Canada Gazette, Part I, Volume 153, Number 24: Regulations Amending the Ozone-depleting Substances and Halocarbon Alternatives Regulations

June 15, 2019

Statutory authority

Canadian Environmental Protection Act, 1999

Sponsoring departments

Department of the Environment
Department of Health

REGULATORY IMPACT ANALYSIS STATEMENT

(*This statement is not part of the Regulations.*)

Issues

Canadian HFC consumption baseline

The 2017 *Regulations Amending the Ozone-depleting Substances and Halocarbon Alternatives* (the 2017 Amendments) controlled hydrofluorocarbons (HFCs) through a phase-down of consumption of bulk HFCs complemented by controls on specific products containing HFCs. The Canadian HFC consumption baseline was calculated based on data received from companies who responded to mandatory notices issued under section 71 of the *Canadian Environmental Protection Act, 1999* (CEPA). The notices gathered import, manufacture and export information, which was used to calculate the total amounts of HFCs, in CO_2 equivalent (CO_2e), consumed in Canada between 2011 and 2013. The average yearly consumption between 2011 and 2013 was used to establish the Canadian HFC consumption baseline.

Since the publication of the 2017 Amendments, some companies confirmed that they failed to respond, or submitted incorrect data in response to the three mandatory notices on HFCs. A review of the data confirmed that the Canadian HFC consumption baseline value as set in the 2017 Amendments was incorrect. This value was amended with an Interim Order in October 2018, which will expire in October 2020 unless the *Ozone-depleting Substances and Halocarbon Alternatives Regulations* (the Regulations) are amended or the Interim Order is repealed prior to this date. In order for Canada to continue to meet its international obligations and to be able to issue correct HFC consumption allowances under the Regulations, the baseline specified in the 2017 Amendments needs to be updated to reflect the corrected data after the expiry of the Interim Order.

Use of HCFC-123 as a fire-extinguishing agent

Since the coming into force of the 2017 Amendments, an adjustment to the Montreal Protocol was adopted at the 30th Meeting of the Parties to allow the use of 2,2-dichloro-1,1,1-trifluoroethane (HCFC-123) as a fire-extinguishing agent until 2029 instead of 2019, for the servicing of existing fire protection equipment in service as of December 31, 2019. There is a need to amend the existing domestic regulations to align with this adjustment and ensure adequate supply of hydrochlorofluorocarbons (HCFCs) in applications where an alternative may not be available, such as fire-extinguishing systems in airports.

Background

HFCs are manufactured chemicals that were introduced on the global market as replacements for ozone-depleting substances, such as chlorofluorocarbons (CFCs) and HCFCs. HFCs are not manufactured in Canada, but are imported in bulk and found in imported and manufactured products such as domestic appliances, refrigeration and air-conditioning systems, motor vehicle air-conditioning systems, foam products, and aerosols. HFCs enter the environment due to releases during processing or manufacture, assembly, usage, and disposal of products containing HFCs. [1]

Although HFCs are not ozone-depleting and are proven to be suitable cost efficient alternatives for the ozone-depleting substances they replace, they are (like many CFCs and HCFCs) potent greenhouse gases (GHGs) with global warming potentials (GWPs) hundreds to thousands of times greater than carbon dioxide (CO_2). [2], [3] GHG emissions are contributing to a global warming trend that is associated with climate change, which is projected to lead to both changes in average conditions and in the frequency and severity of extreme weather events. Most HFCs are short-lived climate pollutants (SLCPs), which have a relatively short lifespan in the atmosphere compared to CO_2 and other longer-lived GHGs. Atmospheric levels of HFCs thus respond relatively quickly to changes in emissions since they are removed quickly from the atmosphere.

HCFCs were typically used in the same applications as HFCs, but are now almost phased out in Canada. They are ozone-depleting substances, and are currently only allowed to be imported and manufactured in small quantities for use as refrigerants until December 31, 2019, or December 31, 2029, in the case of HCFC-123.

The Montreal Protocol

The Montreal Protocol on Substances that Deplete the Ozone Layer (Montreal Protocol) is an international treaty originally designed to protect the ozone layer. Originally signed by Canada in 1987, the Montreal Protocol obligates Parties to phase out the manufacture and consumption of those substances known to be responsible for ozone depletion. In addition, given that many ozone-depleting substances are also potent greenhouse gases, the Montreal Protocol has, as a secondary accomplishment, contributed to climate change mitigation by averting the emissions of 135 billion tonnes of CO_2e emissions.

The Kigali Amendment

In October 2016, Parties to the Montreal Protocol, including Canada, adopted an HFC phase-down amendment (the Kigali Amendment) wherein developed countries began in 2019 to gradually phase down HFCs to 15% of calculated baseline levels by 2036. In November 2017, Canada and 21 other Parties ratified the Kigali Amendment helping to bring the amendment into force on January 1, 2019. As of April 1, 2019, 69 Parties had ratified the Kigali Amendment.

Ratification of the Kigali Amendment obligates Canada to phase down HFCs in accordance with a specific reduction schedule. The HFC phase-down started on January 1, 2019. Other obligations include the establishment of a licensing system and annual reporting requirements.

Under the Kigali Amendment, the Canadian HFC consumption baseline will be calculated using data that was provided by Canada in March 2019. In order for Canada to meet its international obligations, the baseline established under the Kigali Amendment is being included in the domestic regulations that implement the HFC phase-down.

Current domestic measures

Canada's obligations under the Montreal Protocol were implemented by the *Ozone-Depleting Substances Regulations, 1998*, which replaced three regulations controlling ozone-depleting substances and products containing them. The *Ozone-Depleting Substances Regulations, 1998* phased out the manufacture and consumption of CFCs and HCFCs. In 2016, the Government of Canada introduced the *Ozone-depleting Substances and Halocarbon Alternatives Regulations* (the Regulations), which repealed and replaced the *Ozone-Depleting Substances Regulations, 1998*. The Regulations introduced a permitting and reporting system to monitor quantities of HFCs imported, manufactured and exported, with reporting beginning in 2018 for activities that took place in the 2017 calendar year. [4]

On October 18, 2017, the Government of Canada published the *Regulations Amending the Ozone-depleting Substances and Halocarbon Alternatives Regulations* (the 2017 Amendments) to implement Canada's obligation to phase down HFCs in accordance with the Kigali Amendment to the Montreal Protocol. In addition to the phase-down, the 2017 Amendments introduced product-specific controls to prohibit the import and manufacture of products and equipment that contain or are designed to

contain any HFC, or any blend that contains an HFC, with a GWP greater than the designated limit.

On October 27, 2018, the Government of Canada published the *Interim Order Amending the Ozone-depleting Substances and Halocarbon Alternatives Regulations* (the Interim Order). [5] After the publication of the 2017 Amendments, some companies confirmed they had failed to respond or submitted incorrect data in response to the three mandatory notices on HFCs. The Interim Order temporarily modified the Regulations to establish the correct Canadian HFC consumption baseline that is used to calculate consumption allowances under the Regulations. The Interim Order allows Canada to maintain its international commitment to comply with the phase down of HFCs that began on January 1, 2019, with a 10% reduction from the corrected baseline.

Other international and domestic commitments

At the United Nations Framework Convention on Climate Change (UNFCCC) conference in December 2015, the international community, including Canada, adopted the Paris Agreement, an accord intended to reduce global greenhouse gas emissions with a long-term goal of limiting the rise in global average temperature to less than 2℃ above pre-industrial levels and to aim to limit the increase to 1.5℃. As part of its Nationally Determined Contribution (NDC) commitment under the Paris Agreement, Canada pledged to reduce national GHG emissions by 30% below 2005 levels by 2030, including a commitment to gradually phase down HFCs. [6] The Regulations will contribute to that objective by reducing HFC consumption.

On December 9, 2016, the Prime Minister, along with most premiers of Canada, agreed to the *Pan-Canadian Framework on Clean Growth and Climate Change* (Pan-Canadian Framework). [7] The Pan-Canadian Framework was developed to establish a path forward to meet Canada's commitments under the Paris Agreement.

Objective

The objective of the proposed Amendments to the *Ozone-depleting Substances and Halocarbon Alternatives Regulations* (the proposed Amendments) is to amend the consumption baseline value that is used to determine the HFC quantities that can enter Canada under the HFC phase-down process, which started on January 1, 2019, to reflect corrected consumption data reported by companies importing HFCs in bulk. Amending this baseline is expected to reduce Canadian greenhouse gas (GHG) emissions, in order to help limit increases in global average temperatures. It would ensure Canada continues to meet its international obligations under the Kigali Amendment to the Montreal Protocol.

The proposed Amendments also aim to ensure the adequate supply of HCFC-123 for use as a fire-extinguishing agent in situations where an alternative may not be available for certain critical aircraft rescue and firefighting applications. In light of the 2018 adjustment to the Montreal Protocol that allows for the consumption of HCFCs for specific applications within the existing phase-out framework, the proposed Amendments would extend the consumption allowance of HCFC-123 to service fire-extinguishing equipment until December 31, 2029. Currently, the Regulations do not allow the use of HCFC-123 for this purpose beyond December 31, 2019.

Description

The proposed Amendments would amend the Canadian HFC consumption baseline from 19 118 561 to 18 008 795 tonnes of CO_2e. The initial value was temporarily amended using an Interim Order under section 94 of CEPA, which expires two years after it is made (October 2020), unless the Regulations are amended to have the same effect as the Interim Order or the Interim Order is repealed prior to this date. The Canadian HFC consumption baseline is the value used to determine the quantities that can be consumed in Canada under the HFC phase-down process that started on January 1, 2019. The resulting future maximum HFC consumption would be as follows in Table 1 below.

Table 1: Canada's HFC consumption phase-down

Year	Reduction from HFC Consumption Baseline (%)	Original Maximum Allowable HFC Consumption (tonnes CO_2e)	Corrected Maximum Allowable HFC Consumption (tonnes CO_2e)
2019	10	17 206 786	16 207 916
2024	40	11 471 191	10 805 277

2030	70	5 735 595	5 402 639
2034	80	3 823 730	3 601 759
2036	85	2 867 798	2 701 319

The proposed Amendments would also allow the consumption of HCFC-123 until December 31, 2029, for the servicing of existing fire protection equipment that is in service as of December 31, 2019. This would not change the total quantity of HCFC-123 allowed to be imported under the Regulations, as the 0.5% of the Canadian HCFC baseline dedicated to servicing existing equipment remains unchanged, in compliance with the Montreal Protocol.

Regulatory development

Consultations

The issue being addressed by the proposed Amendments was first communicated to Environment and Climate Change Canada by industry representatives through emails, letters and phone conversations following the distribution of the 2019 annual HFC consumption allowance estimates on May 1, 2018, which was provided to the companies for verification. A number of companies identified errors or omissions in their data, which compelled the Department to make necessary corrections to the Canadian HFC consumption baseline used to calculate the HFC consumption allowances for 2019.

On July 5, 2018, companies received a letter notifying them that their 2019 HFC consumption allowance would be available by November 1, 2018, and that it was expected to be 3.0% to 3.5% lower than the original estimate provided on May 1, 2018. The companies did not express concerns about this reduction. The Department sent new estimates on September 10, 2018, based on the corrected Canadian HFC consumption baseline.

Following the publication of the Interim Order on October 27, 2018, a notice of intent to amend the Regulations was published on November 3, 2018, to indicate the intention to amend the Regulations to identify the accurate Canadian HFC consumption baseline. Stakeholders did not express any concerns.

A consultation document informing stakeholders of the proposed Amendments was sent to all known stakeholders on February 4, 2019. Five comments were received, and these stakeholders did not have concerns with the proposed changes. Communication with the approximately 20 impacted companies holding HFC consumption allowances continues on an as-needed basis.

Modern treaty obligations and Indigenous engagement and consultations

Indigenous governments were informed of the Interim Order and the notice of intent through the CEPA National Advisory Committee, and no comments were received. The proposed Amendments are not expected to affect Indigenous peoples specifically.

Instrument choice

When determining how to address the issue, two options were considered: the status quo and an amendment to the Regulations to correct the Canadian HFC consumption baseline.

Under a status quo scenario, the Canadian HFC consumption baseline would return to the value as written in the 2017 Amendments upon the expiration of the Interim Order. As a result, Canada’s consumption baseline would be incorrect for the purposes of determining future consumption allowances. This would lead to greater HFC consumption and emissions, which would prevent Canada from meeting its obligations under the Kigali Amendment.

An amendment to the Regulations correcting the consumption baseline would reduce Canadian greenhouse gas (GHG) emissions, in order to help limit increases in global average temperatures. It would also ensure Canada continues to meet its international obligations under the Kigali Amendment to the Montreal Protocol. For these reasons, amending the Regulations was the chosen option.

Regulatory analysis

Benefits and costs

Between 2019 and 2040, the proposed Amendments are expected to result in cumulative GHG emission reductions of about 2.7 megatonnes (Mt) of CO_2e. The benefits of these GHG emission

reductions are valued at about $108.9 million. Compliance costs for industry are estimated at about $73.4 million. The net benefits of the proposed Amendments are estimated to be about $35.5 million (in present value terms, discounted at 3% per year to 2019).

Analytical framework

Treasury Board Secretariat guidance: The impacts of the proposed Amendments have been assessed in accordance with the Treasury Board Secretariat (TBS) Canadian Cost-Benefit Analysis Guide. [8] Regulatory impacts have been identified, quantified and monetized where possible, and compared incrementally to a non-regulatory scenario. The analysis has estimated these impacts over a sufficient time period to demonstrate whether the proposed Amendments are likely to result in net benefits.

Key impacts: The proposed Amendments would lower HFC consumption allowances, which would lead to the adoption of alternative substances with lower GWP, resulting in decreased emissions of high GWP HFCs. Compliance with the proposed Amendments is also expected to lead to capital and operating costs for industry.

Comparative scenarios: The analysis compares the expected impacts of the proposed Amendments (the regulatory scenario) to a status quo scenario that assumes the proposed Amendments are not implemented. This status quo scenario assumes that if the proposed Amendments are not implemented, HFC consumption and emissions would remain unchanged relative to levels projected with the 2017 Amendments and the Interim Order. The incremental impacts (benefits and costs) between the two scenarios are then attributed to the proposed Amendments.

Time frame of analysis: The time frame considered for this analysis is 2019–2040. GHG reductions are expected to increase beyond 2040, as the stock of equipment using HFCs is replaced with new equipment using low GWP alternatives. Costs and benefits are expected in 2019 and 2020 in the absence of the proposed Amendments as a result of the Interim Order, and have thus not been included in the analysis. Due to reductions achieved by the product-specific requirements in the 2017 Amendments, HFC consumption is estimated to be below the allowable consumption levels under the proposed Amendments in the years 2021–2023. Thus, the proposed Amendments are not estimated to generate costs or benefits in the years 2021–2023.

Monetary results: All monetary results are shown in 2018 Canadian dollars after inflating any prices that are not from 2018. [9] When shown as present values, future year impacts have been discounted at 3% per year to 2019 (the year of the analysis), as per TBS guidance.

Analysis of regulatory coverage and compliance

To estimate the incremental benefits and costs of the proposed Amendments, the analysis considered who would be affected (regulatory coverage) and how they would most likely respond (their compliance strategies), as described below.

Regulatory coverage

Several industry groups that use HFCs would either be directly or indirectly affected by the proposed Amendments; others are not expected to be affected in a material way.

Importers of bulk HFCs: Importers would be required to comply with the proposed Amendments by reducing the quantity of imported HFCs in CO_2e. It is expected that the import of specific alternative substances would be driven by demand from manufacturers and end users, and any costs due to higher substance prices would be passed on to these groups.

Manufacturers of products containing HFCs: Manufacturers would not be directly affected by the proposed Amendments, but would need to manufacture products with HFC alternatives in some cases, due to the reduced availability of high-GWP HFCs.

Companies servicing equipment with HFC alternatives: These would not be directly regulated but would likely need to obtain alternative substances. In cases where equipment requires regular maintenance, it is expected that any incremental maintenance costs due to higher alternative substance prices would be passed on to end users.

Regulatory compliance

As bulk importers comply with the amended phase-down schedule in the proposed Amendments, the annual supply of high-GWP HFCs for domestic consumption will be reduced. In response to this reduced supply, manufacturers of products containing HFCs are expected to respond by switching to alternatives with lower GWPs.

For the purposes of modelling, the phase-down was assumed to affect all sub-sectors proportionately. In reality, it is likely that some sub-sectors will have more challenges than others in transitioning to low-GWP alternatives; therefore, the reductions will not be equally distributed.

GHG emission reduction benefits

The proposed Amendments would decrease bulk imports of HFCs, reducing the supply of HFCs and restricting their use by product manufacturers. As the manufacturing of products containing HFCs shifts to HFC alternatives with lower GWP, a reduction in GHG emissions (in CO_2-equivalent) from HFCs would be expected.

GHG emissions modelling

Emission reductions were estimated in a manner similar to those described in the Regulatory Impact Analysis Statement for the 2017 Amendments. The status quo scenario emission estimates are consistent with the Department's National Inventory Report and Canada's Greenhouse Gas and Air Pollutant Emissions Projections: 2018. [10], [11]

The GWP for each HFC substance is used in order to calculate its CO_2 equivalence (CO_2e). Consistent with Intergovernmental Panel on Climate Change (IPCC) guidance, these CO_2e estimates are calculated using a 100-year time frame for each HFC substance. GWP estimates were provided by the IPCC in its Fourth Assessment Report and have been used in this analysis.

This same emission estimation process was applied to the regulatory scenario, with the same leak rates and life-cycle assumptions. Emission reductions attributable to the proposed Amendments are therefore the result of the reduction in GWP of the alternative substances used in the regulatory scenario.

GHG emissions results

The proposed Amendments would reduce emissions of the HFCs with the largest climate impacts by requiring their replacement with alternatives that have lower GWPs. The cumulative incremental GHG emission reductions are estimated to be approximately 2.7 Mt CO_2e over the period of analysis (2021–2040).

The Department's central estimate of the social cost of carbon (SCC) was used to estimate the monetized value of reducing CO_2e emissions under the proposed Amendments. The SCC represents an estimate of the economic value of avoided climate change damages at the global level for current and future generations as a result of reducing CO_2 emissions. The incremental GHG reductions (in megatonnes CO_2e) for each year were valued using annual SCC values (in 2018 dollars per tonne of CO_2e) over the period of analysis. These SCC values increase over time, from $46.16 in 2018 to $69.57 in 2040 per tonne of CO_2e. [12]

Table 2: Incremental GHG emission reductions (in megatonnes CO_2e and in millions of dollars)

	2021 to 2025	2026 to 2030	2031 to 2035	2036 to 2040	Total
GHG emission reductions (Mt CO_2e)	0.11	0.67	0.98	0.90	2.67
Present value of GHG emission reductions — Central case SCC	5.08	29.09	40.34	34.41	108.93

Note: Monetary values are discounted to present value at 3%.

For the purposes of this analysis, emission reductions are quantified and monetized up to 2040. However, there would be emission reductions beyond 2040 attributable to industry actions with upfront costs assumed before 2040, as emissions occur throughout the useful life of HFC-containing products.

Costs

Compliance with the proposed Amendments is estimated to result in incremental costs to industry. HFC alternatives are expected to be more expensive than the HFCs they replace, resulting in operating costs, and may require changes in products or equipment, resulting in capital costs. Although opportunities may exist to replace HFCs with less expensive substances, it is expected that these opportunities would be exhausted in the absence of the proposed Amendments.

The analysis presents the cost impacts for each of the affected end uses, which are grouped into two sectors: refrigeration and air-conditioning, and aerosols. While other sectors currently use HFCs, they

are expected to transition to non-HFC alternatives as a result of the product-specific controls introduced in the 2017 Amendments.

Refrigeration and air-conditioning

HFCs are used as refrigerants in refrigeration and air-conditioning systems. Refrigeration and air-conditioning manufacturers are expected to assume operating and/or capital costs as a result of reduced supply of HFCs currently in use. Operating costs are expected to be assumed due to the increased cost of refrigerants. For the purposes of this analysis, it is assumed that HFCs will be replaced by refrigerant blends that combine hydrofluoroolefins (HFOs) and HFCs with an estimated cost of $22/kg more than the HFC refrigerants currently in use. [13], [14] Upfront costs would be assumed in some cases, attributable to increased equipment costs necessary to operate equipment safely and efficiently with new refrigerants.

Table 3: Refrigeration and air-conditioning sector compliance costs (2018 dollars)

End-use	Total Cost
Commercial refrigeration	42,630,000
Domestic A/C	21,662,000
Chillers	5,089,000
Mobile refrigeration	53,000

Note: Values discounted to present value at 3%.

Over the period of analysis, total costs, which include operating and capital costs, will be approximately $69.4 million for the refrigeration and air-conditioning sector.

Aerosols

HFCs are currently used in aerosol products as propellants in a range of personal care, household, and cleaning products. It is expected that the phase-down could reduce the availability of HFC-152a, causing some manufacturers of aerosols to transition to HFOs. [15] Operating costs are estimated to be assumed as a result of increased propellant costs of $22/kg. Over the period of analysis, total costs assumed by the aerosols sector are estimated to be $4.0 million.

Summary of industry compliance costs

Capital costs were estimated at $12.1 million over the 2021–2040 time frame. In addition, operating costs have been estimated at $61.3 million. Total costs for industry are expected to be $73.4 million. Estimates of total industry compliance costs are shown in Table 4 below.

Table 4: Industry compliance costs (millions of 2018 dollars)

	2021 to 2025	2026 to 2030	2031 to 2035	2036 to 2040	Total Incremental Costs
Operating costs	11.6	20.0	17.0	12.5	61.3
Capital costs	2.7	4.6	2.8	2.0	12.1
Total costs	14.3	24.9	19.7	14.5	73.4

Note: Values discounted to present value at 3%.

Many of the substances expected to replace HFCs are relatively new to the market. As production of these alternative substances increases, it is expected that prices will change. In addition, given experience with phase-outs of CFCs and HCFCs, it is likely that the phase-down of HFCs will cause HFC prices to increase over time. Due to insufficient data, future prices of HFCs and their substitutes are assumed to be constant in this analysis.

No incremental administrative costs to industry or Government are expected. The administrative requirements and the associated administrative burden are unchanged from the Regulations.

Summary of benefits and costs

Between 2019 and 2040, the proposed Amendments are expected to result in cumulative GHG emission reductions from HFCs of about 2.7 Mt CO_2e. Using the social cost of carbon (SCC), the

benefits of these GHG reductions are valued at about $108.9 million. There are also estimated to be compliance costs to industry estimated at $73.4 million. The net benefits of the proposed Amendments are estimated at about $35.5 million.

Table 5: Summary of benefits and costs (millions of 2018 dollars)

Monetized Impacts	2021 to 2025	2026 to 2030	2031 to 2035	2036 to 2040	Total
Societal benefits					
Climate change benefits	5.1	29.1	40.3	34.4	108.9
Societal costs					
Industry costs	14.3	24.9	19.7	14.5	73.4
Societal net benefits	(9.2)	1.9	20.6	19.9	35.5
GHG reductions (Mt CO_2e)	0.1	0.7	1.0	0.9	2.7

Notes: Figures may not add up to totals due to rounding. Monetized values are discounted to present value using a 3% discount rate.

No costs or benefits have been estimated from the extended HCFC-123 allowance for fire-extinguishing equipment. There is no data available to confirm whether any HCFC-123 is currently used to service existing fire protection equipment, however servicing volumes are expected to be minimal. The quantities entering Canada would be mandated under the allowance system in order for Canada to meet its international obligations under the Montreal Protocol. Given the low volumes expected to be used and the relatively low ozone-depleting potential of HCFC-123, environmental costs due to this provision are expected to be negligible.

Small business lens

The proposed Amendments would affect 19 companies that import HFCs in bulk, 2 of which are small businesses. These two small businesses account for about 4% of the total allowances issued annually. Based on this allowance proportion, the proposed Amendments are estimated to result in costs to small business of $1,321,600 over the period of analysis, or $680,600 per small business (see Table 6).

Table 6: Small business cost summary

Small Business Lens Summary		
Number of small businesses impacted	2	
Number of years	20	
Base year for costing	2019	
Compliance costs	**Annualized Value ($)**	**Present Value ($)**
Importers of bulk HFCs	177,700	2,643,200
Total	177,700	2,643,200
Administrative costs	**Annualized Value ($)**	**Present Value ($)**
Importers of bulk HFCs	—	—
Total	—	—
Total cost (all impacted small businesses)	177,700	2,643,200
Cost per impacted small business	88,800	1,321,600

The proposed Amendments do not provide additional flexibilities to small businesses, such as exceptions, for a variety of reasons. An exception for small businesses with respect to the phase-down would allow small businesses to import larger quantities of bulk HFCs indefinitely, which would reduce the associated climate change mitigation benefits, and could place Canada in non-compliance

with its obligations under the Kigali Amendment, which entered into force on January 1, 2019. Furthermore, exceptions for small businesses could encourage companies to split into smaller entities to avoid future compliance costs, which would create an uneven playing field domestically.

One-for-one rule

The proposed Amendments are not expected to lead to an incremental administrative burden. Changing the Canadian HFC consumption baseline value does not introduce any new provisions to the existing Regulations; therefore, there would be no new administrative requirements following this amendment.

The amendment for HCFCs also would not introduce new administrative provisions and thus is not expected to result in any additional administrative burden.

Regulatory cooperation and alignment

The Regulations are the means by which Canada meets its obligations under the Montreal Protocol. In October 2016, Parties to the Montreal Protocol, including Canada, adopted an HFC phase-down amendment (the Kigali Amendment) wherein developed countries began in 2019 to gradually phase down HFC consumption. The proposed Amendments would correct the consumption baseline value that is used to determine the HFC quantities that can enter Canada under the HFC phase-down process, starting on January 1, 2019. Correcting this consumption baseline value would allow Canada to meet its international obligations under the Kigali Amendment. As of April 1, 2019, 69 Parties had ratified the Kigali Amendment.

Strategic environmental assessment

The proposed Amendments have been developed under the Pan-Canadian Framework for Clean Growth and Climate Change. A strategic environmental assessment was completed for this framework in 2016. The assessment concluded that proposals under the framework will reduce GHG emissions and are in line with the 2016–2019 Federal Sustainable Development Strategy.

Gender-based analysis plus

No gender-based analysis plus (GBA+) impacts have been identified for this proposal.

Rationale

The 2017 Amendments established the HFC phase-down system and set the Canadian HFC consumption baseline value. Since the publication of the 2017 Amendments, some companies confirmed that they failed to respond, or submitted incorrect data in response to the three mandatory notices on HFCs. The incorrect data has resulted in the Regulations containing an inaccurate Canadian HFC consumption baseline value. In order for the Department to issue correct allowances to companies holding an HFC consumption allowance and in order for Canada to meet its international obligations, the consumption baseline value specified in the 2017 Amendments needs to be updated to reflect the corrected data.

The proposed Amendments would amend the consumption baseline value that is used to determine the HFC quantities that can enter Canada under the HFC phase-down, which started on January 1, 2019. Amending this consumption baseline value would further reduce Canadian greenhouse gas (GHG) emissions, in order to help limit increases in global average temperatures. It would also allow Canada to meet its international obligations under the Kigali Amendment to the Montreal Protocol.

Between 2021 and 2040, the proposed Amendments are expected to result in cumulative GHG emission reductions of about 2.7 Mt CO_2e. The benefits of avoided climate damages associated with these GHG emission reductions are estimated at about $108.9 million. Compliance costs for industry are estimated at about $73.4 million. The net benefits of the proposed Amendments are estimated to be about $35.5 million.

Implementation, compliance and enforcement, and service standards

The proposed Amendments would come into force six months after the publication in the *Canada Gazette*, Part II. Consumption allowances would continue to be distributed based on the baseline consumption value in the proposed Amendments and the interim order. The amendment regarding HCFC-123 is extending the period it can be used as a fire-extinguishing agent. The nature of these

changes is such that there is no need for additional implementation activities.

The performance of the Regulations will be evaluated according to the program evaluation plan annually. Regular review and evaluation of these performance indicators will allow the Department to detail the impacts of the Regulations on regulated parties, and to evaluate their performance in reaching the intended targets.

Compliance and enforcement, and service standards would be unchanged from the 2017 Amendments.

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PROPOSED REGULATORY TEXT

Notice is given, pursuant to subsection 332(1) [a] of the *Canadian Environmental Protection Act, 1999* [b], that the Governor in Council, pursuant to subsection 93(1) of that Act, proposes to make the annexed *Regulations Amending the Ozone-depleting Substances and Halocarbon Alternatives Regulation*s.

Any person may, within 75 days after the date of publication of this notice, file with the Minister of the Environment comments with respect to the proposed Regulations or a notice of objection requesting that a board of review be established under section 333 of that Act and stating the reasons for the objection. All comments and notices must cite the *Canada Gazette*, Part I, and the date of publication of this notice, and be sent to Nicole Folliet, Director, Chemical Production Division, Department of the Environment, 351 Saint-Joseph Boulevard, Gatineau, Quebec K1A 0H3 (email: ec.gestionhalocarbures-halocarbonsmanagement.ec@canada.ca (mailto:ec.gestionhalocarbures-halocarbonsmanagement.ec@canada.ca)).

Any person who provides information to the Minister of the Environment may submit with the information a request for confidentiality under section 313 of that Act.

Ottawa, June 6, 2019

Julie Adair
Assistant Clerk of the Privy Council

Regulations Amending the Ozone-depleting Substances and Halocarbon Alternatives Regulations

Amendments

1 Subsection 38(2) of the *Ozone-depleting Substances and Halocarbon Alternatives Regulations* [16] is replaced by the following:

Ceases to have effect

(2) Subsection (1) ceases to have effect on January 1, 2020 in the case of HCFC or on January 1, 2030 in the case of HCFC-123.

2 Subsection 46(2) of the Regulations is replaced by the following:

Ceases to have effect

(2) Subsection (1) ceases to have effect on January 1, 2020 in the case of HCFC or on January 1, 2030 in the case of HCFC-123.

3 The description of E in subsection 65.06(2) of the Regulations is replaced by the following:

E is 18 008 795 tonnes of CO_2 equivalent.

Coming into Force

3 These Regulations come into force six months after the day on which they are published in the *Canada Gazette*, Part II.

Footnotes

1 2018 submission to the United Nations Framework Convention on Climate Change (https://www.canada.ca/en/environment-climate-change/services/climate-change/greenhouse-gas-emissions/sources-sinks-executive-summary-2018.html)

2 The GWP measures the cumulative radiative forcing (warming effect) from a non-CO2 GHG as compared to CO2 over a fixed time horizon, with 100 years being the most commonly used.

3 Intergovernmental Panel on Climate Change, Fourth Assessment Report: Climate Change 2007 (AR4) (http://www.ipcc.ch/publications_and_data/ar4/syr/en/contents.html)

4 *Ozone-depleting Substances and Halocarbon Alternatives Regulations* (/rp-pr/p2/2016/2016-06-29/html/sor-dors137-eng.html)

5 *Order Approving the Interim Order Amending the Ozone-depleting Substances and Halocarbon Alternatives Regulations* (/rp-pr/p1/2018/2018-10-27/html/order-decret-eng.html)

6 Canada's INDC submission to the UNFCCC (2015) (PDF) (https://www4.unfccc.int/sites/submissions/INDC/Published%20Documents/Canada/1/INDC%20-%20Canada%20-%20English.pdf).

7 *Pan-Canadian Framework on Clean Growth and Climate Change* (https:\\www.canada.ca\\en\\services\\environment\\weather\\climatechange\\pan-canadian-framework.html)

8 TBS Canadian Cost-Benefit Analysis Guide (http://www.tbs-sct.gc.ca/rtrap-parfa/analys/analystb-eng.asp)

9 The exchange rate used is USD 1.00 = CAD 1.26.

10 The Department of the Environment's National Inventory Report 1990–2016 (http://www.publications.gc.ca/site/eng/9.506002/publication.html) provides an inventory of historical GHG emissions in Canada.

11 Greenhouse Gas and Air Pollutant Emissions Projections: 2018 (PDF) (http://publications.gc.ca/collections/collection_2018/eccc/En1-78-2018-eng.pdf) provides an estimate of future GHG emissions in Canada.

12 Note that SCC estimates are rounded and converted to 2018 dollars for the analysis. Further information regarding the social cost of carbon can be found in the Technical Update to Environment and Climate Change Canada's Social Cost of Greenhouse Gas Estimates (http://www.ec.gc.ca/cc/default.asp?lang=En&n=BE705779-1).

13 Hydrofluoroolefins are unsaturated organic compounds composed of hydrogen, fluorine and carbon. These compounds have similar properties to HFCs with significantly lower global warming potential.

14 California Air Resource Board — SLCP Reduction Strategy, Appendix F: Supporting Documentation for the Economic Assessment of Measures in the SLCP Strategy. (PDF) (https://www.arb.ca.gov/cc/shortlived/meetings/03142017/appendixf.pdf) March 2017.

15 Due to uncertainty around the most likely alternative, a generic HFO substance has been assumed for the purposes of analysis.

16 SOR/2016-137

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

b S.C. 1999, c. 33