
Cleaner Gasoline Regulation Amendment Intentions Paper

August 10, 2009

1. Introduction

The Ministry of Environment intends to amend the Cleaner Gasoline Regulation (CGR) to address issues related to the distribution and wholesale purchase of ethanol blended fuel in British Columbia (BC).

The CGR was established under the *Environmental Management Act* (EMA), which allows regulations to be made to protect human health and the environment, including those for the “purpose of preventing and reducing emissions from fuels and their combustion, including prescribing standards and specifications of fuels, providing for their testing and certification and specifying the quantities for and areas in BC where fuels must be made available.”¹

When enacted in 1995 the CGR included standards for benzene, sulphur, olefins, and total aromatics; set limits for vapour pressure; included deposit control requirements; and contained record keeping and reporting provisions. Subsequently the federal government enacted fuel standards and BC has amended the CGR to remove overlapping requirements. In its current form, the CGR requires that fuels distributed for sale in BC meet one of two standards set by the Canada General Standards Board, sets limits on vapour pressure levels and contains record keeping requirements.

The process for amending this regulation consists of five stages:

1. **Scoping** – reviewing existing ethanol fuel regulations, waivers, and standards in other jurisdictions.
2. **Ministry Intentions Paper for Consultation** – outlining the Ministry’s intentions for drafting of the regulation.
3. **Consultation** – hearing from affected stakeholders and the general public, using the intentions paper and response form posted on the Ministry website, and other means as required.

4. **Drafting** – preparing legal language for consideration by the Minister and Lieutenant Governor-in-Council.
5. **Implementation** – informing government staff and external stakeholders of the regulatory requirements, and enabling effective regulatory compliance and enforcement.

The purpose of this document is to inform stakeholders of the Ministry’s intention to amend the Cleaner Gasoline Regulation and to provide related background information. Issues currently under consideration are also presented, with the final section describing the consultation process for seeking and considering feedback from stakeholders, First Nations and the general public.

This intentions paper and accompanying response form can be accessed on the internet at:

<http://www.env.gov.bc.ca/epd/main/ip-list.htm>

2. Ministry and Government Goals

The Ministry of Environment provides leadership in environmental management through innovative legislation and programs, compliance activities and shared stewardship initiatives. The Ministry’s mandate is to protect public health and safety, and maintain and restore the diversity of native species, ecosystems and habitats. The Ministry is working to support the government’s goals – to lead the world in sustainable management, with the best air and water quality, and the best fisheries management, bar none; to lead the way in North America in healthy living and physical fitness; and to create more jobs per capita than anywhere else in Canada.

The development and enactment of the EMA and its associated regulations facilitates implementation of results-based regulations that provide clear roles for governments and stakeholders, consistent performance standards, updated fee structures, decreased remedial and legal costs, and a greater focus on those not in compliance with regulatory requirements.

¹ EMA Chapter 53 Part 6 – Clean Air Provisions; http://www.bclaws.ca/Recon/document/freeside/--%20E%20--/Environmental%20Management%20Act%20%20SBC%202003%20%20c.%2053/00_Act/03053_06.xml#section73

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3. Background Information

i. Main Requirements of the CGR

The CGR applies to all primary distributors and wholesale purchasers of gasoline in BC.

Past requirements of the regulation included standards for toxins such as benzene and sulphur. Since the original regulation was enacted in 1995, Environment Canada has enacted regulations for benzene and sulphur in gasoline. The current BC regulation includes reference to these federal regulations and will continue to do so.

The regulation includes requirements related to deposit control additives, and record keeping. Primary distributors and wholesale purchasers are required to maintain records of testing parameters, represented quantities of gasoline, and dates of the testing, as well as information related to the source of gasoline imports, volume of components blended and deposit control additives. The director may also require additional testing and record certification. These requirements will not be affected by the proposed amendment.

The regulation includes a waiver (relaxation of the standards) to allow ethanol-blended gasoline in the Lower Fraser Valley (LFV) to exceed the prescribed vapour pressure limits (known as Reid Vapour Pressure or RVP) by 7 kilopascals (kPa) in the summer months (Table 1). The phase out of the waiver is one of the proposed amendments to the CGR.

Table 1. Current RVP limits for the Lower Fraser Valley

Time period	RVP (kPa)	RVP with waiver (kPa)
November 1 st – March 31 st	107	107
April 1 st – April 15 th and October 1 st to October 31 st	97	97
April 16 th – May 31 st and September 1 st to September 15 th	72	79
June 1 st – July 15 th and August 15 th to August 31 st	62	69
July 16 th – August 14 th	55	62
September 16 th – September 30 th	86	86

The regulation also requires primary distributors to ensure that gasoline for sale in BC complies with one of the two gasoline standards promulgated by the Canadian General Standards Board (CAN/CGSB – 3.5 – 2004 Standard for Unleaded Automotive Gasoline; or CAN/CGSB – 3.511 – 2005 Standard for Oxygenated Unleaded Automotive Gasoline Containing Ethanol).

The Canadian General Standards Board (CGSB) standard 3.511 states that ethanol content cannot exceed 10% by volume. This would make the possession of E85 (a blend of 50-85% ethanol and 50-15% gasoline) for sale in BC prohibited, and therefore the reference to the CGSB standards is also being considered for amendment.

ii. BC Renewable Fuel Requirements Regulation (RFRR)

When the RFRR comes into full force in January, 2010, there will be an increase in blending of ethanol to meet the new RFRR requirements, which mandates a minimum 5% average renewable fuel content for fuel supplied in BC. It is widely accepted that GHG emissions resulting from the production, delivery, and consumption of grain-based ethanol fuels are less than those from fossil fuels.

4. Technical Discussion Issues

i. Effects on RVP from Blending Ethanol

One of the issues with blending ethanol with gasoline is the effect on vapour pressure. The RVP of ethanol is much lower than the RVP of gasoline. However, blending ethanol into gasoline forms a non-ideal solution that does not follow linear blending relationships. Rather than lowering the vapour pressure, lower concentrations of ethanol can cause an increase in RVP.

Higher RVP, particularly during hot weather, can release more VOCs into the atmosphere, combining with other gases to form ground level ozone and to a lesser extent fine particulate matter². Exposure to ozone and fine particulate matter results in an increased

² <http://www.ec.gc.ca/soer-ree/English/headlines/ind3.cfm>

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risk of cardiovascular and respiratory illness. Studies have linked long-term exposure to current levels of air pollution in BC to various diseases and premature death. Exposure to VOCs from gasoline vapours can result in immediate health effects such as dizziness, nausea, headaches and can irritate the eyes, nose and throat³.

Fine particulate matter can also impair visibility. A study undertaken by Environment Canada in 1999 indicated that a single poor visibility episode in the LFV was estimated to cost \$9 million in future tourist revenues⁴.

The existing regulation has allowed retailers blending ethanol in gasoline in the LFV between April 16th and September 15th to exceed the RVP limit in the CGSB standard for unleaded automotive gasoline (CAN/CGSB-3.5) by 7kPa if certain conditions are met. This waiver was granted on the assumption that because of the limited amount of retailers blending ethanol in BC, the required Blendstock for Oxygenate Blending (BOB) with a lower RVP was not available.

Continuing to allow the retailers blending ethanol in gasoline to exceed the RVP limits (when the BC Renewable Fuels Requirements Regulation comes into full force) may have a negative effect on air quality due to the greater amount of ethanol that will be blended with gasoline. Due to the growing practice of blending ethanol in gasoline, this is a common air quality management issue in North American cities.

ii. Intergovernmental Working Group

In anticipation of the coming into force of the Renewable Fuel Requirements Regulation in January 2010, an intergovernmental working group comprised of federal, provincial, and regional staff examined the potential impacts to air quality, especially in the LFV. A modelling exercise was conducted by Metro Vancouver staff using the EPA's MOBILE 6.2C to determine if there would be a measurable difference in VOCs in the LFV should the waiver remain in place when the 5% renewable fuel requirement comes into effect. The modelling exercise determined that there

would be a measurable difference in VOC emissions if the waiver stayed in place.

iii. Modelling Potential Air Quality Impacts of Ethanol-based Fuels

The MOBILE model used by Metro Vancouver staff is an EPA model, modified to reflect Canadian characteristics, for estimating emissions from various pollutants from vehicles such as hydrocarbons (HC), oxides of nitrogen (NO_x), and carbon monoxide (CO). Inputs to the MOBILE 6.2C model included:

- Percentage of fuel sold in the LFV with an alcohol blend
- Average oxygen content of alcohol blend by weight
- Effect of ethanol on VOC permeation
- Fuel RVP for six different times of the year
- Fraction of vehicle types for 2005
- Mileage accumulation rate by vehicle type
- Total vehicle kilometres traveled
- Ambient temperature
- Cloud cover
- Relative humidity
- Barometric pressure.

iv. Modelling Results

The MOBILE 6.2C model determined that there would be a measurable difference in VOC emissions if the waiver stayed in place. When there is an average 5% ethanol blend in all BC gasoline, overall VOC emissions (point, area, and mobile) in Metro Vancouver on a typical summer day could be raised by approximately 3%.

v. E85 Distribution in BC

The ability to blend a large proportion of ethanol in gasoline has been taken advantage of in other jurisdictions since the mid 1990s, most notably Sweden. In North America, several manufacturers have been producing engines capable of running on gasoline blends of up to 85% ethanol since 2000. These vehicles are marketed as Flex-Fuel Vehicles (FFVs), but have not yet been able to take full advantage of their capability to function using renewable fuel in Canada. Because ethanol can cause corrosion of iron components, fuel delivery systems and fuel systems within vehicles must be made specifically to accommodate higher blends of ethanol such as E85.

3

<http://www.atsdr.cdc.gov/MHMI/mmg72.html#bookmark02>

4

http://www.pyr.ec.gc.ca/georgiabasin/resources/publications/SciTechReports/SciTech20_e.htm

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Currently there are only a small number of E85 retailers in Canada, all located in Ontario.

Although full scale commercialization of E85 in BC is still a ways off, the Ministry has been approached regarding the fact that the CGR in its current form prohibits its distribution.

There is currently a new CAN/CGSB standard for E50-E85 in the draft stage. Depending on the timing of the completion of this new standard and the amendment to the BC CGR, the amendment could reference the new CAN/CGSB E85 standard.

5. Ministry's Intentions

The Ministry intends to amend the CGR to phase out the RVP waiver and allow for the distribution of E85 in BC.

i. RVP Waiver Phase Out

Analysis shows that by leaving the waiver in place when 5% ethanol is required province-wide, VOC emissions could rise by 3% on a typical summer day in the LFV. The proposed amendment to phase out the 7kPa RVP waiver over a three year period would apply to any primary distributor or wholesale purchaser of gasoline currently blending ethanol. It should be noted that the current RVP waiver only applies to the LFV, so removing the waiver would bring retailers in the LFV in line with the rest of the province.

ii. Provision to allow E85

There is a growing supply of E85 capable vehicles available for sale in BC. Currently by requiring the standard of gasoline to meet one of two CGSB standards, E85 is not allowed to be distributed for sale in BC.

The Ministry intends to change the reference to the CGSB 3.511 Standard for Oxygenated Unleaded Automotive Gasoline Containing Ethanol. By pointing to specific sections of this standard instead of the standard as a whole, the CGR would not prohibit E85 from being sold in BC.

6. Providing Comment

Comments regarding the proposed intentions of the Ministry outlined in this intentions paper are being solicited for a 45-day period. Following review of

comments and submissions, the Ministry will complete legal drafting of the amendment for legislative review and implementation.

Comments received will be treated with confidentiality by Ministry staff and contractors. Please note that comments you provide and information that identifies you as the source of those comments may be publicly available if a Freedom of Information request is made under the *Freedom of Information and Protection of Privacy Act*.

Those interested are invited to submit comments in writing to:

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PO Box 28159
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Victoria, BC V9B 6K8

Fax: (250) 598-9948

Comments to the Ministry should be made on or before September 28, 2009

Thank you once more for your time and consideration.