



Quebec's strategy for managing ozone-depleting substances and their replacement products

1. [Introduction](#)
2. [Problem overview](#)
3. [Foundations for a renewed commitment by Québec](#)
4. [Goals](#)
5. [Principes](#)
6. [Orientations](#)
7. [Means of implementation](#)
8. [International Action by Québec](#)

Tables

1. [ODS are GHGs](#)
2. [Halocarbon alternatives are GHGs](#)

Illustrations

1. [Sales pattern for halons](#)
2. [Sales Pattern for CFC and HCFC](#)
3. [National Inventory of CFC & HCFC Installations in Canada \(1994\)](#)



Last Update : 2003-10-29

| [Home](#) | [Site Map](#) | [E-mail](#) | [What's New?](#) | [Links](#) | [Search](#) | [About the Site](#) |

| [Privacy Protection Policy](#) | [Site Construction](#) | [Find](#) |

Québec 

© Gouvernement du Québec, 2002



Quebec's strategy for managing ozone-depleting substances and their replacement products

1. Introduction

- [Vienna Convention](#)
- [Montréal Protocol](#)
- [Canadian commitments](#)
- [Québec's commitments](#)
- [Preparation of a Québec strategy : a commitment by the Minister](#)

1. Introduction

The depletion of the ozone layer was a preoccupation when it was first identified in the 1970s and became a growing concern for scientists and governments in the 1980s, when the scientific evidence pertaining to this phenomenon was confirmed by various studies. A greater awareness on the part of scientific and political circles around the world has fostered international cooperation to deal with this phenomenon.



Vienna Convention

The 1985 Vienna Convention on the protection of the ozone layer was the first modern agreement to deal with a global environmental problem. This convention established the general principle of the need to protect the stratospheric ozone layer as well as the objective of preserving its integrity. Some twenty signatories, including Canada, agreed to protect the ozone layer without however specifying the strategy or the means that would be employed. This Convention represented a first step. In the meantime, additional scientific evidence showed that chlorofluorocarbons (CFCs) and bromofluorocarbons (halons) were contributing to the ozone depletion process.



Montréal Protocol

In 1987, the principle of the protection of the ozone layer took tangible form in precise timetables for eliminating CFCs and halons, and a framework restricting their use to specific applications and with respect to clearly identified substances. This principle and the timetables were confirmed in an environmental treaty signed by some twenty countries, including Canada, in Montréal in September 1987. This treaty, which has been signed by 165

countries to date, is known as the Montréal Protocol.

Since its adoption in 1987, the Montréal Protocol has been amended four times to take into account the progress made in scientific knowledge relating to this phenomenon and the appearance of noticeable signs of ozone-layer depletion. In brief, all of the amendments made led to the elimination of the production of halons in 1994 and to that of CFCs in developed countries in 1996. The amendments also set 2030 as the deadline for eliminating the production of HCFCs, even though their use in the manufacture of plastic foams must be eliminated between now and 2010. The adjustments to the protocol were made in response to recommendations formulated by groups of international scientific experts and were ratified by the governments. The adoption of the protocol by the signatory countries has prompted these countries to devise national strategies, programs and regulations concerning ozone-depleting substances (ODS). These substances include chlorofluorocarbons (CFCs), hydrochlorofluorocarbons (HCFCs), bromofluorocarbons (halons), methylchloroform (CH₃CCl₃), tetrachloromethane (CCl₄) and methyl bromide (CH₃Br).



Canadian commitments

In 1992, the Canadian Government, in consultation with the provinces, prepared Canada's Ozone Layer Protection Program. It proposes a number of regulatory initiatives as well as a variety of information tools intended for the public and specialized users of ODS. This program's administrative objective is to define or prioritize the fields of intervention between the federal and provincial levels to minimize potential overlapping. In short, it was agreed that measures pertaining to the production, importing and exporting of ODS would fall under federal jurisdiction whereas measures dealing with the sale, management and use of ODS would mainly depend on the provinces. The Federal-Provincial Working Group on controls harmonization (Ozone-Depleting Substances) was created in 1989. This group is made up of representatives of the provincial Departments of the Environment and the federal Department of the Environment. The group is chaired by Environment Canada. It serves as a discussion forum between the provinces and the federal government on the technical aspect of ODS controls. The group advises authorities on the orientations that should be taken with respect to the protection of the ozone layer. In 1997, the group collaborated in the preparation of [Canada's National Action Plan for the environmental control of ozone-depleting substances \(ODS\) and their halocarbon alternatives](#). The Canadian Council of Ministers of the Environment (CCME) approved this plan. Its aim is to facilitate the implementation of the provisions of the Montréal Protocol in Canada. The Federal-Provincial Working Group also contributed to the preparation of two codes of practice that were published at the Canadian level. They are the [Environmental Code of Practice on Halons](#) and the [Environmental Code of Practice for elimination of fluorocarbon emissions from Refrigeration and Air Conditioning systems](#).



Québec's commitments

Like other Canadian provinces and the federal government, Québec has assumed its responsibilities in matters pertaining to the protection of the ozone layer, a major environmental issue. In June 1993, Québec passed the *Regulation respecting ozone-depleting substances*. Québec's regulation sets certain limitations with respect to the substances covered by the protocol at the

present time. It stipulates, among other things, that CFCs and HCFCs must be recovered when work is done on refrigeration and air conditioning equipment and that wholesalers distributing such substances must submit to the ministère de l'Environnement an annual report on the quantities distributed. The regulation bans the use of aerosols containing CFCs as well as the sale of fire extinguishers using halons. It also prohibits the use, in Québec hospitals, of gases containing CFCs or an HCFC to sterilize medical instruments.

Since 1993, the year in which ODS became a new field of intervention of the Ministry, the Montréal Protocol and our knowledge concerning the phenomenon of ozone layer depletion have evolved rapidly. Given that the Montréal Protocol has been amended four times, it is clear that Québec must reassess its interventions in this field to keep up-to-date and to continue contributing to the world effort to protect the ozone layer. This reassessment must be made in light of a number of principles and objectives while taking into account the general context in Québec, the context in Canada and international trends. In August 1997, the Ministry held a preliminary consultation with the main stakeholders in Québec. During this consultation, the Ministry announced its intention of modernizing and updating its interventions in this area. This consultation, which included the participation of industrial and commercial associations, industries, environmental groups and municipalities, made it possible to obtain the views of the various sectors. All parties agreed that Québec's commitment in this field needs to be renewed and revamped to adjust to Canadian and international trends.



Preparation of a Québec strategy: a commitment by the Minister

During the celebrations marking the 10th anniversary of the Montréal Protocol, in September 1997, Mr. Paul Bégin, Québec's Minister of the Environment, reaffirmed Québec's adherence to the protocol's principles and objectives. He announced that the Ministry would prepare a strategy adapted to the amendments made to the Montréal Protocol and taking into account the management of new substances replacing ODS, which have begun to make their way on to the Québec market. This move should allow Québec to make a significant contribution to the world effort to protect the ozone layer and, in turn, to the reduction of emissions of greenhouse gases (GHG), ODS and replacement substances having a powerful greenhouse effect.



Last Update : 2003-10-31

| [Home](#) | [Site Map](#) | [E-mail](#) | [What's New?](#) | [Links](#) | [Search](#) | [About the Site](#) |

| [Privacy Protection Policy](#) | [Site Construction](#) | [Find](#) |



© [Gouvernement du Québec, 2002](#)



Quebec's strategy for managing ozone-depleting substances and their replacement products

2. Problem overview

- [The stratospheric ozone layer: a natural atmospheric shield](#)
- [State of the ozone layer](#)
- [Halocarbon alternatives: an emerging concern](#)
- [Assessment of Québec measures to protect the ozone layer](#)
 - [Assessment of CFC, HCFC and halon sales](#)
 - [Assessment of regulatory actions](#)
- [Identification of shortcomings in Québec's current commitment](#)

2. Problem overview

The stratospheric ozone layer: a natural atmospheric shield

The natural ozone layer is found in the stratosphere at an altitude of 10 to 50 km; the maximum concentration is reached at an altitude of 20 to 23 km. If all of the ozone found in the stratosphere were concentrated, it would occupy a space approximately 3 mm thick around the Earth. However, this small concentration of ozone is enough to filter out the ultraviolet rays that are detrimental to the plant kingdom and living beings on Earth. Indeed, the ozone layer serves as a sunscreen. Of the in-coming radiation penetrating the atmosphere, only low-energy ultraviolet radiation reaches the Earth's surface. This remnant can be used and easily assimilated by living beings. Without the natural atmospheric shield, life on Earth would be difficult, if not impossible.

The alteration of the integrity of the ozone layer by halogenated substances, such as CFCs, halons and HCFCs, which have made their way up to the stratosphere, has serious consequences for the balance of terrestrial ecosystems, vegetation and the health of living beings. The number of cases of skin cancer in environments where ultraviolet radiation is intense has grown significantly. Already, the World Health Organization (WHO) has noted over the last fifteen years a rise in the skin cancer rate in northern countries. It is estimated that a 1 % decline in the quantity of stratospheric ozone corresponds to a 2 % increase in the incidence of non-melanomic skin cancer (NMSC). The immune system is also affected by ultraviolet radiation, which undermines the natural defences of living organisms. This radiation inhibits the mechanisms involved in the immune system process. In humans and animals, intense UV radiation affects eye health by promoting the appearance of cataracts. The deterioration of the ozone layer also has consequences for agriculture. The yield of certain plant species (cultivated oats, cucumbers, peppers and canola) may be reduced when the lighting has a high UV ray concentration. According to several scientists, there has been a decline in the populations of some aquatic species (shrimp and crab larvae as well as young fish) due to the deeper

penetration of ultraviolet radiation. Indeed, because UV rays are being filtered out less, they have much more energy when they reach the Earth's surface and the oceans.



State of the ozone layer

The depletion of the ozone layer is a global problem that extends beyond Québec's borders. However, we are not immune to the medium- and long-term consequences. The condition of the ozone layer above Canada, and hence above Québec, can be evaluated with the help of the [National Set of Environmental Indicators](#) that Environment Canada publishes each year. The most recent indicators date back to 1997. In the spring of 1997, the ozone concentration in the stratosphere above Canada fell by 10.4 % in relation to the 1993 level. During the first six months of 1997, the total ozone concentration above Canada followed the downward trend of the last fifteen years. Since 1979, the general decline in the stratospheric ozone concentration has been from 4 to 6 % per decade at mid latitudes and from 10 to 12 % at higher latitudes. Since 1980, there has been a long-term downward trend in worldwide stratospheric ozone concentrations. Based on Environment Canada data, the stratospheric ozone above Montréal diminished by 4.1 % in 1996 and by 5.0 % during the first six months of 1997. Finally, following an analysis of data collected in Toronto since 1986, authorities have found that the ultraviolet radiation at 300 nanometres (nm) tends to increase by 1 % per year. This finding might be explained by a reduction in the stratospheric ozone, leading to a greater concentration of UVBs (290 to 315 nm), to the detriment of UVAs (315 to 400 nm), which are less harmful to life on Earth. It is imperative that we continue to take measures to reduce the chlorine load in the stratosphere.

World atmospheric concentrations of CFC-11 and CFC-12 have risen since 1977. However, their rate of increase has declined since 1989, reflecting the positive effects of the Montréal Protocol and its amendments. Atmospheric concentrations of CFCs were expected to peak in 2000 and to decline irreversibly thereafter. The replenishment of the ozone layer could be achieved by around 2050 if all signatories implement all amendments made to the protocol. It is important to pursue the measures to control these substances and to plan for their eventual destruction.



Halocarbon alternatives: an emerging concern

The implementation of the provisions of the Montréal Protocol in developed countries has resulted in a drastic reduction in the use of CFCs and halons in commercial and industrial applications. Initially, these applications use substances such as HCFCs as alternatives. HCFCs are transitional substances whose use must be discontinued progressively between now and 2020, as they have an ozone-depletion potential, albeit lower than that of CFCs. World ODS producers are currently focusing their efforts on the search for and the development of new substances that might eventually replace HCFCs and all ODS in general. Already, hydrofluorocarbons (HFCs) and perfluorocarbons (PFCs) are being used to replace ODS in industrial and commercial applications. HFCs and PFCs are chemical compounds which, like CFCs and HCFCs, fall under the name of "halocarbons". They will come into growing use over the next 25 years. Based on preliminary data from Environment Canada, annual HFC imports to Canada rose from approximately 3000 to 5000 tonnes between 1996 and 1998. HFC-134a accounts for the lion's share of HFC imports. This trend is already well underway.

The elimination of ODS and their replacement represent an answer to the ozone depletion problem, but place added pressure on another major environmental issue, climate changes. In some cases, the replacement of ODS by halocarbons means replacing a greenhouse gas by another one that is even more powerful (see Tables 1 and 2). This aspect is not addressed in Québec at the present time. Indeed, the regulation in effect in Québec does not take into account an eventual contribution to the amplification of the natural greenhouse effect resulting from the increased use of halocarbon alternatives such as HFCs and PFCs. The European Environmental Agency (EEA)¹ maintains that ODS (CFCs, HCFCs and halons) are responsible for an approximate 10 % amplification of the natural greenhouse effect on a global scale. According to estimates based on Canadian consumption, the contribution of Québec's ODS consumption is equivalent to approximately 10 % of Québec's total man-made greenhouse gas emissions in equivalent CO₂, if the entire consumption were in the atmosphere².

Table 1 - ODS are GHGs

CFC/HCFC	Ozone-depleting potential (ODP)	Global warming potential (GWP)
CFC-11	1	4000
CFC-12	1	8500
CFC-113	0.82	5000
CFC-114	1	9300
CFC-115	0.6	9300
CFC-500	0.74	6310
CFC-502	0.33	5590
CFC-503	0.6	11860
HCFC-22	0.055	1700
HCFC-123	0.02	93
HCFC-124	0.022	480
HCFC-141b	0.11	630
HCFC-142b	0.065	2000

Source: UNEP

Table 2 - Halocarbon alternatives are GHGs

Halocarbons (PFC and HFC)	Ozone-depleting potential (ODP)	Global warming potential (GWP)
trifluoromethane	0	9000
heptafluoropropane	0	2050
perfluorobutane	0	5500
HFC-236fa	0	6300
Halon 1211	3	0
Halon 1301	10	5600
HFC-134a	0	1300

Source: UNEP

The integration of the two problems is inevitable. In dealing with the problem of

the depletion of stratospheric ozone by using HFCs and PFCs, there is a potential risk of amplifying the natural greenhouse effect if no control is exercised over the management of substances. There will be a major increase in replacement products in the years to come. HFC and PFC users do not differ from ODS and replacement product users. That is why it is important to establish, right away, guidelines to evaluate the relevance of employing such substances and determining if their use should be allowed or prohibited. When choosing among the various alternatives available, society should refrain from using greenhouse gases as replacement products when non-greenhouse gases are available. Québec's new strategy must center on an integrated approach.



Assessment of Québec measures to protect the ozone layer

Québec has joined the world effort to protect the ozone layer. In June 1993, the *government passed the Regulation respecting ozone-depleting substances*. Through this regulation, the Ministry has obtained, among other things, statistics on annual CFC, HCFC and halon sales made in Québec since 1993.

Assessment of CFC, HCFC and halon sales³

The assessment for 1993 to 1996, the four years for which all data have been compiled, is now known. Total CFC sales fell by 94.5 % during the period in question. More specifically, total sales of CFC-11, 12 and 502, the three most widely used CFCs in Québec, dropped from 644.2, 861.5 and 240.5 tonnes respectively to 1.4, 498.1 and 31.0 tonnes. As for halons, total sales declined by 82.2 % during the same period. Total sales of Halon 1301 went from 3.8 tonnes to 0.2 tonnes. However, Halon 1211 is an exception given that its sales rose from 0.15 to 0.5 tonnes. This is partly due to the fact that Halon 1211 is used in portable fire extinguishers which still can be refilled in Québec. As for total sales of HCFCs, they increased by 36 % during the period under consideration. For example, total sales of HCFC-141b rose from 104.6 to 722.3 tonnes, whereas those of HCFC-22 remained stable at about 1000 tonnes per year from 1993 to 1996 inclusively. The following illustrations show the sales pattern for CFCs, HCFCs and halon from 1993 to 1996.

Illustration 1 - Sales pattern for halons

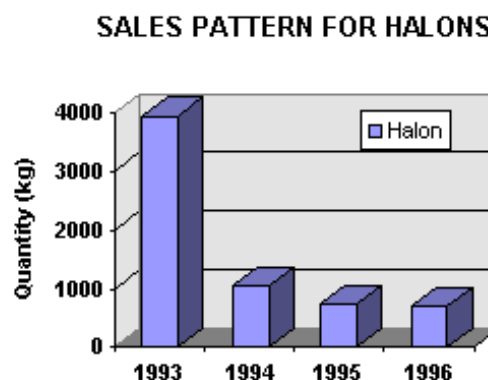
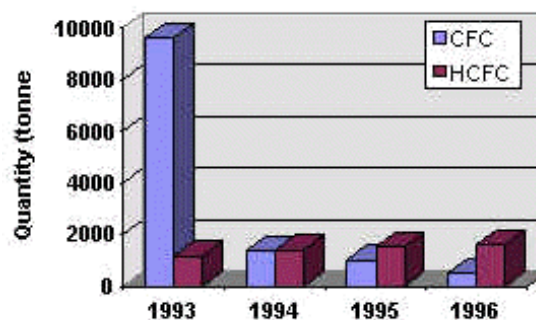


Illustration 2 - Sales Pattern for CFC and HCFC

SALES PATTERN



Source: QUÉBEC, MINISTÈRE DE L'ENVIRONNEMENT, 1998. *Analyse et bilan des ventes au Québec de substances appauvrissant la couche d'ozone (ODS) de 1993 à 1996*, Québec, Ministère de l'Environnement, December.

Assessment of regulatory actions⁴

The compiled data provide a precise portrait of the scope of the conversion of Québec's industry to replacement substances, such as HCFCs or HFCs.

ODS have been a new field of intervention for the Ministry since 1993. Indeed, in June 1993, Québec adopted the *Regulation respecting ozone-depleting substances*. It covers eight CFCs (CFC-11, 12, 113, 114, 115, 500, 502 and 503), five HCFCs (HCFC-22, 123, 124, 141b and 142b), three halons (Halon 1211, 1301 and 2402), tetrachloromethane and methylchloroform. Let us begin by reiterating the main requirements of the *Regulation respecting ozone-depleting substances*. An initial requirement concerns the recovery and recycling of CFCs, HCFCs and halons when work is done on equipment containing these substances. A second requirement compels CFC, HCFC and halon distributors and wholesalers to submit a report on their annual sales to the Ministry. A third requirement prohibits the use of CFCs in plastic foams and aerosols. Finally, the regulation has banned, since June 1998, the use of CFCs or HCFCs in sterilizing gases.

An assessment of regulatory actions with respect to ozone-depleting substances was made for the period from 1994 to 1996. This three-year period allows us to identify the effectiveness of the control operations ensuing from this regulation. Here are the main observations made on the basis of the factual data provided by the regional offices. First of all, the rate of non-compliance with the regulation is 20 %, which is very good and even above-average for the first few years of application of a new regulation, particularly given the fact that the clientele is made up of approximately 2000 business firms. Only 5 % of the clientele contravened the regulation by reason of the absence of CFC or HCFC recovery and recycling equipment when refrigeration or air conditioning work was carried out. Moreover, Ministry inspectors carried out the first systematic inspection program in half the time anticipated.

In light of these data, we can say that the various clienteles subject to this regulation have accepted it and are happy to comply with it. Québec stakeholders seem to have understood the relevance of such an intervention tool and the need to protect the ozone layer.



Identification of shortcomings in Québec's current commitment

Despite the undeniable success of the application of the Regulation respecting ozone-depleting substances and the growing conversion of Québec's industry to replacement substances such as HCFCs and HFCs, certain shortcomings persist and are increasingly being underscored by Québec stakeholders. We will describe a few of the most important shortcomings.

The level of control over ODS is inadequate. The sale and use of these substances take place in the absence of an administrative or regulatory framework. We do not know who purchases these substances and for what purpose. Moreover, a black market for CFCs destined for the United States has developed in Canada, and Montréal seems to be a crossroads for this illegal trade. Better control over the flow of these substances and their use is required.

Workers using ODS, such as refrigeration technicians, automobile mechanics and fire protection mechanics, have received little or no training on the environmental impacts associated with the practice of their trade. All provinces, with the exception of Québec, have already put in place an environmental certification system allowing them to see to it that ODS are used, collected and recycled adequately to ensure respect for the environment. Awareness promotion activities intended for business firms and pertaining to the use and management of ODS stocks is a low priority activity in Québec. ODS may be used by persons who have the appropriate technical qualifications but who are unaware of the detrimental impacts that these substances may have on the environment.

The domestic sector of ODS use is not covered by Québec's regulation, the scope of which is limited to the commercial and industrial sectors. It is illogical and unfair that the domestic sector should not be called upon to do its share to protect the ozone layer. This sector involves a multitude of small domestic refrigeration and freezer units containing small quantities of refrigerant (a few hundred grams). For the most part, the sector is made up of small family-run businesses having few employees. The craft and know-how are often handed down from generation to generation. It is imperative to make the labour force of this sector aware of the environmental considerations involved.

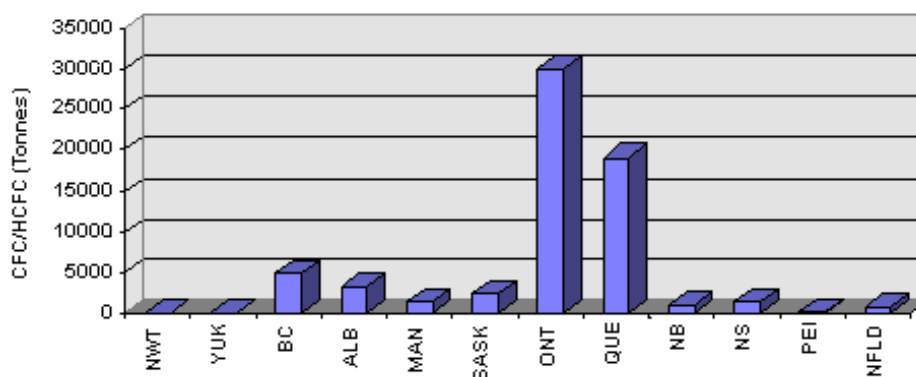
At the present time, Québec shows little concern for planning as it relates to existing ODS stocks that eventually will have to be eliminated. Authorities do not know the location of ODS storage sites or the quantities that will have to be destroyed. Some people claim that the Ministry's decision to place emphasis on the recovery of ODS in 1993 has only prolonged their use and has contributed to their ultimate release in the atmosphere due to the leaks inherent to their use. Québec's future strategy needs to provide clear indications as to whether stakeholders must stop or continue recovering ODS and, in particular, CFCs and halons. The Ministry will also have to choose, in cooperation with the federal government, a technology for destroying these substances.

Québec's current approach does not address the management of replacement substances (HFCs and PFCs) employed by ODS users. The use of these substances will continue to grow over the next few decades as will their contribution to the amplification of the natural greenhouse effect. The depletion of the ozone layer and climate changes are two interrelated global problems. These are the main shortcomings of Québec's interventions to ensure an effective protection of the ozone layer.

Québec firms are at somewhat of a disadvantage vis-à-vis their Canadian and international counterparts as Québec firms have no incentive to abandon technologies that employ ODS. This situation is attributable to the lack of a framework and orientation in Québec regarding the use of ODS. This absence is unjustifiable given that Québec is the second largest Canadian consumer and user of ODS after Ontario (see [illustration 3](#)). In summary, in matters

pertaining to the protection of the ozone layer, Québec needs to catch up in relation to the amendments made to the Montréal Protocol and the initiatives of its Canadian partners. Already in 1993, its regulation lagged behind in certain regards, and this gap has grown over the years. Today, it is essential that Québec endeavor to attain a greater degree of harmonization with industrialized countries or, at the very least, with the other Canadian provinces when it comes to the protection of the ozone layer.

Illustration 3 - National Inventory of CFC & HCFC Installations in Canada (1994)



Source: Environment Canada

- 1 [Climate Change in the European Union](#), EEA, 1996.
- 2 QUÉBEC, MINISTÈRE DE L'ENVIRONNEMENT ET MINISTÈRE DES RESSOURCES NATURELLES, 1995. Plan d'action québécois de mise en œuvre de la Convention-cadre des Nations Unies sur les changements climatiques (version détaillée corrigée), Québec, ministère de l'Environnement et ministère des Ressources naturelles, July.
- 3 QUÉBEC, MINISTÈRE DE L'ENVIRONNEMENT, 1998. [Analyse et bilan des ventes au Québec de substances appauvrissant la couche d'ozone \(ODS\) de 1993 à 1996](#), Québec, Ministère de l'Environnement, December.
- 4 QUÉBEC, MINISTÈRE DE L'ENVIRONNEMENT, 1998. [Bilan d'application du Règlement sur les substances appauvrissant la couche d'ozone](#), Québec, Ministère de l'Environnement.



Last Update : 2003-10-30

| [Home](#) | [Site Map](#) | [E-mail](#) | [What's New?](#) | [Links](#) | [Search](#) | [About the Site](#) |

| [Privacy Protection Policy](#) | [Site Construction](#) | [Find](#) |

Québec

© Gouvernement du Québec, 2002



Quebec's strategy for managing ozone-depleting substances and their replacement products

3. Foundations for a renewed commitment by Québec

- Québec's adherence to the principles and objectives of the Montréal Protocol
- Recognition of the Ministry's leadership and unifying role
- Protection of the integrity of the ozone layer : an ultimate objective

4. Goals

5. Principes

- Solidarity
- Prevention
- Precaution
- Fairness
- Accountability

6. Orientations

- The Ministry is in favor of
- The Ministry is against

3. Foundations for a renewed commitment by Québec

Québec's adherence to the principles and objectives of the Montréal Protocol

The new strategy to protect the ozone layer is an opportunity to affirm Québec's commitment to contribute to the resolution of the ozone layer depletion problem. This strategy must confirm Québec's adherence to the principles and objectives of the Montréal Protocol. Québec recognizes that the depletion of the ozone layer is a major environmental issue that concerns all of Earth's inhabitants and all governments around the world. All are part of the solution, and Québec considers that every initiative is useful to protect the ozone layer. All parties must do their share in the face of a danger that threatens the natural atmospheric shield.

Recognition of the Ministry's leadership and unifying role

In response to the phenomenon of the depletion of the ozone layer, efforts to protect this layer must take place under the aegis of an organization that plays the role of both unifier and motivator, and that will define a context which is

conducive to the actions required to achieve this ultimate objective. We believe that this role must be assumed by the Ministry which will assist and accompany Québec stakeholders in their actions to reduce and eliminate the use of ODS, in accordance with the principles outlined in this strategy. The Ministry must be able to channel the efforts that stakeholders have agreed to make in order to ensure the success of this strategy. We recognize that we will have to obtain the cooperation of both the private and public sectors to carry out this task properly.

Protection of the integrity of the ozone layer : an ultimate objective

The protection of the ozone layer is the ultimate objective of this strategy and must guide and motivate our actions. It is imperative that all sectors of Québec society subscribe to this objective, be it business firms or individuals. No one is sheltered from the detrimental consequences of the depletion of the ozone layer. This problem is of great importance given its effects on the environment and the health of living beings. Skin cancer, immune system deficiencies and cataracts resulting from exposure to strong ultraviolet radiation are ailments that affect the quality of life of humans. Lower agricultural yields and a reduction in phytoplankton are other consequences that can affect the quantity of food available to the world population. This ultimate objective can only be achieved in a sustainable development context that calls on the synergy of governments, industry and the general public.



4. Goals

Through this strategy, Québec is endeavoring to contribute to the world effort to protect the ozone layer. Québec wants to make known to its world and Canadian partners that it intends to ensure, within its jurisdiction, that Québec stakeholders take responsibility for initiatives that will help protect the integrity of the ozone layer within a context that Québec will have determined after having consulted various groups in society.

Québec is also seeking to establish orientations and approaches that will permit a greater awareness of and taking charge by Québec society in the face of the need to eliminate ODS and to manage their replacement products properly.



5. Principles

The devised strategy must respect certain key principles that guide, shape and justify both the development of actions and their application. The key principles chosen are described below.

Solidarity

It is imperative that Québec agree to enhance its actions to protect the ozone layer. Québec must consent to being part of a world effort begun ten years ago by some twenty countries and which has gained momentum in recent years with the adherence of 165 countries to the Montréal Protocol. Québec must refrain from embarking upon its own path to tackle this worldwide issue that jeopardizes the quality of life and the very survival of mankind. Instead, Québec must show solidarity and contribute to the global effort. No country has a complete solution to this problem, but all countries can make a contribution.

Prevention

Québec's strategy to protect the ozone layer must be based on the prevention principle. This principle involves putting in place a system that will ensure the optimum environmental management of substances in order to minimize atmospheric emissions and, consequently, to prevent a greater deterioration of the ozone layer. In fact, this principle consists of taking all possible measures to attenuate or avoid the intensification of the problems associated with the depletion of the ozone layer.

Precaution

The inclusion of HFCs and PFCs in the strategy is justified by the precaution principle. It is important that we avoid, wherever possible, the use of these substances, as they are powerful greenhouse gases. The precaution principle involves adopting a cautious attitude and taking all steps to avoid aggravating another major environmental problem, namely that associated with climate changes.

Fairness

It is important that a strategy, whichever one is chosen, be fair to ensure its acceptance by the greatest possible number of stakeholders. Under the fairness principle, the effort demanded from a given sector will be proportional to its contribution to the problem. Some activity sectors make an enormous contribution to the ozone layer depletion phenomenon, others make a lesser contribution. One of the consequences of this principle is that this strategy must encompass all of the substances recognized as contributing to the amplification of the problem. Ignoring some of these substances voluntarily and deliberately might unfairly benefit certain activity sectors. However, it is important to bear in mind that fairness is not synonymous with equality.

Accountability

The principle of accountability within the context of a global issue such as the depletion of the ozone layer is crucial and cannot be ignored. It is based on the worldwide trend to make stakeholders accountable for their attitude towards the environment. This principle will be taken into consideration in the preparation of measures to have stakeholders acknowledge their responsibilities and to lead them to take the necessary steps to protect the environment in an effective manner. The Ministry will deal with stakeholders as entities that are accountable at all levels.

The principle of accountability refers to three levels of accountability, namely vocational, social and environmental accountability.

Vocational accountability will make it possible to change certain work practices that are detrimental to the environment. As the practice of certain trades has an impact on the environment, these workers must receive training and information on these detrimental impacts in order to be made aware of the need to adopt good work practices. Such measures will permit greater worker accountability vis-à-vis their trade. Good work practices are an important aspect of vocational accountability and are part of the objective of doing one's job well. Workers must feel vocationally accountable for the tasks that they perform on a daily basis.

The principle of *social accountability* lies in recognizing the social role of stakeholders. While the pollution produced by commercial activities has an undeniable environmental impact, it also has a social impact that is often ignored or hidden. There are social costs associated with pollution. The deterioration in quality of life caused by pollution in general and, above all, the

emission of environmental stressors contributing to global environmental problems affect society as a whole over the medium and long terms. All persons and business firms must be made aware of the social impact of the pollution which they generate. The principle of social accountability must be recognized and accepted by stakeholders. They are part of a society and of a community; they must participate in and contribute to the development and operation of this society and this community.

Today, the principle of *environmental accountability* is very important. The ever more frequent implementation by various government authorities around the world of a partnership approach to protect the environment makes this principle imperative and unavoidable. Within the context of the redefinition of the State's role, the role of government authorities is to determine the basic guidelines for carrying out certain activities and to ensure a minimum control over them. This implies greater environmental accountability by business firms. It is important to bear in mind that when an individual or a firm is made accountable, we are trusting the individual or the firm to take on the role that the latter has chosen to assume. This principle has become a basic value nowadays. Citizens and business firms all have a responsibility to the environment. In our society, failing to meet one's obligations can result in serious consequences for irresponsible individuals or firms.



6. Orientations

The Ministry, through its orientations, intends to indicate to Québec stakeholders and to the general public the main elements of its strategy.

The Ministry is in favor of :

- the harmonization of Québec's actions with the amendments made to the Montréal Protocol;
- an integrated approach to the management of ODS and their replacement products taking into account the problems associated with the depletion of the ozone layer and climate changes;
- the conversion of Québec's industry to technologies that do not employ ODS;
- the assurance of a better control over the sale and use of ODS and their replacement products;
- the coverage of all sectors that use these substances;
- the assurance of an environmental management of ODS stocks and their replacement products on inventory and in use;
- information intended for the public and users on the environmental impact of ODS and their replacement products;
- the environmental training of the labour force that uses ODS and their replacement products to adopt good work practices that show respect for the environment;
- the conversion of Québec's automobile fleet that has air conditioning systems employing CFC-12 to the new refrigerant HCFC-134a;

- the planning of the eventual destruction of CFCs and halons using a recognized technology.

The Ministry is against :

- exporting or transferring excess or unused CFCs and halons from Québec to developing countries;
- the use of inflammable refrigerant mixtures as an alternative to CFCs or HCFCs;
- the use of substances having a high global warming potential as an alternative to CFCs, HCFCs and halons when other solutions are available, in order to not impede the achievement of the objective of stabilizing and reducing GHG emissions.



Last Update : 2003-10-29

| [Home](#) | [Site Map](#) | [E-mail](#) | [What's New?](#) | [Links](#) | [Search](#) | [About the Site](#) |
| [Privacy Protection Policy](#) | [Site Construction](#) | [Find](#) |

Québec 

[© Gouvernement du Québec, 2002](#)



Quebec's strategy for managing ozone-depleting substances and their replacement products

7. Means of implementation

- [Chosen approach](#)
- [Broad coverage of substances \(ODS, HFCs and PFCs\)](#)
 - *Coverage of all ODS*
 - *Coverage of replacement substances*
- [Minimization of atmospheric emissions](#)
 - *Recovery and recycling of ODS and their replacement products*
 - *Refilling/Topping up of defective equipment*
 - *Conversion to technologies that do not employ ODS*
 - *Reporting of spills and large-scale emissions of ODS*
 - *Use of refillable pressurized containers*
 - *Replacement of methyl bromide*
 - *Replacement of metered dose inhalers using CFCs*
- [ODS and replacement product control mechanisms](#)
 - *Control over the sale and use of ODS and their replacement products*
 - *Stewardship program*
- [Environmental management of ODS and their replacement products](#)
 - *Reclaiming of recovered stocks*
 - *Destruction of existing CFC and halon stocks*
- [Training](#)
 - *Environmental certification of the labour force*
 - *Environmental certification of contractors*
- [Information intended for the public](#)
 - *Publications*
 - *Environmental recognition program*
 - *Programme Action-Environnement (environmental action program)*
 - *Fonds des priorités gouvernementales en science et en technologie-volet Environnement (Government priorities fund in science and technology –Environment component)*

8. International Action by Québec

- [Participation and visibility at the international level](#)

7. Means of implementation

Chosen approach

The chosen approach for the strategy is based on cooperation and recognition of the responsibilities of all stakeholders whatever the level (provincial and municipal governments, private and public enterprises). The approach is

compatible with the directional nature of the Montréal Protocol in that it does not deny the regulating and unifying roles that the Ministry must assume in this area. The approach consists of using a careful combination of the various regulatory, economic and partnership components. This combination may prove optimal according to each measure chosen.

The means of implementation of the actions and initiatives deemed necessary in Québec's new strategy to protect the ozone layer relate to three separate components: the regulatory component, the economic component and the partnership component. These components are not isolated, but interdependent. A good arrangement of these various components during the elaboration of the chosen measures should give rise to an effective, modern and innovative strategy.

The implementation of this strategy does not require adaptation measures, unlike the various strategies elaborated around the world and concerning climate changes. Scientists recognize that the integrity of the ozone layer can be replenished by applying the provisions of the Montréal Protocol as found in its amendments. Indeed, the total compliance of the countries that signed the protocol would make it possible to achieve this integrity towards 2050.



Broad coverage of substances (ODS, HFCs and PFCs)

Coverage of all ODS

It is essential that all CFCs and HCFCs covered by the Montréal Protocol, as well as any combination of these substances be found in this strategy. A partial coverage of ODS might penalize certain sectors of users while benefiting others, which would be unfair. We must consider all ODS because all must eventually be eliminated and destroyed.

Coverage of replacement substances

It is important to not leave out hydrofluorocarbons (HFCs), which are the ultimate replacement substances of HCFCs, as well as perfluorocarbons (PFCs) which are increasingly replacing bromofluorocarbons (halons) in fire suppression applications. All of these replacement substances are powerful greenhouse gases and hence are detrimental to the atmosphere and the environment in general. It is important to continue impressing on the stakeholders concerned the importance of good environmental management by controlling the use of these replacement substances and by minimizing their atmospheric emissions. Although HFCs and PFCs are not ODS, they have the same commercial and industrial uses as ODS and concern the same user clientele. Under such conditions, it would be very advisable for the Ministry to not create two different attitudes with respect to the management of these replacement substances among clienteles already concerned by ODS.



Minimization of atmospheric emissions

The Federal-Provincial Working Group on controls harmonization (Ozone-Depleting Substances) has mandated consultants to produce codes of good practice in the refrigeration and air conditioning sector as well as in the fire protection sector. These are two activity sectors that are major sources of atmospheric emissions. In the case of refrigeration, the [*Environmental Code of Practice for elimination of fluorocarbon emissions from Refrigeration and Air*](#)

[Conditioning Systems](#) proposes work methods that apply to the domestic, commercial and industrial sectors. For the fire protection sector, the [Environmental Code of Practice on Halons](#) describes halon management methods. These codes of good practice were published by Environment Canada in 1996.

To minimize atmospheric emissions, three measures appear relevant to the Ministry:

Recovery and recycling of ODS and their replacement products

It is essential that the industry continue to recover ODS and recycle them on site when work is done in order to avoid wherever possible large-scale emissions. The refrigeration and air conditioning industry has already begun to show more discipline in its actions since 1993; this industry must be encouraged to pursue its efforts. It is important to not break this habit acquired over the last five years and to extend this practice to replacement products, as they have the same commercial and industrial uses as ODS and concern the same clientele.

Refilling/Topping up of defective equipment

The banning of certain practices that are detrimental to the environment must be ensured via the regulatory component. The refilling or topping up of defective equipment with ODS or replacement substances are two activities that occur on a regular basis without this being a violation of the current regulation. Such a situation is no longer acceptable within the context of this strategy. A legal framework must give equipment repair-persons a justification with their clientele for not filling defective equipment with ODS or another replacement substance until such time as the defective equipment has been repaired. This is a question of accountability and environmental protection. Moreover, this approach will ensure the optimal operation of the equipment which, over the long term, should translate into an economic gain for the customer.

Conversion to technologies that do not employ ODS

The use of ODS will also be restricted, wherever possible, to applications for which no replacement substance has been discovered or is available at a reasonable cost. In the last few years, several multinationals have put in place technological changes to do away with their dependence on ODS, which gives these corporations an undeniable competitive advantage. The Montréal Protocol, by reason of its strict timetables, has succeeded in bringing about "technological forcing" in several companies of various activity sectors. The Québec strategy intends to keep up the momentum created by the protocol's tight and well-defined timetables to foster such "technological forcing" in Québec business firms.

Reporting of spills and large-scale emissions of ODS

The regulatory component should also ensure that the Ministry is informed of any emission or spill of ODS or of a replacement substance involving a quantity of 25 kg or more. This will allow the Ministry to track and quantify chance or accidental ODS spills and to make sure that the business firm in question has rectified the situation.

Use of refillable pressurized containers

Refrigerants are distributed and sold in containers of various sizes. For example, there are 9.1, 13.6 or 56.7 kg cylinders depending on the substance. Unfortunately, not all cylinders are returnable. A residual quantity of the

substance (up to 10%) is always present in the cylinder, even when there is no longer sufficient pressure for this quantity to be useable. The inadequate dismantling or scrapping of these cylinders, considered empty, is a source of atmospheric emissions involving ODS.

Several provinces have already prohibited the sale and distribution of ODS in non-returnable cylinders. Ontario, New Brunswick and British Columbia have required that cylinders be refillable and returnable. Some provinces, New Brunswick for example, even require that the distributing firm impose a refundable private deposit. We believe that it is vital that Québec harmonize its provisions with those of its Canadian partners in this respect.

Most ODS manufacturers and distributors who use refillable containers have adopted a commercial policy whereby a refundable deposit is required for each cylinder put in circulation in the distribution network. The amount varies from \$25 to \$50 according to the cylinder size. From now on, the marketing of these substances in single-use, non-refillable containers will no longer be acceptable. Over the medium and long terms, this type of container represents a definite economic advantage for marketing these substances, as it can be reused over a period of several years and offers an undeniable environmental gain.

The Ministry plans to require that every ODS manufacturer or distributor doing business in Québec market its products in refillable pressurized containers, whatever the size. The significantly higher production cost for this type of container should ensure that the manufacturers and distributors of these substances will take the necessary steps to make sure that the cylinders are returned. Consequently, we do not consider it justified or relevant for the Ministry to set a minimum deposit.

Replacement of methyl bromide

Methyl bromide is a fumigant used to eliminate parasites in crops and agricultural products. Such a use represents a major source of emissions of this substance. Replacement substances have already appeared on the agricultural market. Under the Montréal Protocol, methyl bromide must be eliminated as replacement substances prove effective and less detrimental to the environment. The Ministry recognizes that the use of methyl bromide must be eliminated as soon as possible. The approval and banning of pesticides fall under federal jurisdiction. Under the Montréal Protocol, methyl bromide must be eliminated by no later than 2005.

In Québec, little use is made of methyl bromide, but sales of approximately 10 tonnes were reported to the Ministry in 1996 by Québec wholesalers and distributors. The Ministry promises to make sure with the federal government that methyl bromide is prohibited according to the adaptive capacity of Québec's farming communities. The Ministry's Service des pesticides et des eaux souterraines (Pesticide and Groundwater Service) is participating in the Federal-Provincial Working Group on pesticides and is coordinating the monitoring and updating of the Québec's *Pesticides Act*.

Replacement of metered dose inhalers using CFCs

Over-the-counter and prescription drugs are excluded from the application of the *Regulation respecting ozone-depleting substances*. The CFCs used in metered dose inhalers serve as a propellant allowing the active ingredients to be inhaled or sprayed for the treatment of certain ailments, such as asthma and angina. Nowadays, there are metered dose inhalers without propellants or that employ HFCs, a new substance. The exclusion granted to CFCs in over-the-counter and prescription drugs is being called into question within the framework of international discussions.

In July 1998, Environment Canada and Health Canada published jointly the [Canadian Initial Strategy for the Phase-out of Chlorofluorocarbon Use in Metered Dose Inhalers \(MDIs\)](#). This strategy sets timetables for switching over to products without CFCs and requires from pharmaceutical companies reports on the progress made in the implementation of their new products and how these products are being received by medical authorities and patients. The objective of this Canadian strategy is to reduce the use of CFCs in metered dose inhalers by 60% between now and 2001, and by 100% in 2005.

There are metered dose inhalers with CFCs and others without CFCs on the Québec and Canadian markets. Given that alternative solutions to metered dose inhalers with CFCs are appearing in greater number on the market and as the commercial availability of CFCs is declining by reason of the restrictions imposed by the Montréal Protocol, we must promote and encourage the transition to new products. This transition will depend on the effectiveness of the product without CFCs, its purchase cost and its acceptability in the eyes of Québec and Canadian patients and medical communities. The transition to CFC-free metered dose inhalers may result in substantial costs for Québec's Prescription Drug Insurance Program.

The ministère de l'Environnement agrees to work in cooperation with the ministère de la Santé et des Services sociaux to facilitate the transition. The work of the two ministries will be devoted to identifying the measures that should be put forward to facilitate and promote the transition to CFC-free products without compromising the health of patients. This task will have to take into account the administrative and budgetary constraints of the health sector and reflect the initiatives already underway at the federal level.



ODS and replacement product control mechanisms

We cannot devise a strategy for managing ODS and their replacement products without addressing the issue of the control of these substances which attack the ozone layer and place additional pressure on the environment. Various avenues are available to ensure an adequate control that will allow the Ministry to know the quantities in circulation, their major users and their distributors as well as the quantities stored and their location.

For several years now, the main Québec stakeholders involved in the sale and use of ODS have deplored the lack of control over these substances in Québec, unlike in the other Canadian provinces. We believe that the preparation of a new Québec strategy to protect the ozone layer is an opportunity to correct this shortcoming. The absence of a system for controlling these substances within the framework of this strategy would considerably undermine its credibility, especially as CFC smuggling made the headlines in the written and electronic press during the summer of 1997. Indeed, the press reported on the smuggling of CFCs to the United States from Montréal. Inspectors from Environment Canada and those from Customs and Excise Canada informed us of the existence of these smuggling operations. This situation highlights the lack of control over these substances in Canada and particularly in Québec.

Some European countries, such as France, have imposed a fee on ozone-depleting substances to fund recovery and recycling operations. An example closer to home is the United States which imposed a special tax on CFCs beginning in 1993. This tax has almost quadrupled the retail price of CFCs on the American market, but the proceeds go to the U.S. Treasury. In Canada, no environmental fee or charge associated with ODS has been imposed since the signing of the Montréal Protocol in 1987. To control the production and

importing of ODS, Canada uses, like all of the other countries that signed the Montréal Protocol, a system of quota allocations which are distributed among producers and importers doing business in Canada. The distribution of quota allocations depends on the extent of the Canadian market occupied by the business firm and its sales in the previous year. The quota allocation system is the economic tool that is most widely used by signatory countries, in accordance with the protocol.

It would be very difficult to put in place an ODS fee system in Québec as such a measure could put Québec business firms at a major disadvantage. This type of measure is certainly more feasible at the Canadian level. The free flow of merchandise and the numerous possibilities for procuring supplies outside Québec would quickly render this Québec initiative ineffective. As a result, the creation of an exclusive environmental fee or charge in Québec, which would be deposited in a dedicated fund, would be problematic from an administrative standpoint and would considerably undermine the competitiveness of Québec's business firms. However, other avenues are open to us and are presented below.

Control over the sale and use of ODS and their replacement products

Due to the relatively limited number of business firms involved in the sale and the relatively small number of activity sectors in which these substances are used, we believe that a stricter control over the sale and use could be implemented without too much difficulty. The Ministry could require sales permits for the distributors and wholesalers of these substances. The obtaining of these permits would be conditional upon meeting two requirements set by the Ministry. First, distribution firms and wholesalers would have to submit to the Ministry an annual report on their sales. Secondly, they would have to provide a list of their clients with the total quantities of ODS purchased. These two conditions would have to be met to obtain the sales permit. This control system would allow the Ministry to identify and delimit the route of entry of ODS into Québec.

As for industrial and commercial ODS users, a user permit would be necessary to ensure that they are properly identified. Industrial users consuming 500 kg or more of ODS or replacement products per year (plastic foam manufacturers, etc.) as well as refrigeration and air conditioning contractors would have to apply for a permit issued by the Ministry. The obtaining of this permit would also be conditional upon meeting a certain number of requirements. First, users would have to report on their annual consumption to the Ministry and identify their supplier. They would also have to report on the annual quantities of atmospheric emissions. Users might have to provide an emission factor corresponding to the nature of their manufacturing process. Major users are mainly found in the refrigeration and air conditioning manufacturing and plastic foam manufacturing fields. The permits could be valid for a three-year period. This approach is similar to the one adopted by New Brunswick and Manitoba.

Stewardship program

Such a program would make ODS wholesalers and distributors accountable for the total management of these products. Wholesalers would have the responsibility and the obligation of taking back substances which they marketed in order to recycle, reclaim or eliminate them adequately. However, they would be able to mandate a business firm to perform some of these operations. The key element of such a program is the fact that business firms remain responsible for their products at the end of the products' useful life. Business firms would have to plan for the destruction of their scrapped products ahead of time. This program could be allied with the one currently proposed under the [Québec Action Plan for waste management](#).

In the ODS management field, such a program was put in place by the refrigeration industry in Australia in 1992. This industry agreed to the creation of a non-profit organization mandated to offset the costs of recovering and recycling the product, and to apply a monetary contribution by kilogram of ODS sold, which is used to fund the organization. In France there is a similar initiative but in an unusual context. France's territory is covered for the most part by two ODS distributors, one of which occupies approximately 80% of the French market. This major distributor reached an agreement with the members of its distribution network and its resellers to apply an additional amount (fixed fee per kilogram of ODS sold). The proceeds are used to fund the recovery network as well as the reclaiming operations carried out by the distributor. This is done with the consent of France's Ministry of the Environment.

The industries that are most likely to be concerned by such an initiative are the refrigeration/air conditioning industry, the fire protection industry and the solvent industry. Such a program must be backed up by a regulation that ensures that wholesalers and distributors take back their substances for reclaiming and destruction. We believe that the putting in place of such a program would motivate the industry that produces and distributes these substances to contribute to the birth of a product reclaiming and destruction industry (see "[Destruction of existing CFC and halon stocks](#)"). At this stage, it would be premature to define the mechanism used to set up such a program in Québec. However, it should be pointed out that Environment Canada is in the process of negotiating with ODS producers and importers to establish such a program in Canada. This federal body would support the eventual Canadian strategy to limit and prohibit the refilling of equipment with CFCs and halons, and to destroy these substances. Its application at the Canadian level, as opposed to an application by province, would facilitate management. Québec intends to favor such a program in order to take advantage of the economic spin-offs associated with an eventual ODS destruction industry.



Environmental management of ODS and their replacement products

Reclaiming of recovered stocks

The large-scale industrial reclamation of ODS and replacement product stocks is not a commercial activity that has developed in Québec, despite the fact that Québec represents the second biggest ODS market in Canada. Aside from a few projects still at the feasibility stage and brought to our attention by the promoters, Québec industrialists have yet to seize the business opportunity ensuing from the restrictions on ODS production and use introduced by the Montréal Protocol and, consequently, the industry's growing needs for reclaimed substances. In Canada, this activity takes place mainly in Nova Scotia, Ontario and Manitoba.

Since the coming into force of the *Regulation respecting ozone-depleting substances*, Québec users, namely refrigeration contractors and garage owners, have opted for small portable ODS recovery and recycling equipment. This equipment was available in North America and made it possible to treat small quantities of refrigerants slightly contaminated by elements such as moisture, oil and acid residues. This equipment was mainly marketed for the refrigeration and air conditioning sector as well as for the recycling of halons. The purification of recovered refrigerants through the use of a regeneration technology is not a generalized practice in the refrigeration and air conditioning industry in North America, unlike in the case of Europe. Refrigerants recovered in Québec, as elsewhere on the continent, are purified using small-scale recycling technologies (portable units), making it possible to obtain a minimal degree of purity.

Minimal purification (recycling) of the recovered refrigerant, albeit generally sufficient for reuse in the original unit, does not permit the product's reuse in other units, or a variety of uses. Moreover, when the contamination reaches high concentrations, this equipment is generally too slow and not efficient enough to purify large quantities of refrigerants. It is commonly accepted that the reclamation of refrigerants is the only possible treatment to restore the initial quality standards of the recovered refrigerant.

However, it should be pointed out that the *Federal-Provincial Working Group on controls harmonization (ODS)* has deemed it preferable not to recommend the establishment of a quality standard for reclaimed products at the Canadian level, as the requirements of industrial applications are varied. The group examined the question and agreed that it would be inappropriate and problematic to establish a level of quality for the regenerated products. The devices employing these substances are produced by a wide array of Canadian, European and American manufacturers for a variety of industrial applications with different quality requirements. It is preferable to leave it up to the user industry to determine the level of quality of regenerated products desired for each specific application.

Large-scale reclamation technologies are required in the refrigeration, air conditioning and solvent field to obtain a purification of ODS that meets the requirements of solvent manufacturers and users. Reclamation would allow Québec's industry that uses ODS and their replacement products to reduce its consumption of first-time-use substances, thereby resulting in significant savings. The reclamation of these substances corresponds to a growing need while making it possible to obtain a quality of products applicable to a vast array of commercial and industrial uses. There are quality standards that have been established by American standardization bodies and that are used extensively by the industry all around the world. Moreover, the two codes of practice on refrigerants and halons that have been prepared in part by the Federal-Provincial Working Group refer to several recognized industrial standards, such as the ANSI/ASHRAE, ARI and SAE standards. These standards cover leak detection and refrigerant recycling or reclamation operations, as well as the purity requirements applicable to the treated substances.

In the United States, France and Australia, there are industrial-scale ODS reclamation facilities. An eventual Québec facility could also serve a portion of the Maritimes and Ontario market. The setting up of such an industry would make it possible to develop a Québec expertise and to create specialized jobs.

Destruction of existing CFC and halon stocks

Although the reclamation of CFCs and halons would meet real industry needs, it is harder to justify with the advent of new replacement substances. Indeed, the putting in place of ODS-free technologies means that users will have to deal with CFC and halon stocks that are no longer useful. There will be a growing surplus of these substances on the world and Canadian markets. To avoid an uncontrollable situation resulting from a sudden influx of large quantities of unused or unusable CFCs or halons slated for destruction over the next twenty years, the Federal-Provincial Working Group will propose to the CCME in the upcoming months a Canadian strategy that will gradually limit and prohibit the refilling of equipment that employs these two substances (CFCs and halons). The timetables will extend over a period that will vary according to the sectors. This will allow Canadian and Québec stakeholders to better plan the replacement or conversion of their equipment or facilities in order to abandon the use of CFCs or halons. This strategy will result in the development of a Canadian destruction industry and the creation of major networks to recover these substances. The ministère de l'Environnement is responsible for ensuring that Québec will be able to eventually destroy its contaminated or excess CFC and halon stocks and, consequently, to take advantage of an eventual Canada-

based destruction industry. The implementation of such a technology could result in specialized jobs. Moreover, this industry will eventually be able to take care of the destruction of HCFCs when the time comes to ban all their uses and to destroy all other unusable contaminated substances (HFCs and PFCs). Certain destruction technologies already exist and are used in the United States, Europe and Australia. Plasma technologies seem to offer an interesting potential. ODS producers and importers will have to contribute to the putting in place of such a strategy. Their financial participation is essential to fund the costs associated with the destruction of these substances which they marketed. The funding mechanisms will have to be negotiated with the business firms in question. This involves the application of the stewardship concept which consists of linking the manufacturers of these products to all stages of a good environmental management of their products, namely from the manufacture to the final elimination.

Québec's strategy takes this aspect of the problem into account. Québec also plans to solicit the cooperation of the federal Department of the Environment to ensure that the question of the destruction of ODS is considered and is the subject of a position and a commitment that addresses the concerns of Québec.



Training

Most emissions of ODS or their replacement products occur during handling. The putting in place of environmentally sound work practices is required for the users of such substances. The Ministry is convinced of the importance of training the labour force and promoting worker awareness. In Québec, there are several trades (secondary school) and techniques (college) that employ these substances. The practice of these trades or techniques may contribute to the deterioration of the environment, as it may be a source of emissions of ODS and, consequently, greenhouse gases. The Ministry will cooperate with the ministère de l'Éducation du Québec to ensure that training programs are reviewed to take into account the environmental concerns associated with these two major problems.

As for current workers, the Ministry intends to team up with union organizations, Emploi-Québec, the Commission de la construction du Québec (CCQ) and parity committees to offer employees training that will allow them to acquire the same level of environmental information as made available to new graduates. This is a question of fairness. Otherwise, workers who are no longer in the education network would eventually be at a disadvantage to their colleagues who are recent graduates.

Environmental certification of the labour force

Within the framework of Québec's strategy to protect the ozone layer and to follow up on initiatives taken with the MEQ, the Ministry intends to reward or recognize the effort of the labour force that agrees to acquire training relating to the environmental impacts of their trades or techniques. To encourage and prompt workers to acquire advanced training, the Ministry plans to ensure, at the turn of 2000, that specific groups of workers and technicians hold an environmental certification issued in cooperation with the MEQ, Emploi-Québec or the CCQ. Needless to say, this environmental certification will automatically be issued to new graduates who will have completed a training program adapted to the environmental concerns already mentioned. The Ministry will propose that the government add to the government's procurement policy a rule obliging departments to grant contracts to only those business firms that hire or employ personnel holding an environmental certification. This move should put pressure on workers and the business firms that hire them and, in so

doing, create a context that is conducive to the acquisition of this environmental certification. The Ministry intends to make environmental certification mandatory if the industries in question offer their cooperation and consent to such an approach. The environmental certification of the labour force is part of a global approach that encompasses the control over the use of ODS and their replacement products.

Environmental certification of contractors

After much reflection and several consultations, the Ministry reached the conclusion that the environmental certification of certain categories of contractors whose work basically makes use of ODS or replacement products was justified to maintain the coherency of this strategy, in particular for refrigeration and fire protection system installation contractors who account for a good portion of the ODS consumed each year in Québec. This clientele falls under the authority of the Régie du bâtiment du Québec for the obtaining of a licence, which requires that the directors of the firm hold three regulatory accreditations: the technical accreditation, the administrative accreditation and the occupational health and safety accreditation. The Ministry believes that there is a need to add an environmental accreditation related to the depletion of the ozone layer and climate changes. As has already been mentioned, these two global problems have given rise to a very high level of concern around the world. The Ministry plans to cooperate with the Régie du bâtiment du Québec to ensure that the environmental accreditation is required at the turn of the year 2000 for every new applicant for a refrigeration or fire protection system installation contractor's licence.

The Ministry will propose an amendment to the government's procurement policy to ensure that government organizations and departments grant contracts only to certified business firms that hire competent personnel. Such a preference must however respect the principle of open markets and interprovincial commerce. An examination dealing with this environmental accreditation will be prepared in cooperation with the Régie du bâtiment du Québec. Those contractors that pass this examination will receive a mention on their licence confirming that they have obtained the environmental accreditation. The Ministry wants to use this approach to create a pressure and an economic motivation to prompt those contractors who already hold a licence to take advanced training and, in so doing, to obtain the missing environmental accreditation.



Information intended for the public

Publications

To ensure that the strategy to protect the ozone layer is effective, it is essential that the public be informed of the phenomena involved and their impacts on the environment and human health. We must ensure that the Ministry's initiatives and awareness promotion efforts are not limited to the specialized clientele of ODS users. The public must be informed of those elements that can be detrimental to human health and to their quality of life. Providing the public with information helps to increase the social acceptability threshold of certain industrial or commercial activities that are sources of pollution. Citizens, by way of their consumer choices, can contribute to a certain extent to the resolution of the ozone depletion problem. It is important that citizens receive appropriate information on consumer products manufactured with the help of ODS or containing such substances. The Ministry considers the public an ally and a key partner in the implementation of this strategy.

The public will be informed through the publication of brochures and pamphlets on the depletion of the ozone layer and its consequences. This public information campaign will also deal with the use of ODS in the various activity sectors as well as alternative solutions. We want to present to the public existing technological solutions to discourage the use of ODS in some industrial sectors. With this information, we hope that the public will support us when we ask the industry to implement technological changes to industrial processes that result in needless pollution and ODS emissions. The Ministry promises to publish a series of brochures on the main atmospheric issues including the depletion of the ozone layer and climate changes. Moreover, we intend to make known to the public and to the stakeholders subject thereto, Québec's regulation respecting ozone-depleting substances. Finally, the Ministry will have to publicize its actions and initiatives as well as those of its partners pertaining to the protection of the ozone layer.

Environmental recognition program

An environmental recognition program intended for business firms that make changes to their technology or their process in order to no longer use or to reduce the use of ODS or greenhouse gases will enable the Ministry to officially underscore the efforts made. This program can extend to consumers' associations that succeed in modifying the consumer choices of their members to move them away from products containing ODS or GHGs, or ones manufactured using these substances. This program should motivate the industry to abandon the use of such substances. Moreover, the environmental gains obtained can be recorded under the [ÉcoGEsté](#) program, entitling business firms to a mention to this effect.

Programme Action-Environnement (environmental action program)

The Programme Action-Environnement is intended to fund projects related to environmental protection or wildlife conservation. Projects must be presented by non-profit organizations (NPOs). This program can offer funding for the launching of a project deemed relevant and meeting the program's priorities. The same project can be funded only once (funding is non-recurrent). Projects dealing with the recovery, recycling and reclamation of ODS and equipment containing these substances are eligible for this program.

The Ministry agrees that projects to recover, recycle, convert and reclaim old low-performance kitchen appliances, functioning with ODS, can be part of the priorities of the [Environmental action](#) program. This equipment, which is still usable, will be reconditioned to ensure that there are no longer any leaks. It will then be offered to needy Québec families for a small fee. The Ministry will give financial support to community groups concerned about the main planetary issues of the day (depletion of the ozone layer and climate changes) and will encourage their tangible initiatives and social involvement.

Fonds des priorités gouvernementales en science et en technologie-volet Environnement (Government priorities fund in science and technology –Environment component)

The Fonds des priorités gouvernementales en science et en technologie-volet Environnement is a \$6 million joint program spanning a four-year period and dedicated to environmental technology research and development. It is administered jointly by the ministère de l'Environnement and the ministère de l'Industrie et du Commerce (MIC). This fund offers financial assistance for research into and the development of ODS or GHG reclamation or destruction technologies. It provides financial support for the implementation of existing technologies adapted to specific needs.

The Ministry agrees that the funding of research and development projects pertaining to ODS stock regeneration or destruction technologies is part of this [program](#)'s priorities. Through this commitment, the Ministry wants to demonstrate to the various industries its determination to anticipate and plan the regeneration and eventual destruction of ODS stocks and, in particular, of CFCs and halons over the short term, and of HCFCs over the long term.



8. International Action by Québec

Participation and visibility at the international level

It is imperative that Québec take its rightful place at the international level in the environment field. This strategy will allow Québec to acquire full recognition as a serious player in the protection of the ozone layer and the environmental management of ODS and replacement products. The integration of these two main planetary problems and their overlapping with respect to reciprocal measures and impacts represent an original approach. Québec will have to join international discussion groups and forums on the management of the atmosphere and, in particular, on the protection of the ozone layer. We are mainly targeting countries of the francophonie, be it at the environmental, scientific or political levels. Indeed, we hope that this strategy will allow Québec to arouse the interest of its international and French-speaking partners. At the same time, the strategy may even give us the opportunity to take part in alliances or associations of francophone countries or governments for a better protection of the ozone layer.

Finally, Québec might contribute to the setting up of a fund to manage ODS and their replacement products in countries of French-speaking Africa. The Agence de coopération culturelle et technique (ACCT), an agency that is already operational, could direct Québec proposals dealing with the protection of the ozone layer within the francophonie.



Last Update : 2003-10-31

| [Home](#) | [Site Map](#) | [E-mail](#) | [What's New?](#) | [Links](#) | [Search](#) | [About the Site](#) |

| [Privacy Protection Policy](#) | [Site Construction](#) | [Find](#) |

Québec 

© [Gouvernement du Québec, 2002](#)