

**Report on the
Application of the
Alternative Fuels Act
Fiscal Year 2008–09**

© Her Majesty the Queen in Right of Canada,
represented by the President of the Treasury Board, 2009

Catalogue No. BT76-1/2009
ISBN 978-1-100-50280-9

This document is available on the Treasury Board of Canada Secretariat
website at <http://www.tbs-sct.gc.ca>.

This document is also available in alternate formats on request.

President's Message

I am pleased to table in Parliament the annual *Report on the Application of the Alternative Fuels Act*, for the fiscal year 2008–09, pursuant to the *Alternative Fuels Act*.

Original Signed by

The Honourable Vic Toews, P.C., Q.C., M.P.
President of the Treasury Board

Table of Contents

Executive Summary	i
1. Introduction	1
1.1 <i>Alternative Fuels Act</i>	1
2. Compliance with the <i>Alternative Fuels Act</i>	1
2.1 New alternative fuel vehicle acquisitions	2
2.2 Use of alternative fuels in the federal fleet	2
2.3 Cost-effectiveness and operational-feasibility constraints.....	3
2.4 Mitigating measures	4
2.5 Use of hybrid gasoline-electric vehicles in the federal fleet.....	4
3. Conclusion	5
Appendix 1: Terminology	6
Appendix 2: New Vehicle Acquisitions	8
Appendix 3: Hybrid Vehicle Acquisitions	10

Executive Summary

Annual Report on the Application of the Alternative Fuels Act

The *Alternative Fuels Act* (AFA) requires the President of the Treasury Board to report annually on the application of the AFA in respect of all federal bodies (departments and agencies) named in schedules I, I.1, and II of the *Financial Administration Act* (FAA).

This is the twelfth annual report on the application of the AFA.

The Alternative Fuels Act

The purpose of the AFA is to accelerate the use in Canada of alternative fuels in motor vehicles to reduce the emission of carbon dioxide and other greenhouse gases, thereby lessening dependence on petroleum-based fuels for transportation. These alternative fuels include ethanol, methanol, propane gas, natural gas, hydrogen, or electricity, which must be used as the sole source of direct propulsion energy.

Compliance with the Alternative Fuels Act

For the twelfth consecutive year, the federal government, through the activities of the federal bodies named in schedules I, I.1, and II of the FAA, exceeded AFA acquisition requirements, which prescribe that, when cost-effective and operationally feasible, 75 per cent of newly acquired vehicles be capable of running on alternative fuels. In the aggregate, the federal government acquired 1,898 alternative fuel vehicles during 2008–09—each one capable of operating on E85 ethanol fuel.

Conclusion

The availability of alternative fuel vehicles through manufacturers is increasing; however, the lack of an alternative fuel supply infrastructure throughout Canada has constrained the ability of the federal government to increase the use of alternative fuels in its fleet. This has resulted in limited progress in reaching the AFA target that was originally expected when the Act took effect in 1997.

Meanwhile, the federal government has continued to meet the objective of the AFA through several mitigating measures aimed at reducing harmful emissions from its fleet. They include the acquisition of vehicles capable of operating on both petroleum-based and alternative fuels, the acquisition of hybrid gasoline-electric vehicles, the application of environmental criteria in the evaluation of bids for federal vehicles, government-wide policies requiring the purchase of E10 gasoline where available, and the elimination of unnecessary idling. Over the years, the

modernization of the federal fleet with newer, cleaner, and more fuel-efficient vehicles has also led to a significant reduction in greenhouse gas and harmful ground-level emissions.

1. Introduction

The *Alternative Fuels Act* (AFA) requires the President of the Treasury Board to report annually on the application of the AFA in respect of all federal bodies (departments and agencies) named in schedules I, I.1, and II of the *Financial Administration Act* (FAA).

This is the twelfth annual report on the application of the AFA.

1.1 *Alternative Fuels Act*

The AFA received Royal Assent on June 22, 1995, and took effect on April 1, 1997. The purpose of the AFA is to accelerate the use in Canada of alternative fuels in motor vehicles to reduce the emission of carbon dioxide and other greenhouse gases, thereby lessening dependence on petroleum-based fuels for transportation. These alternative fuels include ethanol, methanol, propane gas, natural gas, hydrogen, or electricity, which must be used as the sole source of direct propulsion energy.

The AFA and the *Alternative Fuels Regulations* require that, when cost-effective and operationally feasible, 75 per cent of all motor vehicles operated by federal departments and agencies use alternative fuels. More specifically, the AFA requires that:

- ▶ of the portion of newly acquired vehicles deemed both cost-effective and operationally feasible to run on alternative fuels, 75 per cent must be physically capable of using these fuels; and
- ▶ when it is cost-effective and operationally feasible, a federal body shall use an alternative fuel in the operation of any motor vehicle capable of operating on such a fuel.

2. Compliance with the *Alternative Fuels Act*

Treasury Board policy requires departments and agencies to comply with the AFA when making motor vehicle procurement decisions. Supporting guidelines provide departments and agencies with additional information on the effective application of the AFA and the *Alternative Fuels Regulations* and with guidance on meeting their AFA obligations.

Though there has been an increase in the availability of alternative fuel vehicles for purchase, departments and agencies have been restricted to using mostly petroleum-based fuels due to a lack of alternative fuel infrastructure throughout Canada. Under these conditions, operating federal government vehicles on alternative fuels is operationally feasible only in certain areas. Nevertheless, in support of the objective of the AFA, the federal government has taken mitigating measures to reduce greenhouse gas emissions and increase the viability of using alternative fuels in its fleet. Details on these measures are provided in section 2.4.

2.1 New alternative fuel vehicle acquisitions

The federal government acquired a total of 4,605 vehicles during 2008–09, of which 1,898 were alternative fuel vehicles, exceeding any previous totals reported under the AFA.

All new factory-produced alternative fuel vehicles acquired during 2008–09 were ethanol 85/gasoline (E85) flexible fuel vehicles that are capable of running on gasoline alone or on any blend of gasoline and ethanol (up to a maximum of 85 per cent ethanol).

2.2 Use of alternative fuels in the federal fleet

The portion of the federal government's 4,173 E85 flexible fuel vehicles with access to E85 fuel consumed approximately 331,163 litres during 2008–09.

The federal government's 14 natural gas vehicles consumed approximately 15,629 kg of natural gas, and its 20 propane vehicles consumed approximately 40,265 litres of propane.

The federal government has also made use of low-level blended fuels, consuming 5,500,829 litres of E10 gasoline and 237,159 litres of biodiesel.

The following table summarizes departments and agencies' estimated fuel consumption by fuel type during 2008–09.

Fuel Type	Approximate Number of Vehicles	Total Estimated Annual Consumption	Percentage of Total Fuel Consumption
Gasoline	24,390	54,517,712 L	78.7%
Diesel	1,942	7,470,289 L	10.8%
E10 gasoline	Included in Gasoline numbers	5,500,829 L	7.9%
Hybrid (gasoline)	1,233	1,147,388 L	1.6%
Ethanol 85	4,173	331,163 L	0.5%
Biodiesel	Included in Diesel numbers	237,159 L	0.3%
Propane	20	40,265 L	0.1%
Natural gas	14	15,629 kg	0.1%
Total	31,772		100%

2.3 Cost-effectiveness and operational-feasibility constraints

During 2008–09, there were a number of cost-effectiveness and operational-feasibility constraints that worked against the acquisition of alternative fuel vehicles and the viability of using alternative fuels in the federal fleet.

- ▶ Although manufacturers increased their production of flexible fuel vehicles and offered them in a wider selection of vehicle classes, there continued to be a limited supply of factory-produced alternative fuel vehicles suitable for federal government operations.
- ▶ Although the price differential between E85 fuel and regular gasoline narrowed significantly in 2008–09, the lower energy content of E85 fuel compared to regular gasoline results in an inefficiency factor of 25 per cent, i.e. approximately 25 per cent more E85 fuel is necessary to travel the same distance. Therefore, the acquisition of a flexible fuel vehicle able to run on E85 fuel would not be cost-effective over its life when compared to regular gasoline.
- ▶ There were only four fuelling stations that offered E85 fuel commercially in Canada during 2008–09. All were in Ontario, with three located in regions outside of the main operating areas of federal vehicles. The fourth, located in Ottawa, only began selling E85 fuel near the end of 2008–09. Consequently, it was not operationally feasible to run alternative fuel vehicles on E85 fuel in most areas throughout Canada.
- ▶ Outside of urban areas, supplies of propane and natural gas remain limited and the operating hours of suppliers are often restricted.
- ▶ Some jurisdictions restrict the use of propane vehicles in certain areas for safety reasons, e.g. underground parking garages and some airport tarmacs.
- ▶ The installation of alternative fuel tanks in vehicles sometimes affects their operational capabilities because it reduces available cargo space.
- ▶ The effectiveness and quality of after-market conversion kits for propane and natural gas remain questionable, and testing has sometimes revealed a higher quantity of emissions than those produced from gasoline vehicles. Also, some departments noted that the limited number of approved warranty service facilities for converted vehicles resulted in higher maintenance and repair costs. Consequently, no federal vehicles were converted to alternative fuel use during 2008–09.

2.4 Mitigating measures

Despite the factors listed above, the federal government endeavoured to meet the objective of the AFA to accelerate the use in Canada of alternative fuels in motor vehicles to reduce the emission of carbon dioxide and other greenhouse gases. This was accomplished through several measures.

- ▶ The federal government continued to make use of the 14 E85 ethanol fuelling tanks installed on its own sites across Canada, thus increasing the viability of alternative fuel usage in those regions.
- ▶ To further reduce greenhouse gas emissions from the federal fleet, environmental criteria apply to the purchase of most passenger cars, minivans, and station wagons. These criteria provide an advantage to alternative fuel and hybrid gasoline-electric vehicles as well as vehicles equipped with fuel-efficient four-cylinder engines.
- ▶ Treasury Board policy requires departments and agencies to fill up with E10 fuel whenever possible and to take measures to eliminate unnecessary idling.

These measures articulate the federal government's commitment to meeting the objective of the AFA in a practical manner that takes advantage of opportunities to demonstrate environmental leadership despite cost-effectiveness and operational-feasibility constraints.

2.5 Use of hybrid gasoline-electric vehicles in the federal fleet

The trend in the automotive industry is a move toward hybrid gasoline-electric vehicles, and vehicle manufacturers introduced many models in different vehicle classes during 2008–09.

As hybrid gasoline-electric vehicles are not considered alternative fuel vehicles under the AFA, they were not included in the acquisition total of 1,898 reported in section 2.1. Because hybrid gasoline-electric vehicles meet federal operational needs, the federal government ordered 224 such vehicles in 2008–09. It now operates an estimated 1,233 of these vehicles. Department and agency acquisitions of hybrid gasoline-electric vehicle acquisitions during 2008–09 are itemized in Appendix 3.

3. Conclusion

During 2008–09, the federal government exceeded AFA requirements governing vehicle acquisition. However, constraints such as the lack of a supporting infrastructure for alternative fuels in Canada continue to curtail the ability of the federal government to increase the use of alternative fuels in its fleet. This has resulted in limited progress in reaching the AFA target that was originally expected when the Act took effect in 1997. Notwithstanding, the federal government has continued to work toward meeting the spirit and intent of the AFA through several mitigating measures, such as the acquisition of flexible fuel vehicles capable of operating on both petroleum-based and alternative fuels. This better positions its fleet should changes occur in the cost of and infrastructure for alternative fuels.

The government has also taken action to reduce greenhouse gas emissions from the federal fleet through its policies and required practices. For example, Treasury Board policy requirements to buy E10 fuel where available and to eliminate unnecessary idling result in lower emissions. Furthermore, environmental criteria are used in the evaluation of bids for federal vehicles, which provide an advantage to hybrid gasoline-electric vehicles, alternative fuel vehicles, and vehicles with fuel-efficient four-cylinder engines.

It is clear that the automotive industry is shifting its focus to hybrid technology to increase availability in more vehicle classes. This should provide the federal government with additional opportunities to purchase more hybrid vehicles and, as a result, reduce greenhouse gas emissions.

Despite the constraints that worked against the acquisition of alternative fuel vehicles and the use of alternative fuels in its fleet, the government's combined total of alternative fuel and hybrid gasoline-electric vehicles now represents approximately 17 per cent of the federal fleet.

Appendix 1: Terminology

This section provides definitions of the terms frequently used in this report.

Motor vehicle

For the purposes of reporting on the AFA, the term *motor vehicle* comprises automobiles, passenger vans, light- or medium-duty trucks, and buses.

Alternative fuel

Under the AFA, *alternative fuel* must include, but is not limited to, ethanol, methanol, propane gas, natural gas, hydrogen, or electricity, which must be used as the sole source of direct propulsion energy.

With respect to the purchase of motor vehicles, the definition of *alternative fuel* is broader under the *Alternative Fuels Regulations*. A blended fuel may also be deemed an alternative fuel under the Regulations when one of the alternative fuels defined above makes up at least 50 per cent of the blend. Flexible fuel and bi-fuel vehicles are also considered to be alternative fuel vehicles for the purposes of acquiring motor vehicles.

With respect to the use of alternative fuels, the definition of *alternative fuel* is broader under the *Alternative Fuels Regulations* and includes biodiesel and blended fuels. Blended fuels may include any amount of the approved alternative fuels defined above.

Bi-fuel vehicle

A *bi-fuel vehicle* has two separate fuel systems and can operate on either fuel (e.g. a bi-fuel gasoline-propane vehicle can operate on either gasoline or propane).

Flexible fuel vehicle

A *flexible fuel vehicle* has a single fuel system and operates on one of two different fuels alone or on a blend of the two (e.g. an E85 flexible fuel vehicle can operate on gasoline alone or on any blend of gasoline and ethanol to a maximum of 85 per cent ethanol).

Cost-effective

A vehicle is considered *cost-effective* for alternative fuel use if it can be demonstrated that either the additional cost of converting a vehicle to use alternative fuels or the cost of acquiring a factory-produced alternative fuel vehicle will be recovered in the form of fuel savings over the life of the vehicle.

Where net savings are greater than \$1, a vehicle is considered cost-effective for alternative fuel use.

Operationally feasible

Alternative fuel use is considered to be *operationally feasible* when it can be demonstrated that the vehicle will be able to fulfill its primary operational tasks.

The definition of operational feasibility will vary across departments and agencies according to a wide range of variables, such as the specific travel patterns of each vehicle, the mandate of the department or agency, the availability of alternative fuels wherever the vehicle will travel, local laws (or by-laws), the performance requirements of the vehicle, and the availability of the vehicle or of a suitable conversion kit.

Appendix 2: New Vehicle Acquisitions

The table below lists departments and agencies' new vehicle acquisitions under the application of the AFA for 2008–09. Consultations with each department and agency included in schedules I, I.1, and II of the FAA yielded the information reported. If a department or agency is not listed in the table, it did not acquire any new vehicle during 2008–09.

Department or Agency	Total Number of Vehicles Acquired	Number of Alternative Fuel Vehicles Acquired
Schedule I		
Agriculture and Agri-Food Canada	69	40
Canadian Heritage	1	0
Citizenship and Immigration Canada	2	0
Environment Canada	144	20
Fisheries and Oceans Canada	178	20
Health Canada	74	21
Human Resources and Skills Development Canada	13	11
Indian and Northern Affairs Canada	35	4
Industry Canada	26	8
National Defence	1,045	351
Natural Resources Canada	38	22
Public Works and Government Services Canada	20	9
Transport Canada	93	38
Treasury Board	2	0
Veterans Affairs Canada	3	2
Western Economic Diversification Canada	1	1
Totals for Schedule I	1,744	547

Department or Agency	Total Number of Vehicles Acquired	Number of Alternative Fuel Vehicles Acquired
Schedule I.1		
Atlantic Canada Opportunities Agency	5	1
Correctional Service Canada	76	17
Courts Administration Service	1	0
National Parole Board	5	0
Privy Council Office	4	0
Public Service Commission of Canada	1	0
Registrar of the Supreme Court of Canada	1	0
Royal Canadian Mounted Police	2,490	1,259
Totals for Schedule I.1	2,583	1,277

Department or Agency	Total Number of Vehicles Acquired	Number of Alternative Fuel Vehicles Acquired
Schedule II		
Canada Border Services Agency	128	52
Canada Revenue Agency	9	5
Canadian Food Inspection Agency	13	0
National Research Council Canada	13	3
Parks Canada	113	13
Transportation Safety Board of Canada	2	1
Totals for Schedule II	278	74
Total for all Schedules	4,605	1,898

Appendix 3: Hybrid Vehicle Acquisitions

The table below lists departments and agencies' hybrid gasoline-electric vehicle acquisitions for 2008–09. Consultations with each department and agency yielded the information reported. If a department or agency is not listed below, it did not acquire any new hybrid gasoline-electric vehicle during 2008–09.

Department or Agency	Number of Hybrid Gas-Electric Vehicles Acquired
Agriculture and Agri-Food Canada	9
Atlantic Canada Opportunities Agency	4
Canada Border Services Agency	4
Canadian Food Inspection Agency	8
Correctional Service Canada	2
Canadian Heritage	1
Citizenship and Immigration Canada	1
Environment Canada	23
Fisheries and Oceans Canada	6
Health Canada	6
Human Resources and Skills Development Canada	1
Indian and Northern Affairs Canada	4
National Defence	27
National Parole Board	2
National Research Council Canada	1
Natural Resources Canada	6
Parks Canada	5
Public Service Commission of Canada	1
Public Works and Government Services Canada	4
Royal Canadian Mounted Police	79
Transport Canada	27
Treasury Board	2
Veterans Affairs Canada	1
Grand Total	224