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CANADIAN ENVIRONMENTAL PROTECTION ACT, 1999

Marine Spark-Ignition Engine, Vessel and Off-Road Recreational Vehicle Emission Regulations

P.C. 2011-45 February 3, 2011

Whereas, pursuant to subsection 332(1) ([see footnote a](#)) of the *Canadian Environmental Protection Act, 1999* ([see footnote b](#)), the Minister of the Environment published in the *Canada Gazette*, Part I, on December 30, 2006, a copy of the proposed *Marine Spark-Ignition Engine and Off-Road Recreational Vehicle Emission Regulations*, as they were then entitled, and persons were given an opportunity to file comments with respect to the proposed Regulations or a notice of objection requesting that a board of review be established and stating the reasons for the objection;

Therefore, His Excellency the Governor General in Council, on the recommendation of the Minister of the Environment, pursuant to sections 160, 162 and 319 of the *Canadian Environmental Protection Act, 1999* ([see footnote c](#)), hereby makes the annexed *Marine Spark-Ignition Engine, Vessel and Off-road Recreational Vehicle Emission Regulations*.

MARINE SPARK-IGNITION ENGINE, VESSEL AND OFF-ROAD RECREATIONAL VEHICLE EMISSION REGULATIONS

INTERPRETATION

Definitions

1. (1) The following definitions apply in these Regulations.

“Act” « *Loi* »

“Act” means the *Canadian Environmental Protection Act, 1999*.

“all-terrain vehicle” « *véhicule tout terrain* »

“all-terrain vehicle” means a land-based or amphibious vehicle, other than a utility vehicle, that

(a) is designed to travel on three or four low-pressure tires, is equipped with a seat designed to be straddled and with handlebars for steering, and is designed to be used by a single operator and no passengers; or

(b) has three or more wheels and one or more seats, is designed for operation over rough terrain, is designed for transportation and has a maximum vehicle speed of at least 40 km/h.

“CFR” « *CFR* »

“CFR” means Title 40, chapter I of the *Code of Federal Regulations* of the United States.

"CFR 1045" « *CFR 1045* »

"CFR 1045" means subchapter U, part 1045, of the CFR.

"CFR 1051" « *CFR 1051* »

"CFR 1051" means subchapter U, part 1051, of the CFR.

"CFR 1060" « *CFR 1060* »

"CFR 1060" means subchapter U, part 1060, of the CFR.

"CFR 1068" « *CFR 1068* »

"CFR 1068" means subchapter U, part 1068, of the CFR.

"conventional inboard engine" « *moteur en-bord conventionnel* »

"conventional inboard engine" means an inboard engine that is rated at 373 kW at most.

"crankcase emissions" « *émissions du carter* »

"crankcase emissions" means substances that cause air pollution and that are emitted into the atmosphere from any portion of the crankcase ventilation or lubrication systems of an engine or a vehicle's engine.

"diurnal emissions" « *émissions diurnes* »

"diurnal emissions" means evaporative emissions that occur as a result of venting fuel tank vapours during daily temperature changes while the engine is not operating.

"element of design" « *élément de conception* »

"element of design" means, in respect of an engine, vessel or vehicle

(a) any control system, including computer software, electronic control systems and computer logic;

(b) any control system calibrations;

(c) the results of systems interaction; or

(d) any hardware items.

"emission control system" « *système antipollution* »

"emission control system" means any device, system or element of design that controls or reduces the emissions from an engine, vessel or vehicle.

"emission family" « *famille d'émissions* »

"emission family" means

(a) in respect of the engines or vehicles of a company, or the fuel lines or fuel tanks installed in outboards or vessels of a company, that are covered by an EPA certificate, the classification units for which the EPA certificate was issued; and

(b) in respect of any other engine or vehicle of a company, or other fuel line or fuel tank installed in outboards or vessels of a company, the classification units determined in accordance with

(i) in the case of engines, section 230 of subpart C of CFR 1045,

(ii) in the case of vehicles, section 230 of subpart C of CFR 1051, and

(iii) in the case of fuel lines or fuel tanks installed in outboards or vessels, section 230 of subpart C of CFR 1060.

“engine” « *moteur* »

“engine” means a marine spark-ignition engine of a class prescribed under subsection 5(1) that is used or capable of being used to propel a vessel.

“EPA” « *EPA* »

“EPA” means the United States Environmental Protection Agency.

“EPA certificate” « *certificat de l’EPA* »

“EPA certificate” means a certificate of conformity with United States federal standards issued by the EPA.

“evaporative emissions” « *émissions de gaz d’évaporation* »

“evaporative emissions” means hydrocarbons emitted into the atmosphere from an outboard, vessel or vehicle, other than exhaust emissions and crankcase emissions.

“exhaust emissions” « *émissions de gaz d’échappement* »

“exhaust emissions” means substances emitted into the atmosphere from any opening downstream from the exhaust port of an engine or vehicle’s engine.

“family emission limit” « *limite d’émissions de la famille* »

“family emission limit” means the maximum emission level established by a company for an emission family for the purpose of fleet averaging.

“fuel line” « *conduite d’alimentation en carburant* »

“fuel line” means non-metallic hose, tubing, and primer bulbs containing or exposed to liquid fuel, including hose or tubing that transports fuel to or from an engine or a vehicle’s engine that includes

(a) flexible molded sections for transporting liquid fuel to or from that engine, but does not include inflexible components for connecting hose or tubing; and

(b) hose or tubing for the vent line or filler neck if fuel systems are designed such that any portion of the vent-line or filler-neck material continues to be exposed to liquid fuel after completion of a refueling event in which an operator fills the fuel tank using typical methods.

A fuel line does not include a primer bulb that contains liquid fuel only when priming an engine or a vehicle’s engine before starting that engine and a fuel line that is designed to connect a portable fuel tank to an engine.

“fuel tank” « *réservoir de carburant* »

"fuel tank" means a fuel tank that is not metallic and not portable.

"high-performance inboard engine" « *moteur en-bord à haute performance* »

"high-performance inboard engine" means an inboard engine that is rated at more than 373 kW and design features to enhance power output such that the expected operating time until rebuild is less than 480 hours.

"inboard engine" « *moteur en-bord* »

"inboard engine", in relation to a vessel, includes a sterndrive, also known as an inboard/outboard engine, and a jet boat engine, but does not include a personal watercraft engine.

"jet boat" « *bateau à propulsion hydraulique* »

"jet boat" means a vessel in which an internal combustion engine is installed that powers a water-jet pump as the vessel's primary source of propulsion and is designed with an open area for carrying passengers.

"model year" « *année de modèle* »

"model year" means the year, as determined under section 4, that is used by a manufacturer to designate a model of engine, vessel or vehicle.

"off-road motorcycle" « *motocyclette hors route* »

"off-road motorcycle" means a two-wheeled vehicle that is equipped with a seat.

"permeation emissions" « *émissions par perméation* »

"permeation emissions" means evaporative emissions resulting from the permeation of fuel through fuel line or fuel tank materials.

"personal watercraft" « *motomarine* »

"personal watercraft" means a vessel with an enclosed hull of less than 4 m in length that uses an internal combustion engine powering a water-jet pump as its primary source of propulsion and is designed to be used by one or more persons while sitting, standing or kneeling.

"snowmobile" « *motoneige* »

"snowmobile" means a vehicle, including a vehicle that can be converted into a snowmobile, that has a maximum width of 1.5 m and is designed primarily for travel on snow.

"utility vehicle" « *véhicule utilitaire* »

"utility vehicle" means a vehicle that is designed for operation over rough terrain and

(a) has at least four wheels and seating for at least two persons;

(b) has an engine displacement of at most 1000 cm³, a maximum engine brake power of at most 30 kW and a maximum vehicle speed of at least 40 km/h; and

(c) has either a rear payload of at least 159 kg or seating for at least six passengers.

"vehicle" « *véhicule* »

“vehicle” means an off-road recreational vehicle that is of a class prescribed under subsection 5 (3).

“vessel” « *bâtiment* »

“vessel” means a vessel that is of the class prescribed under subsection 5(2).

Incorporation by reference

(2) Standards that are incorporated by reference in these Regulations from the CFR are those expressly set out in the CFR, as amended from time to time, and must be read as excluding

- (a) references to the EPA or the EPA’s Administrator exercising discretion in any way;
- (b) alternative standards related to the averaging, banking and trading of emission credits, to small-volume manufacturers or to financial hardship; and
- (c) standards or evidence of conformity of any authority other than the EPA.

PURPOSE

Purpose

2. The purpose of these Regulations is to

- (a) reduce emissions of hydrocarbons, oxides of nitrogen and carbon monoxide from engines, vessels and vehicles by establishing emission limits for those substances or combinations of those substances;
- (b) reduce emissions of the toxic substances formaldehyde, 1,3-butadiene, acetaldehyde, acrolein and benzene by establishing emission limits for hydrocarbons from engines, vessels and vehicles; and
- (c) establish emission standards and test procedures for engines, vessels and vehicles that are aligned with those of the EPA.

BACKGROUND

Background

3. These Regulations set out

- (a) prescribed classes of engines and vehicles for the purposes of section 149 of the Act;
- (b) requirements respecting the conformity of engines, vessels and vehicles with emission-related standards for the purposes of sections 153 and 154 of the Act;
- (c) a system of credits for the purposes of section 162 of the Act; and
- (d) other requirements for carrying out the purposes of Division 5 of Part 7 of the Act.

MODEL YEAR

Model year

4. (1) A year that is used by a manufacturer as a model year is

(a) if the period of production of a model of engine, vessel or vehicle does not include January 1 of a calendar year, the calendar year during which the period of production falls or the calendar year immediately following the calendar year during which the period of production falls, at the manufacturer's choice; or

(b) if the period of production of a model of engine, vessel or vehicle includes January 1 of a calendar year, that calendar year.

Limitation

(2) The period of production may include only one January 1.

CLASSES OF ENGINES AND VEHICLES

Prescribed engines

5. (1) Outboards, inboard engines and personal watercraft engines that operate under characteristics significantly similar to the theoretical Otto combustion cycle and use a spark plug or other sparking device are classes of engines that are prescribed for the purposes of the definition "engine" in section 149 of the Act.

Prescribed vehicles — vessels

(2) A vessel, in which a fuel line or fuel tank is installed, that is designed to be propelled by a prescribed engine is prescribed for the purposes of the definition "vehicle" in section 149 of the Act.

Prescribed vehicles — off-road recreational vehicles

(3) In addition, the following classes of off-road recreational vehicles are prescribed for the purposes of the definition "vehicle", in section 149 of the Act:

- (a) snowmobiles;
- (b) off-road motorcycles;
- (c) all-terrain vehicles; and
- (d) utility vehicles.

Exclusions

(4) The classes of engines and vehicles referred to in subsections (1) to (3) do not include

(a) an engine that is designed exclusively for competition, namely one that has the following characteristics, and bears a label that meets the requirements of subsections 7(3) and (4) and indicates that the engine is a competition engine:

(i) has performance characteristics that are substantially superior to non-competitive engines, and

(ii) is not displayed for sale in any public dealership or otherwise offered for sale to the general public;

(b) a vessel in which an engine referred to in paragraph (a) is installed;

(c) an off-road motorcycle that is designed exclusively for competition, namely one that meets at least four of the following characteristics, and bears either the label referred to in

paragraph (a) of the definition "competition vehicle" in subsection 2(1) of the *Motor Vehicle Safety Regulations* or a label that meets the requirements of subsections 7(3) and (4) and indicates that it is a competition off-road motorcycle:

- (i) it has no headlight or other lights,
- (ii) it has no spark arrestor,
- (iii) it has no manufacturer's warranty,
- (iv) it has suspension travel that is greater than 25.4 cm,
- (v) it has an engine displacement that is greater than 50 cm³, and
- (vi) it has a seat surface that is less than 195 cm²;

(d) a snowmobile or all-terrain vehicle that is designed exclusively for competition, namely one that has performance characteristics that are substantially superior to a non-competitive model and is not covered by a manufacturer's warranty, and either bears the label referred to in paragraph (a) of the definition "competition vehicle" in subsection 2(1) of the *Motor Vehicle Safety Regulations* or bears a label that meets the requirements of subsections 7(3) and (4) and indicates that it is a competition snowmobile or all-terrain vehicle;

(e) an engine or vehicle that is regulated by the *On-Road Vehicle and Engine Emission Regulations*;

(f) a vehicle or vessel that is propelled by power generated solely by one or more electric motors;

(g) a vehicle that has one or more compression-ignition engines for its propulsion;

(h) a vehicle, or a vessel, that is designed exclusively for use in combat or combat support during military activities, including reconnaissance missions, rescue missions and training missions, and the engine of the vessel;

(i) an engine, vessel or vehicle that is being exported and is accompanied by written evidence that establishes that it will not be sold or used in Canada; and

(j) an engine, of a vessel, that uses natural gas as fuel and is rated at 250 kW or more.

Section 152 of Act

(5) For the purpose of section 152 of the Act,

(a) the engines are those referred to in subsection (1) that are manufactured in Canada; and

(b) the vehicles are the vessels referred to in subsection (2), and the vehicles referred to in subsection (3), whose main assembly is completed in Canada.

However, none of those engines, vessels or vehicles that is to be used in Canada solely for purposes of exhibition, demonstration, evaluation or testing is prescribed for the purpose of that section.

NATIONAL EMISSIONS MARKS AND LABELS

AUTHORIZATION

Application for authorization

6. (1) Any company that intends to apply the national emissions mark, which is set out in the schedule, to an engine, vessel or vehicle must make an application to the Minister for an authorization to do so, signed by a person who is authorized to act on the company's behalf, that contains the following information:

(a) the name and street address of the company's head office and, if different, its mailing address;

(b) the class of engine, vessel or vehicle for which the authorization is requested;

(c) the street address of the location at which the national emissions mark is to be applied; and

(d) information to indicate that the company is capable of verifying compliance with the standards set out in these Regulations.

Authorization number

(2) On granting an authorization, the Minister is to assign an authorization number to the company.

Engines and vehicles — before coming-into-force

(3) A company that is authorized to apply the national emissions mark may apply it to an engine that is manufactured before the day on which this section comes into force or to a vehicle whose main assembly is completed before the day on which this section comes into force, if

(a) the engine or vehicle conforms to the standards set out in these Regulations for engines or vehicles for the 2012 model year; and

(b) the company meets the requirements of these Regulations in respect of that engine or vehicle.

DISPLAY

National emissions mark

7. (1) The national emissions mark must be displayed in a format of at least 7 mm in height and 10 mm in width.

Authorization number

(2) The authorization number must be displayed immediately below or to the right of the national emissions mark, in figures that are at least 2 mm in height.

Location

(3) The national emissions mark and any label referred to in these Regulations, except for the label referred to in paragraph 35(1)(d), must be located

(a) on or immediately next to the emission control information label referred to in paragraph 35(1)(d); or

(b) if there is no such label, in a visible or readily accessible location.

Requirements

(4) Except for the label referred to in paragraph 35(1)(d), any label required by these Regulations, including the label on which the national emissions mark appears, must

- (a) be permanently affixed;
- (b) be resistant to or protected against any weather condition; and
- (c) bear inscriptions that are legible and indelible and that are indented, embossed or in a colour that contrasts with the background of the label.

IDENTIFICATION NUMBER

Unique identification number

- 8.** (1) A unique identification number must be affixed to every engine, vessel or vehicle.

Location and characteristics of identification number

(2) The identification number may be engraved or stamped on the engine, vessel or vehicle or may be on a label that meets the requirements of subsections 7(3) and (4).

STANDARDS

EMISSION CONTROL SYSTEM

Requirements

9. (1) An emission control system that is installed in an engine, vessel or vehicle to enable it to conform to the standards set out in these Regulations must not

- (a) in its operation, release a substance that causes air pollution and that would not have been released if the system were not installed; or
- (b) in its operation or malfunction, cause the engine, vessel or vehicle to be unsafe or to endanger persons or property near it.

Prohibition of defeat devices

- (2) An engine, vessel or vehicle must not be equipped with a defeat device.

Meaning of defeat device

(3) Subject to subsection (4), a defeat device is an auxiliary emission control device that reduces the effectiveness of the emission control system under conditions that may reasonably be expected to be encountered under normal operation of the engine, vessel or vehicle.

Exceptions

(4) An auxiliary emission control device is not a defeat device if

- (a) the conditions referred to in subsection (3) are substantially included in the emission test procedures referred to in section 23;
- (b) it is needed to protect the engine, vessel or vehicle against damage or accident; or

(c) its use does not go beyond the requirements of engine starting.

ADJUSTABLE PARAMETERS

Meaning of adjustable parameter

10. (1) In this section, “adjustable parameter” means a device, system or element of design that is capable of being physically adjusted and can thereby affect emissions during emission testing or normal in-use operation, but does not include a device, system or element of design that is permanently sealed by the manufacturer or that is inaccessible with ordinary tools.

Requirements

(2) Subject to subsection (3), an engine, vessel or vehicle that is equipped with adjustable parameters must conform to the applicable standards under these Regulations for any specification within the physically adjustable range.

Vehicle

(3) In the case of a vehicle with an adjustable air-fuel ratio parameter, compliance with the applicable standards under these Regulations is required if the range of adjustable air-fuel ratios

(a) other than any air-fuel ratio that does not occur during normal in-use operation, is between the lean limit and the rich limit; or

(b) is established by the manufacturer based on particular engine parts.

Lean limit

(4) The lean limit is the air-fuel ratio that produces the highest engine power output averaged over the applicable test cycle referred to in section 501 of subpart F of CFR 1051.

Rich limit

(5) The rich limit is the richest of the following air-fuel ratios:

(a) the air-fuel ratio that results from operating the vehicle at applicable test conditions in accordance with the CFR, with the parameters adjusted to the settings that will be used at the time that the vehicle’s main assembly is completed, excluding a vehicle manufactured without jets installed in its carburetted engine;

(b) the air-fuel ratio of the engine during durability testing; and

(c) the richest air-fuel ratio specified by the manufacturer for the applicable ambient conditions.

Carburettor jets and needles

(6) Despite subsection (3), if the range of adjustable air-fuel ratios of a vehicle is defined in terms of carburettor jets and needles, and the criteria in sections 115(d)(3)(ii) to (vi) of subpart B of CFR 1051 are met, the manufacturer’s jetting chart that specifies the appropriate carburettor jet size and needle configuration as a function of the ambient conditions is the range of adjustable air-fuel ratios for which compliance with the applicable standards under these Regulations is required.

EMISSION STANDARDS

General

Options for conformity

11. (1) For a given model year and for a given class referred to in section 5, the engines, other than replacement engines referred to in section 18, vessels and vehicles belonging to that class must

(a) conform to the applicable standards set out in sections 13 to 17 and 19 to 22;

(b) in the case of an engine or vehicle that is covered by an EPA certificate and is sold concurrently in Canada and the United States, conform to the emission standards or family emission limits referred to in the EPA certificate;

(c) in the case of a vessel or outboard that is sold concurrently in Canada and the United States and whose fuel lines or fuel tanks are covered by one or more EPA certificates, conform, in respect of those fuel lines and fuel tanks, to the emission standards or family emission limits referred to in those EPA certificates; or

(d) be included in a fleet of a company, established in accordance with section 24, that

(i) if it is a fleet of engines, meets the fleet averaging requirements of sections 25 to 27, with the engines conforming

(A) in the case of outboards and personal watercraft engines, to the exhaust family emission limit that the company established for the purpose of fleet averaging, which must not exceed the maximum allowable exhaust family emission limit set out in section 103(b) of subpart B of CFR 1045,

(B) in the case of conventional inboard engines other than those referred to in clause (C), to the exhaust family emission limit that the company established for the purpose of fleet averaging, which must not exceed the maximum allowable exhaust family emission limit set out in section 105(b) of subpart B of CFR 1045, and

(C) in the case of conventional inboard engines to be used in jet boats described by sections 660(a) and (c) of subpart G of CFR 1045, to the exhaust family emission limit that the company established for the purpose of fleet averaging, which must not exceed the maximum allowable exhaust family emission limit set out in section 701(d) of subpart H of CFR 1045, and

(ii) if it is a fleet of vehicles, meets the fleet averaging requirements of sections 28 to 31, with the vehicles conforming

(A) in the case of snowmobiles, to the family emission limit that the company established for the purpose of fleet averaging, which must not exceed the maximum allowable family emission limit set out in section 103(a) of subpart B of CFR 1051,

(B) in the case of off-road motorcycles, to the family emission limit that the company established for the purpose of fleet averaging, which must not exceed the maximum allowable family emission limit set out in section 105(a)(1) of subpart B or section 615(b) of subpart G of CFR 1051, and

(C) in the case of all-terrain vehicles and utility vehicles, to the family emission limit that the company established for the purpose of fleet averaging, which must not exceed the maximum allowable family emission limit set out in section 107(a) or 145(b) of subpart B or section 615(a) of subpart G of CFR 1051.

Fleet averaging exceptions — sections 28 to 31

(2) Despite subparagraph (1)(d)(ii), a company must not conform to the CO exhaust emission standards set out in the provision of the CFR that is referred to in subsection 21(2), paragraph 22(1)(a) and subsection 22(2) by meeting the fleet averaging requirements referred to in sections 28 to 31.

EPA Certificates

Subsection 153(3) of Act

12. (1) For the purposes of subsection 153(3) of the Act, the provisions of the CFR that are applicable under an EPA certificate to engines or vehicles referred to in paragraph 11(1)(b), or to fuel lines and fuel tanks installed in vessels or outboards referred to in paragraph 11(1)(c), correspond to the emission standards referred to in paragraph 11(1)(a).

EPA is prescribed agency

(2) For the purposes of subsection 153(3) of the Act, the EPA is the prescribed agency.

Engines

Outboard and personal watercraft engines

13. (1) The following standards set out in subpart B of CFR 1045 apply to outboards and personal watercraft engines for the 2012 and subsequent model years:

- (a) the applicable exhaust emission standards for HC + NO_x and CO set out in sections 103(a) and (d);
- (b) the not-to-exceed exhaust emission standards set out in section 107; and
- (c) the crankcase emission standard set out in section 115(a).

Useful life

(2) Those standards apply for the applicable useful life of outboards and personal watercraft engines as set out in section 103(e) of subpart B of CFR 1045.

Conventional inboard engines

14. (1) The following standards set out in subpart B of CFR 1045 apply to conventional inboard engines for the 2012 and subsequent model years:

- (a) the applicable exhaust emission standards for HC + NO_x and CO set out in sections 105(a)(1) and (2) and 105(d);
- (b) the not-to-exceed exhaust emission standards set in section 107; and
- (c) the crankcase emission standards set out in section 115(a).

Useful life

(2) Those standards apply for the applicable useful life of the engines as set out in section 105(e) of subpart B of CFR 1045.

Jet boats

(3) For a jet boat engine described in sections 660(a) and (c) of subpart G of CFR 1045, the

standards apply for the useful life of the engine as set out in section 660(e) of subpart G of CFR 1045.

High-performance inboard engines

15. (1) The following standards set out in subpart B of CFR 1045 apply to high-performance inboard engines for the 2013 and subsequent model years:

- (a) the applicable exhaust emission standards for HC + NO_x and CO set out in sections 105(a)(1) and (3) and 105(d); and
- (b) the crankcase emission standard set out in section 115(a).

Useful life

(2) Those standards apply for the applicable useful life of the engines as set out in section 105(e) of subpart B of CFR 1045.

Engines equipped with three-way catalysts

16. An engine equipped with three-way catalysts and closed-loop control of air-fuel ratios must be equipped with a diagnostic system that conforms to the applicable standards set out in section 110 of subpart B of CFR 1045.

Electronically controlled engines

17. Electronically controlled engines of the 2013 and subsequent model years must be equipped with a torque broadcasting system that meets the requirements of sections 115(b) and (c) of subpart B of CFR 1045.

Meaning of replacement engine

18. (1) In this section, replacement engine means an engine manufactured exclusively to replace an engine used to propel a vessel if no current model year engine exists that has the characteristics necessary for the propulsion of the vessel.

Standards for replacement engines

(2) A replacement engine may, instead of conforming to the applicable standards set out in sections 13 to 17, conform to

- (a) in the case that the replacement engine is manufactured to the specifications for a model year later than the model year of the original engine,
 - (i) the standards referred to in sections 13 to 17 that were applicable to an engine manufactured to the specification for the model year of the replacement engine, or
 - (ii) the manufacturer's specifications, if no standard referred to in sections 13 to 17 applies; and
- (b) in any other case,
 - (i) the standards referred to in sections 13 to 17 that are applicable to the original engine, or
 - (ii) the manufacturer's specifications, if no standard referred to in sections 13 to 17 applies.

Label

- (3) A replacement engine must bear a label that meets the requirements set out in
- (a) subsections 7(3) and (4) and that indicates, in both official languages, that the engine is a replacement engine; or
 - (b) section 240(b)(6) of CFR 1068.

Vessels and Outboards

Vessels and outboards

19. The following standards set out in subpart B of CFR 1060 apply to vessels, and outboards, for the 2015 and subsequent model years, in which fuel lines or fuel tanks are installed:

- (a) the applicable fuel line permeation emission standards set out in section 102(d)(2);
- (b) the applicable fuel tank permeation emission standards set out in section 103(b); and
- (c) the applicable diurnal standards set out in sections 101(f)(1) and (3) and 105(b).

Vehicles

Snowmobiles

20. (1) The following standards set out in subpart B of CFR 1051 apply to snowmobiles for the 2012 and subsequent model years:

- (a) the applicable exhaust emission standards for HC and CO set out in sections 103(a) and (b);
- (b) the applicable evaporative emission standards for fuel tanks and fuel lines set out, respectively, in sections 110(a) and (b); and
- (c) the crankcase emission standard set out in section 115(a).

Useful life

(2) Those standards apply for the useful life of the vehicles set out in section 103(c) of subpart B of CFR 1051.

Off-road motorcycles

21. (1) The following standards set out in subpart B of CFR 1051 apply to off-road motorcycles for the 2012 and subsequent model years:

- (a) the applicable exhaust emission standards for HC + NO_x and CO set out in sections 105(a)(1) and 105(b);
- (b) the applicable evaporative emission standards for fuel tanks and fuel lines set out, respectively, in sections 110(a) and (b); and
- (c) the crankcase emission standard set out in section 115(a).

Alternative standards

(2) Despite paragraph (1)(a), off-road motorcycles for a given model year with engines that have a total displacement of 70 cm³ or less may conform to the exhaust emission standards set out for that model year in section 615(b) of subpart G of CFR 1051.

Useful life

(3) The standards referred to in subsections (1) and (2) apply for the useful life of the vehicles set out in section 105(c) of subpart B of CFR 1051.

All-terrain and utility vehicles

22. (1) The following standards set out in subpart B of CFR 1051 apply to all-terrain vehicles and utility vehicles for the 2012 and subsequent model years:

(a) the applicable exhaust emission standards for HC + NO_x and CO set out in sections 107(a)(1) and 107(b);

(b) the applicable evaporative emission standards for fuel tanks and fuel lines set out, respectively, in sections 110(a) and (b); and

(c) the crankcase emission standard set out in section 115(a).

Alternative standards — 2012 to 2014 model years

(2) Despite paragraph (1)(a), all-terrain vehicles and utility vehicles for each of the 2012 to 2014 model years may conform to the exhaust emission standards set out for that model year in section 145(b) of subpart B of CFR 1051.

Alternative standards — engine displacement of less than 100 cm³

(3) Despite paragraph (1)(a) and subsection (2), all-terrain vehicles and utility vehicles for a given model year with engines that have a total displacement of less than 100 cm³ may conform to the exhaust emission standards set out for that model year in section 615(a) of subpart G of CFR 1051.

Useful life

(4) The standards referred to in subsections (1) to (3) apply for the useful life of the vehicles set out in section 107(c) of subpart B of CFR 1051.

Interpretation of Standards

Test procedures, fuels and calculation methods

23. (1) For greater certainty, the standards in these Regulations that refer to the CFR include the test procedures, fuels and calculation methods referred to in CFR 1045, CFR 1051 or CFR 1060.

Phasing in of standards

(2) In the case of a standard that is set out in the CFR to be phased in over a period for a class of vehicle or engine or for fuel lines or fuel tanks installed in a vessel or outboard, the standard comes into effect for the purposes of these Regulations in the model year for which the CFR specifies that the standard applies to 100% of that class or of those fuel lines or fuel tanks, and continues to apply until another standard comes into effect that so applies.

FLEET AVERAGING

GENERAL

Meaning of fleet

24. (1) In sections 25 to 33 and 36, “fleet” refers to the engines and vehicles — grouped in accordance with this section — that a company manufactures in Canada, or imports into Canada, for the purpose of sale in Canada to a first retail purchaser.

Groupings of engines and vehicles into fleets

(2) A company that opts to conform under paragraph 11(1)(d), must group its engines and vehicles referred to in subsection (1) into one or more of the following fleets, with each fleet consisting of all of its:

- (a) outboards and personal watercraft engines;
- (b) conventional inboard engines;
- (c) snowmobiles;
- (d) off-road motorcycles;
- (e) utility vehicles; or
- (f) all-terrain vehicles.

Grouping of utility vehicles and all-terrain vehicles

(3) Despite subsection (2), a company may group utility vehicles and all-terrain vehicles into a single fleet.

Voluntary exclusion

(4) Despite subsection (2), for the purposes of sections 25 to 31, a company may exclude from any of its fleets the engines and vehicles that are covered by an EPA certificate and sold concurrently in Canada and the United States, if the number of those engines and vehicles sold in the United States during a given period exceeds the number of those engines and vehicles sold in Canada during that period. The consequences of that exclusion are set out in subsections 25(3) and 30(2).

FLEET AVERAGE EMISSION CREDITS AND DEFICITS FOR ENGINES

Obtaining credits

25. (1) For the purposes of subparagraph 162(1)(b)(i) of the Act, a company obtains emission credits in relation to a given emission type in respect of a fleet of engines referred to in subparagraph 11(1)(d)(i) for a given model year when

- (a) the determination under subsection 26(1) of the fleet average emission credits or deficits for the fleet is a positive number, which indicates that overall the emissions in respect of the fleet for that emission type are less than the emissions allowed under the applicable standards for the engines of that fleet for that emission type; and
- (b) the company reports those credits in its end of model year report under section 33.

Emission types

(2) The emission types referred to in subsection (1) are as follows:

(a) HC + NO_x exhaust emissions for the 2012 and subsequent model years; and

(b) CO exhaust emissions for the 2012 and subsequent model years.

Result of excluding EPA certified engines

(3) A company that excludes engines in accordance with subsection 24(4) from a fleet of engines for a given model year

(a) is ineligible to obtain fleet average emission credits in respect of that fleet; and

(b) forfeits all fleet average emission credits, obtained in respect of previous model years, for that fleet.

Election to not determine

(4) A company may elect to not determine the fleet average emission credits or deficits for any emission type for a given model year in respect of a fleet of engines if every engine in that fleet conforms to the family emission limit that is applicable to that emission type, which must not exceed the applicable standards for engines of that model year referred to in section 13 or 14, as the case may be.

Deemed fleet average emission credit

(5) If a company makes an election under subsection (4), the determination under subsection 26(1) for the emission type for which the election was made in respect of that fleet of engines for the model year in question is deemed to be equal to zero.

Fleet average emission credits or deficits

26. (1) The fleet average emission credits or deficits, in respect of each emission type and for each fleet of engines, is the sum of the family emission credits or deficits for each emission family of that fleet determined in accordance with subsection (2). The sum is to be rounded to the nearest whole number of kilograms, and if the sum is equidistant between two whole numbers of kilograms, the sum is the higher of them.

Family emission credits or deficits

(2) The family emission credits or deficits in respect of each emission type and for each emission family of a fleet of engines for a given model year is determined in accordance with the following formula:

$$(S-L) \times N \times P \times U \times 0.207 \times 10^{-3}$$

where

S is the applicable exhaust emission standard, expressed in g/kW-hr, for that emission type;

L is the family emission limit for that emission family, expressed in g/kW-hr, for that emission type;

N is the number of engines in that family;

P is the maximum engine power for that emission family, expressed in kilowatts, determined in accordance with section 140 of subpart B of CFR 1045; and

U is the useful life for engines of that emission family, as established under subsection 13(2)

or 14(2) or (3), as the case may be, expressed in hours.

Engines manufactured before coming into force

(3) For the purposes of determining the family emission credits or deficits in respect of each emission type and for each emission family of a fleet of engines for the 2012 model year, the company may include all engines of that model year, including those manufactured before this section comes into force.

Offsetting Deficits and Use of Credits

Deficits

27. (1) Any fleet average emission deficits for engines must be offset with an equivalent number of fleet average emission credits obtained by the company or transferred to it by another company. The deficits and credits must be in respect of the same type of fleet, the same emission type and the same standard, expressed in the same units.

Remaining credits

(2) A company may bank any remaining credits to offset future deficits in accordance with subsection (1) or transfer them to another company.

Period for offsetting

(3) A company must offset any fleet average emission deficits for a fleet for a given model year

(a) in the case of a fleet for the 2012 model year, no later than the day on which the company submits the end of model year report in respect of that fleet for the 2014 model year; and

(b) in the case of a fleet for the 2013 and subsequent model years, no later than the day on which the company submits the end of model year report in respect of that fleet for that model year.

Exception — jet boat engines

(4) Despite subsection (1), during a given model year, a company that manufactures or imports a jet boat engine that is described in sections 660(a) and (c) of subpart G of CFR 1045 may offset any family emission deficits in respect of that jet boat engine with family emission credits, determined under subsection 26(2), in respect of a family of its fleet of outboards and personal watercraft engines that relate to the same model of engine as that jet boat engine. The credits so used cannot have been transferred to the company from another company.

Cancellation of credits — CO exhaust emissions

(5) Despite subsection (2), any fleet average emission credits in respect of CO exhaust emissions credits, other than those used under subsection (4), that are determined, in relation to a given model year, under subsection 26(1) in respect of a company's fleet of outboards and personal watercraft engines and are reported under section 33 are cancelled upon receipt of the report.

FLEET AVERAGE EMISSION VALUES FOR VEHICLES

Applicable standards — sections 20 to 22

28. (1) Subject to section 31 and for the purposes of paragraph 11(1)(d), the fleet average

emission value in respect of each emission type for a fleet of vehicles for a given model year must not exceed the applicable standard referred to in any of sections 20 to 22, as the case may be.

Emission types

(2) The emission types referred to in subsection (1) are as follows:

(a) for a fleet of snowmobiles,

- (i) HC exhaust emissions for the 2012 and subsequent model years,
- (ii) CO exhaust emissions for the 2012 and subsequent model years, and
- (iii) fuel tank permeation emissions for the 2012 and subsequent model years;

(b) for a fleet of off-road motorcycles,

- (i) HC + NO_x exhaust emissions for the 2012 and subsequent model years,
- (ii) CO exhaust emissions for the 2012 and subsequent model years, and
- (iii) fuel tank permeation emissions for the 2012 and subsequent model years; and

(c) for a fleet of all-terrain vehicles or of utility vehicles, or a fleet grouping both those classes,

- (i) HC + NO_x exhaust emissions for the 2012 and subsequent model years, and
- (ii) fuel tank permeation emissions for the 2012 and subsequent model years.

Election to not determine

(3) A company may elect to not determine the fleet average emission value for any emission type for a given model year in respect of a fleet of vehicles if every vehicle in that fleet conforms to the family emission limit that is applicable to that emission type, which must not exceed the applicable standard, referred to in any of sections 20 to 22 as the case may be for vehicles of that model year.

Deemed average value

(4) If a company makes an election under subsection (3), the fleet average emission value for the emission type for which the election was made in respect of that fleet of vehicles for the model year in question is deemed to be equal to that applicable standard.

Calculation of fleet average emission values

29. (1) The fleet average emission value for a fleet of vehicles is determined, in respect of each emission type, in accordance with the following formula, expressed to one decimal place and in the same units as the applicable standard set out in any of sections 20 to 22, as the case may be:

$$\left[\sum_{i=1}^{\text{TOT}} (W_i \times Y_i \times Z_i) \right] / \left[\sum_{i=1}^{\text{TOT}} (Y_i \times Z_i) \right]$$

where

TOT is the total number of emission families in the fleet;

" i " is the i^{th} emission family in the fleet, where " i " goes from 1 to TOT;

W_i is the family emission limit applicable to the emission family " i ", expressed in the same units and to the same number of decimal places as the emission standard it replaces;

Y_i is, in the case of exhaust emissions, the number of vehicles in the fleet that are in the emission family " i " and, in the case of evaporative emissions, the number of vehicles in the fleet that are in the emission family " i " multiplied by the average internal surface area of the vehicles' fuel tanks expressed in metres squared; and

Z_i is determined as follows:

(a) for a fleet of snowmobiles,

(i) in the case of exhaust emissions, the useful life for the emission family " i " expressed in kilometres — as established under section 103(c) of subpart B of CFR 1051 — multiplied by the maximum power output observed during the emissions test expressed in kilowatts divided by 30 km/h, and

(ii) in the case of evaporative emissions, the useful life for the emission family " i " expressed in years — as established under section 103(c) of subpart B of CFR 1051 — multiplied by 365.24 days/ year;

(b) for a fleet of off-road motorcycles,

(i) in the case of exhaust emissions, the useful life for the emission family " i " expressed in kilometres, as established under section 105(c) of subpart B of CFR 1051, and

(ii) in the case of evaporative emissions, the useful life for the emission family " i ", referred to in subparagraph (i), expressed in years multiplied by 365.24 days/year; and

(c) for a fleet of all-terrain vehicles or utility vehicles,

(i) in the case of exhaust emissions, for those vehicles that must conform to a family emission limit expressed in g/km, the useful life for the emission family " i " expressed in kilometres — as established under section 107(c) of subpart B of CFR 1051 — and for those vehicles that must conform to a family emission limit expressed in g/kW-h, Z is that useful life for the emission family " i " expressed in kilometres multiplied by the maximum power output observed during the emissions test expressed in kilowatts and divided by 30 km/h, and

(ii) in the case of evaporative emissions, the useful life for the emission family " i ", referred to in subparagraph (i), expressed in years multiplied by 365.24 days/year.

Emission limits expressed in g/kW-h

(2) In the case of vehicles of a fleet that must conform to a family emission limit expressed in g/kW-h set out in section 145(b) of subpart B of CFR 1051 or section 615(a) or (b) of subpart G of CFR 1051, the company must determine a separate fleet average emission value for those vehicles in respect of each emission type, as if those vehicles were a fleet.

Vehicles — before the coming into force date

(3) For the purposes of determining the fleet average emission value under subsection (1) for a fleet for the 2012 model year, the company may include all vehicles for that model year, including those whose main assembly is completed before this section comes into force.

FLEET AVERAGE EMISSION CREDITS AND DEFICITS FOR VEHICLES

Obtaining credits

30. (1) For the purposes of subparagraph 162(1)(b)(i) of the Act, a company obtains fleet average emission credits in relation to a given emission type in respect of a fleet of vehicles referred to in subparagraph 11(1)(d)(ii) for a given model year when

(a) the fleet average emission value for the fleet for that emission type, determined under section 29, is less than the applicable standard in respect of the fleet for that emission type; and

(b) the company reports those credits in its end of model year report under section 33.

Result of excluding EPA certified vehicles

(2) A company that excludes vehicles in accordance with subsection 24(4) from a fleet of vehicles for a given model year

(a) is ineligible to obtain fleet average emission credits in respect of that fleet; and

(b) forfeits all fleet average emission credits, obtained in respect of previous model years, in respect of that fleet.

Determination of fleet average emission credits

(3) The fleet average emission credits in respect of a fleet of vehicles in relation to a given emission type for a given model year, expressed in grams, are determined in accordance with the following formula:

$$(A - B) \times \left[\sum_{i=1}^{\text{TOT}} (Y_i \times Z_i) \right]$$

where

A is the applicable standard for the fleet in relation to the given emission type for the given model year;

B is the fleet average emission value in relation to the given emission type, determined in accordance with section 29, for the given model year;

TOT is the total number of emission families in the fleet;

"i" is the ith emission family in the fleet, where "i" goes from 1 to TOT;

Y_i is, in the case of exhaust emissions, the number of vehicles in the fleet that are in the emission family "i" and, in the case of evaporative emissions, the number of vehicles in the fleet that are in the emission family "i" multiplied by the average internal surface area of the vehicles' fuel tanks expressed in square metres; and

Z_i is the useful life applicable to the emission family "i" as described for Z_i in the formula set out in subsection 29(1).

Rounding

(4) If the fleet average emission credits determined in accordance with subsection (3) results in a fraction, the fraction is to be expressed in decimal form and rounded to one decimal place, the digit at that first decimal place being increased by one if the digit at the second decimal place is 5 or more.

Deficit

31. (1) If a company's fleet average emission value in respect of an emission type for a fleet of vehicles exceeds the applicable standard in respect of the fleet for that emission type, the company's fleet average emission deficits is the negative number determined in accordance with the formula set out in subsection 30(3).

Offsetting of the deficit

(2) Any fleet average emission deficits must be offset with an equivalent number of fleet average emission credits obtained by the company or transferred to it by another company. The deficits and credits must be in respect of the same type of fleet, the same emission type and the same standard, expressed in the same units.

Remaining credits

(3) A company may bank any remaining credits to offset future deficits in accordance with subsection (2) or transfer them to another company.

Period for offsetting

(4) A company must offset any fleet average emission deficit for a fleet for a given model year

(a) in the case of a fleet for the 2012 model year and in relation to exhaust emissions, no later than the day on which the company submits the end of model year report in respect of that fleet for the 2014 model year;

(b) in the case of a fleet for the 2012 model year and in relation to fuel tank permeation emissions, no later than the day on which the company submits the end of model year report in respect of that fleet for the 2014 model year;

(c) in the case of a fleet for the 2013 and subsequent model years and in relation to exhaust emissions, no later than the day on which the company submits the end of model year report in respect of that fleet for that model year; and

(d) in the case of a fleet for the 2013 and subsequent model years and in relation to fuel tank permeation emissions, no later than the day on which the company submits the end of model year report in respect of that fleet for that model year.

CORPORATE CHANGES

Acquisition or merger

32. (1) A company that acquires another company or that results from the merger of companies is responsible for offsetting any outstanding deficits of the acquired or merged companies.

Ceasing activities

(2) If a company ceases to manufacture, import or sell engines or vehicles, it must, before submitting its last end of model year report, offset any outstanding deficits for its fleets.

REPORTS

Model year reports

33. (1) A company must submit to the Minister an end of model year report, signed by a person who is authorized to act on the company's behalf, no later than June 1 of the calendar year after the model year for which in the report is made.

Choice of option for conformity

(2) The end of model year report must indicate the model year for which the report is made and include a statement that

(a) all of its engines, vessels or vehicles of a given class for the model year in question conform, as the case may be, to one of paragraphs 11(1)(a) to (c), along with an indication as to which one of those paragraphs they conform to; or

(b) all of its engines or vehicles, other than those of a class referred to in paragraph (a), are grouped into one or more fleets that conform to paragraph 11(1)(d), along with an indication of which fleets they are grouped into and whether, for each of those fleets, any of those engines or vehicles were excluded under subsection 24(4).

Contents of report — fleets

(3) The end of model year report must contain the following information for each fleet that conforms under paragraph 11(1)(d):

(a) the applicable standards;

(b) for each emission type, other than an emission type for which the company has made an election under subsection 25(4) or 28(3), as the case may be,

(i) for a fleet of engines and for that emission type,

(A) the sum determined under subsection 26(1) and each of the family emission credits or deficits for each emission family used to determine that sum, and

(B) for each model of engine in each of those emission families, the value of each of the elements referred to in the formula set out in subsection 26(2), and

(ii) for a fleet of vehicles and for that emission type,

(A) the fleet average emission value determined in accordance with section 29,

(B) for each model of vehicle in each of the emission families used to determine that fleet average emission value, the value of each of the elements referred to in the formula set out in section 29, and

(C) the number determined in accordance with the formula set out in subsection 30(3);

(c) the number of engines or vehicles in the fleet;

(d) the number of fleet average emission credits transferred to the company from another

company or transferred by the company to another company since the previous end of model year report was submitted, along with the following information:

- (i) the name, civic address and, if different, the mailing address of the other company, and
 - (ii) a signed statement from a person who is authorized to act on the other company's behalf indicating the number of credits transferred to or from the company submitting the report, the type of fleet and emission type in respect of which those credits are transferred, the units in which the family emission limit is expressed in respect of those credits, the model years in which the credits are transferred and the dates of the transfer;
- (e) the number of fleet average emission credits to be banked at the end of the model year;
- (f) if applicable, the number of fleet average emission deficits in relation to the 2012 model year to be offset under paragraph 27(3)(a) or 31(4)(a) or (b); and
- (g) for any election that the company has made under subsection 25(4) or 28(3), a statement indicating for which emission type the election was made.

Engines or vehicles that conform to paragraph 11(1)(b)

(4) If every engine or vehicle within a given class, as the case may be, conforms to paragraph 11(1)(b) for a given model year and the end of model year report for that model year contains the statement set out in paragraph (2)(a), the company must include in that report the information referred to in paragraphs (3)(b) and (c) as if those engines or vehicles were a fleet. However, that information is not required to be included in that report if the company imports less than 100 engines or vehicles, as the case may be, for that model year.

Additional information for excluded engines and vehicles

(5) If the engines or vehicles are excluded from a fleet under subsection 24(4) for a given model year, the company must also include in the end of model year report for that model year the information referred to in paragraphs (3)(b) and (c) separately as if those engines or vehicles were included in the fleet.

Manufactured before the coming into force date

(6) If the main assembly of every vehicle, or the manufacture of every engine, for the 2012 model year is completed before the coming into force of this section, the company may, instead of complying with subsections (2) to (5), include a statement to that effect in the end of model year report for the 2012 model year.

EMISSION-RELATED MAINTENANCE INSTRUCTIONS

Provision to first retail purchaser

34. (1) A company must ensure that written instructions respecting emission-related maintenance are provided to the first retail purchaser of every engine, vessel or vehicle.

Language of instructions

(2) The instructions must be provided in English, French or both official languages, as requested by that purchaser.

RECORDS

EVIDENCE OF CONFORMITY

EPA certificates

35. (1) For the purposes of paragraph 153(1)(b) of the Act, in the case of an engine or vehicle referred to in paragraph 11(1)(b) and of a vessel or outboard referred to in paragraph 11(1)(c), evidence of conformity in respect of a company consists of

(a) a copy of the EPA certificates covering the engine, the vehicle or the fuel lines and fuel tanks installed in the vessel or outboard, as the case may be;

(b) a document demonstrating that those engines, vehicles and vessels are sold concurrently in Canada and the United States;

(c) a copy of the records submitted to the EPA in support of the application, and any amended application, for the issuance of those EPA certificates; and

(d) an emission control information label that is permanently affixed in the form and location set out in

(i) sections 135(b) to (f) of subpart B of CFR 1045, for an engine,

(ii) sections 135(a) to (e) of subpart B of CFR 1060, for a vessel or, if applicable, an outboard, and

(iii) sections 135(b) to (e) of subpart B of CFR 1051, for a vehicle.

No EPA certificates

(2) For the purposes of paragraph 153(1)(b) of the Act, in the case of an engine or vehicle, other than one referred to in paragraph 11(1)(b), or of a vessel or outboard, other than one referred to in paragraph 11(1)(c), evidence of conformity must be obtained and produced by the company in a form and manner satisfactory to the Minister.

When to submit evidence of conformity

(3) For greater certainty, the company must submit the evidence of conformity referred to in subsection (2) to the Minister before applying a national emissions mark to the engine, vehicle or vessel or importing the engine, vehicle or vessel.

MAINTENANCE AND RETENTION OF RECORDS

Period

36. (1) A company must maintain a record, in writing or in a readily readable electronic or optical form, that contains the following information and retain the record for the following periods:

(a) the end of the model year report referred to in section 33, for a period of eight years after the model year in question;

(b) the evidence of conformity referred to subsection 35(1) or (2), as the case may be, for a period of eight years

(i) after the manufacture of the engine is complete, or

(ii) after the main assembly of the vehicle or the vessel;

(c) for each model year and for each engine or vehicle of each of its fleets, for a period of eight years after the model year in question,

- (i) the model and emission family,
 - (ii) the name and civil address of the plant where the engine or vehicle was manufactured,
 - (iii) the engine or vehicle identification number,
 - (iv) the family emission limit to which the engine or vehicle conforms,
 - (v) the name and civil address, or mailing address, of the first retail purchaser of the engine or vehicle in Canada, and
 - (vi) for a company that, under subsection 24(4), excludes from its fleet the engines or vehicles referred to in that subsection, a document that demonstrates that the number of engines or vehicles sold in the United States during a given period that are covered by an EPA certificate exceeds the number of those engines or vehicles sold in Canada during that period that are covered by the same EPA certificate; and
- (d) for a company referred to in subsection 33(4) that imports less than 100 engines or vehicles for a given model year, the number of engines or vehicles imported, for a period of eight years after the model year in question.

Records retained on company's behalf

(2) If the records referred to in subsection (1) are retained on a company's behalf, the company must keep a record of the name and civic address and, if different, the mailing address of the person who retains those records.

Deadline to submit records when requested

(3) If the Minister makes a written request for a record referred to in subsection (1) or (2), the company must submit it to the Minister in either official language

- (a) within 40 days after the day on which the request is made to the company; or
- (b) within 60 days after the day on which the request is made to the company, if the record must be translated from a language other than French or English.

IMPORTATION REQUIREMENTS AND DOCUMENTS

Importer's declaration

37. (1) Subject to subsections (2) and (3), for the purposes of paragraph 153(1)(b) of the Act, any person importing an engine, vessel or vehicle into Canada must submit, prior to importation, a declaration to the Minister, signed by that person or their duly authorized representative, that contains the following information:

- (a) the importer's name and civic address and, if different, their mailing address;
- (b) the manufacturer's name, the number of engines, vessels or vehicles, as the case may be, to be imported and the make, model, model year and class of each of those engines, vessels and vehicles;
- (c) the day on which they are expected to be imported;
- (d) if the importer is a company,
 - (i) the business number assigned to the company by the Minister of National Revenue, and

(ii) a statement that each of those engines, vessels or vehicles bears the national emissions mark or that the company is able to produce the evidence of conformity referred to in subsection 35(1) or has produced the evidence of conformity in accordance with subsection 35(2), as the case may be; and

(e) if the importer is not a company,

(i) a statement from the importer that each of those engines, vessels or vehicles bears

(A) the national emissions mark,

(B) the emission control information label referred to in paragraph 35(1)(d) that indicates, as the case may be, that

(I) the engine conformed to the emission standards of the EPA in effect when its manufacture was completed,

(II) the fuel lines and fuel tanks installed in the vessel or the outboard conformed to the emission standards of the EPA in effect at the time of the completion of its main assembly, or

(III) the vehicle conformed to the emission standards of the EPA in effect at the time of the completion of its main assembly, or

(C) a label that indicates that the engine conformed to the emission standards of the California Air Resources Board in effect at the time of its manufacture or the vehicle conformed to the emission standards of the California Air Resources Board in effect at the time of the completion of its main assembly, as the case may be, or

(ii) a statement from the manufacturer or their duly authorized representative that, as the case may be,

(A) the engine conformed to the standards set out in these Regulations, or to the standards referred to in subclause (i)(B)(I) or clause (i)(C), when its manufacture was completed,

(B) each of the fuel lines and fuel tanks installed in the vessel or the outboard, as the case be, conformed to the standards set out in these Regulations, or to the standards referred to in subclause (i)(B)(II), at the time of the completion of the main assembly of the vessel or the manufacture of the outboard, or

(C) the vehicle conformed to the standards set out in these Regulations, or to the standards referred to in subclause (i)(B)(III) or clause (i)(C), at the time of the completion of its main assembly.

Exception

(2) A person who is not a company who, in a calendar year, imports at most 10 of any combination of engines, vessels and vehicles is not required to make the declaration referred to in subsection (1).

Alternative declaration

(3) For the purposes of paragraph 153(1)(b) of the Act, a company that, in a calendar year, imports at least 500 of any combination of engines, vessels and vehicles into Canada may submit the information referred to in subsection (1) in a form and manner that is satisfactory to the Minister.

Declaration — paragraph 155(1)(a) of Act

38. (1) A declaration referred to in paragraph 155(1)(a) of the Act must be signed by the importer, or their duly authorized representative, and must contain

- (a) the information described in paragraphs 37(1)(a) to (c) and subparagraph 37(1)(d)(i);
- (b) the identification number, if any, of the engine, vessel or vehicle being imported;
- (c) a statement that the engine, vessel or vehicle is to be used in Canada solely for the purposes of exhibition, demonstration, evaluation or testing; and
- (d) the day on which the engine, vessel or vehicle is to be removed from Canada or destroyed.

When to file declaration

(2) The declaration must be submitted to the Minister before the engine, vessel or vehicle is imported or, in the case of a company whose world production of engines, vessels and vehicles, combined, is at least 2,500 a year, quarterly, at the company's option.

Subsection 153(2) of Act

39. A company that imports an engine, vessel or vehicle in reliance on subsection 153(2) of the Act must, before the importation, submit a declaration to the Minister, signed by its duly authorized representative, that contains the information described in paragraphs 37(1)(a) to (c) and subparagraph 37(1)(d)(i) along with

- (a) a statement from the manufacturer of the engine, vessel or vehicle that when the engine, or the main assembly of the vessel or the vehicle, is completed in accordance with instructions provided by the manufacturer, the engine, vessel or vehicle will conform to the standards prescribed under these Regulations; and
- (b) a statement from the company that the manufacture of the engine, or the completion of the main assembly of the vessel or vehicle, will be completed in accordance with the instructions referred to in paragraph (a).

RENTAL RATE

Annual — 21%

40. The annual rental rate to be paid to a company by the Minister under subsection 159(1) of the Act, prorated on a daily basis for each day that an engine, vessel or vehicle is made available, is 21% of the manufacturer's suggested retail price of the engine, vessel or vehicle.

EXEMPTION

Application

41. A company applying under section 156 of the Act for an exemption from conformity with any standard set out in these Regulations must, before manufacturing or importing an engine, vessel or vehicle, submit the following information, in writing, to the Minister

- (a) its name and civic address and, if different, its mailing address;
- (b) the province or country under the laws of which it is established;
- (c) the section number, title and text of the standards from which an exemption is sought;
- (d) the duration requested for the exemption;

(e) the estimated number of engines, vessels or vehicles for which the exemption is sought and an estimate of the changes in the level of emissions if the exemption is granted;

(f) the grounds, based on any of paragraphs 156(1)(a) to (c) for the application, including technical and financial information that supports, in detail, those grounds;

(g) if the grounds of the application is substantial financial hardship,

(i) the world production of engines, vessels or vehicles manufactured by the company, or by the manufacturer of the model of the engine, vessel or vehicle that is the subject of the application, in the 12-month period that begins two years before the beginning of the exemption period that is requested, and

(ii) the number of engines, vessels or vehicles manufactured for, or imported into, the Canadian market by the company in that 12-month period; and

(h) if the company is requesting that information submitted be treated as confidential under section 313 of the Act, the reasons for the request.

Label for exempt engines and vehicles

42. (1) If the Governor in Council has, by order, granted an exemption under section 156 of the Act in respect of a model of an engine, vessel or vehicle, all engines, vessels or vehicles of that model must bear a label that meets the requirements set out in subsections 7(3) and (4).

Contents of label

(2) That label must set out, in both official languages, the standard for which the exemption has been granted, as well as the title and date of the exemption order.

DEFECT INFORMATION

Contents of notice of defect

43. (1) The notice of defect referred to in subsections 157(1) and (4) of the Act must be given in writing and must contain the following information:

(a) the name of the company giving the notice;

(b) the description of each engine, vessel or vehicle in respect of which the notice is given, including the make, model, identification number, model year, period of production and, if applicable, the EPA emission families;

(c) the estimated percentage of the potentially affected engines, vessels or vehicles that contain the defect;

(d) a description of the defect;

(e) an evaluation of the pollution risk arising from the defect;

(f) a statement of the measures to be taken to correct the defect; and

(g) a description of the means available to the company to contact the current owner of each affected engine, vessel or vehicle.

Contents of initial report

(2) A company must, within 60 days after the day on which a notice of defect is given,

submit to the Minister the initial report referred to in subsection 157(7) of the Act that contains the following information:

- (a) the information required by subsection (1);
- (b) the number of engines, vessels or vehicles in relation to which the notice of defect has been given;
- (c) a chronology of all principal events that led to the determination of the existence of the defect;
- (d) a description of the measures taken to correct the defect; and
- (e) copies of all notices, bulletins and other circulars published by the company in respect of the defect, including a detailed description of the nature and physical location of the defect with diagrams and other illustrations if necessary.

Contents of follow-up reports

(3) The company that gave the notice of defect must submit subsequent regular reports respecting the defect and the measures taken to correct it to the Minister, each of which must contain the following information:

- (a) the number, title or other identification assigned by the company to the notice of defect;
- (b) the number of engines, vessels or vehicles in relation to which the notice of defect has been given;
- (c) the date that notices of defect were given to the current owners of the affected engines, vessels or vehicles; and
- (d) the number or percentage of engines, vessels or vehicles repaired, and that required inspection only.

Frequency of follow-up reports

- (4) Each subsequent regular report must be submitted
 - (a) for engines, within 12 months after the submission of the initial report or a prior subsequent regular report, as the case may be; and
 - (b) for vessels and vehicles, within six months after the submission of the initial report or a prior subsequent regular report, as the case may be.

COMING INTO FORCE

60 days after registration

44. (1) Subject to subsection (2), these Regulations come into force 60 days after the day on which these Regulations are registered.

Registration

(2) Sections 1, 2, and 5 and subsections 6(1) and (2) come into force on the day on which these Regulations are registered.

SCHEDULE
(Subsection 6(1))

NATIONAL EMISSIONS MARK

**REGULATORY IMPACT ANALYSIS STATEMENT**

(This statement is not part of the Regulations.)

Executive summary

Issue: Air pollution is a serious problem in Canada, and the combustion of fuels to power vehicles and engines is a major contributor to this problem. The emissions from marine engines, vessels and off-road recreational vehicles are an important source of pollution, more specifically during the summer when most of these engines, vessels and vehicles are in operation, resulting in increased adverse impacts on the environment and on the health of Canadians.

Description: The objective of the *Marine Spark-Ignition Engine, Vessel and Off-Road Recreational Vehicle Emission Regulations* (hereinafter referred to as “the Regulations”) is to protect the environment and health of Canadians by establishing Canadian emission standards that contribute to the reduction of air pollutants from engines, vessels ([see footnote 1](#)) and vehicles. For the first time in Canada, these Regulations set Canadian emission standards and test procedures for marine engines, vessels with installed fuel lines or fuel tanks and off-road recreational vehicles. These Regulations are in alignment with those of the United States Environmental Protection Agency (U.S. EPA).

Overall, the Regulations will reduce emissions by establishing emission standards for the useful life of these engines, vessels and vehicles. To minimize the regulatory burden on manufacturers and importers, the Regulations recognize a U.S. EPA certificate as evidence of conformity and provide flexibility to meet the regulatory requirements by implementing an optional fleet averaging and emission credit system. Finally, the Regulations provide methods of determining conformity for companies that manufacture or import marine spark-ignition engines, vessels and off-road recreational vehicles only for sale in Canada without the need to rely on the U.S. certification system.

Cost-benefit statement: Given the integrated nature of the North American marine engines, vessels and off-road recreational vehicles markets and the expectation that Canada will continue to match U.S. standards, there is already a large degree of penetration of EPA compliant engines, vessels and vehicles in Canada. Under the business-as-usual scenario, it is assumed that all marine engines and vessels imported into Canada will continue to be compliant with existing U.S. EPA standards, while just a small percentage of the imported recreational vehicles will not comply with existing U.S. EPA standards. The regulated scenario assumes 100% compliance of marine engines, vessels and off-road recreational vehicles with the Regulations.

Based on these assumptions, importers that are currently supplying the Canadian market with products that do not meet U.S. EPA standards will incur costs in the form of higher price to bring compliant products to Canada. The increased cost of the products will be passed on to consumers in the form of higher price. The total present value of costs to consumers is estimated at \$21.1 million. The government is expected to incur cost to administer and enforce the Regulations. Costs to government are estimated to total \$6.8 million in present-value terms. Therefore, the present value of total costs resulting from the Regulations has been estimated to amount to \$27.9 million.

The EPA NONROAD model was used to calculate the emission reductions resulting from the Regulations relative to the business-as-usual scenario. It is estimated that for the period 2012 to 2030, there will be emissions reductions of 160 kilotonnes (kt) of hydrocarbons and oxides of nitrogen (HC+NO_x), 213 kt of carbon monoxide (CO), and 5.8 kt of particulate matter less than or equal to 2.5 micrometers (PM_{2.5}). Addressing these emissions will have a positive impact on the health of Canadians.

The value of the health and environmental benefits from these reductions were calculated using damage costs assigned in a recent study done for Transport Canada. These benefits are estimated to range from \$32.7 million to \$65.4 million (in present-value) depending upon the percentage of engines that are assumed to be operating in populated areas. In addition to the above, fuel economy benefits accruing to consumers was estimated at \$148.2 million in present value terms, not including savings on maintenance and assuming most of the non-compliant engines are two stroke engines which are replaced by four stroke engines. This implies that the value of benefits would range from \$180.9 million to \$213.6 million in present value terms.

The net benefit of the Regulations is therefore expected to range from \$153 to \$185.7 million. The benefits from the Regulations are likely to exceed the costs over a broad range of scenarios.

Business and consumer impacts: The Regulations are expected to have a positive impact on business as the Regulations create a level playing field for companies supplying the Canada-U.S. market with marine spark-ignition engines, vessels and off-road recreational vehicles. Allowing Canadian companies to use the U.S. EPA's emission certification program in Canada will result in significant cost savings for those companies. For consumers, the increase in price is expected to be offset by savings in fuel costs and health and environmental benefits, with no negative impact on product demand.

Domestic and international trade and cooperation: The Regulations establish Canadian emissions standards aligned with the requirements of the U.S. EPA in accordance with the Canadian commitment under the Ozone Annex to the 1991 Canada-United States Air Quality Agreement.

Issue

Air pollution is a serious problem in Canada, and the combustion of fuels to power vehicles and engines is a major contributor to this problem. Emissions from marine engines and vessels, such as personal watercraft, and off-road recreational vehicles, like all-terrain vehicles, are an important source of air pollutants, resulting in adverse impacts on the environment and on the health of Canadians, particularly since most of these engines, vessels and vehicles are often used during periods of warm weather associated with the formation of smog. The exposure to these emissions is important, given that operators of the engines, vessels and vehicles are often in close proximity to the exhaust system and have direct exposure to the emissions.

Among the emissions of concern from these engines, vessels and vehicles are HC including

volatile organic compounds ([see footnote 2](#)) (VOC), NO_x, CO and a number of other substances on the List of Toxic Substances (Schedule 1) of the *Canadian Environmental Protection Act, 1999* (CEPA 1999).

The estimated annual contribution of VOC and CO from these engines, vessels and vehicles relative to the total emissions from all mobile sources in Canada and relative to the national emissions inventory ([see footnote 3](#)) are summarized in Table 1. While NO_x emissions from these engines, vessels and vehicles have been estimated, they are not significant and therefore are not included in the table.

Table 1: Estimated emissions from marine spark-ignition engines, vessels and off-road recreational vehicles in Canada in 2007

	Emissions (kt)	Percentage Contribution Relative to Mobile Sources	Percentage Contribution to National Inventory ^a
VOCs	179.1	32.2	9.1
CO	567.8	8.2	6.2

^a All sources, excluding open sources (e.g. dust from paved and unpaved roads).

VOCs are involved, with other pollutants such as NO_x, in a series of complex reactions that result in the formation of ground-level ozone, which is a respiratory irritant and one of the major components of smog. Smog is a noxious mixture of air pollutants, consisting primarily of ground-level ozone and particulate matter (PM) that can often be seen as a haze over urban centres. CO inhibits the capacity of the blood to carry oxygen to organs and tissues. Human health studies indicate that air pollution contributes to premature deaths.

Objectives

The objective of the Regulations is to reduce adverse impacts on human health and the environment by reducing smog-forming emissions, such as HC, NO_x, CO and other pollutants listed as "toxic substances" ([see footnote 4](#)) in Schedule 1 of CEPA 1999, from marine spark-ignition engines, vessels and off-road recreational vehicles. Overall, the Regulations

- deliver the environmental objective of reducing emissions from these engines, vessels and vehicles by aligning Canadian standards and test procedures with those of the U.S. EPA;
- minimize, to the extent possible, the regulatory burden on companies; and
- Provide methods of determining conformity for companies that manufacture or import marine spark-ignition engines, vessels and off-road recreational vehicles only for sale in Canada without the need to rely on the U.S. certification system.

Description

The Regulations, under the authority of Division 5 of Part 7 of CEPA 1999, establish Canadian emission standards and test procedures aligned with those of the U.S. EPA for marine spark-ignition engines and vessels established under Title 40, Part 1045 and 1060 of the *Code of Federal Regulations* (CFR), and for off-road recreational vehicles established under Title 40, Part 1051 of the CFR. These standards generally apply to marine engines and vessels (i.e. outboard motor engines, personal watercraft engines, sterndrive and inboard engines and vessels powered by such engines with installed fuel lines or fuel tanks) and off-road recreational vehicles (i.e. snowmobiles, off-road motorcycles, all-terrain vehicles [ATVs] and utility vehicles) of the 2012 and later model years that are manufactured or assembled on or after the coming into force date of the Regulations. Vessels and outboard motors of the 2015 and later model years are subject to evaporative emission standards.

In December 2006, when the proposed Regulations were published in the *Canada Gazette*,

Part I, they incorporated by reference the provisions under Title 40, Part 91 of the CFR for marine engines. Since then the U.S. EPA has implemented new standards for recreational marine engines and vessels under Title 40, Part 1045 and Part 1060 of the CFR. In order to maintain alignment between the Canadian regulation and U.S. rules and, after consultation and agreement from stakeholders, the regulatory text was revised and now reflects the most current U.S. EPA standards. The Regulations, therefore, now refer to CFR Part 1045 and Part 1060.

More specifically, by incorporating by reference the new U.S. EPA standards found in CFR Part 1045 and Part 1060, the Regulations establish a more stringent level of emission standards for outboard and personal watercraft engines. Furthermore, the Regulations include new exhaust emission standards for sterndrive and inboard marine engines and new standards to control evaporative emissions for all outboard motors and vessels with installed fuel system components that use the regulated marine spark-ignition engines. These standards are described in more detail below in the section entitled "Emission standards for marine spark-ignition engines and vessels." The standards that were proposed for off-road recreational vehicles are still aligned with those of the U.S. EPA and are thus not modified.

The following sections summarize the emission standards ([see footnote 5](#)), fleet averaging regime, specifications related to emission-control systems, and other requirements.

General requirements

The Regulations apply to marine spark-ignition engines, vessels and off-road recreational vehicles that are manufactured in or imported into Canada on or after the coming into force date. They apply to companies in the business of manufacturing, distributing or importing these products for sale in Canada, and to persons who import these products for their own use.

Emission standards

Marine spark-ignition engines, vessels and off-road recreational vehicles are required to comply with emission standards for a defined "useful life," which is specified in years, hours of operation, or accumulated mileage, whichever comes first, and varies depending on the class of engine or vehicle as shown in Table 2.

Table 2: Useful life ([see footnote 6](#)) of marine spark-ignition engines and off-road recreational vehicles

	Engine	Years	Hours of Operation	Accumulated Mileage (km)
Outboard motors	all	10	350	—
Personal watercraft	all	5	350	—
Sterndrive and inboard engines	≤ 373 kW	10	480	—
	373 < kW ≤ 485	3	150	—
	> 485 kW	1	50	—
Snowmobiles	all	5	400	8 000
Off-road motorcycles	≤ 70 cc	5	—	5 000
	> 70 cc	5	—	10 000
All-terrain vehicles (ATV)	< 100 cc	5	500	5 000
	≥ 100 cc	5	1 000	10 000

Exhaust and permeation emission standards

Emission standards for marine spark-ignition engines and vessels

Emission standards for outboard and personal watercraft engines are starting with the 2012

model year. The HC+NO_x standard for engines producing less than or equal to 4.3 kW maximum power is 30 g/kWh. Engines producing greater than 4.3 kW have an HC+NO_x standard that gradually increases based on the engine's maximum power. The CO standard for engines producing less than or equal to 40 kW gradually increases based on the engine's maximum power. The CO standard for engines with maximum power greater than 40 kW is 300 g/kWh. It is expected that manufacturers will meet these standards with improved fueling systems and other in-cylinder controls. These standards are consistent with the requirements recently adopted by the U.S. EPA and the California Air Resource Board.

For sterndrive and inboard marine engines, the standards are 5 g/kWh for HC+NO_x and 75 g/kWh for CO starting with the 2012 model year. It is expected that manufacturers will meet these standards with three-way catalysts and closed-loop fuel injection. Special provisions for high-performance engines to reflect unique operating characteristics are included in the Regulations, i.e. exhaust emission standards based on power and distinct useful lives. These engines must meet the emission standards starting with the 2013 model year.

Standards to control evaporative emissions for all outboard motors and vessels using marine spark-ignition engines are also included in the Regulations. The standards apply starting with 2015 model year outboard motors and vessels and include requirements to control fuel tank permeation, fuel line permeation, and diurnal fuel tank vapor emissions.

The Regulations also include not-to-exceed exhaust standards, which are intended to ensure that emission controls function with relative consistency across the full range of expected operating conditions.

Emission standards for off-road recreational vehicles

Table 3: Standards for off-road recreational vehicles

Model Year	Emission Standards			Maximum Allowable Family Emission Limits		
	HC	HC+NO _x	CO	HC	HC+NO _x	CO
Snowmobiles (g/kW-h)						
2012 and later	a	—	a	150	—	400
Off-Road Motorcycles (g/km)^b						
2012 and later	—	2.0	25	—	20.0	50
All-Terrain Vehicles (g/km)^b						
2012 and later	—	1.5	35	—	20.0	—

^a The HC and CO standards are based on a formula; please consult paragraphs 103(a) and (b) of CFR 1051.

^b Optional standards exist for off-road motorcycles and ATVs that have small displacement engines. Temporary engine-based standards exist for 2011 to 2014 model year ATVs.

The permeation emission ([see footnote 7](#)) standards for off-road recreational vehicles are 1.5 and 15 grams per metre squared per day (g/m²/day) for vehicle fuel tanks and fuel lines, respectively.

Options of conformity with the standards

Marine spark-ignition engines, vessels and off-road recreational vehicles that are

manufactured in or imported into Canada on or after the coming into force date are required to conform to the exhaust and evaporative emission standards through one of the following options:

1. Conforming directly to the applicable standard;
2. Being covered by one or more EPA certificates of conformity and sold concurrently in Canada and in the United States; or
3. Conforming to a family emission limit in lieu of the standard and conforming on the basis of fleet averaging. ([see footnote 8](#))

Products covered by EPA certificates and sold concurrently

Given that the Regulations establish emission standards in Canada that are aligned with those of the U.S. EPA, the Regulations allow for the acceptance of regulated products that are covered by EPA certificates of conformity, provided that the products

1. are sold concurrently in Canada and in the United States; and
2. meet the standards or family emission limits referred to in the EPA certificate with respect to that engine, vehicle, or the fuel lines or fuel tanks installed in the vessel or outboard motor.

Fleet averaging and system of credits

The Regulations establish an optional fleet averaging regime for marine engines and off-road recreational vehicles. The regime provides flexibility to allow companies to certify their engines and vehicles to a family emission limit that is less stringent than the standard, as long as the increased emissions are offset, on a fleet-weighted basis, by engines or vehicles certified to a family emission limit that is better than the standard.

Under the fleet averaging regime, a company must compare the emissions calculated from its fleets of engines or vehicles to the emissions that would occur if each engine or vehicle of the fleets individually met the emission standards. If the fleet emissions are less than those allowed by the emission standards, the company may obtain emission credits. If the fleet emissions are greater than those allowed by the standards, the company incurs a deficit. This comparison must be performed by way of calculation for each fleet and for each emission type that is eligible for compliance by fleet averaging. The methods of calculation are consistent with those set out in the corresponding EPA rules.

Generally, the fleet average emission credits may be used in subsequent model years by the company or another company to offset a deficit. Except for fleets of the 2012 model year, fleet average emission deficits must be offset in the model year in which they are incurred by using previously generated credits or by obtaining credits from another company. Two additional model years are allocated to offset deficits for the 2012 model year due to the expectation that a limited number of credits will be available initially.

In general, fleet average emission credits generated from one fleet cannot be used to offset a deficit from another fleet. Similarly, credits generated for one type of emission (i.e. HC, HC+NO_x, CO or fuel tank permeation) can only be used to offset deficits associated with the same type of emission. Emission credits do not expire.

A company may exclude from its fleets the engines and vehicles that are covered by an EPA certificate and that are sold in greater numbers in the United States than in Canada. However, in so doing, the company forfeits all previously obtained credits for that fleet and does not obtain any credits for that model year.

The Regulations also require each company to submit to Environment Canada an end of

model year report, no later than June 1 of the calendar year following each model year, containing a statement that the company's engines, vessels or vehicles either (1) conform directly to the emission standard; (2) are covered by one or more U.S. EPA certificates and are sold concurrently in Canada and the United States; or (3) conform on the basis of fleet averaging, as applicable. Under option 3, the company must also report their fleet average emission values, fleet average emission credits/deficits, and all values used in the calculations. A company that uses option 2 must also report these values even though it is not choosing to conform on the basis of fleet averaging. Smaller companies who import less than 100 engines or off-road recreational vehicles are not required to report these values in their end of model year report.

The general approach for fleet averaging is similar to that used in the *On-Road Vehicle and Engine Emission Regulations* ([see footnote 9](#)) for light-duty vehicles. Environment Canada has analyzed companies' fleet average emissions data for Canadian on-road light-duty vehicles of the 2004–2007 model years. The results of the analysis demonstrate that the fleet averaging approach resulted in fleet average NO_x values below the applicable standards for these vehicle fleets. Accordingly, the Department believes that accepting U.S. EPA certification and a flexible approach to fleet averaging delivers fleet average emissions comparable to that of the United States. The approach under the Regulations will be monitored to ensure that Environment Canada's environmental objective is met on a sustained basis.

Other emission standards

The Regulations also require that no crankcase emissions be released from the prescribed engines and vehicles. General provisions concerning the performance of emission-control devices and a prohibition on the use of a defeat device are included in the Regulations. A defeat device is an auxiliary emission control device that reduces the effectiveness of the emission-control system under conditions of normal engine or vehicle operation that are not substantially covered by the certification tests. Engines, vessels and vehicles equipped with adjustable parameters must comply with all requirements of the Regulations, regardless of how the parameters are adjusted. Engines equipped with three-way catalysts and closed loop control of the air-fuel ratio must be equipped with a diagnostic system, and all electronically controlled engines of the 2013 and later model years must be equipped with a torque broadcasting system.

Alternative standards are available for replacement engines manufactured exclusively to replace an existing engine in a vessel for which no current model year engine exists that has the necessary characteristics required for the propulsion of the vessel.

National emissions mark

The "national emission mark" is a mark used primarily for enforcement purposes to indicate that an engine, vessel or vehicle complies with the Regulations. The provisions of Division 5 of Part 7 of CEPA 1999 prohibit a company from affixing a "national emissions mark" label to a vehicle or engine, or importing a vehicle or engine, unless it complies with the applicable standards set out in the Regulations. As fleet averaging is one option available for companies to demonstrate conformity of engines and vehicles with the standards, some engines and vehicles that do not individually meet the standards would still bear the mark because they comply on the basis of fleet averaging.

The Regulations establish the form of the national emissions mark, set out the manner of obtaining the Minister's authorization to use it, and prescribe other related requirements. The prescribed engines, vessels and vehicles that are manufactured in Canada are required to have the national emissions mark affixed to them as a condition of their transport between provinces or territories by a company. A national emission mark is not necessary for engines, vessels or vehicles that are manufactured for export.

Record-keeping and other administrative requirements

In addition to the technical standards described in the previous sections, the Regulations

include record-keeping and several administrative-type provisions that are necessary to operate and enforce the legislative scheme. The Regulations require companies to keep records or the name and address of the person who maintains the records on behalf of the company and to provide the information to Environment Canada upon request.

The Canadian marine spark-ignition engine, vessel and off-road recreational vehicle industry

It is estimated that there were approximately 3.6 million marine engines and off-road recreational vehicles in use in Canada in 2007. On a yearly basis, average new vehicle and engine sales in Canada are shown in the following table.

Table 4: Average yearly sales in Canada

Marine engines ^a	
Outboard motor	50 000
Personal watercraft	4 000
Sterndrive and inboard engines	11 000
Off-road recreational vehicle	
All-terrain vehicles and off-road motorcycles	90 000
Snowmobiles	40 000

^a It is assumed that the number of vessels sold is approximately equal to the number of engines sold.

In Canada, there is only one major manufacturer producing personal watercrafts and snowmobiles. Most of the production of personal watercrafts is sold in the U.S. while sales of snowmobiles are more evenly split between the Canadian market and the U.S. market. Sales of vehicles and engines in Canada represent approximately 8% of the Canada-U.S. market, except for snowmobiles, which represent 40% of that market.

All other types of off-road vehicles (ATVs, utility vehicles and off-road motorcycles) and marine engines (outboards, sterndrives and inboards), are imported in Canada by approximately 850 Canadian companies in 2007.

Canadian production and U.S. importation of marine engines and vessels represent 65% of yearly Canadian sales. The remaining marine engines and vessels offered for sale are mostly imported from Japan (30%).

Canadian production and importation from the U.S. of off-road vehicles represents 55% of the average yearly Canadian sales. The remaining importations are mainly from Japan (35%) for off-road recreational vehicles.

The majority of the regulated products are produced by seven major manufacturers, primarily Japanese and North American multinational companies offering products in more than one category.

The major Canadian manufacturer has indicated that all Canadian production already meets the requirements of these Regulations which are aligned with those of the EPA. Furthermore, products imported from the U.S. and Japan are for the most part also EPA certified.

The small number of vessel manufacturers in Canada generally import the engines and fuel system components used in their vessels from the U.S. and the majority of their vessels are destined for the U.S. market. It is therefore believed that these vessels are already EPA compliant.

Regulatory and non-regulatory options considered

No emissions standards

Emissions from marine engines, vessels and off-road recreational vehicles contribute to air pollution in Canada. Given that the usage and population of these products are expected to grow, the contribution to air pollution from these engines, vessels and vehicles is also expected to increase over time. Technology to reduce emissions from these engines, vessels and vehicles also exists and is applicable. Hence, the option of having no emission standards does not take advantage of the opportunity for reduction of emissions that have adverse impacts on air quality and human health.

While the majority of marine engines, vessels and off-road recreational vehicles sold in Canada already comply with U.S. EPA standards, it is important to recognize that a portion of these products does not. The absence of regulations in Canada leaves the Canadian market vulnerable to increasing volumes of “non-complying” products.

This option was therefore rejected.

Voluntary emission standards

Environment Canada currently has a Marine Spark-Ignition Engine memorandum of understanding (MOU) in place with the Canadian Marine Manufacturers Association. [\(see footnote 10\)](#) Under the MOU, major engine manufacturers, importers and dealers agree to voluntarily supply the Canadian market with engines designed to conform to the U.S. EPA emission standards for outboard motors and personal watercrafts of the 2001 and later model years. The MOU for marine engines is successful in achieving emission reductions from engines sold by the MOU signatories; however, the MOU does not apply to all companies that import or distribute marine engines in Canada.

The MOU was intended to be an interim measure pending the implementation of the Regulations. As stated in the Ozone Annex to the 1991 Canada-United States Air Quality Agreement, “. . . this is an interim measure that will be overtaken and replaced by the regulation. . . .” The option to continue with the voluntary emission standards for marine engines would therefore not fulfill Canada’s commitment under the Ozone Annex.

In the case of off-road recreational vehicles and vessels, the option of developing an MOU to align emission standards with those that were introduced for the first time in the U.S. was not pursued. A new regulatory framework ensures that no single company is allowed to manufacture or import vehicles, engines or vessels that do not meet the established standards and put other companies under competitive pressure to do likewise. The Regulations also provide the flexibility necessary for manufacturers and importers to operate in a competitive market, together with enforceability that offers a high level of environmental protection for Canadians. Given the importance of protecting the environment and improving air quality, Environment Canada has determined that a regulatory framework is appropriate for controlling emissions from marine engines, vessels and off-road recreational vehicles.

Accordingly, continuation of voluntary emission standards for marine engines was rejected, as was implementing an MOU for off-road recreational vehicles or vessels.

Regulations with unique Canadian standards

Currently, most of the marine engines and vessels sold in Canada already conform to the U.S. EPA standards. In the case of off-road recreational vehicles sold in Canada, it is anticipated that a large portion of these also conform to the U.S. EPA standards. If Canada were to adopt regulatory emission standards that are different than those in the United States, the cost of marine engines, vessels and off-road recreational vehicles designed to meet unique Canadian standards would be expected to increase, while potentially reducing product availability. Overall, unique Canadian standards would entail additional design and manufacturing costs and also require extensive development of testing and certification procedures. The higher costs would likely be passed on to consumers in the form of higher prices.

In addition, adopting unique Canadian standards would also conflict with the established policy of aligning standards for smog-forming emission with the U.S. EPA standards as reinforced in the *Regulatory Framework for Air Emissions*. This would also diverge with global harmonization of emission standards.

Accordingly, the adoption of unique Canadian standards was rejected.

Regulations aligned with the United States

In the context of the highly integrated Canadian and U.S. engine and vehicle industry and the progressive nature of U.S. federal emission standards, there has been broad support from stakeholders (i.e. industry, other government departments, and environmental non-governmental organizations) for the policy of Canada-United States alignment of emission standards. This support was evidenced throughout the consultation process associated with the regulatory development processes for the three on-road and off-road vehicle and engine emission regulations that are in effect under CEPA 1999. Aligning with U.S. rules allows for significant reductions in emissions and is cost-effective for companies and consumers.

The Regulations take into account the fact that most of the marine engines, vessels and off-road recreational vehicles sold in Canada are designed for and marketed in the United States. Accordingly, the Regulations allow a company to choose from three options to comply with the emission standards. Option 1 allows a company to demonstrate that its products comply directly with the emission standards, without relying on EPA certification or fleet averaging. Under option 2, the Regulations specifically recognize products covered by one or more EPA certificates that are sold concurrently in both countries and allow a company to conform to the standards referred to in the EPA certificates of conformity. Under option 3, with certain exceptions, a company is able to demonstrate compliance with the standard on the basis of fleet averaging.

As alignment with EPA emission standards represents the most cost-effective alternative for Canada to achieve its desired environmental objectives, this option was therefore retained.

Benefits and costs

Summary

The Regulations are expected to result in emission reductions of 159.7 kt of HC+NO_x, 212.9 kt of CO, 5.8 kt of PM_{2.5}, 1.9 kt of benzene, and 0.9 kt of formaldehyde over the period 2012–2030. These reductions will contribute to increased health and environmental benefits for Canadians. These benefits include reductions in adverse health impacts, restricted activity days, hospital admissions, work loss days, and premature mortality, as well as reductions in smog and environmental damage to crops and other vegetation. Depending upon the percentage of engines that are assumed to be operating in populated areas, the value of health benefits is estimated to range from \$32.7 million to \$65.4 million in present-value terms. In addition, fuel savings of \$148.2 million increase overall savings to Canadians to a range of between \$180.9 million and \$213.6 million in present value terms.

The Regulations will result in cost of \$21.1 million that will ultimately be passed on to consumers. Including \$6.8 million in costs to governments, the overall costs of the Regulations are estimated at \$27.9 million. These costs are expected to be offset by consumer savings in terms of reduced maintenance and fuel use. Using a social discount rate of 3%, the net benefit of the Regulations is therefore expected to range from \$153 to \$185.7 million under conservative assumptions. The benefits from the Regulations are likely to exceed the costs over a broad range of scenarios.

Benefits

Emission reductions

The Regulations introduce, for the first time in Canada, regulated emission standards for marine spark-ignition engines, vessels and off-road recreational vehicles.

It takes several years for in-use higher-emitting engines, vessels and vehicles to be replaced by the new compliant products. Once replacements occur, the reduction in emissions of air pollutants on a per-engine, vessel or vehicle basis will be significant. For example, the allowable levels of HC and CO from snowmobiles are reduced, on a per-vehicle basis, by approximately 50% and 31% respectively, compared to estimated average emission levels. Similarly, the allowable levels of HC and CO from off-road motorcycles and ATVs are reduced, on a per-vehicle basis, by up to approximately 96% and 26%, respectively, compared to estimated average emission levels. Therefore, over time, progressively greater reductions of multiple air pollutants emitted from the in-use fleet of engines, vessels and vehicles will occur.

To illustrate the emission reductions, Environment Canada forecast the emissions over the period 2012 to 2030, using the EPA NONROAD [\(see footnote 11\)](#) model with Canadian input data. There is no comprehensive data set which accurately captures the existing picture in terms of the stock and flow of the regulated products in Canada. Therefore, there is uncertainty associated with these emissions scenarios.

Given the highly integrated nature of the North-American market and based on trade flows, two scenarios for emission forecasts were modeled to assess the incremental impact of the Regulations: a base case scenario and a regulated scenario. The base case scenario emission forecast assumes that all marine engines and vessels imported into Canada will continue to be compliant with existing U.S. EPA standards, while it is assumed that there is a 90% penetration rate of EPA-compliant off-road vehicles that will enter into the Canadian market.

The regulated scenario assumes 100% compliance of marine engines, vessels and off-road recreational vehicles with the Regulations. Using the U.S. NONROAD model and emissions factors from a study conducted for Environment Canada by SENES Consultants Limited, emission estimates for the period 2012 to 2030 have been calculated for HC+NO_x, CO, and other substances on the List of Toxic Substances, Schedule 1 of CEPA 1999. The cumulative estimates of emissions reduction are presented in Table 5.

Table 5: Emission reductions of HC+NO_x, CO, and other toxic substances from marine spark-ignition engines, vessels and off-road recreational vehicles (2012–2030)

	Emission reduction (kt)
HC+NO_x^a	159.7
CO	212.9
PM_{2.5}^b	5.8
Benzene	1.9
Formaldehyde	0.9

^a HC and NO_x are a combined emission standard.

^b Particulate matter less than or equal to 2.5 micrometers.

Table 5 shows that cleaner marine engines, vessels and off-road recreational vehicles also result in reductions of other toxic substances. Although there are no specific limits for these substances in the Regulations, the application of improved engine and emission-control technologies used to meet HC standards has the effect of reducing these substances.

The new technologies are also, on a per-engine or per-vehicle basis, expected to reduce fuel consumption, which will result in lower emissions of carbon dioxide, a key greenhouse gas that contributes to climate change.

Health and environmental benefits

The potential emission reductions resulting from the Regulations would contribute to increased health and environmental benefits for Canadians. Such positive impacts would translate into social benefits, which include reductions in adverse health impacts, restricted activity days, hospital admissions, work loss days, and premature mortality, as well as reductions in smog and environmental damage to crops and other vegetation.

By ensuring the emission reductions through a regulatory framework, the Regulations will further improve air quality and reduce exposure to air pollutants and toxic substances, as identified in Table 5. Environment Canada has used damage cost values for CAC emissions most recently in the Regulatory Impact Analysis Statement for the *Passenger Automobile and Light Truck Greenhouse Gas Emission Regulations*. ([see footnote 12](#)) These estimates are based upon a previously contracted study for Transport Canada which assessed the damage cost of air pollution from transportation sources (primarily urban) to health (morbidity and mortality), agriculture (lost production yields for crops) and visibility (haze). ([see footnote 13](#)) Recently, a contracted report for EC updated the unit costs for each main pollutant to allow for inflation, resulting in the following 2009 values ([see footnote 14](#)):

- VOC: \$520/tonne
- NO_x: \$4,300/tonne
- PM2.5: \$15,100/tonne

Applying these values to the emission reductions found in Table 5 yields a present value of benefits of about \$99.1 million from 2012 to 2030. However, many of the regulated products are used in less populated areas where the impacts on air quality and corresponding effects on human health would be lower overall than the Transport Canada values. There is much uncertainty associated with any estimate of the overall health impacts of marine engines, vessels and off-road recreational vehicles in Canada. Nevertheless, in order to gauge the possible value of benefits to be realized, it was assumed that roughly 33% to 66% of the values estimated for Transport Canada apply to the regulated products in the scenarios considered. Under these assumptions, the total present value of benefits would range from \$32.7 million to \$65.4 million. Overall, the benefits would therefore range from \$180.9 million to \$213.6 million in present value terms.

Benefits to industry

In addition to the health and environmental benefits, the Regulations create a level playing field for companies supplying the Canada-U.S. market with marine spark-ignition engines, vessels and off-road recreational vehicles. At the domestic level, they ensure that all manufacturers, importers and distributors operating in this competitive market comply with the same standards.

As well, the fleet averaging provisions minimize the regulatory burden for manufacturers by providing them with the flexibility to adjust and develop their own technological solutions in order to achieve emission reductions.

Furthermore, given that the emission certification process for engines and vehicles may be complex and costly for manufacturers, accepting U.S. EPA certification as a means of conforming to the Regulations for products that are sold concurrently in Canada and the United States allows Canada to benefit from the U.S. EPA's emission certification program. This results in significant cost savings for Canadian companies.

Benefits to consumers

The engine technology improvements associated with meeting the standards are also expected to provide additional benefits to consumers, through reduced fuel consumption and maintenance. The fuel efficiency improvement achieved, for example, by changing from a conventional two-stroke to a four-stroke engine has been estimated to be up to 55%. Based on U.S. EPA data, reduced fuel consumption due to improved performance and less permeation is

estimated at 75, 84 and 409 litres per year for an ATV, a motorcycle and a snowmobile, respectively. On a per-engine or per-vehicle basis, this expected reduction in fuel consumption also results in lower emissions of carbon dioxide, a key greenhouse gas that contributes to climate change.

Using the sales data from Table 4 above, a growth rate of 5% is applied to generate the population of vehicles every year until 2030. A discount rate of 3% is used to calculate the present value of benefits. Based on this information and using the estimates above, the total reduction in fuel consumption over the period 2012-2030 is estimated at 375.7 million litres. This estimate is likely an upper-bound as a certain proportion of these engines could have already undergone technological improvements such as going from 2-stroke to 4-stroke. In such cases the savings would be lower. Applying the projected Canadian incremental fuel price increase of \$0.58 on average reduction in fuel consumption translates into cost savings to consumers of \$145.1 million over the same period in present-value terms.

Additional reduction in fuel consumption is expected due to the permeation standards. The present value of this cost savings over the period is estimated at \$3.1 million. The present value of the total fuel savings is therefore estimated at \$148.2 million.

Benefits to the Government

Adopting Canadian emission standards aligned with those of the U.S. EPA allows Canada to benefit from the U.S. emission certification program. This leads to more efficient administration and compliance monitoring of the Regulations and the need for fewer compliance promotion activities. These result in considerable cost savings for the government.

The Regulations also enable Canada to meet its commitments under the Ozone Annex to the 1991 Canada-United States Air Quality Agreement and under the Regulatory Framework for Air Emissions.

Costs

Costs to industry

As indicated earlier, most marine engines, vessels and off-road recreational vehicles imported into Canada are either from the U.S. or from Japan. These products are manufactured by global manufacturers that sell the same products both in the U.S. and in Canada. Importations from both U.S. and Japan combined with the Canadian production represent more than 90% of all engines and vehicles offered for sale in Canada. Therefore a conservative estimate would be that up to 90% of the off-road recreational vehicles that enter into the Canadian market already meet the standards set out in the Regulations.

Since off-road recreational vehicles and marine engines and vessels sold in Canada are designed for both the U.S. and Canadian markets, much of the technology development and manufacturing changes required to meet the new, more stringent standards in the Regulations have already been implemented by manufacturers in order to meet the U.S. EPA standards with which the Regulations are aligned.

The increased costs to manufacturers to meet U.S. emission standards have been estimated by the U.S. EPA in their regulatory impact analyses associated with the U.S. rules. The U.S. EPA estimated that, in order for manufacturers to meet the U.S. off-road recreational vehicle standards, the longer-term (2006–2030) incremental costs for manufacturers to design, certify and build compliant products are expected to range from CAN \$54 ([see footnote 15](#)) (US \$50) to CAN \$970 (US \$900) per snowmobile, less than CAN \$108 (US \$100) on average for an ATV, and less than CAN \$215 (US \$200) on average for off-road motorcycles.

Given the assumption that 90% of all off-road recreational vehicles that enter the Canadian market already meet the standards set out in the Regulations, it is estimated that foreign manufacturers of off-road recreational vehicles that supply the remaining 10% of vehicles will incur similar costs. Although these costs are to be incurred outside of Canadian borders, they

will ultimately be passed on to Canadian importers. Overall, for Canadian manufacturers and importers, the costs to meet the regulatory requirements are expected to be small. The one large Canadian manufacturer of snowmobiles and personal watercrafts has indicated that all its products are U.S. EPA compliant. The remaining smaller Canadian manufacturers that will be impacted by these Regulations represent only a small portion of the Canadian market. These are vessel manufacturers that use U.S. EPA compliant inboard and sterndrive engines manufactured in and imported from the U.S. to operate their boats. Thus, these manufacturers will face minimal costs in order to meet the requirements of the Regulations.

Furthermore, the Department has delayed the implementation of some exhaust standards as well as all evaporative standards for outboard motors and vessels relative to the timeline in the United States. This deferral will ensure that smaller companies are informed of the requirements and will provide them with sufficient lead time to adjust to them.

There will also be some incremental administrative costs for industry associated with record keeping, reporting and affixing the national emissions mark. This is estimated to be approximately \$85,000 annually.

Costs to consumers

It is recognized that the majority of products sold in Canada are imported and that, typically, the increased costs to meet established standards are passed on to importers and reflected in the product sale price to consumers. The proportion of the cost transferred to consumers in the form of higher price may vary due to many factors, including product demand. However, applying a 5% growth rate to the 2007 sales data presented previously, the population of non-compliant vehicles is generated for each year until 2030. A discount rate of 3% is used to calculate the present value of costs. Using this data and the U.S. EPA estimated price increases for compliant products, consumers are estimated to pay an incremental price increase of \$1.1 million in 2012. Over the period 2012-2030, the present value of the total incremental cost to Canadian consumers is estimated to amount to \$21 million. However, these costs will be offset by fuel savings, reduced operating costs, and health and environmental benefits, as explained in the benefits section above.

Costs to the Government

The federal government will incur incremental costs associated with the implementation and administration of the Regulations to supplement the existing program of several integrated initiatives to reduce emissions from vehicles, engines and fuels. The major cost components include regulatory administration, compliance promotion, compliance verification, laboratory upgrades to allow for emissions testing of marine engines, fuel lines and fuel tanks used in vessels and off-road recreational vehicles, and enforcement activities. The annual cost to the Government for an effective program to implement the Regulations will vary from year to year and is estimated to be up to \$1 million per year during the first five years of implementation and will decrease to about \$0.3 million thereafter. Using the 3% discount rate, the total cost to government over the period under study is estimated at \$6.8 million in present-value terms.

Competitiveness implications

The Canadian industry operates on a North American basis, manufacturing and importing products that, for the most part, already meet the standards in these Regulations. Therefore, the industry is not expected to be adversely affected by the Regulations.

Furthermore, the Regulations are expected to have a positive impact on Canadian business as the Regulations create a level playing field for companies supplying the Canada-U.S. market with marine spark-ignition engines, vessels and off-road recreational vehicles. To the extent that, in the absence of these Regulations, cheaper non-compliant engines could be imported in Canada over time, the Regulations prevent a deterioration of the competitive position of Canadian manufacturers that might otherwise take place. In addition, allowing Canadian companies to use the U.S. EPA's emission certification program in Canada will result in significant cost savings for those companies.

Conclusion

The Regulations are estimated to result in benefits that exceed the costs in a proportion exceeding 6:1. The net benefit of the Regulations is estimated at between \$153 million and \$185.7 million, over the 2012-2030 time period. The expected costs and benefits are presented quantitatively as well as qualitatively in the table below and provide a sense of their variations over time.

Table 6: Incremental Cost-Benefit Statement (\$ million)

Cost-Benefit Statement	Base Year: 2012	Intermediate Year: 2020	Final Year: 2030	Period 2012-2030 (PV)	Average Annual
A. Monetized Impacts					
<u>Benefits</u>					
Health (33%) ^a	1.1	2.7	3.0	32.7	1.7
Consumer	1.1	10.6	21.0	148.2	7.8
<i>Total Benefit</i>	2.2	13.3	24.0	180.9	9.5
<u>Costs</u>					
Consumers	1.1	1.4	2.5	21.1	1.1
Government	1.0	0.3	0.3	6.8	0.4
<i>Total Cost</i>	2.1	1.6	2.8	27.9	1.5
<i>Net Benefit</i>	0.1	11.6	21.3	153.0	8.1
B. Qualitative impacts					
Environment	Through the reduction in CAC emissions that cause smog, the Regulations will result in improvements in visibility and reduced impacts on agriculture, such as improving crop yield.				
Industry	Canadian manufacturers and importers will benefit from a level playing field in the North American markets for these products and will take advantage of using the U.S. EPA certification program to show compliance.				
Canada	The Regulations contribute to meeting Canada's commitments under the Ozone Annex as reinforced in the Regulatory Framework for Air Emission.				

^a Represents the health benefits calculated using 33% of the damage cost estimates for CAC emissions, as described in the *Health and environmental benefits* section.

Rationale

The combustion of fuels to power vehicles and engines contributes significantly to air pollution, resulting in adverse impacts on the environment and on the health of Canadians. An assessment of alternatives to manage these risks shows that maintaining the status quo does not take advantage of the opportunity to use readily accessible technologies to reduce emissions. Although a Memorandum of Understanding exists between Environment Canada and manufacturers of some types of marine engines, whereby the major engine manufacturers agree to supply engines that comply with the U.S. EPA standards to the Canadian market, there are opportunities for non-U.S. EPA compliant engines to enter the Canadian market. The Regulations represent the best option to help mitigate the impacts by establishing standards for vehicles, engines and vessels to reduce smog-forming emissions. The Regulations also provide the flexibility necessary for manufacturers and importers to operate in a competitive market, together with enforceability that offers a high level of environmental protection for Canadians. The regulatory framework provides a level playing field, ensuring that no single company is allowed to manufacture or import vehicles, engines or vessels that do not meet the established standards and put other companies under competitive pressure to do likewise.

The analysis shows that regulations introducing emission standards are the most cost-effective method to achieve the desired emission reductions from the Canadian environment. Positive impacts arising from improved air quality translate into social benefits which include further reduction in adverse health impacts, restricted activity days, hospital admissions, work loss days, and premature mortality, as well as further reductions in smog and environmental damage to crops and other vegetation.

Taking into account the fact that most of the affected vehicles, engines and vessels are assumed to meet the standards, the incremental costs to manufacturers and importers directly attributable to the Regulations are estimated to be small. The increase in cost will be passed on to consumers in the form of higher product prices. The incremental impact of price increase to the consumers is estimated to be \$21.1 million. However, the Regulations will be beneficial to consumers in the long run as the latter will enjoy lifetime cost savings relating to fuel consumption. These cost savings are estimated to be \$148.2 million. The annual cost to the Government to run an effective program to implement the Regulations will vary yearly and is estimated at up to \$1 million per year during the first five years and is estimated to decrease to \$0.3 million thereafter. The analysis shows that the benefits of the Regulations exceed the costs and result in a net benefit ranging from \$153 million to \$185.7 million.

The Regulations were developed in consultation with the industry, provincial and territorial governments, ENGOs and other government departments, who all showed support for the policy of alignment with U.S. federal emission requirements.

Coordination and cooperation

Under the Ozone Annex to the 1991 Canada-United States Air Quality Agreement, the government of Canada committed to develop and implement emission regulations for new off-road recreational vehicles under CEPA 1999 that are aligned with the U.S. federal emissions program. Environment Canada is also currently coordinating joint initiatives with the U.S. EPA in the areas of administration of regulations and compliance promotion in order to allow for efficiencies in the delivery of the regulatory programs. Coordinating efforts will increase the breadth and depth of monitoring and verification, allowing for more effective use of resources (avoiding duplication of efforts for both regulated community and regulators) and show industry that governments are working to reduce industry burden while improving regulatory oversight and performance monitoring.

In June 2000, the Government of Canada, along with the provinces and territories, except Quebec, adopted the Canada-wide Standards for Particulate Matter and Ozone. The Canada-wide Standards set ambient air quality concentration targets for ground-level ozone and fine PM for the year 2010. The Regulations also contribute toward meeting the targets established under the Canada-wide Standards for Particulate Matter and Ozone.

The *Notice of intent to develop and implement regulations and other measures to reduce air emissions* ([see footnote 16](#)) (October, 2006) and the associated *Regulatory Framework for Air Emissions* ([see footnote 17](#)) released on April 26, 2007 re-affirmed the Government's commitment to develop regulations to reduce smog-forming emissions from marine engines and off-road recreational vehicles in alignment with the standards of the EPA.

Consultation

Several regulations have been adopted in Canada based on a policy of alignment with U.S. standards, including the *On-Road Vehicle and Engine Emission Regulations*, the *Off-Road Small Spark-Ignition Engine Emission Regulations* and the *Off-Road Compression-Ignition Engine Emission Regulations*. The consultations associated with the development of each of these regulations revealed a broad consensus that Canada's regulatory emission standards for on-road and off-road vehicles and engines should be based on alignment with corresponding U.S. federal requirements. Stakeholders have generally identified that the integrated nature of the Canada/U.S. economy, and the implementation of aggressive national programs for on-road and off-road vehicles and engines by the U.S. EPA, are two key elements supporting a policy of alignment with U.S. federal programs as a logical approach for Canada to achieve significant emission reductions in a cost-effective manner.

In August 2004, a discussion document outlining the planned approach of the Regulations was released by Environment Canada to interested parties and was posted on the Department's CEPA Environmental Registry ([see footnote 18](#)) to ensure wide availability and accessibility. Subsequent discussions were held with various industry associations and companies to clarify specific technical elements of the discussion document.

Environment Canada received comments on the discussion document from six interested parties. The comments received and discussions held indicated support for several aspects of the Regulations and for the approach of having Canadian regulated emission standards aligned with U.S. federal standards.

One provincial ministry of the Environment was pleased that the federal government was taking steps to regulate emissions from marine engines used for recreation, but encouraged the federal government to consider adopting emission standards for recreational marine engines similar to those that have been adopted by the states of New York and California.

The U.S. EPA published a Final Rule on October 8, 2008, establishing new emission standards similar to those of California for the 2010 and later model year outboard motors, personal watercraft, and sterndrive and inboard. The Regulations are structured to maintain alignment with U.S. standards as they are updated.

In response to comments received on the discussion document, Environment Canada made the following technical changes:

- alternative standards for ATVs using engine-based test procedures are incorporated;
- the definition of a "competition vehicle" corresponds to criteria outlined in the U.S. federal rule, and a label indicating that the vehicle is a competition vehicle is required;
- a more simplified approach to the fleet averaging regime is developed; and
- requirements for an information tag are removed.

A detailed summary of the comments received and Environment Canada's responses is available in the "Reply to comments on the Discussion Document – Marine Spark-Ignition Engine and Off-Road Recreational Vehicle Emission Regulations" document ([see footnote 19](#)) available on Environment Canada's CEPA Registry.

A non-official draft of the Regulations was also distributed to known importers and manufacturers of marine engines and off-road recreational vehicles, in order to identify any possible outstanding technical issues.

Comments were received from two industry associations and two manufacturers, indicating that it would not be feasible to deliver products that would meet the new emission requirements in time for the previously targeted coming into force date of January 1, 2007 (as described in the August 2004 discussion document).

Environment Canada agreed and the proposed coming into force date was changed to provide adequate lead time for compliance.

Commenters also sought clarification on technical aspects of the draft regulations and, as a result, other minor changes were made to add clarity and address technical issues.

Consultations following publication of the proposed Regulations in the Canada Gazette, Part I, on December 30, 2006

Publication of the proposed *Marine Spark-Ignition Engine and Off-Road Recreational Vehicle Emission Regulations* in the *Canada Gazette, Part I*, on December 30, 2006, initiated a 60-day public consultation period where stakeholders were invited to submit their views on the proposed Regulations. The Department received comments from four interested parties: one manufacturer and three industry associations. The comments received indicated broad support among stakeholders for the policy of aligning Canada's emission standards with those of the U.S. EPA.

A summary of the main views submitted and Environment Canada's responses to them is presented below. A detailed summary of the complete comments received along with Environment Canada's responses is available on Environment Canada's CEPA Registry ([see footnote 20](#)) in the document titled "Reply to comments on the proposed Marine Spark-Ignition Engine and Off-Road Recreational Vehicle Emission Regulations."

- All associations commented that seasonal products such as marine engines and recreational vehicles are typically manufactured during a period of several weeks to several months in the calendar year preceding the year designated as "model year" by manufacturers.

After consideration, Environment Canada agrees and the provisions for model year are changed to recognize that the engines and vehicles subject to these Regulations are typically manufactured during short production periods through the calendar year before the "model year." The provision has been modified to allow for this.

- One manufacturer commented that the U.S. EPA intended to extend its optional temporary engine-based standards and test procedures available for ATVs of the 2006 to 2008 model year (ATVs must otherwise conform to chassis-based exhaust emission standards).

On April 26, 2007, the U.S. EPA issued a Direct Final Rule to extend the temporary engine-based exhaust emission standards for ATVs to the 2014 model year. Environment Canada has modified the appropriate subsection to ensure alignment with these subsequent changes made to corresponding U.S. EPA provisions.

- Two industry associations commented that some recreational vehicles are manufactured to allow users to adjust carburetor calibration in high altitude or low temperature situations where an adjustment would be required for proper engine function. The adjustable parameters section of the proposed Regulations requires that vehicles and engines conform to the standards for any setting within a range, but had lacked a provision similar to that of the U.S. EPA which defined limits to the range in the case of an adjustable air-fuel ratio parameter.

After consideration, Environment Canada modified the adjustable parameters section of the Regulations to align with the U.S. EPA's provisions in section 1051.115(d) of its final rule that define the limits of the range of the adjustable air-fuel ratio parameter.

- Two industry associations commented that the proposed annual rental rate that the Minister proposed to pay a company to obtain their product for testing did not reflect actual market depreciation of recreational vehicles.

Environment Canada considered the supporting data provided by the associations and changed the rental rate from 12% to 21%.

- One association and one manufacturer requested that, in addition to allowing companies to exclude from the fleet averaging calculations all of their engines and vehicles that are sold concurrently in the U.S. and Canada which are sold in greater numbers in the U.S. than Canada, a company be able to exclude up to two additional snowmobile engine families per model year provided the total number of units sold in the United States that are covered by an U.S. EPA certificate are at least one half the total number of units sold in Canada that are covered by the same EPA certificate during the same period.

Environment Canada recognizes that sales of most types of vehicles and engines represent about 10% of the Canada-U.S. market and that products are being designed largely for the U.S. market and emission rules. Analyses of other sectors have shown that the Canadian fleet average emissions are anchored to the U.S. fleet average. Sales of snowmobiles in Canada, however, represent approximately 40% of the sales in the Canada-U.S. market and there is a higher risk of deviation from the anchoring of the fleet average in Canada from that of the U.S. Environment Canada also recognizes that, from time to time, a model of

snowmobile may be sold in greater numbers in Canada than in the U.S., unlike most types of vehicles. Environment Canada believes the Regulations were designed with sufficient flexibility in that engines and vehicles may conform to the standards through one of the three options available. Furthermore, Environment Canada believes that the situation described by these stakeholders could be managed by using the second option for conformity outlined in paragraph 11(1)(b) of the Regulations (i.e. all of a company's engines, vessels or vehicles are sold concurrently in Canada and in the United States and are covered by one or more EPA certificates of conformity) or through the fleet averaging regime as is, with credits. Allowing companies to exclude additional engine families with fewer U.S. sales increases the risk of poorer environmental performance of the Canadian fleet.

- One industry association observed that a growing number of small companies import marine engines independently of major distributors (e.g. marinas importing boat packages) and pointed out that it may be a challenge for small companies to understand the complex requirements of fleet averaging. The association also expressed its desire for a level playing field and equal enforcement of the Regulations amongst all companies.

In response, Environment Canada has developed its compliance promotion material, specifically the "Technical Guidance Document for the Marine Spark-Ignition Engine, Vessel and Off-Road Recreational Vehicle Emission Regulations" in a manner that should assist companies, particularly smaller companies with less technical capacity, to understand the requirements of the Regulations. Also, the Regulations have been modified such that if a company imports less than 100 marine engines or off-road recreational vehicles and conforms on the basis of paragraph 11(1)(b) of the Regulations, the company does not have to provide the information related to fleet average emission values/credits/deficits otherwise required.

In response to other minor comments received, Environment Canada made changes to the regulatory text to improve the clarity of the Regulations and consistency with the EPA rules.

Additional consultations following publication in the Canada Gazette, Part I

While finalizing the Regulations, Environment Canada communicated with stakeholders and informed them of the revised timeline for final publication of the Regulations. Members of industry associations were informed on average twice a year through a number of meetings with the major industry associations.

During these exchanges, stakeholders continued to express their support for publication of the final Regulations aligned with the latest U.S. EPA standards and raised no concerns with respect to the regulatory provisions. Industry stakeholders in particular have indicated on numerous occasions that the publication of the final Regulations is necessary to create a level playing field for manufacturers and importers of marine spark-ignition engines, vessels and off-road recreational vehicles in Canada.

Special consultation with the marine industry

At the time of publication in the *Canada Gazette*, Part I, the proposed Regulations included standards for marine engines that were aligned with those that were in effect in the United States (CFR Part 91). As of January 1, 2010, new standards apply to marine engines and vessels in the United States under CFR Part 1045 and CFR Part 1060. Given this change, in April and May of 2010, Environment Canada conducted special consultations with the marine industry through the National Marine Manufacturers Association Canada to indicate its intention to modify the proposed Regulations to harmonize the standards with the latest EPA rule.

During those consultations the industry stressed that it was important to maintain the alignment of the standards between Canada and the U.S., and that it strongly supported alignment of the Canadian standards with those implemented under CFR Part 1045 and CFR Part 1060.

These CFRs also introduce standards applicable to new inboard and sterndrive engines and vessels with installed fuel system components. These new standards are incorporated by reference in the Regulations. Environment Canada made every effort to inform manufacturers and importers of these engines and vessels of the new regulatory requirements. These manufacturers and importers were not captured by the proposed Regulations when they were published in December 2006.

During communications between Environment Canada and these regulatees, all manufacturers of sterndrive/inboard engines and the major Canadian importers and manufacturers of vessels using these engines have indicated that they are supportive of the Regulations and have emphasized the importance of having harmonized requirements between the U.S. and Canada. They also have indicated that these Regulations would ensure a level playing field for companies supplying the Canada-U.S. market.

Although the regulatees expressed support for the new requirements, Environment Canada included in the Regulations provisions that delayed the implementation timeframe of certain new standards in order to help minimize the regulatory burden on these regulatees.

Implementation, enforcement and service standards

Implementation

For the purpose of implementing the regulatory requirements, Environment Canada plans to undertake a number of compliance promotion activities as this is the first time that many companies dealing with these products will have to meet regulated emission standards. These activities will be targeted toward raising awareness and encouraging the regulated community to achieve a high level of overall compliance during the regulatory implementation process. This will include the following:

- distributing compliance promotion materials including a general mail-out or email including the Regulations and a detailed technical guidance document which identifies requirements concerning compliance with the standards, evidence of conformity and other required information;
- maintaining a Web page related to the Regulations on Environment Canada's CEPA Environmental Registry to make information widely available;
- responding to inquiries and delivering information sessions as required.

Environment Canada administers a comprehensive program to monitor compliance with vehicle and engine emission standards. Companies are responsible for ensuring that their products comply with the Regulations and are required to maintain and produce evidence of such conformity. Environment Canada's program to monitor compliance includes:

- authorizing and monitoring use of the national emissions mark;
- monitoring importation of regulated products;
- reviewing company evidence of conformity;
- monitoring data submission for compliance with the fleet averaging regime;
- registering company notices of defects affecting emission controls;
- inspection of test engines, vessels and vehicles and their emission-related components; and
- laboratory emissions tests of sample new engines, vessels and vehicles that are representative of products offered for sale in Canada.

If an engine, vessel or vehicle is found to not comply with the Regulations, company responsible for the product will be subject to the enforcement provisions of CEPA 1999. In this situation, the normal course of events is to first perform an engineering assessment to determine if a notice of defect should be issued.

Environment Canada is coordinating efforts with the U.S. EPA by sharing information to increase program efficiency and effectiveness. Coordination and cooperation opportunities also exist to partner with organizations outside Environment Canada to perform compliance

promotion activities such as identifying regulatees and delivering key messages. These may include industry and customs brokers associations and other government departments.

Compliance promotion activities will be revisited from time to time to ensure that the Regulations are implemented in the most effective and efficient manner.

Enforcement

The Regulations are made under CEPA 1999; therefore, enforcement officers will, when verifying compliance with the Regulations, apply the Compliance and Enforcement Policy ([see footnote 21](#)) for CEPA 1999. This Policy sets out the range of possible responses to alleged violations, including warnings, directions, environmental protection compliance orders, ticketing, ministerial orders, injunctions, prosecution and environmental protection alternative measures (which are an alternative to a court prosecution after the laying of charges for a CEPA 1999 violation). In addition, the Policy explains when Environment Canada will resort to civil suits by the Crown for cost recovery.

To verify compliance, enforcement officers may carry out an inspection. An inspection may identify an alleged violation, and alleged violations may also be identified by Environment Canada's technical personnel, through information transmitted to the Department by the Canada Border Services Agency or through complaints received from the public. Whenever a possible violation of the Regulations is identified, enforcement officers may carry out investigations.

When, following an inspection or an investigation, an enforcement officer discovers an alleged violation, the officer will choose the appropriate enforcement action based on the following factors:

- *Nature of the alleged violation*: This includes consideration of the damage, the intent of the alleged violator, whether it is a repeat violation, and whether an attempt has been made to conceal information or otherwise subvert the objectives and requirements of the Act;
- *Effectiveness in achieving the desired result with the alleged violator*: The desired result is compliance within the shortest possible time and with no further repetition of the violation. Factors to be considered include the violator's history of compliance with the Act, willingness to cooperate with enforcement officers, and evidence of corrective action already taken; and
- *Consistency*: Enforcement officers will consider how similar situations have been handled in determining the measures to be taken to enforce the Act.

Services standards

For these Regulations, in its administration of the regulatory program, Environment Canada plans to provide these services in a timely manner:

- auditing companies' end of model year reports for fleet averaging;
- reviewing applications and preparing authorizations to use the national emissions mark;
- reviewing notices of defect and periodic reports issued by companies;
- assessing company's declarations for temporary importations; and
- assessing requests for exemptions from the Regulations.

In addition, the Department will audit evidence of conformity for products that are not covered by an U.S. EPA certificate of conformity or are not sold concurrently in Canada and the U.S. and provide to companies an acknowledgement of its receipt and whether it is presented "in a form and manner that is satisfactory" based on a set of criteria established by the Department. The Department intends to develop a guidance document describing the required evidence of conformity for these vehicles, engines and vessels and the procedures to be followed when submitting required documentation.

Performance measurement and evaluation

The Regulatory Framework for Air Emissions is a government-wide initiative designed to improve the health of Canadians and their environment through measurable reductions in both greenhouse gas and air pollutant emissions in all sectors of the Canadian economy. The Regulations are an element of the Government's Regulatory Framework for Air Emissions and contribute to meeting the Government's commitment to reduce air pollutant emissions in the transportation sector.

The Regulations introduce standards to reduce smog-forming emissions from marine spark-ignition engines, vessels and off-road recreational vehicles in alignment with the EPA standards. The Regulations set legally binding and nationally consistent requirements for all marine engines, vessels with installed fuel system components that use the regulated marine engines and off-road recreational vehicles manufactured or imported in Canada, thereby ensuring that the emission reductions are achieved.

The Regulations include provisions designed to facilitate Environment Canada's verification that compliance with the Regulations is achieved. Various compliance-related activities such as submitting annual end of model year reports detailing a company's fleet average, auditing evidence of conformity, and verification of emissions levels through testing will be carried out. Monitoring of compliance with the Regulations will be done on an ongoing basis. Reporting of the incidences of non-compliance by enforcement officers is expected to provide indicators of this achievement.

The Regulations will be administered by Environment Canada's Transportation Division and will be examined as part of the program evaluation under the Regulatory Framework for Air Emissions. Follow-up evaluations will be scheduled as per the department's evaluation planning cycle.

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[Footnote a](#)

S.C. 2004, c. 15, s. 31

[Footnote b](#)

S.C. 1999, c. 33

[Footnote c](#)

S.C. 1999, c. 33

[Footnote 1](#)

For the purpose of the Regulations, vessels are those vessels designed to use a marine engine for propulsion and that have installed fuel lines or fuel tanks.

[Footnote 2](#)

“Volatile organic compounds” include aldehydes and all hydrocarbons, except for methane and ethane. “Hydrocarbons” are all hydrocarbons (including methane and ethane) and do not include aldehydes.

[Footnote 3](#)

Environment Canada’s 2007 Criteria Air Contaminants (CAC) Emission Summary is available at www.ec.gc.ca/inrp-npri/.

[Footnote 4](#)

Schedule 1 of CEPA 1999 includes the following air pollutants, which are typically emitted from engines and vehicles: acetaldehyde; acrolein; benzene; 1,3-butadiene; formaldehyde; nitric oxide; nitrogen dioxide; respirable particulate matter with a diameter of less than 10 micrometres; sulphur dioxide; and volatile organic compounds that participate in atmospheric photochemical reactions.

[Footnote 5](#)

Any reference to “standards” in the context of the Regulations refers to regulatory standards; for all purposes of interpretation or application of the U.S. rules referenced in the Regulations, please consult the official publication of the U.S. CFR.

[Footnote 6](#)

Please consult paragraphs 103(e) or 105(e) of CFR 1045 or 103(c), 105(c) or 107(c) of CFR 1051 for conditions under which a different useful life must be specified. The useful life of a vessel is equal to the useful life of its engine.

[Footnote 7](#)

Permeation emissions are evaporative emissions resulting from the permeation of fuel through the fuel system materials.

[Footnote 8](#)

Refer to the Regulations for exceptions.

[Footnote 9](#)

The *On-Road Vehicle and Engine Emission Regulations* are available at www.ec.gc.ca/lcpe-cepa/eng/regulations/detailReg.cfm?intReg=65.

[Footnote 10](#)

Canadian Marine Manufacturers Association’s member companies are now represented by National Marine Manufacturers Association Canada.

[Footnote 11](#)

The *Passenger Automobile and Light Truck Greenhouse Gas Emission Regulations* are available at www.ec.gc.ca/lcpe-cepa/eng/regulations/detailReg.cfm?intReg=192.

[Footnote 12](#)

The *Passenger Automobile and Light Truck Greenhouse Gas Emission Regulations* are available at www.ec.gc.ca/lcpe-cepa/eng/regulations/detailReg.cfm?intReg=192.

[Footnote 13](#)

Marbek Resource Consultants and RWDI inc. *Evaluation of Total Cost of Air Pollution Due to Transportation in Canada* (Transport Canada, 2007).

[Footnote 14](#)

John Lawson, *Technical Report on Analysis of Proposed Regulation of Passenger Automobile and Light Truck Greenhouse Gas Emissions* (Environment Canada, 2010).

[Footnote 15](#)

The U.S. figures are in 2001 dollars and are converted to Canadian dollars using the 2007 annual average exchange rate of 1.075.

[Footnote 16](#)

Notice of intent to develop and implement regulations and other measures to reduce air emissions, Canada Gazette, Part I, October 21, 2006, Vol. 140, No. 42 at page 3351, available at www.canadagazette.gc.ca/archives/p1/2006/2006-10-21/html/notice-avis-eng.html#i3.

[Footnote 17](#)

Regulatory Framework for Air Emissions, April 26, 2007, available at www.ecoaction.gc.ca/news-nouvelles/20070426-1-eng.cfm.

[Footnote 18](#)

"Discussion Document – Marine Spark-Ignition Engine and Off-Road Recreational Vehicle Emission Regulations" is available at www.ec.gc.ca/lcpe-cepa/default.asp?lang=En&n=15195F9A-1.

[Footnote 19](#)

"Reply to comments on the Discussion Document – Marine Spark Ignition Engine and Off-Road Recreational Vehicle Emission Regulations" is available at www.ec.gc.ca/lcpe-cepa/default.asp?lang=En&n=1BE331E3-1.

[Footnote 20](#)

"Reply to comments on the Proposed Marine Spark-Ignition Engine and Off-Road Recreational Vehicle Emission Regulations" is available at www.ec.gc.ca/lcpe-cepa/eng/regulations/detailReg.cfm?intReg=109.

[Footnote 21](#)

Environment Canada's Compliance and Enforcement Policy is available at www.ec.gc.ca/alef-ewe/default.asp?lang=en&n=AF0C5063-1.

NOTICE:

The format of the electronic version of this issue of the *Canada Gazette* was modified in order to be compatible with extensible hypertext markup language (XHTML 1.0 Strict).

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