New Zealand Government

The New Zealand Emissions Trading Scheme

Consultation on proposed regulations for synthetic greenhouse gases amendments

Purpose of this document

The Minister for Climate Change Issues is seeking feedback on proposed regulations for synthetic greenhouse gases to be implemented as a result of the Climate Change Response (Emissions Trading and Other Matters) Amendment Bill (Bill).

Background

The Government has announced a number of changes to the New Zealand Emissions Trading Scheme (NZ ETS), which will be implemented through the Bill. The Bill has been tabled in the House and referred to the Finance and Expenditure Select Committee.

The purpose of the changes is to maintain the costs that the NZ ETS places on the economy at current levels. This will ensure businesses and households do not face additional costs during the continued economic recovery; and that New Zealand continues to do its fair share on climate change.

There are also important changes designed to improve the operation of the NZ ETS and ensure the scheme is 'fit for purpose' after 2012.

The proposed amendments include changes to the treatment of the synthetic greenhouse gases (SGG) sector.

Under the current settings in the NZ ETS, SGG participants are required to be registered with the New Zealand Emission Unit Register by 31 January 2012. From 1 January 2012 people who import SGGs, either in bulk or contained within products or appliances, are required to collect data on the amount they import annually. The annual data is then used to report the amount of SGGs they had imported over the calendar year by 31 March of the following year. In 2014, SGG participants will have to surrender their first amount of emission units (for the 2013 year).

What's the problem?

The NZ ETS Review Panel made the following recommendations in their 2011 report:

- NZ ETS obligation on the importation of SGG in motor vehicles should be removed, and replaced with a levy on motor vehicles fitted with air conditioning units.
- NZ ETS obligation on the importation of SGG in goods, such as fridges and heat pumps, should be removed, and replaced with a levy on imported goods containing SGG.
- Sulphur hexafluoride (SF_6) emissions obligation, for SF_6 in bulk and in goods, should stay within the NZ ETS, but the point of obligation should move from importers to large users.
- Wilful release of SGG from particular sources and activities should be banned.

In addition to the Panel's recommendations, the Government also identified that it was necessary to:

- Refine the eligibility criteria for receiving emission units when exporting or destroying SGG.
- Update the current global warming potentials (GWPs) and reported gases to those in the Intergovernmental Panel on Climate Change's (IPCCs) Fourth Assessment Report .

Bill changes

Changes proposed through the Bill

The following changes are being consulted on through the Select Committee process. As such, the changes themselves are **not** being consulted on as part of this regulatory consultation.

1. Hydrofluorocarbon (HFC) and perfluorocarbons (PFC) levy – removing the NZ ETS obligation on the importation of SGG in goods and motor vehicles and replacing it with a levy linked to the carbon price and transition measures.
2. The Bill creates a power for the Minister to prescribe, in regulations, specific criteria for receiving units when HFC and PFC are exported.
3. SF_6 obligation – moving the NZ ETS obligation on SF_6 from importers and manufacturers to the user; and removing the ability to gain units from destroying and exporting SF_6.
4. Updating global warming potentials (GWPs) – to match the Intergovernmental Panel on Climate Change's Fourth Assessment Report.

Proposed regulations to implement the Bill changes

Once the Bill has been passed by Parliament, regulations will be required to effectively implement these changes.

This consultation focuses on these regulations. This document is broken into the following parts:

- Part 1: HFC/PFC levy
- Part 2: Exporting HFC and PFC
- Part 3: SF_6 obligation
- Part 4: Implications for the SGG sector of updating global warming potentials

Each of these parts are highlighted below and discussed in more detail on the following pages.

Part 1: HFC/PFC Levy

New regulations will be required to implement the HFC/PFC levy proposed through the Bill. For the levy to work in practice the regulations need to specify the following:

- classes of motor vehicles and goods that the levy will apply to
- average SGG charge for each class
- the global warming potential (GWPs) associated with each gas.

Part 2: Exporting HFC and PFC

The Bill proposes a power to create regulations prescribing criteria for exporters of HFC/PFC applying for emission units as a removal activity. This will require an amendment to the Climate Change (Other Removal Activities) Regulations 2009.

Part 3: SF_6 obligation

The Bill proposes to move the NZ ETS obligation on sulphur hexafluoride (SF_6) from importers and manufacturers to large users. Amendments to existing regulations are required to specify the:

- large user threshold
- requirements for calculating the user obligation.

This will require an amendment to the Climate Change (Stationary Energy and Industrial Processes) Regulations 2009.

Part 4: Implications for the SGG sector of updating global warming potentials

To update global warming potentials (GWPs) as proposed in the Bill, the following regulations need to be amended with the revised GWPs to match the IPCCs fourth assessment report:

- Climate Change (Stationary Energy and Industrial Processes) Regulations 2009 for bulk importers of HFC/PFC
- Climate Change (Other Removal Activities) Regulations 2009 for exporters of HFC/PFC in bulk and in goods
- Climate Change (General Exemptions) Order 2009, to remove exemptions for two HFCs that will be included under the new rules.

Objectives of the changes

In addressing the problems identified above it is important to ensure that the proposed regulations:

- help New Zealand deliver its 'fair share' of international action to reduce emissions, including meeting any international obligations
- deliver emission reductions in the most cost-effective way
- support efforts to maximise the long-term economic resilience of the New Zealand economy at least cost.

The following assessment criteria have been used to identify preferred options for regulations.

- In helping New Zealand to deliver its 'fair share', proposed options will be evaluated on the incentive they provide to reduce emissions.
- To deliver emissions reductions in the most cost-effective way, proposed options will need to balance the incentive to reduce emissions, accuracy of the emissions calculation and the associated administration and compliance costs.
- To support efforts to maximise the long-term economic resilience of the New Zealand economy at least cost, proposed options will be evaluated with particular regard to administration and compliance impacts on businesses.

Find out more

The Ministry for the Environment will be holding a series of meetings in Auckland and Wellington for interested parties where you can hear more on the proposed changes.

To register your interest for these meetings, please email climatechange@mfe.govt.nz, with the subject field 'SGG Meeting'. Could you also please specify where your business is located and what proposal(s) you would be interested in discussing.

Further information on the Government's proposed changes to the SGG sector in the NZ ETS, including Q&As, can be found at: www.climatechange.govt.nz/emissions-trading-scheme/participating/synthetic-gases/.

Phone: **0800 CLIMATE (254 628)**.

Making a submission

The Ministry for the Environment welcomes written submissions on the proposed regulations for synthetic greenhouse gases to be implemented as a result of the Climate Change Response (Emissions Trading and Other Matters) Amendment Bill.

Submissions are due by 5.00pm on 15 October 2012.

Please send your submission by email to: climatechange@mfe.govt.nz with the subject field 'SSG submission'.

If you are unable to email your submission then please post it to:

ETS Operational Policy Team
Ministry for the Environment
PO Box 10362
Wellington 6143

About submissions

The Ministry for the Environment may publish all or part of any written submission on the Government's climate change website. We will consider you to have consented to such publishing by making a submission, unless you clearly specify otherwise in your submission.

The content of submissions is subject to the Official Information Act 1982. Copies of submissions sent to us will normally be released in response to an Official Information Act request from a member of the public. If you object to the release of any information contained in your submission, please clearly state this in your submission, including which part(s) you consider should be withheld, together with the reason(s) for withholding the information. We will take into account all such objections when responding to requests for copies of, and information on, submissions to this document.

If you do not wish your name and any identifying details in your submission to be released, please clearly state this in your submission. At your request, we will make your submission anonymous before it is published on the climate change website. However, please note that the Ministry for the Environment will not be able to withhold any information if doing so would contravene the requirements of the Official Information Act.

Next steps

Submissions will be analysed by the Ministry for the Environment and reported to the Minister for Climate Change Issues for final decisions. Changes to the regulations are expected to be made before 31 December 2012 and come into force from 1 January 2013. Updates about the process will be provided on the climate change website: www.climatechange.govt.nz.

Part 1: The HFC/PFC levy

What was the problem?

The NZ ETS Review Panel recommended removing HFCs and PFCs from the NZ ETS and implementing a levy on them. It was considered a levy would ensure business costs are more proportionately balanced with environmental benefits. For example, under the NZ ETS there will be a number of mandatory participants incurring administrative and compliance costs but reporting no emissions for the year, due to the 100tCO_2-e allowance and the related parties test.

What decisions are proposed through the Bill?

The Bill introduces a levy for motor vehicles and goods containing hydrofluorocarbons (HFCs) and perfluorocarbons (PFCs).

The Bill specifies the formula for calculating the levy and the following approach to implementation.

1. Motor vehicles with mobile air conditioning (MAC) units will be levied when a motor vehicle is first registered for on-road use in New Zealand. This part of the levy will be administered by the New Zealand Transport Agency (NZTA).
2. All other goods covered under the levy will apply at import. The goods levy will be administered by the New Zealand Customs Service (Customs).

The Goods and Services Tax will apply to the HFC/PFC levy, as well as transition phase measures under the NZ ETS. Customs and NZTA will operate as close to business-as-usual as possible, meaning similar administrative and levy collection processes will apply.

Using a levy, rather than NZ ETS obligation, will decrease administration and compliance costs to businesses and will provide certainty of the cost that the NZ ETS may not be able to provide to smaller businesses.

Regulations consultation

What is being consulted on?

For the levy to work in practice, the regulations need to specify the following:

- classes of motor vehicles and goods the levy will apply to
- average SGG charge for each class.

New regulations will be required to implement the HFC/PFC levy proposed through the Bill.

Methodology – motor vehicle classes

It is proposed that the levy on motor vehicle mobile air conditioning (MAC) units is calculated according to the motor vehicle classes and the associated average SGG charge and GWP for each class in appendix 1. The classes proposed are a combination of the existing motor vehicle classes as set out in the Climate Change (Stationary Energy and Industrial Processes) Regulations 2009, as well as the classes of motor vehicles currently used by NZTA.

The default emission charges assume HFC-134a to be the only refrigerant contained in motor vehicle MAC units as no alternatives are yet in commercial production.

The benefits of using these proposed classes are that these are known to the motor vehicle sector as well as NZTA, who will be the implementation agency.

Methodology – goods classes

It is proposed that the levy on goods is calculated according to the goods classes and the associated average SGG charge and GWP for each class in Appendix 1.

The classes of goods are based on detailed analysis on the types of imports and charges of HFC/PFC equipment that was undertaken by CRL Energy Ltd. For more information, please refer to the CRL Energy Ltd Report at www.climatechange.govt.nz/consultation/sgg/index.

The benefits of using the proposed classes are that many of the classes are already known to the importers and importers are likely to already understand Customs processes around new classes of goods.

Impact of averaging refrigerant charges across classes of goods and motor vehicles

As set out in Appendix 1, most of the proposed classes assume an average charge of HFC/PFC. This will reduce administration costs, as each importer will not need to identify exact amounts of HFC/PFC in their products. Averaging the refrigerant charges also diminishes the costs for the collection (Customs) and enforcement (Environmental Protection Authority) agencies, as collection and verification of exact refrigerant charges would be highly administratively intensive.

However, selecting average refrigerant charges for classes of equipment raises approximation issues. For example, sectors which have relatively specific information may feel that the average charge being imposed through the levy is higher than the charge in their equipment. Another issue is the assumed relationship between refrigerant charges and cooling capacity (for the air-conditioning importers) or internal volume (for household refrigerators and freezers importers). It is assumed that the larger the cooling capacity or internal volume, the more SGG contained in the equipment. This may not always be the case.

Exemptions

Customs will collect the goods levy through its established electronic systems at the point of import. This means the goods levy will be subject to various exemptions that Customs already impose. These exemptions already exist under the current NZ ETS settings for SGGs, but need to be replicated for the levy. The current exemptions apply to household goods, or other effects of a passenger of a ship or aircraft (accompanied or unaccompanied), that are not intended for gift, sale or exchange.

Reporting requirements

The proposed regulations will also require importers of HFC/PFC to keep information for auditing purposes. No more information will be required from importers than they are already required to under the Customs and Excise Act 1996, and specifically Regulation 59 under the Customs and Excise Regulations 1996.

The HFC/PFC levy – Consultation questions

1. Do you agree with the proposed motor vehicle and goods classes?
2. If not, what alternative classes would you propose instead?
3. Do you agree with the Government's estimated impacts of its proposed classes?
4. What other impacts and costs have not been identified/considered?
5. How would these impacts and costs differ under an alternative approach?
6. Do you agree with the proposed average refrigerant charges?
7. If not, what alternative average refrigerant charges would you propose instead?
8. What do you think the impacts and costs of the proposed average refrigerant charges would be?
9. Do you agree with replicating the existing exemptions in the NZ ETS with the levy?
10. Do you agree with the proposed reporting requirements?

For all your answers please explain why and provide evidence of the impacts and costs.

Part 2: Exporting HFC and PFC

Background

What is the problem?

Under the current NZ ETS settings, people can import HFC/PFC (in bulk or in goods) before 2013 without incurring a carbon price (be it NZ ETS obligation or a levy). It is possible to then export the same SGG after 2012 to earn emission units.

Regulations consultation

What is being consulted on?

To address this problem, it is proposed to restrict the eligibility of exporters applying for carbon units as a removal activity through the following criteria:

- the person exporting either bulk HFC/PFC or HFC/PFC contained in goods is a manager of a product stewardship scheme accredited under the Waste Minimisation Act 2008, or
- all the components of the bulk HFC/PFC exported (or if the HFC/PFC was imported in goods, the goods themselves) were imported after 31 December 2012.

To create the criteria an amendment to the Climate Change (Other Removal Activities) Regulations 2009 is required.

How enforcement of the proposed criteria occurs is also being consulted on. Two options, a self-assessment model or a verification of information method, are proposed for discussion.

Rationale for the export criteria

The first criterion ensures that product stewardship schemes are utilised as initiatives to reduce emissions. Product stewardship schemes are accredited through the Waste Minimisation Act 2008 and offer a flexible approach aimed at best minimising environmental harm. The criterion also recognises the efforts of the Trust for the Destruction of Ozone-depleting Substances (the Trust). Without the voluntary efforts of the Trust, New Zealand would have had greater emissions of SGGs and ozone-depleting substances.

The second criterion is designed to stop a person importing before 1 January 2013, when there is no NZ ETS obligation or levy, and re-exporting after 31 December 2012, when they can receive units for export.

Options for enforcement

The Climate Change (Other Removal Activities) Regulations 2009 already prescribe the information businesses applying to receive units for the export of HFC/PFC are required to maintain. The Climate Change (Other Removal Activities) Regulations 2009 need to be amended to specify how the criteria are enforced. It is considered there are two options for how this could be enforced.

Option 1 – Self-assessment model

This option proposes to use a self-assessment model for monitoring, reporting and verifying emissions removed by participants. The Environmental Protection Authority (EPA) would have the ability to conduct random audits on businesses to ensure their compliance, and verify the information that is being provided.

This option is preferred because this is the current enforcement model for the wider NZ ETS, meaning that adopting the same approach will ensure consistency with other aspects of the scheme. It is also considered to be more cost effective than the verification model.

The potential disadvantage of this option includes the potential for people to not apply the criteria. However, this is mitigated by the EPA having the ability to conduct random audits.

Option 2 – Verification of information

An alternative option would be to require each business looking to export HFC/PFC to gain removal units, to prove they meet one of the export criteria. This would mean they would have to prove the information that was provided was accurate.

This is not preferred because the administrative costs of doing this are considered to be disproportionate to the environmental benefit gained from businesses verifying information.

Further amendments to the Climate Change (Other Removal Activities) Regulations 2009

It is proposed to add the classes of goods and their average refrigerant charges to the Climate Change (Other Removal Activities) Regulations 2009. This will mean the default charges for goods containing HFC and PFC can be used when businesses report to the EPA to gain units for export. The option to report exact amounts of HFC and PFC will remain; however, creating the option to choose the default charges may reduce administration and compliance costs on businesses.

Exporting HFC and PFC – Consultation questions

11. Do you agree with the proposed criteria?
12. If not, what alternative criteria would you propose instead?
13. What option for enforcement do you prefer? (Self-assessment model or verification of information)
14. Do you agree with the Government's estimated impacts?
15. What other impacts and costs have not been identified/considered?

For all your answers please explain why and provide evidence of the impacts and costs.

Part 3: Sulphur hexafluoride (SF_6) obligation

Background

What is the problem?

Under current NZ ETS settings for SF_6, the Government receives units from participants many years in advance of the emissions being produced.

It is arguably unfair that participants are required to surrender emission units upon import, when the Government's liability is incurred only when emissions are reported (which could be over 50 years after the SF_6 was imported).

What decisions have been made?

The Bill moves the NZ ETS obligation on SF_6 from importers and manufacturers to large users meaning liability for SF_6 emissions on participants occurs when actual emissions are reported.

The Bill does not specify the threshold of a large user or the formula for calculating the user obligation.

Regulations consultation

What is being consulted on?

To implement proposals made through the Bill to move the NZ ETS obligation on SF_6 from importers and manufacturers to large users, regulations are required to specify the:

- large user threshold
- requirements for calculating the user obligation.

This will require an amendment to the Climate Change (Stationary Energy and Industrial Processes) Regulations 2009.

Large user threshold

It is proposed to apply a threshold of one tonne of SF_6 installed in all operating electrical switchgear (excluding bulk gas cylinders and spares) that is being used by a specific person or company.

By creating a threshold of one tonne, 77 per cent of emissions from the sector would be covered. The fact that 23 per cent of the emissions will not be covered by this option, is outweighed by the reduction in compliance and administration cost to business and government. This threshold aligns with the approach throughout the NZ ETS where thresholds are set to target larger emitters to minimise costs on participants with lower emissions.

Calculating the large users NZ ETS obligation

There are a number of options for calculating the user obligations. Three proposed options are set out below.

Option 1: Default Emissions Factor (DEF) only

The DEF, or 2 per cent leakage assumption, means the annual surrender liability will be 2 per cent of the total SF_6 in a businesses operating electrical switchgear. International experience indicates that 2 per cent is the approximate amount leaked and emitted per year.

Option 2: Unique Emissions Factor (UEF) and DEF

Under Option 2, participants are able to select either a DEF or UEF. A DEF would be 2 per cent as described above for the DEF only option. A UEF is a more user-specific option which allows the participant to apply for a more specific

leakage assumption. If a participant chooses a UEF, the DEF option is no longer available to them. The participant would be required to maintain the following information under a UEF:

- the total SF_6 quantity (in kilograms) held in electrical switchgear in operation
- the SF_6 quantity in new and replacement electrical switchgear in operation added during the quarter with an estimate of the SF_6 emissions during installation
- the SF_6 quantity in electrical switchgear retired during the quarter with an estimate of the SF_6 emissions that led to the retirements (eg, failure) and an estimate of the SF_6 emissions during removal and/or disposal
- the SF_6 quantity used to maintain electrical switchgear in operation during the quarter (eg, refilling to replace slow leakage)
- for audit purposes, a register of each unit of electrical switchgear in operation used during the year (and retired from previous years). The register would include records of the estimated quantity of SF_6 it contains, its installation date, the date of any maintenance where SF_6 was added together with the estimated quantity of SF_6 added, and records related to any retirement (including date, any failure emissions, and means of SF_6 disposal where appropriate).

For each quarter, this register would be used to calculate respectively the installation, retirement and maintenance emissions as the sum of those quantities for each operating and retired unit. The UEF would be calculated as the total of those quarterly emissions divided by the average quarterly totals of SF_6 quantity held in electrical switchgear in operation.

The process to develop, apply for, and use a UEF would be:

1. monitoring and analysis over a full year (the base year) to determine the emissions factor
2. analysing and planning to determine how long the UEF is expected to remain valid, and/or what future conditions would mean that it is no longer fit for use and what monitoring is required to identify them
3. creating an application and ongoing test plan that specifies the monitoring to be done to validate the UEF over time
4. having the application, its underlying data and calculations, and the ongoing test plan, verified by a recognised verifier
5. submitting the application, ongoing test plan, and verification statement to the Chief Executive of the Environmental Protection Authority (EPA)
6. when approval is granted, using the UEF for all emissions reporting – on approval of the UEF, the EPA would incorporate it in your reporting tool
7. as emissions reporting is done over time, doing whatever monitoring or checks are specified in the ongoing test plan to ensure the UEF remains valid
8. when the UEF is no longer valid, either re-applying to be granted a new one or notifying the EPA so the relevant DEF would be put back in the reporting tool.

Option 3: Actual emissions [preferred option]

Under option 3, the following calculation could be used to determine the actual emissions (E):

$$\mathbf{E = [GWP \times (M + P - F)] /1000}$$

GWP: Global warming potential (22,800).

M: SF_6 quantity (kilograms) used to install and maintain all electrical switchgear in operation during the year, eg, refilling to replace slow leakages.

F: Nameplate capacity of any new electrical switchgear in operation that is filled with SF_6.

P: Total pre-charged SF_6 quantity (if any of the filled electrical switchgear in operation was partially pre-charged before installation).

In addition to the above obligation, the following calculation would be a reporting requirement that substantiates the actual emissions (E) calculation:

T1 + N – R = T2

T1: Total SF_6 nameplate capacity (kilograms) for electrical switchgear in operation on 1 January of the relevant year.

T2: Total SF_6 nameplate capacity (kilograms) for electrical switchgear in operation on 31 December of the relevant year.

N: Total SF_6 nameplate capacity (kilograms) for electrical switchgear that was newly installed during the relevant year.

R: Total SF_6 nameplate capacity (kilograms) for electrical switchgear that was retired during the year.

SF_6 options' evaluation

In achieving the high level objectives described earlier in the Objectives of the changes section, the following assessment was used to identify the preferred option:

- accuracy of emissions calculation
- incentive to reduce emissions
- administration and compliance.

These three criteria are important tools in evaluating which option is best.

Accuracy of emissions calculation

Option 1 is a less accurate and non-specific method of calculation because it relies on a generalised assumption. The assumption of 2 per cent emissions from leakage each year may in some instances be reasonable but often it will not be because actual leakage will vary.

Option 2 has the potential to be very accurate, but only if the Unique Emissions Factor (UEF) was selected as the calculation method. It requires rigorous testing and verification and a participant-specific emissions calculation.

Option 3 is an accurate and participant-specific emissions calculation method because it relies on the actual amounts of SF_6 a participant has used.

Incentive to reduce emissions

Option 1 provides no incentive to reduce emissions. There is no benefit to the user from reducing emissions or being aware of their emissions level.

Option 2 incentivises emissions reductions only if the UEF is chosen as the calculation method, because lowering emissions directly relates to cost. Under a DEF the same lack of incentives as mentioned under Option 1 apply.

Option 3 incentivises emissions reductions because it takes into account actual emissions from electrical equipment therefore encouraging a reduction in them.

Administration and compliance

Option 1 has very low administration and almost no compliance costs. The default 2 per cent of total SF_6 in electrical equipment is applied each year as determined from the electrical equipment of the participant.

If the DEF was selected under Option 2 the administration and compliance costs would be very low, as is described above. If the UEF was selected, administration and compliance cost would be very high. The process to develop, apply and use a UEF, described earlier, requires a rigorous process.

Option 3 has relatively low administration and compliance costs. Most of the necessary information to complete the calculation each year will already be held and available to participants in the administration of their electrical equipment.

Summary

Option 3 (actual emissions) is the preferred option because while it provides an incentive to reduce emissions, it is also accurate and has low administration and compliance costs. Option 1 (DEF) is less accurate and provides limited incentive to reduce emissions, and Option 2 (DEF or UEF) has very high administration and compliance costs.

SF_6 – Consultation questions

16. Do you agree with the proposed one tonne threshold?
17. If not, what threshold would you propose instead?
18. What is your preferred option for calculating the user's NZ ETS obligation?
    a) Option 1: Default Emissions Factor (DEF)
    b) Option 2: Unique Emissions Factor (UEF) or DEF
    c) Option 3: Actual emissions
    d) Another option that is not suggested.
19. Do you agree with the Government's estimated impacts?
20. What other impacts and costs have not been identified/considered?

For all your answers please explain why and provide evidence of the impacts and costs.

Part 4: Implications for the SGG sector of updating global warming potentials

Background

What was the problem?

At the recent Durban conference it was agreed that countries should use an updated method for measuring greenhouse gas emissions, based on the global warming potentials (GWPs) from the Intergovernmental Panel on Climate Change's (IPCC) Fourth Assessment Report (AR4).

This has implications for the NZ ETS as without updating the legislation, the scheme will have to continue using the outdated methodology.

What decisions have been made?

The Bill proposes to replace the old methodology with the updated international rules. This will include:

- new GWPs for existing NZ ETS gases
- the introduction of new gases into the NZ ETS.

Regulations consultation

What is being consulted on?

Inclusion of new HFC/PFCs

To update GWPs as proposed in the Bill, the following regulations need to be amended with the revised GWPs to match the IPCCs Fourth Assessment Report:

- Climate Change (Stationary Energy and Industrial Processes) Regulations 2009 for bulk importers of HFC/PFC
- Climate Change (Other Removal Activities) Regulations 2009 for exporters of HFC/PFC in bulk and in goods.

Once the Bill has been passed following seven new HFC/PFCs will be added to the GWP table (see Appendix 2) to align with the IPCCs Fourth Assessment Report:

- HFC-152
- HFC-161
- HFC-245fa
- HFC-236ea
- HFC-236cb
- PFC-9-1-18
- HFC-365mfc.

Removing exemptions on HFC-245fa and HFC-365mfc

New Zealand currently reports using the IPCCs Second Assessment Report (AR2). HFC-245fa and HFC-365mfc are not listed in AR2 and are therefore currently exempt from the NZ ETS through the Climate Change (General Exemptions) Order 2009. By aligning with the IPCCs AR4, the justification for the exemption is no longer valid. Therefore, the exemption needs to be removed from the Climate Change (General Exemptions) Order 2009.

Impacts of removing exemptions

Removing the exemptions on HFC-245fa and HFC-365mfc is likely to have an impact on insulation foam manufacturers, as these manufacturers import HFC-245fa and HFC-365mfc in bulk and use it to manufacture

insulation foam. As with the rest of the SGG sector, insulation foam manufacturers have been moving away from ozone-depleting substances (CFCs) and into HFCs, causing an increase in their use.

Updating global warming potentials – Consultation questions

21. Do you agree with the proposal to include these new HFC/PFCs?
22. Do you agree with the Government's estimated impacts?
23. What other impacts and costs have not been identified/considered?

For all your answers please explain why and provide evidence of the impacts and costs.

Appendix one: Leviable goods schedule

Proposed categories	Assumed HFC or mixture	Average charge (grams)	Global warming potential	CO_2 equivalent (tonnes)	Unit of measurement	Levy per unit of measurement for effective CO_2 price ($9.69)	Final levy rate (including transitional phase measures)
Goods							
Air conditioning machines; comprising a motor-driven fan and elements for changing the temperature and humidity, window or wall types, self-contained or split-system, containing hydrofluorocarbons, single phase, of cooling capacity less than or equal to 4kW	R410A	1000	2090	2.09	Per number of items in class	$20.25	**$10.13**
Air conditioning machines; comprising a motor-driven fan and elements for changing the temperature and humidity, window or wall types, self-contained or split-system, containing hydrofluorocarbons, single phase, of cooling capacity greater than 4kW and less than or equal to 7kW	R410A	1500	2090	3.135	Per number of items in class	$30.38	**$15.19**
Air conditioning machines; comprising a motor-driven fan and elements for changing the temperature and humidity, window or wall types, self-contained or split-system, containing hydrofluorocarbons, single phase, of cooling capacity greater than 7kW and less than or equal to 10kW	R410A	2500	2090	5.225	Per number of items in class	$50.63	**$25.32**
Air conditioning machines; comprising a motor-driven fan and elements for changing the temperature and humidity, window or wall types, self-contained or split-system, containing hydrofluorocarbons, single phase, of cooling capacity greater than 10kW	R410A	3500	2090	7.315	Per number of items in class	$70.88	**$35.44**
Air conditioning machines; comprising a motor-driven fan and elements for changing the temperature and humidity, window or wall types, self-contained or split-system, containing hydrofluorocarbons, three phase, containing 1,1,1,2 – Tetrafluoroethane (HFC 134a) only	HFC-134a		1430	1.430 tonnes per kg	Per kg of HFC-134a		

Proposed categories	Assumed HFC or mixture	Average charge (grams)	Global warming potential	CO_2 equivalent (tonnes)	Unit of measurement	Levy per unit of measurement for effective CO_2 price ($9.69)	Final levy rate (including transitional phase measures)
Goods							
Air conditioning machines; comprising a motor-driven fan and elements for changing the temperature and humidity, window or wall types, self-contained or split-system, containing hydrofluorocarbons, three phase, containing R410A refrigerant	R410A		2090	2.090 tonnes per kg	Per kg of R410A		
Air conditioning machines; comprising a motor-driven fan and elements for changing the temperature and humidity, window or wall types, self-contained or split-system, containing hydrofluorocarbons, three phase, other	R410A		2090	2.090 tonnes per kg	Per kg of R410A		
Air conditioning machines; comprising a motor-driven fan and elements for changing the temperature and humidity, window or wall types, self-contained or split-system, containing hydrofluorocarbons, other	R410A		2090	2.090 tonnes per kg	Per kg of R410A		
Air conditioning machines; comprising a motor-driven fan and elements for changing the temperature and humidity, of a kind used for persons, in motor vehicles, containing hydrofluorocarbons	HFC-134a		1430	1.430 tonnes per kg	Per kg of HFC-134a		
Air conditioning machines; containing a motor-driven fan, other than window or wall types, incorporating a refrigerating unit and a valve for reversal of the cooling/heat cycle (reversible heat pumps), containing hydrofluorocarbons, single phase, of cooling capacity less than or equal to 4kW	R410A	1000	2090	2.09	Per kg of R410A	$20.25	**$10.13**

Proposed categories	Assumed HFC or mixture	Average charge (grams)	Global warming potential	CO_2 equivalent (tonnes)	Unit of measurement	Levy per unit of measurement for effective CO_2 price ($9.69)	Final levy rate (including transitional phase measures)
Goods							
Air conditioning machines; containing a motor-driven fan, other than window or wall types, incorporating a refrigerating unit and a valve for reversal of the cooling/heat cycle (reversible heat pumps), containing hydrofluorocarbons, single phase, of cooling capacity greater than 4kW and less than or equal to 7kW	R410A	1500	2090	3.135	Per kg of R410A	$30.38	**$15.19**
Air conditioning machines; containing a motor-driven fan, other than window or wall types, incorporating a refrigerating unit and a valve for reversal of the cooling/heat cycle (reversible heat pumps), containing hydrofluorocarbons, single phase, of cooling capacity greater than 7kW and less than or equal to 10kW	R410A	2500	2090	5.225	Per kg of R410A	$50.63	**$25.32**
Air conditioning machines; containing a motor-driven fan, other than window or wall types, incorporating a refrigerating unit and a valve for reversal of the cooling/heat cycle (reversible heat pumps), containing hydrofluorocarbons, single phase, of cooling capacity greater than 10kW	R410A	3500	2090	7.315	Per kg of R410A	$70.88	**$35.44**
Air conditioning machines; containing a motor-driven fan, other than window or wall types, incorporating a refrigerating unit and a valve for reversal of the cooling/heat cycle (reversible heat pumps), containing hydrofluorocarbons, three phase, containing 1,1,1,2 – Tetrafluoroethane (HFC 134a) only	HFC-134a		1430	1.430 tonnes per kg	Per kg of HFC-134a		
Air conditioning machines; containing a motor-driven fan, other than window or wall types, incorporating a refrigerating unit and a valve for reversal of the cooling/heat cycle (reversible heat pumps), containing hydrofluorocarbons, three phase, containing R410A refrigerant	R410A		2090	2.090 tonnes per kg	Per kg of R410A		

Proposed categories	Assumed HFC or mixture	Average charge (grams)	Global warming potential	CO_2 equivalent (tonnes)	Unit of measurement	Levy per unit of measurement for effective CO_2 price ($9.69)	Final levy rate (including transitional phase measures)
Goods							
Air conditioning machines; containing a motor-driven fan, other than window or wall types, incorporating a refrigerating unit and a valve for reversal of the cooling/heat cycle (reversible heat pumps), containing hydrofluorocarbons, three phase, other	R410A		2090	2.090 tonnes per kg	Per kg of R410A		
Air conditioning machines; containing a motor-driven fan, other than window or wall types, incorporating a refrigerating unit and a valve for reversal of the cooling/heat cycle (reversible heat pumps), containing hydrofluorocarbons, other	R410A		2090	2.090 tonnes per kg	Per kg of R410A		
Air conditioning machines; containing a motor-driven fan, other than window or wall types, incorporating a refrigerating unit, containing hydrofluorocarbons, single phase, of cooling capacity less than or equal to 4kW	R410A	1000	2090	2.09	Per number of items in class	$20.25	**$10.13**
Air conditioning machines; containing a motor-driven fan, other than window or wall types, incorporating a refrigerating unit, containing hydrofluorocarbons, single phase, of cooling capacity greater than 4kW and less than or equal to 7kW	R410A	1500	2090	3.135	Per number of items in class	$30.38	**$15.19**
Air conditioning machines; containing a motor-driven fan, other than window or wall types, incorporating a refrigerating unit, containing hydrofluorocarbons, single phase, of cooling capacity greater than 7kW and less than or equal to 10kW	R410A	2500	2090	5.225	Per number of items in class	$50.63	**$25.32**
Air conditioning machines; containing a motor-driven fan, other than window or wall types, incorporating a refrigerating unit, containing hydrofluorocarbons, single phase, of cooling capacity greater than 10kW	R410A	3500	2090	7.315	Per number of items in class	$70.88	**$35.44**

Proposed categories	Assumed HFC or mixture	Average charge (grams)	Global warming potential	CO_2 equivalent (tonnes)	Unit of measurement	Levy per unit of measurement for effective CO_2 price ($9.69)	Final levy rate (including transitional phase measures)
Goods							
Air conditioning machines; containing a motor-driven fan, other than window or wall types, incorporating a refrigerating unit, containing hydrofluorocarbons, three phase, containing 1,1,1,2 – Tetrafluoroethane (HFC 134a) only	HFC-134a		1430	1.430 tonnes per kg	Per kg of HFC-134a		
Air conditioning machines; containing a motor-driven fan, other than window or wall types, incorporating a refrigerating unit, containing hydrofluorocarbons, three phase, containing R410A refrigerant	R410A		2090	2.090 tonnes per kg	Per kg of R410A		
Air conditioning machines; containing a motor-driven fan, other than window or wall types, incorporating a refrigerating unit, containing hydrofluorocarbons, three phase, other	R410A		2090	2.090 tonnes per kg	Per kg of R410A		
Air conditioning machines; containing a motor-driven fan, other than window or wall types, incorporating a refrigerating unit, containing hydrofluorocarbons, other	R410A		2090	2.090 tonnes per kg	Per kg of R410A		
Air conditioning machines; with motor-driven fan and elements for temperature control, parts thereof, containing hydrofluorocarbons	R410A		2090	2.090 tonnes per kg	Per kg of R410A		
Refrigerators and freezers; combined refrigerator freezers, fitted with separate external doors, containing hydrofluorocarbons, compression type, less than 200 litres gross internal capacity	HFC-134a	100	1430	0.143	Per kg of HFC-134a	$1.39	**$0.69**

Proposed categories	Assumed HFC or mixture	Average charge (grams)	Global warming potential	CO_2 equivalent (tonnes)	Unit of measurement	Levy per unit of measurement for effective CO_2 price ($9.69)	Final levy rate (including transitional phase measures)
Goods							
Refrigerators and freezers; combined refrigerator freezers, fitted with separate external doors, containing hydrofluorocarbons, compression type, 200 litres and over but less than 300 litres gross internal capacity	HFC-134a	110	1430	0.1573	Per number of items in class	$1.52	**$0.76**
Refrigerators and freezers; combined refrigerator freezers, fitted with separate external doors, containing hydrofluorocarbons, compression type, 300 litres and over but less than 400 litres gross internal capacity	HFC-134a	120	1430	0.1716	Per number of items in class	$1.66	**$0.83**
Refrigerators and freezers; combined refrigerator freezers, fitted with separate external doors, containing hydrofluorocarbons, compression type, 400 litres and over but less than 500 litres gross internal capacity	HFC-134a	130	1430	0.1859	Per number of items in class	$1.80	**$0.90**
Refrigerators and freezers; combined refrigerator freezers, fitted with separate external doors, containing hydrofluorocarbons, compression type, 500 litres and over gross internal capacity	HFC-134a	150	1430	0.2145	Per number of items in class	$2.08	**$1.04**
Refrigerators and freezers; combined refrigerator freezers, fitted with separate external doors, containing hydrofluorocarbons, other	HFC-134a	150	1430	0.2145	Per number of items in class	$2.08	**$1.04**
Refrigerators; for household use, compression type, containing hydrofluorocarbons, less than 200 litres gross internal capacity	HFC-134a	70	1430	0.1001	Per number of items in class	$0.97	**$0.48**
Refrigerators; for household use, compression type, containing hydrofluorocarbons, 200 litres and over but less than 300 litres gross internal capacity	HFC-134a	90	1430	0.1287	Per number of items in class	$1.25	**$0.62**

Proposed categories	Assumed HFC or mixture	Average charge (grams)	Global warming potential	CO_2 equivalent (tonnes)	Unit of measurement	Levy per unit of measurement for effective CO_2 price ($9.69)	Final levy rate (including transitional phase measures)
Goods							
Refrigerators; for household use, compression type, containing hydrofluorocarbons, 300 litres and over but less than 400 litres gross internal capacity	HFC-134a	100	1430	0.143	Per number of items in class	$1.39	**$0.69**
Refrigerators; for household use, compression type, containing hydrofluorocarbons, 400 litres and over but less than 500 litres gross internal capacity	HFC-134a	110	1430	0.1573	Per number of items in class	$1.52	**$0.76**
Refrigerators; for household use, compression type, containing hydrofluorocarbons, 500 litres and over gross internal capacity	HFC-134a	130	1430	0.1859	Per number of items in class	$ 1.80	**$0.90**
Freezers; of the chest type, not exceeding 800 litres capacity, containing hydrofluorocarbons, less than 300 litres gross internal capacity	HFC-134a	140	1430	0.2002	Per number of items in class	$1.94	**$0.97**
Freezers; of the chest type, not exceeding 800 litres capacity, containing hydrofluorocarbons, 300 litres and over gross internal capacity	HFC-134a	180	1430	0.2574	Per number of items in class	$2.49	**$1.25**
Freezers; of the upright type, not exceeding 900 litres capacity, containing hydrofluorocarbons, less than 200 litres gross internal capacity	HFC-134a	80	1430	0.1144	Per number of items in class	$1.11	**$0.55**
Freezers; of the upright type, not exceeding 900 litres capacity, containing hydrofluorocarbons, 200 litres and over gross internal capacity	HFC-134a	110	1430	0.1573	Per number of items in class	$1.52	**$0.76**
Furniture incorporating refrigerating equipment; for storage and display, other than refrigerators for household use (chests, cabinets, display counters, show-cases and the like), containing hydrofluorocarbons, containing 1,1,1,2 –	HFC-134a	400	1430	0.572	Per number of items in class	$5.54	**$2.77**

Proposed categories	Assumed HFC or mixture	Average charge (grams)	Global warming potential	CO_2 equivalent (tonnes)	Unit of measurement	Levy per unit of measurement for effective CO_2 price ($9.69)	Final levy rate (including transitional phase measures)
Goods							
Tetrafluoroethane (HFC 134a) only, refrigerators, display cooling units							
Furniture incorporating refrigerating equipment; for storage and display, other than refrigerators for household use (chests, cabinets, display counters, show-cases and the like), containing hydrofluorocarbons, containing 1,1,1,2 – Tetrafluoroethane (HFC 134a) only, refrigerators, display freezing units	HFC-134a	400	1430	0.572	Per number of items in class	$5.54	**$2.77**
Furniture incorporating refrigerating equipment; for storage and display, other than refrigerators for household use (chests, cabinets, display counters, show-cases and the like), containing hydrofluorocarbons, containing 1,1,1,2 – Tetrafluoroethane (HFC 134a) only, refrigerators, other	HFC-134a	400	1430	0.572	Per number of items in class	$5.54	**$2.77**
Furniture incorporating refrigerating equipment; for storage and display, other than refrigerators for household use (chests, cabinets, display counters, show-cases and the like), containing hydrofluorocarbons, containing 1,1,1,2 – Tetrafluoroethane (HFC 134a) only, other	HFC-134a	400	1430	0.572	Per number of items in class	$5.54	**$2.77**
Furniture incorporating refrigerating equipment; for storage and display, other than refrigerators for household use (chests, cabinets, display counters, show-cases and the like), containing hydrofluorocarbons, containing R404A refrigerant, refrigerators, display cooling units	R404A	600	3920	2.352	Per number of items in class	$22.79	**$11.40**
Furniture incorporating refrigerating equipment; for storage and display, other than refrigerators for household use (chests, cabinets, display counters,	R404A	600	3920	2.352	Per number of items in class	$22.79	**$11.40**

Proposed categories	Assumed HFC or mixture	Average charge (grams)	Global warming potential	CO_2 equivalent (tonnes)	Unit of measurement	Levy per unit of measurement for effective CO_2 price ($9.69)	Final levy rate (including transitional phase measures)
Goods							
show-cases and the like), containing hydrofluorocarbons, containing R404A refrigerant, refrigerators, display freezing units							
Furniture incorporating refrigerating equipment; for storage and display, other than refrigerators for household use (chests, cabinets, display counters, show-cases and the like), containing hydrofluorocarbons, containing R404A refrigerant, refrigerators, other	R404A	600	3920	2.352	Per number of items in class	$22.79	**$11.40**
Furniture incorporating refrigerating equipment; for storage and display, other than refrigerators for household use (chests, cabinets, display counters, show-cases and the like), containing hydrofluorocarbons, containing R404A refrigerant, other	R404A	600	3920	2.352	Per number of items in class	$22.79	**$11.40**
Furniture incorporating refrigerating equipment; for storage and display, other than refrigerators for household use (chests, cabinets, display counters, show-cases and the like), containing hydrofluorocarbons, other, refrigerators, display cooling units	R404A	600	3920	2.352	Per number of items in class	$22.79	**$11.40**
Furniture incorporating refrigerating equipment; for storage and display, other than refrigerators for household use (chests, cabinets, display counters, show-cases and the like), containing hydrofluorocarbons, other, refrigerators, display freezing units	R404A	600	3920	2.352	Per number of items in class	$22.79	**$11.40**
Furniture incorporating refrigerating equipment; for storage and display, other than refrigerators for household use (chests, cabinets, display counters,	R404A	600	3920	2.352	Per number of items in class	$22.79	**$11.40**

Proposed categories	Assumed HFC or mixture	Average charge (grams)	Global warming potential	CO_2 equivalent (tonnes)	Unit of measurement	Levy per unit of measurement for effective CO_2 price ($9.69)	Final levy rate (including transitional phase measures)
Goods							
show-cases and the like), containing hydrofluorocarbons, other, refrigerators, other							
Furniture incorporating refrigerating equipment; for storage and display, other than refrigerators for household use (chests, cabinets, display counters, show-cases and the like), containing hydrofluorocarbons, other, other	R404A	600	3920	2.352	Per number of items in class	$22.79	**$11.40**
Heat pumps; other than air conditioning machines of heading no. 84.15, containing hydrofluorocarbons, single phase, of cooling capacity less than or equal to 4kW	R410A	1000	2090	2.09	Per number of items in class	$20.25	
Heat pumps; other than air conditioning machines of heading no. 8415, containing hydrofluorocarbons, single phase, of cooling capacity greater than 4kW and less than or equal to 7kW	R410A	1500	2090	3.135	Per number of items in class	$30.38	
Heat pumps; other than air conditioning machines of heading no. 8415, single phase, of cooling capacity greater than 7kW and less than or equal to 10kW	R410A	2500	2090	5.225	Per number of items in class	$50.63	
Heat pumps; other than air conditioning machines of heading no. 8415, containing hydrofluorocarbons, single phase, of cooling capacity greater than 10kW, containing hydrofluorocarbons	R410A	3500	2090	7.315	Per number of items in class	$70.88	
Heat pumps; other than air conditioning machines of heading no. 8415, containing hydrofluorocarbons, three phase, containing 1,1,1,2 – Tetrafluoroethane (HFC 134a) only	HFC-134a		1430	1.430 tonnes per kg	Per kg of HFC-134a		

Proposed categories	Assumed HFC or mixture	Average charge (grams)	Global warming potential	CO_2 equivalent (tonnes)	Unit of measurement	Levy per unit of measurement for effective CO_2 price ($9.69)	Final levy rate (including transitional phase measures)
Goods							
Heat pumps; other than air conditioning machines of heading no. 8415, containing hydrofluorocarbons, three phase, containing R410A refrigerant	R410A		2090	2.090 tonnes per kg	Per kg of R410A		
Heat pumps; other than air conditioning machines of heading no. 8415, containing hydrofluorocarbons, three phase, other	R410A		2090	2.090 tonnes per kg	Per kg of R410A		
Heat pumps; other than air conditioning machines of heading no. 8415, containing hydrofluorocarbons, other	R410A		2090	2.090 tonnes per kg	Per kg of R410A		
Refrigerating or freezing equipment; n.e.c. in heading no. 8418, water coolers, containing hydrofluorocarbons	HFC-134a	50	1430	0.0715	Per number of items in class	$0.69	**$0.35**
Refrigerating or freezing equipment; n.e.c. in heading no. 8418, ice and ice cream making machines, containing hydrofluorocarbons, containing 1,1,1,2 – Tetrafluoroethane (HFC 134a) only	HFC-134a	300	1430	0.429	Per number of items in class	$4.16	**$2.08**
Refrigerating or freezing equipment; n.e.c. in heading no. 8418, ice and ice cream making machines, containing hydrofluorocarbons, containing R404A refrigerant	R404A	300	3922	1.1766	Per number of items in class	$11.40	**$5.70**
Refrigerating or freezing equipment; n.e.c. in heading no. 8418, ice and ice cream making machines, containing hydrofluorocarbons, other	R404A	300	3922	1.1766	Per number of items in class	$11.40	**$5.70**
Refrigerating or freezing equipment; n.e.c. in heading no. 8418, refrigeration apparatus suitable for use solely or principally with motor vehicles for the transport of goods, trailers and semi-trailers for the transport of goods, railway or tramway goods vans and wagons,	HFC-134a		1430	1.430 tonnes per kg	Per kg of HFC-134a		

Proposed categories	Assumed HFC or mixture	Average charge (grams)	Global warming potential	CO_2 equivalent (tonnes)	Unit of measurement	Levy per unit of measurement for effective CO_2 price ($9.69)	Final levy rate (including transitional phase measures)
Goods							
and marine vessels, containing hydrofluorocarbons, containing 1,1,1,2 – Tetrafluoroethane (HFC 134a) only							
Refrigerating or freezing equipment; n.e.c. in heading no. 8418, refrigeration apparatus suitable for use solely or principally with motor vehicles for the transport of goods, trailers and semi-trailers for the transport of goods, railway or tramway goods vans and wagons, and marine vessels, containing hydrofluorocarbons, containing refrigerant R404A	R404A		3922	3.922 tonnes per kg	Per kg of R404A		
Refrigerating or freezing equipment; n.e.c. in heading no. 8418, refrigeration apparatus suitable for use solely or principally with motor vehicles for the transport of goods, trailers and semi-trailers for the transport of goods, railway or tramway goods vans and wagons, and marine vessels, containing hydrofluorocarbons, other	R404A		3922	3.922 tonnes per kg	Per kg of R404A		
Refrigerating or freezing equipment; n.e.c. in heading no. 8418, other, containing hydrofluorocarbons, containing 1,1,1,2 – Tetrafluoroethane (HFC 134a) only	HFC-134a	400	1430	0.572	Per number of items in class	$5.54	
Refrigerating or freezing equipment; n.e.c. in heading no. 8418, containing hydrofluorocarbons, containing refrigerant R404A	R404A	600	3922	2.352	Per number of items in class	$22.79	
Refrigerating or freezing equipment; n.e.c. in heading no. 8418, containing hydrofluorocarbons, other	R404A	600	3922	2.352	Per number of items in class	$22.79	
Refrigerating or freezing equipment; parts, for units, containing hydrofluorocarbons	R404A		3922	3.922 tonnes per kg	Per kg of R404A		
Refrigerating or freezing equipment; parts, evaporators and condensers, containing hydrofluorocarbons	R404A		3922	3.922 tonnes per kg	Per kg of R404A		

Proposed categories	Assumed HFC or mixture	Average charge (grams)	Global warming potential	CO_2 equivalent (tonnes)	Unit of measurement	Levy per unit of measurement for effective CO_2 price ($9.69)	Final levy rate (including transitional phase measures)
Goods							
Refrigerating or freezing equipment; parts, other, containing hydrofluorocarbons	R404A		3922	3.922 tonnes per kg	Per KG of R404A		
Refrigerated beverage vending machines, containing hydrofluorocarbons, containing 1,1,1,2 – Tetrafluoroethane (HFC 134a) only	HFC-134a	200	1430	0.286	Per number of items in class	$2.77	**$1.39**
Refrigerated beverage vending machines, containing hydrofluorocarbons, other	R404A	200	3922	0.784	Per number of items in class	$7.60	**$3.80**
Other, containing hydrofluorocarbons, containing 1,1,1,2 – Tetrafluoroethane (HFC 134a) only	HFC-134a	200	1430	0.286	Per number of items in class	$2.77	**$1.39**
Other, containing hydrofluorocarbons, other	R404A	200	3922	0.784	Per number of items in class	$7.60	**$3.80**
Machines and mechanical appliances; dehumidifiers, containing hydrofluorocarbons	HFC-134a	150	1430	0.2145	Per number of items in class	$2.08	
Refrigerated containers for use with road, rail, plane or shipping transport, containing HFC134a	HFC-134a		1430	1.43 tonnes per kg	Per kg of HFC-134a		
Refrigerated containers for use with road, rail, plane or shipping transport, containing R404a	R404A		3922	3.92 tonnes per kg	Per kg of R404A		
Refrigerated trucks, containing HFC-134a, other than in the driving cabs air-conditioning machine	HFC-134a		1430	1.43 tonnes per kg	Per kg of HFC-134a		
Refrigerated trucks, containing R404a, other than in the driving cabs air-conditioning machine	R404A		3922	3.92 tonnes per kg	Per kg of R404A		
Refrigerated vans, containing HFC-134a, other than in the driving cabs air-conditioning machine	HFC-134a		1430	1.43 tonnes per kg	Per kg of HFC-134a		

Proposed categories	Assumed HFC or mixture	Average charge (grams)	Global warming potential	CO_2 equivalent (tonnes)	Unit of measurement	Levy per unit of measurement for effective CO_2 price ($9.69)	Final levy rate (including transitional phase measures)
Goods							
Refrigerated vans, containing R404a, other than in the driving cabs air-conditioning machine	R404A		3922	3.92 tonnes per kg	Per kg of R404A		
Refrigerated semi-trailers (the load-bearing portion of articulated motor vehicles), containing HFC-134a	HFC-134a		1430	1.43 tonnes per kg	Per kg of HFC-134a		
Refrigerated semi-trailers (the load-bearing portion of articulated motor vehicles), containing R404a	R404A		3922	3.92 tonnes per kg	Per kg of R404A		
Refrigerated tankers (ship), containing HFC-134a	HFC-134a		1430	1.43 tonnes per kg	Per kg of HFC-134a		
Refrigerated tankers (ship), containing R404a	R404A		3922	3.92 tonnes per kg	Per kg of R404A		
Trawlers and other fishing vessels, containing HFC-134a	HFC-134a		1430	1.43 tonnes per kg	Per kg of HFC-134a		
Trawlers and other fishing vessels, containing R404a	R404A		3922	3.92 tonnes per kg	Per kg of R404A		
Motor vehicles							
Passenger vehicle, such as cars, vans, and utes	HFC-134a	600	1430	0.858	Per number per vehicle	$8.31	**$4.16**
Goods vehicles, such as trucks	HFC-134a	800	1430	1.144	Per number per vehicle	$11.09	**$5.54**
Motor Homes	HFC-134a	800	1430	1.144	Per number per vehicle	$11.09	**$5.54**
Buses	HFC-134a	4000	1430	5.72	Per number per vehicle	$55.43	**$27.71**

Appendix two

Table 1: GWP figures of individual synthetic greenhouse gases

Gas	Chemical Formula	GWP figure
HFC-23	CHF_3	14,800
HFC-32	CH_2F_2	675
HFC-41	CH_3F	92
HFC-125	CHF_2CF_3	3,500
HFC-134	CHF_2CHF_2	1,100
HFC-134a	CH_2FCF_3	1,430
HFC-143	CH_2FCHF_2	353
HFC-143a	CH_3CF_3	4,470
HFC-152	CH_2FCH_2F	53
HFC-152a	CH_3CHF_2	124
HFC-161	CH_3CH_2F	12
HFC-227ea	CF_3CHFCF_3	3,220
HFC-236cb	$CH_2FCF_2CF_3$	1,340
HFC-236ea	CHF_2CHFCF_3	1,370
HFC-236fa	$CF_3CH_2CF_3$	9,810
HFC-245ca	$CH_2FCF_2CHF_2$	693
HFC-245fa	$CHF_2CH_2CF_3$	1,030
HFC-365mfc	$CH_3CF_2CH_2CF_3$	794
HFC-43-10mee	$CF_3CHFCHFCF_2CF_3$	1,640
PFC-14	CF_4	7390
PFC-116	C_2F_6	12200
PFC-218	C_3F_8	8830
PFC-318	$c\text{-}C_4F_8$	10300
PFC-3-1-10	C_4F_{10}	8860
PFC-4-1-12	C_5F_{12}	9160
PFC-5-1-14	C_6F_{14}	9300
PFC-9-1-18	$C_{10}F_{18}$	7500
Sulphur Hexafluoride	SF_6	22,800

Table 2: GWP figures for classes of hydro fluorocarbons or per fluorocarbons

Class	Type of hydro fluorocarbon						Type of per fluorocarbon	Other gas	GWP figure for class
	HFC-23	HFC-32	HFC-125	HFC-134a	HFC-143a	HFC-152a	PFC-218		
GWP	*14,800*	*675*	*3,500*	*1,430*	*4470*	*124*	*8830*	*0*	
R23	100%								14,800
R134a				100%					1,430
R403B: 5% R290, 56% R22, 39% R218							39%	61%	3440
R404A: 44% R125, 52% R143a, 4% R134a			44%	4%	52%				3920
R407C: 23% R32, 25% R125, 52% R134a		23%	25%	52%					1770
R408A: 7% R125, 46% R143a, 47% R22			7%		46%			47%	2300
R410A: 50% R32, 50% R125		50%	50%						2,090
R413A: 9% R218, 88% R134a, 3% R600a				88%			9%	3%	2050
R416A: 59% R134a, 39.5% R124, 1.5% R600				59%				41%	840
R417A: 46.6% R125, 50% R134a, 3.4% R600			46.6%	50%				3.4%	2,350
R422A: 85.1% R125, 11.5% R134a, 3.4% R600a			85.1%	11.5%				3.4%	3140
R507A: 50% R125, 50% R143a			50%		50%				3980

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