydrogen was supplied from Quebec to power twenty fuel cell buses operating in Whistler.



Summary

Emissions Avoided

In 2012, the quantity of greenhouse gases avoided decreased compared to 2011. In 2012, there was a decrease in gasoline and diesel supplied in B.C.; consequently, there was a decrease in ethanol and biodiesel supplied in B.C. which are major contributors to avoided greenhouse gases. While, there are increases in other low carbon fuels the greenhouse gases avoided from those fuels are not enough to offset the decrease. Thus, this decrease in avoided emissions can be attributed to a decrease in the volume of both renewable and low carbon fuels supplied in B.C.

Fuel Reported	Greenhouse Gases Avoided (Tonnes)		
	2010	2011	2012
Ethanol	192,107	235,617	219,375
CNG	5,068	5,615	750
Propane	*	40,704	38,439
Biodiesel	176,249	315,824	295,387
HDRD	50,564	155,314	169,126
Hydrogen	1,861	3,816	4,152
Electricity	132,810	162,839	171,840
LNG	not supplied	372	5,799
Total	558,659	920,101	904,868

*Propane was under-reported in 2010
** The 2012 quantities are 2/3 of 2012/13 quantities for Part 3.

Energy Use

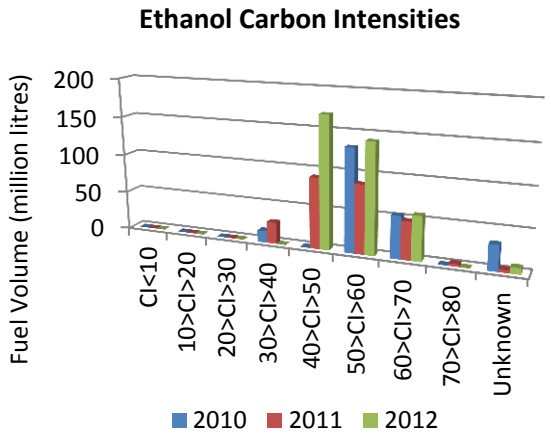
Total energy use of gasoline class fuels decreased 7% from 2011 to 2012 for a total of 151 Petajoules (PJ). Total energy use of diesel class fuels decreased 2% from 2011 to 2012, for a total of 138 PJ.

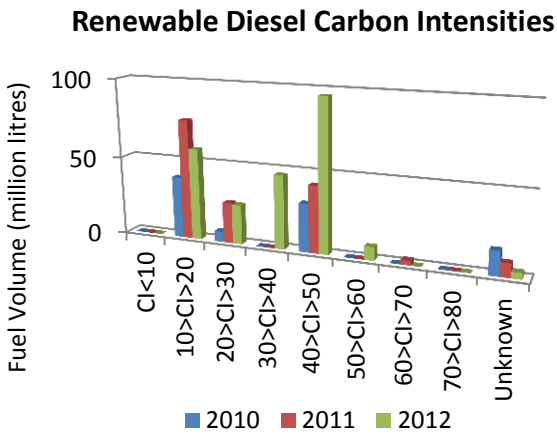
Fuel Reported	Units (millions)	Quantity		
		2010	2011	2012**
Gasoline	litres	4,459	4,311	4,069
Ethanol	litres	235	263	251
Diesel	litres	2,977	3,411	3,372
Biodiesel	litres	61	96	89
HDRD	litres	31	59	70
LNG	Kg	0	0.16	2.4
Electricity	KWh	167	169	178
Hydrogen	Kg	0.18	0.26	0.28
CNG	m^3	4.35	4.82	0.64
Propane	litres	*	133	126

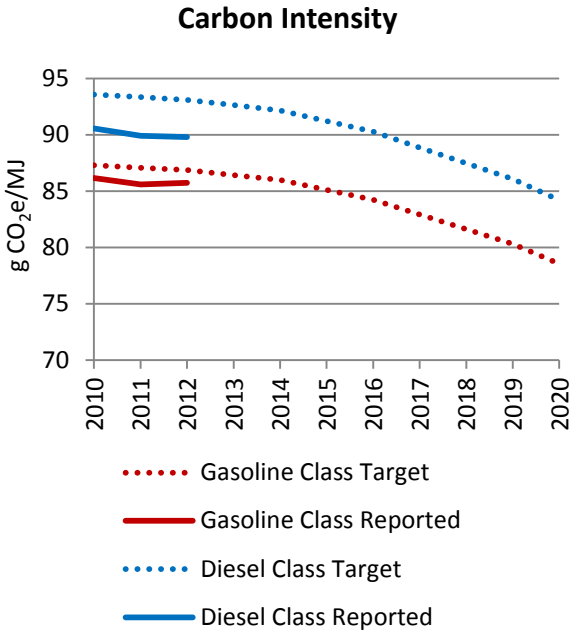
*Propane was under-reported in 2010.
** The 2012 quantities are 2/3 of 2012/13 quantities for Part 3.

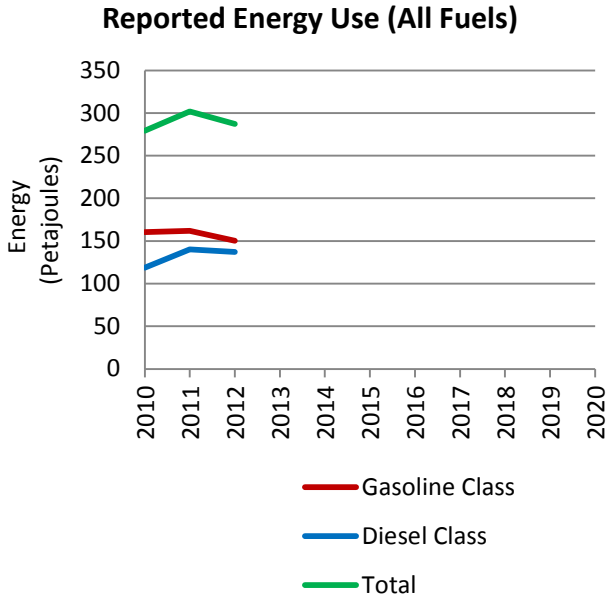
Renewable fuel carbon intensity

In 2012, the majority of the fuel supplied in both the ethanol and renewable diesel classes had a carbon intensity between 40 and 50 g CO_2e/MJ.









The Regulation has now been in place for three years. Because of the renewable volume requirements, suppliers have been able to over-comply with the targeted reductions despite being required only to report the carbon intensity of the fuels. The compliance period from July 1, 2013 to December 31, 2014 will be the first period in which suppliers will be required to reduce the carbon intensity of the fuel supplied, and it is expected that all suppliers will be able to comply.

If you have any questions regarding the Regulation, please contact us at lcfrr@gov.bc.ca.

For more information, check the Renewable and Low Carbon Fuel website at http://www.empr.gov.bc.ca/RET/RLCFRR/Pages/default.aspx.

The *Greenhouse Gas Reduction (Renewable and Low Carbon Fuel Requirements) Act* and the Renewable and Low Carbon Fuel Requirements Regulation can be found on the internet at: http://www.bclaws.ca.