Australian Government

Australia's Strategy for Managing Ozone Depleting Substances and Synthetic Greenhouse Gases

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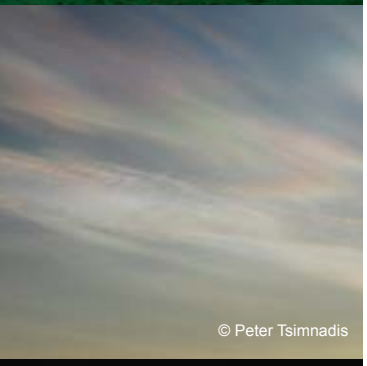

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Damage to the Earth's protective ozone layer has sparked unprecedented world-wide concern and action. Over 194 countries have signed the Montreal Protocol, an international agreement to phase out ozone depleting substances since it came into effect in 1989.

As one of these countries, Australia continues to be a world leader in the phase out of ozone depleting substances, in many cases well ahead of the Protocol requirements. Australia's approach has been based on a highly co-operative partnership between industry, the community, and all levels of government.

The ozone layer

The stratospheric ozone layer protects life on Earth by absorbing ultra-violet (UV) radiation from the sun. UV radiation is linked to skin cancer, genetic damage and immune system suppression in living organisms, and reduced productivity in agricultural crops and the food chain.

Scientific evidence has proven that the natural balance of stratospheric ozone has been upset by the production and release into the atmosphere of ozone depleting substances including chlorofluorocarbons (CFCs), halons, methyl chloroform, carbon tetrachloride, hydrochlorofluorocarbons (HCFCs) and methyl bromide. These substances have applications in refrigerators, air conditioners, fire extinguishers, as solvents for cleaning electronic equipment, aerosols and as agricultural fumigants.

Data collected in the upper atmosphere have shown that there has been a general thinning of the ozone layer over most of the globe. This includes a five to nine percent depletion over Australia since the 1960s which has increased the risk that Australians already face from over-exposure to UV radiation resulting from our outdoor lifestyle.

In addition, more dramatic damage occurs over Antarctica each spring when the ozone 'hole' forms. The Antarctic ozone holes in 2000 and 2006 were the largest on record, measuring around 32.9 million square kilometres (more than three times the size of Australia) and, for the first time, extending over populated areas. The 2003 and 2007 ozone holes were much smaller, due in large part to the disruption of the hole by other weather conditions in the troposphere and stratosphere.

Prospects for the long-term recovery of the ozone layer are good. Non-essential consumption of major ozone depleting substances in the developed world slowed during the early 1990s and ceased in 1996. Scientists predict that if the international community continues to comply with the Montreal Protocol the ozone layer should fully recover between 2050 and 2065.

Australia's implementation of the Montreal Protocol

Australia acceded to the *Vienna Convention for the Protection of the Ozone Layer* in 1987 and ratified the *Montreal Protocol on Substances that Deplete the Ozone Layer* in 1989. The Protocol sets mandatory targets for phasing out the production and consumption of ozone depleting substances. Since its inception in 1987, the phase-out dates for ozone depleting substances have been accelerated on several occasions in accordance with improved scientific understanding about ozone depletion and advances in ozone benign technology.

Australia continues to take a leadership role in ongoing Montreal Protocol negotiations to ensure that further actions to protect the ozone layer are scientifically based and technically feasible and that developing countries are supported in their efforts to phase out ozone depleting substances.

The enhanced greenhouse effect

Greenhouse gases are a natural part of the atmosphere. They absorb and re-radiate the sun's warmth and maintain the Earth's surface temperature at a level necessary to support life. The problem we now face is that human actions - particularly burning fossil fuels, agriculture and land clearing - are increasing the concentrations of the gases that trap heat. This is the enhanced greenhouse effect, which is contributing to a warming of the Earth's surface.

Research by the world's leading scientists suggests that without actions to reduce greenhouse gas emissions, the Earth's surface

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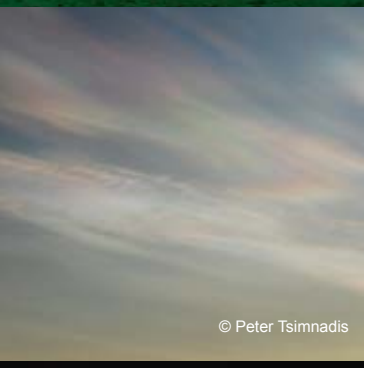
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temperature is likely to rise by 1.0ºC-6.4Cº by the end of this century. Likely outcomes are reduced water availability, more heat waves, fewer frosts, less snowfall, more storms, stronger tropical cyclones and rises of 18-59 cm in sea levels.

Many ozone depleting substances and their replacements are also powerful greenhouse gases. The Kyoto Protocol, to which Australia is a signatory, lists three synthetic greenhouse gases - hydrofluorocarbons (HFCs), perfluorocarbons (PFCs) and sulfur hexafluoride (SF6). The most common synthetic greenhouse gas used in Australia is HFC-134a, which has a global warming potential (GWP) of 1300, meaning that it is 1300 times as potent as carbon dioxide. Other synthetic greenhouse gases are even more powerful global warmers, with PFCs having GWPs between 6500-9200 and SF6 having a GWP of 23 900. Australia's policies on these gases are aimed at minimising avoidable emissions.

Domestic policies for managing Ozone Depleting Substances and Synthetic Greenhouse Gases

The Department of the Environment, Water, Heritage and the Arts is the Australian Government agency responsible for co-ordinating national ozone protection measures and administering the *Ozone Protection and Synthetic Greenhouse Gas Management Act 1989.*

To meet obligations under the Montreal and Kyoto Protocols, the department controls:

- the import, export and manufacture of bulk ozone depleting substances and their synthetic greenhouse gas (SGG) replacements
- the import and domestic manufacture of many products containing ozone depleting substances and their SGG replacements, and
- end uses of these substances, including acquisition, possession, handling and disposal. Currently specific regulations are in place covering refrigeration and air conditioning, fire protection and methyl bromide.

The Australian Government also owns Australia's National Halon Bank which reclaims halon, maintains a stock for essential uses and disposes of excess halon and other ozone depleting substances.

Industry has also been strongly engaged in Australia's efforts to phase out ozone depleting substances and minimise the emissions of ozone depleting substances and SGGs. The department and industry have worked closely together to:

- establish standards and competencies to ensure that businesses and technicians handling ozone depleting substances and SGGs do so in a way that minimises their emission to the atmosphere
- establish a world class product stewardship scheme for refrigerants. Refrigeration Reclaim Australia takes back and destroys used fluorocarbon refrigerants
- prepare codes of practice which establish best practice for businesses that use ozone depleting substances and SGGs (these codes have been incorporated into regulation and made mandatory across Australia)
- provide ongoing support for the licensing and permit schemes established under the regulations designed to ensure that only permit holders can obtain or handle restricted substances, and
- accelerate the phase-out of HCFCs, ahead of our Montreal Protocol obligations.

For further information, go to the department's website,

www.environment.gov.au

or email the Ozone and Synthetic Gas Team on:

ozone@environment.gov.au