

OZONNEWS

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Special MOP-28 Issue

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A fortnightly electronic news update on ozone and climate protection and the implementation of the Montreal Protocol



GLOBAL



1. An Amendment to the Montreal Protocol to Limit Near-term Warming of the Planet

The UN Secretary-General welcomes the adoption by governments meeting in Kigali, Rwanda, of a critically important amendment to the Montreal Protocol phasing-down production and use of hydrofluorocarbons (HFCs). HFCs are a powerful, short-lived greenhouse gas that contributes to climate change. As HFCs are also the fastest-growing of all greenhouse gases, curbing their use will help limit near-term warming of the planet.

The Kigali Amendment to the Montreal Protocol builds on the strong global momentum for multilateral efforts to address climate change, including the landmark Paris Agreement, which will enter into force 4 November; the adoption last week of a global, market-based mechanism for emission reductions by the international aviation industry; and other multilateral efforts under the United Nations Framework for Climate Change Convention (UNFCCC) process.

Adoption of the amendment on HFCs will provide considerable benefits in the coming decades and help advance the Sustainable Development Goals. Significantly, the global phase-down of HFCs could avoid up to half a degree of global warming by the end of this century, providing a major boost for efforts to limit global temperature rise to well below 2 degrees Celsius as stated in the Paris Agreement and to pursue efforts toward 1.5 degrees.

The Secretary-General calls for continued collaboration and cooperation by all sectors of society in implementing these timely and much-needed agreements to reduce the risks of climate change.

► [The United Nations](#), Statement attributable to the Spokesman for the UN Secretary-General, 15 October 2016

2. Countries Agree to Curb Powerful Greenhouse Gases in Largest Climate Breakthrough since Paris



Reducing emissions of hydrofluorocarbons (HFCs) under the Kigali Amendment can prevent up to 0.5°C of global warming, while continuing to protect the ozone layer

Kigali, 15 October 2016 - Nearly 200 countries struck a landmark deal today to reduce the emissions of powerful greenhouse gases, hydrofluorocarbons (HFCs), in a move that could prevent up to 0.5 degrees Celsius of global warming by the end of this century.

The amendment to the Montreal Protocol on Substances that Deplete the Ozone Layer endorsed in Kigali today is the single largest contribution the world has made towards keeping the global temperature rise "well below" 2 degrees Celsius, a target agreed at the Paris climate conference last year.

"Last year in Paris, we promised to keep the world safe from the worst effects of climate change. Today, we are following through on that promise," said UN Environment chief Erik Solheim. "This is about much more than the ozone layer and HFCs. It is a clear statement by all world leaders that the green transformation started in Paris is irreversible and unstoppable. It shows the best investments are those in clean, efficient technologies."

Commonly used in refrigeration and air conditioning as substitutes for ozone-depleting substances, HFCs are currently the world's fastest growing greenhouse gases, their emissions increasing by up to 10 per cent each year. They are also one of the most powerful, trapping thousands of times more heat in the Earth's atmosphere than carbon dioxide (CO₂).

"The faster we act, the lower the financial costs will be, and the lighter the environmental burden on our children," said President of Rwanda Paul Kagame.

"That begins with a clear signal that change is coming and it is coming soon. In due course, new innovations and products will allow us to phase out HFCs even faster, and at lower cost."

The rapid growth of HFCs in recent years has been driven by a growing demand for cooling, particularly in developing countries with a fast-expanding middle class and hot climates. The Kigali amendment provides for exemptions for countries with high ambient temperatures to phase down HFCs at a slower pace.

"It is not often you get a chance to have a 0.5-degree centigrade reduction by taking one single step together as countries - each doing different things perhaps at different times, but getting the job done," said US Secretary of State John Kerry.

"If we continue to remember the high stakes for every country on Earth, the global transition to a clean energy economy is going to accelerate."

Phase down schedule

Following seven years of negotiations, the 197 Montreal Protocol parties reached a compromise, under which developed countries will start to phase down HFCs by 2019. Developing countries will follow with a freeze of HFCs consumption levels in 2024, with some countries freezing consumption in 2028.

By the late 2040s, all countries are expected to consume no more than 15-20 per cent of their respective baselines.

Financing and alternatives to HFCs

Countries also agreed to provide adequate financing for HFCs reduction, the cost of which is estimated at billions of dollars globally. The exact amount of additional funding will be agreed at the next Meeting of the Parties in Montreal, in 2017. Grants for research and development of affordable alternatives to hydrofluorocarbons will be the most immediate priority.

Alternatives to HFCs currently being explored include substances that do not deplete the ozone layer and have a smaller impact on the climate, such as ammonia or carbon dioxide. Super-efficient, cost effective cooling technologies are also being developed, which can help protect the climate both through reducing HFCs emissions and by using less energy.

The Kigali Amendment comes only days after two other climate action milestones: sealing the international deal to curb emissions from aviation and achieving the critical mass of ratifications for the Paris climate accord to enter into force.

▶ See also

- Watch the [MOP28 Closing session](#)
- Download [photos of the adoption moment](#) (Credit: Kiara Worth / IISD)
- Download [full text of the Kigali Amendment](#) (pt. 1) | [full text of the Kigali Amendment](#) (pt. 2)
- The MOP 28 [website](#)
- IISD [daily coverage and highlights](#)
- [Summary of the Twenty-eighth Meeting of the Parties to the Montreal Protocol](#), 10-14 October 2016, Kigali, Rwanda. [EN](#) | [FR](#)

▶ [UN Environment News](#), 15 October 2016

3. Kigali Amendment Will Stabilize Global Climate - UNEP's Solheim



INTERVIEW - On Saturday, nearly 200 countries struck a landmark deal to reduce emission of powerful greenhouse gases, hydrofluorocarbons (HFCs), in a move that could prevent up to 0.5 degree Celsius of global warming by the end of the century.

Following seven years of negotiations, Parties to the Montreal Protocol reached a compromise, under which developed countries will start phasing down HFCs by 2019, while the developing countries, including India, Pakistan, Iran and Iraq, will phase out at a baseline of 2024-2026 and a freeze date of 2028. HFCs are widely used in refrigerators, air-conditioners

and aerosol sprays.

The Kigali Amendment to the Montreal Protocol on substances that deplete the ozone layer endorsed is regarded as the single largest contribution the world has made toward keeping the global temperature rise "well below" 2 degrees Celsius, a target agreed at the Paris climate conference last year.

Erik Solheim, the executive director of United Nations Environment Programme (UNEP) spoke to The New Times' Athan Tashobya about the significance of the historical agreement reached by the Parties to the 1987 Montreal protocol, in Kigali. [...]

▶ [AllAfrica](#), 17 October 2016, By Athan Tashobya

4. Statement by the US President on the Montreal Protocol – Kigali Amendment



For several years, the United States has worked tirelessly to find a global solution to phasing down the production and consumption of hydrofluorocarbons (HFCs). This super polluting greenhouse gas, used in air conditioners and refrigeration, can be hundreds to thousands of times more potent than carbon dioxide, and represents a rapidly growing threat to the health of our planet.

Today in Kigali, Rwanda, nearly 200 countries adopted an ambitious and far reaching solution to this looming crisis. Through the Montreal Protocol, a proven forum for solving environmental challenges like protecting the ozone layer, the world community has agreed to phase down the production and consumption of HFCs and avoid up to 0.5°C of warming by the end of the century – making a significant contribution towards achieving the goals we set in Paris. The plan provides financing to countries in need, so that new air conditioning and refrigeration technology can be available for their citizens. It shows that we can take action to protect our planet in a way that helps all countries improve the lives and livelihoods of their citizens.

Today's agreement caps off a critical ten days in our global efforts to combat climate change. In addition to today's amendment, countries last week crossed the threshold for the Paris Agreement to enter into force and reached a deal to constrain international aviation emissions. Together, these steps show that, while diplomacy is never easy, we can work together to leave our children a planet that is safer, more prosperous, more secure, and more free than the one that was left for us.

▶ The White House, [Office of the Press Secretary](#), 15 October 2016

5. The European Union Hails Global HFC Phase-down as a Major Concrete Step in Delivering the Paris Agreement



The European Union welcomes the agreement today in Kigali, Rwanda, on a global phase-down of climate warming hydrofluorocarbon gases (HFCs). These manmade substances which are used mainly in refrigeration and air-conditioning equipment, have a global warming effect up to 15,000 times greater than carbon dioxide and are the fastest growing source of greenhouse gas emissions.

Today's agreement represents a significant step forward in implementing the Paris Agreement on climate change, which will legally enter into force next month.

EU Commissioner for Climate Action and Energy Miguel Arias Cañete said: *"This is a huge win for the climate. We have taken the first concrete step in delivering on the promises we made in Paris last December. The global phase-down we have agreed today could knock off up to half a degree of warming by the end of the century. I am proud of the role the European Union played in brokering this deal. We have shown through our own action on HFCs that this is a fast and cost-effective way to reduce emissions."*

The 197 Parties to the Montreal Protocol have agreed to bring HFCs within the scope of the international treaty that has been so successful in phasing out ozone-depleting substances that were used in the same sectors. The Kigali amendment requires developed and developing countries to gradually limit their consumption and production of HFCs, with developed countries moving first.

The EU and its Member States have been long-time supporters of proposals for the global phase-down of HFCs. The European Union has shown global leadership through its own action. The EU's ground breaking legislation on fluorinated greenhouse gases adopted in 2014 demonstrated that an HFC phase-down was feasible. This set an EU-wide cap on consumption of HFCs in 2015, and a first reduction step this year.

The European Commission announced this week that it would provide EUR 3 million for early action on HFCs in Latin American and Caribbean countries. This is on top of EUR 8 million the Commission is already providing for similar projects in Africa, Southeast Asia and the Pacific. EU Member States currently provide approximately half of the total funding in the Multilateral Fund which helps developing countries comply with their obligations to protect the ozone layer under the Montreal Protocol.

▶ See Also:

- [Kigali Amendment](#)
- [Fluorinated greenhouse gases](#)
- [Paris Agreement](#)

▶ [The European Commission](#), 15 October 2016

6. Accord très important sur les HFC avec le fort soutien de la France : 72 milliards de tonnes de CO₂ évités



Ségolène Royal, Présidente de la COP21, 15 octobre 2016

Un accord historique a été obtenu à la fin de cette nuit entre les 197 pays parties au Protocole de Montréal pour réduire l'utilisation des gaz HFC.

Cet accord va permettre une disparition progressive des HFC (hydrofluorocarbures), utilisés dans la climatisation (bureaux, habitations, véhicules), les appareils domestiques et les présentoirs de vente réfrigérés, les restaurants, les entrepôts logistiques. Ces substances ont émergé ces dernières années en substitution des substances nocives pour la couche

d'ozone (CFC, HCFC).

Faute d'accord, les experts estimaient que ces substances seraient à l'origine de 20% des émissions de gaz à effet de serre en 2050, et auraient généré jusqu'à 0,5°C de réchauffement de la planète d'ici à 2100.

L'accord obtenu cette nuit amènera à réduire l'utilisation de ces gaz dès l'entrée en vigueur de l'amendement, selon un calendrier progressif qui permet de débiter la substitution dans les pays qui sont les plus consommateurs de fluides frigorigènes, notamment les Etats-Unis, l'Union Européenne et la Chine. Il est par ailleurs juridiquement contraignant et prévoit un calendrier d'élimination progressive pour tous les pays.

Une clause de révision a par ailleurs été ajoutée à l'accord, pour permettre d'inscrire un calendrier plus ambitieux au regard du progrès technologique et des effets bénéfiques des réductions fortes qui auront déjà été opérées dans les pays les plus consommateurs de fluides. Ségolène Royal souhaite que cette révision soit l'occasion d'accélérer l'ambition, à l'image de la révision menée sur ce même Protocole pour l'élimination des substances HCFC qui avait conclu à une accélération du calendrier.

Les premières estimations de l'accord trouvé ce matin permettent d'attendre environ 72 milliards de tonnes équivalentes de CO₂ d'émissions évitées d'ici à 2050 (dont 8 milliards de tonnes dues aux législations européennes et américaines adoptées récemment et reprises dans l'accord). Un gain d'environ 8 à 10 milliards de tonnes équivalentes de CO₂ supplémentaires est par ailleurs attendu de dispositions sur le recyclage et l'élimination des co-produits à fort pouvoir de réchauffement dans les unités industrielles de fabrication des

HFC. Pour mémoire, les émissions annuelles d'origine humaine de la France s'élèvent à un demi-milliard de tonnes de CO₂.

Cet accord permettra également l'utilisation chez les particuliers et chez les professionnels de fluides frigorigènes alternatifs aujourd'hui disponibles : hydrocarbures, dioxyde de carbone, ammoniac, eau ou d'autres substances chimiques de synthèse appelées hydrofluoroléfinés (HFO).

La France, notamment sous l'impulsion de Ségolène Royal, s'est beaucoup investie ces derniers mois pour favoriser cet accord : échanges avec les ministres des autres pays, engagements financiers, comportement exemplaire par la mise en d'appels à projets et de financements pour financer d'une part les actions de recherche et développement et d'autre part la conversion industrielle des sites de productions d'équipements aux fluides alternatifs.

Ségolène Royal souligne que cet accord permettra de renforcer l'objectif de l'accord de Paris de limiter le réchauffement planétaire à 1,5°C - 2°C d'ici à 2100.

► [Ministère de l'Environnement, de l'Energie et de la Mer](#), 15 octobre 2016

7. Historical Agreement on HFCs reached in Kigali - The Climate and Clean Air Coalition Welcomes Montreal Protocol HFC Amendment as One of the Most Significant Actions to Protect the Climate

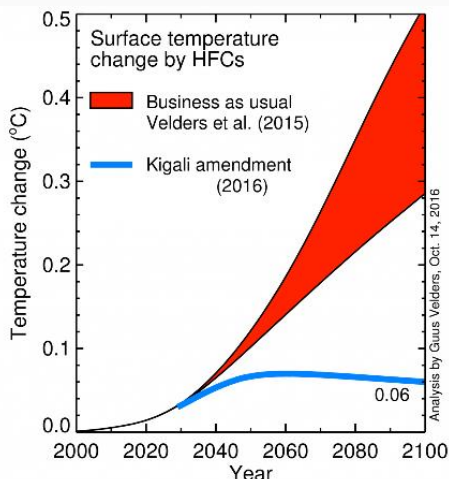


Vincent Biruta, MOP 28 President and Minister of Natural Resources for Rwanda, gaveling the adoption of the Kigali Amendment to the Montreal Protocol

Kigali, October 15, 2016. Early this morning the world reached an agreement to phase-down hydrofluorocarbons (HFCs). It is one of the most significant actions governments have ever taken to protect the climate. HFCs are highly potent greenhouse gases that have a global warming potential 1000's of times that of carbon dioxide (CO₂).

“The world just got one step closer to keeping global temperature below 2 degrees Celsius,” said Marcelo Mena, CCAC Co-chair and Chile’s Vice-Minister of Environment. “And, when we can combine action to phase down HFCs with strengthened efforts on energy efficiency, we will also reduce air pollution, the number of deaths linked to poor air quality, and prevent damage to crops.”

Rita Cerutti, CCAC Co-chair and a senior official with Environment and Climate Change Canada, said the amendment showed that nations working together can achieve big wins for the climate and development. “This amendment is a significant achievement, one which places us squarely on the right path to achieve the goals of the Paris Agreement before it is too late. Parties to the Montreal Protocol have worked hard for this result, and the CCAC is proud to have been a part of this effort.”



[Guus Velders.png](#) - Source: Guus Velders, RMI

Since its inception in 2012 the Climate and Clean Air Coalition (CCAC) has led a global [initiative](#) to help countries transition away from high global-warming potential HFCs and minimize HFC leakages. Most recently Coalition ministers released a [communiqué](#) saying a HFC phase-down is “one of the quickest and most significant near-term opportunities to reduce short-lived climate pollutants, and make a major contribution to achieving the goals of the Paris Agreement”.

The decision means developed countries start in 2019 with a freeze, which caps future growth, and an immediate 10% reduction. The progressive group of developing countries, which includes China,

have a freeze date of 2024, and India and a few other countries have a freeze date of 2028.

Dr Guus Velders, from the Dutch National Institute for Public Health and the Environment (RIVM) in Utrecht, and colleagues projects that the Kigali agreement will avoid nearly 90 per cent of the temperature increase that HFCs could have caused (see graph).

“We came to take a half a degree Celsius out of future warming, and we won about 90% of our climate prize... we’ll get the rest through market forces,” said Durwood Zaelke, President of the [Institute for Governance & Sustainable Development](#). “The Montreal Protocol has always catalyzed market transformation faster than the mandated dates for phase-outs. It’s also always been a start and strengthen treaty, and I’m confident in its power to get all the climate mitigation available.”

The Kigali Amendment is a huge victory for Africa, who was a critical player in achieving an ambitious agreement.

“The Kigali Amendment is the most significant climate mitigation step the world has ever taken, and brings us closer to staying below 1.5°C,” said Vincent Biruta, President of the Meeting of the Parties, and Minister of Natural Resources for Rwanda.

“The march towards Marrakesh began today in Kigali with the decision to eliminate warming from HFCs. This is the most important step on the implementation of the Paris Agreement. Today we agreed on mandatory obligations in order to phase down a super greenhouse gas and we will do it using a tool that has always delivered, the Montreal Protocol,” said Hakima El Haite, Minister of Energy, Water, and Environment Morocco and COP22 High-Level Champion. “Concrete global action at scale has begun, and we are not turning back.”

US Secretary of State, John Kerry said, “An ambitious HFC amendment is likely the single most important step that we could take at this moment to limit the warming of our planet and protect the planet for future generations to come. No country has a right to turn its back on this effort.”

The CCAC will continue to support country efforts to survey their HFC use to find the most cost-effective and relevant sectors to reduce HFC consumption and to support the uptake of HFC alternative technology.

Used commonly in air conditioning, refrigeration and a host of industrial products, HFCs are powerful factory-made greenhouse gases for which demand is continually increasing. Without this phase-down, HFCs would amount to an estimated 9-19% of total CO₂ emissions by 2050.

A fast HFC phasedown avoids 100 billion tons of CO₂-equivalent by 2050 and 0.5°C warming by 2100 – nearly 10% of the mitigation needed to stay below the 2°C level established as the outer limit in the Paris Agreement last year - and is crucial for keeping the Earth’s temperature increase below 1.5°C.

An HFC phase down can have an increased climate benefit if combined with measures to improve the energy efficiency of HFC-containing equipment. If the average efficiency of air conditioners sold in 2030 is improved by 30%, in parallel with low Global Warming Potential (GWP) refrigerants, emissions can be reduced by up to 25 billion tonnes of CO₂ over the lifetime of the equipment.

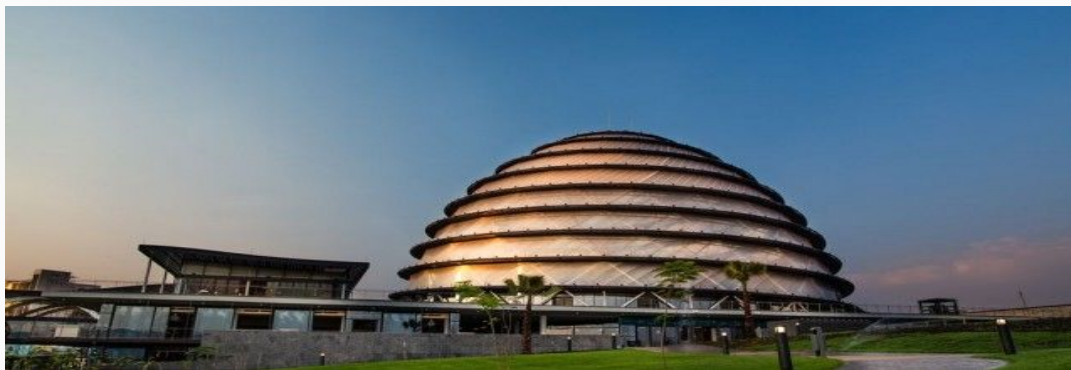
Many CCAC partners were involved in producing studies, policy exchanges and demonstration projects to ensure the amendment would be adopted. Earlier in the month, a group of donor countries (all CCAC partners) and philanthropic organizations pledged \$80 million to support countries implementing the amendment.

▶ **See also**

- Momentum builds for an ambitious HFC phase-down amendment to the Montreal Protocol: <http://ccacoalition.org/en/news/momentum-builds-ambitious-hfc-phase-down-amendment-montreal-protocol>
- HFC initiative page: <http://www.ccacoalition.org/en/initiatives/hfc>
- Vienna communique: <http://ccacoalition.org/en/resources/vienna-communique>

▶ [The Climate and Clean Air Coalition](#), 15 October 2016

8. UN Environment (UNEP), OzonAction at MOP-28



Kigali conference centre

Resumed 38th Meeting of the Open-ended Working Group (OEWG 38) of the Parties to the Montreal Protocol on Substances that Deplete the Ozone Layer and 28th Meeting of the Parties to the Montreal Protocol (MOP 28), Kigali, 8, 10-14 October 2016.

SIDE EVENT:

- WEDNESDAY 12 OCTOBER 2016

[Safety and International Standards in Refrigeration and Air Conditioning Transitioning to Safe and Efficient Alternatives](#) - organised by OzonAction

Description: This side event provided an overview of safety issues associated with low-GWP, non-ozone depleting substances and the relevant international and regional standards. There was consideration of how standards can be useful in supporting the adoption of alternatives in the context of the HCFC phase-out in developing countries and how a lack of standards or inappropriate standards can present a barrier, especially from the point of view of hazard prevention and safe handling.

See related [Agenda](#) | [IIR presentation](#) | [EPEE presentation](#) | [T&T presentation](#) | [FECO presentation](#)

- FRIDAY 14 OCTOBER 2016

[HFC Surveys in Article 5 Countries: Update on Status and Launch of the Summary of Key Findings from the CCAC Inventories](#)- organised by CCAC

Description: This side event will present and launch the Climate and Clean Air Coalition-UN Environment “National HFC Inventories: Summary of the Key Findings from the First Tranche of Studies”. It will also provide an update on the format and status of the Multilateral Fund surveys of ODS alternatives, and an opportunity to highlight challenges and lessons learned from the ongoing work in many Article 5 countries.



NOO Dialogue with Eric Solheim



Side event on Safety and International Standards in Refrigeration and Air conditioning: Transitioning to safe and efficient alternatives

► Learn more about the events, see more pictures from [OzonAction Facebook](#)

9. A Compilation of News Clippings Related to the MOP-28

The content and views expressed in these news link do not necessarily reflect the views or policies of the OzonAction Branch of the United Nations Environment Programme and neither do they imply any endorsement.

23/09/2016

- [Statement by Rwanda's Minister of Natural Resources at the Montreal Protocol Coalition to Secure Ambition Event](#). FONERWA

28/09/2016

- [Straws in the wind: Phase-out of HFCs is low-hanging fruit, Kigali likely to deliver a deal](#), The Indian Express

3/10/2016

- [Hosting Montreal Protocol meet 'puts Kigali in driving seat'](#), The New Times, Rwanda's Leading English Daily

5/10/2016

- [Montreal Protocol Nearing Epic Climate Win on HFCs](#), The Huffington Post

8/10/2016

- [Excitement building up ahead of Kigali meet on HFC phase down](#), The Navhind
- [Kigali Meeting tot tackle super greenhouse gases](#), New Vision
- [Experts push for strong measures to save Ozone Layer](#), African News

9/10/2016

- [US Secretary of State, John Kerry, to visit Rwanda](#), irwanda 24
- [World Environment Leaders Converge in Kigali for Key Summit](#), CCTV Africa

10/10/2016

- [28th Meeting of the Parties to the Montreal Protocol opens in Kigali, Rwanda](#), Republic of Rwanda

11/10/2016

- [Montreal Protocol Conference Urges Flexible Phase-Out of Dangerous Gases](#), AllAfrica
- [MOP 28: Countries close to agreeing on a dual baseline for HFC phase down](#), Down to Earth

13/10/2016

- [Climat: l'élimination progressive des gaz HFC au menu d'une réunion à Kigali](#), Science et Avenir
- [At Kigali climate meet, India announces domestic law to eliminate emissions of HFC-23, a super-](#)



FEATURED

OZONE SECRETARIAT

28th Meeting of the Parties to the Montreal Protocol

Resumed meeting of the thirty-eighth Open-ended Working Group of the Parties to the Montreal Protocol on Substances that Deplete the Ozone Layer and Twenty-Eighth Meeting of the Parties Kigali, Rwanda, 8 October and 10-14 October 2016
[Information note for participants](#)

Scan to download the meeting app:



Click [here](#) to access MOP 28 information ...etc.



The theme for the 2016 International Day for the Preservation of the Ozone Layer to be marked on 16 September is: ***Ozone and climate: Restored by a world united.*** The theme is complemented by the tagline: ***Working towards reducing global-warming HFCs under the Montreal Protocol.*** [Download the theme and tagline in the six official UN languages](#)

The theme for this year's International Ozone Day recognizes the collective efforts of the parties to the Vienna Convention and the Montreal Protocol towards the restoration of the ozone layer over the past three decades and the global commitment to combat climate change. As a result of concerted international efforts, the ozone layer is healing itself and is expected to recover by the middle of this century. In addition, the Montreal Protocol has significantly contributed to the mitigation of climate change by averting the emission of more than 135 billion tonnes of carbon dioxide equivalent into the atmosphere by simply phasing out ozone-depleting substances...[More](#)

- Browse through the Ozone Secretariat “[In Focus](#)” to learn about latest updates.
- Resumed [38th Meeting of the Open-ended Working Group of the Parties to the Montreal Protocol](#), Vienna, Austria, 18 - 21 July 2016
- [Third Extraordinary Meeting of the Parties to the Montreal Protocol](#), Vienna, Austria, 22 – 23 July 2016
- [56th Meeting of the Implementation Committee Under the Non-Compliance Procedure of the Montreal Protocol](#), Vienna, Austria, 24 July 2016
- Click [here](#) for more Montreal Protocol Meetings Dates and Venues
- [Methyl Bromide Technical Options Committee 2014 Assessment Report](#)
- [Medical Technical Options Committee 2014 Assessment Report](#)

Progress & Quadrennial Assessment Reports:

- Environmental Effect Assessment Panel ([EEAP](#))
- Scientific Assessment Panel ([SAP](#))
- Technology and Economic Assessment Panel ([TEAP](#))

Halons Technical Options Committee Reports:

- [Halons Technical Options Committee 2014 Assessment Report \(Volume 1\)](#)
- [Halons Technical Options Committee 2014 Supplementary Report #1 - Civil Aviation \(Volume 2\)](#)

- [Halons Technical Options Committee 2014 Supplementary Report #2 - Global Halon 1211, 1301, and 2402 Banking \(Volume 3\)](#)
- [Technical Note #1- Revision 4 - Fire Protection Alternatives to Halon - 2014](#)
- [Technical Note #2 - Revision 2 - Halon Emission Reduction Strategies - 2014](#)
- [Technical Note #3 - Revision 2 - Explosion Protection - Halon Use and Alternatives - 2014](#)
- [Technical Note #4 - Recommend Practices for Recycling Halon and Halocarbon Alternatives - 2014](#)
- [Technical Note #5 - Halon Destruction - 2014](#)

THE MULTILATERAL FUND FOR THE IMPLEMENTATION OF THE MONTREAL PROTOCOL



[Report of the 76th Meeting of the Executive Committee](#), 9 - 13 May 2016 in Montreal.

The Executive Committee decided to continue convening two meetings per year from 2015 onwards with the possibility of holding an additional brief meeting, if required, between those meetings to consider project proposals. On this basis the second meeting in 2016 could be scheduled to take place in November/December 2016 taking into account decision XXVII/1 of the Parties (MOP) to the Montreal Protocol, in which it was decided inter alia to hold a series of Open-ended Working Group (OEWG) and other meetings, including an Extraordinary Meeting of Parties in 2016.

[▶ Learn more](#)

OZONACTION

UNEP, [OzonAction](#) highlights



New **OzonApp eDocs+** launched in Android Play Store and Apple Store - This new application launched by OzonAction on February 12, includes publications, videos, fact sheets and other awareness materials to help National Ozone Units (NOUs) and other stakeholders to build their capacity to implement the Montreal Protocol in a sustainable manner and at the same time to derive climate benefits. Now available in the [Android Play Store](#) and Apple Store/iTunes.



(Just search for "UNEP OzonAction" and install the application, or scan the QR code)



[OzonAction News Drops](#) - UNEP OzonAction is presenting a series of short video "**News Drops**" which focus on ozone layer protection, climate change and the importance of continuing ozone observations.



NEW! Regional News Drops

The Regional Networks of National Ozone Units (NOUs) under the Multilateral Fund are a path-breaking mechanism for North-South and South-South cooperation. Networking provides a platform for NOUs from Article 5 countries to exchange experiences, develop their skills and tap the expertise of their peers in both developing and developed countries. Conducted at the regional level, the Networking activity builds the Ozone Officers' skills for implementing and managing their national ODS phase-out activities. During 2016 these videos were filmed at the regional network meetings around the world.

The NOUs were asked about their success stories, alternative refrigerants selected and their personal messages for national ozone celebrations.

Click [here](#) to access the News Drops

OzonAction Recent Publications:



[Lower-GWP Alternatives in Commercial and Transport Refrigeration: An expanded compilation of propane, CO₂, ammonia and HFO case studies](#) - This booklet presents an expanded compilation of case studies on lower-GWP alternatives in commercial and transport refrigeration and provides an update to the first set of case studies which was published in 2014 by UNEP DTIE OzonAction/CCAC (Low GWP Alternatives in Commercial Refrigeration: Propane, CO₂ and HFO Case Studies).



[NATIONAL CERTIFICATION SCHEMES FOR RAC SERVICING TECHNICIANS](#) - This publication aims to provide introductory information for institutions in developing countries to better understand the issue of certification in the field of refrigeration and air conditioning, to assist in the creation of such certification and training schemes and to demonstrate to service technicians and enterprises why it is in their interest to participate. [Read/Download](#)



[THE MONTREAL PROTOCOL AND HUMAN HEALTH](#) - This booklet summarizes how the successful implementation of the Montreal Protocol has protected human health. It describes how ozone depletion would have led to increases in UV radiation and, based on current understanding of the mechanisms by which UV affects biological processes, how that would have led to a dramatic increase in skin cancers, cataracts and affected human health in other ways. It also covers recent progress in understanding the 'World Avoided' – that is the world we would have lived in without a successful Montreal Protocol. [Read/Download](#)



[FINANCING THE CLIMATE CO-BENEFITS OF THE HCFC PHASE-OUT](#) - A guide for Low Volume Consuming Countries - Hydrochlorofluorocarbons (HCFCs) are being phased out worldwide under the Montreal Protocol on Substances that Deplete the Ozone Layer. The Parties to this treaty encouraged countries to promote the selection of alternatives to HCFCs that minimise environmental impacts, in particular impacts on climate. The Protocol's Multilateral Fund encourages developing countries to explore potential financial incentives and opportunities for additional resources to maximise the environmental benefits from HCFC Phase out Management Plans (HPMPs). This booklet explains how Ozone Officers in low volume consuming countries can explore such opportunities for climate co-benefits. Read/Download in [English](#) | [French](#) | [Spanish](#)



[SAFE USE OF HCFC ALTERNATIVES IN REFRIGERATION AND AIR CONDITIONING](#) - An Overview for Developing Countries - Many of the alternative refrigerants to hydrochlorofluorocarbons (HCFCs) have particular characteristics in terms of toxicity, flammability and high pressure which are different from those used previously. It is therefore important that the refrigeration and air-conditioning industry adapts to both the technical and safety issues concerning these refrigerants. This publication provides an overview of the alternatives, their general characteristics and their application in the context of the safety issues. It provides guidance for National Ozone Units (NOUs) and other interested parties in developing countries on how they can advise and assist their national stakeholders in the selection and implementation of alternative refrigerants. [Read/Download](#)



[PHASING-OUT HCFCs IN SMALL AND MEDIUM-SIZED ENTERPRISES](#) - This booklet aims to assist foam enterprises, especially SMEs, to better understand policies on HCFC phase-out, access to assistance from the Multilateral Fund for the Implementation of the Montreal Protocol and access alternative technologies in different foam applications taking into account challenges in converting to alternative technology. It also discusses some tips on how to identify enterprises that may use HCFCs and verify the HCFCs consumption of enterprises. [Read/Download](#)



[INTERNATIONAL STANDARDS IN REFRIGERATION AND AIR-CONDITIONING](#) - This guide provides an introduction and simple overview of the issues related to international standards in the refrigeration and air-conditioning sector and how they can be useful in the context of the phase-out of hydrochlorofluorocarbons (HCFCs) in developing countries as required by the Montreal Protocol on Substances that Deplete the Ozone Layer. Read/Download in [English](#) | [French](#) | [Spanish](#)



[Guide on Good Practices: Phasing out HCFCs in the Refrigeration and Air-conditioning Servicing Sector](#)



[Phasing out HCFCs in Small and Medium-sized Foam Enterprises](#)



[Demonstrating the feasibility of R-290 based AC manufacturing: China's Midea and Meizhi case](#)



[Low-GWP Alternative for Small Rigid PU Foam Enterprises](#)

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EVENTS

2016



[47th International HVAC&R Congress and Exhibition](#), 30 Nov – 2 Dec 2016, Belgrade, Serbia

2017



[Sustainable Management of Refrigeration Technologies in Mobile Marine and Fisheries Sectors](#), co-organized by UNEP, ASHRAE, IIR and UNIDO with the kind support of the Government of the Kingdom of Thailand and the Department of Industrial Works, 11-13 January 2017, Bangkok, Thailand



[International Ground Source Heat Pump Association \(IGSHPA\) Technical Conference and Expo](#), 14-16 March 2017, Denver, USA



[5th IIR International Conference on Thermophysical Properties and Transfer Processes of Refrigerant](#), 23-26 April 2017, Seoul, South Korea



[7th Conference on Ammonia and CO₂ Refrigeration Technologies](#), 11-13 May 2017, Ohrid, Macedonia



[12th Heat Pump Conference](#), 15-18 May 2017, Rotterdam, the Netherlands



[9th International Conference on Compressors and Coolants](#), 6-8 September 2017, Bratislava, Slovakia

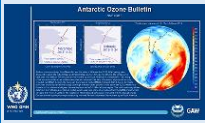
READING



[Twenty Questions and Answers About the Ozone Layer](#), presents complex science in a straightforward manner. It complements the [2014 Scientific Assessment Report of Ozone Depletion](#) by WMO and the U.N. Environment Programme.



[UNEP and USEPA: Promoting ozone and climate-friendly technologies in public procurement - a scoping study of Asia Pacific](#)



[WMO Antarctic Ozone 2016 Bulletins](#) - Containing information on the state of the ozone layer in the Antarctic at roughly two week intervals from August to November. The bulletins are based on data provided by WMO Members which operate ozone monitoring stations in the southern hemisphere and satellites to observe ozone globally.



The [EU F-Gas Regulation Handbook](#), Keeping Ahead of the Curve as Europe Phases Down HFCs - a free online resource for climate media and other concerned parties, published by the London-based Environmental Investigation Agency (EIA).



[Alternative Refrigerant Evaluation for High-Ambient-Temperature Environments: R-22 and R-410A Alternatives for Mini-Split Air Conditioners](#)



[AREA Guidance on minimum requirements for contractors' training & certification on low GWP Refrigerants](#) - AREA has updated its Guidance on minimum requirements for contractors' training & certification on low GWP Refrigerants.



[Free guide to F-gas changes](#) The European contractors association AREA has produced a timely guide to the F-gas regulations which clarifies the new rules, their impact and their practical application... [Read more](#)



The recent [Alternatives to HCFCs/HFCs in developing countries](#) with a focus on high ambient temperatures" study carried out by Öko-Recherche for the European Commission stresses that the refrigerant and blowing agent demand is expected to triple by 2030 in developing countries as a result of economic growth. A sector by sector analysis shows that a climate-friendly replacement for current and future of HCFCs and high GWP HFCs is possible in most applications ...



[Primer on Hydrofluorocarbons](#), Fast action under the Montreal Protocol can limit growth of HFCs, prevent up to 100 billion tonnes of CO₂-eq emissions by 2050, and avoid up to 0.5°C of warming by 2100. IGSD, January 2014, Lead authors: Durwood Zaelke, Nathan Borgford-Parnell, and Danielle Fest Grabiell. Contributing authors: Stephen O. Andersen, Xiaopu Sun, Dennis Clare, Yuzhe Peng Ling, and Alex Milgroom.



[Flammable Refrigerants Safety Guide](#), AIRAH - Many of the refrigerants traditionally used in refrigeration and air conditioning systems in Australia have been non-flammable, non-toxic, synthetic greenhouse gases (SGGs) that have a high global warming potential (GWP). These were typically synthetic refrigerants including CFCs, HCFCs and HFCs. Due to the growing national and international concern regarding the resulting atmospheric effects of SGGs, the use of alternative low GWP refrigerants is increasing. ...



[Recent Trends in Global Emissions of Hydrochlorofluorocarbons and Hydrofluorocarbons: Reflecting on the 2007 Adjustments to the Montreal Protocol](#). S. A. Montzka *†, M. McFarland ‡, S. O. Andersen §, B. R. Miller †||, D. W. Fahey †, B. D. Hall †, L. Hu †||, C. Siso †||, and J. W. Elkins †

† Earth System Research Laboratory, National Oceanic and Atmospheric Administration, Boulder, Colorado 80305, United States ‡ DuPont Chemicals &

Fluoroproducts, Wilmington, Delaware 19805, United States § Institute for Governance & Sustainable Development, Washington, D.C. 20007, United States|| Cooperative Institute for Research in Environmental Sciences, University of Colorado, Boulder, Colorado 80309, United States

[Geothermal Heating and Cooling: Design of Ground-Source Heat Pump Systems-ASHRAE](#)

[Principles of Heating, Ventilating and Air-Conditioning, 7th Ed. ASHRAE](#)

A first edition, the IIR guide “[CO₂ as a Refrigerant](#)” highlights the application of carbon dioxide in supermarkets, industrial freezers, refrigerated transport, and cold stores as well as ice rinks, chillers, air conditioning systems, data centers and heat pumps. This guide is for design and development engineers needing instruction and inspiration as well as non-technical experts seeking background information on a specific topic. Publication, IIR Technical Guide, 2014.

FREE [HVAC Optimisation Guide released](#) by AIRAH and the NSW Office of Environment & Heritage outlines 20 HVAC optimisation strategies and how they can be applied to the vast majority of commercial systems, both in older and modern buildings...

[Organic Bromine Compounds—another threat to the ozone layer](#)

[Latin America Industrial Refrigeration Equipment Market Benefits from Region Flourishing Food and Beverage Production and Processing Market – Trends and forecast 2013-2019.](#)

[Solvents & Bio Solvents Market Outlook - Global Trends, Forecast, and Opportunity Assessment \(2014-2022\)](#)

[R444B tops high ambient R22 drop-in test](#)

[Chlorofluorocarbon Market: Global Industry Analysis and Forecast 2015 to 2021](#)

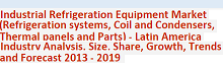
[Getting The World Off the Chemical Treadmill: A per capita convergence framework for an ambitious phase-down of HFCs under the Montreal Protocol,](#)
By: Umang Jalan, Research Associate, Climate Change Programme, Centre for Science and Environment

[Refrigeration on Fishing Vessels](#)

[Global Market for Natural Refrigerants to Reach 1,408.20 Million by 2020, Growing at CAGR of 11.0% by 2020](#)

ASHRAE [2016 Handbook](#) Focuses on HVAC Systems and Equipment...

MOPIA New [2016 Regulatory Compliance Guide](#) summarizes regulatory controls (*Manitoba and Canada*) and provides some other useful links and references...





The Importance of Ambition in the 2016 HFC Phase-Down Agreement - Following the adoption of the Dubai Pathway on HFCs, Parties to the Montreal Protocol are set to negotiate and adopt an HFC amendment in 2016, the first major test of the Paris Climate Agreement and global commitment to "pursue efforts to limit the [average global] temperature increase to 1.5 degrees Celsius." The level of climate ambition in the agreed HFC phase-down will be crucial in determining whether or not Montreal Protocol passes the test. In preparation for the next installment of Montreal Protocol meetings, known as the Open Ended Working Group, set for July 2016 in Vienna, the Environmental Investigation Agency (EIA) has produced a briefing, [The Importance of Ambition in the 2016 HFC Phase-Down Agreement](#). Download the full report [here](#).

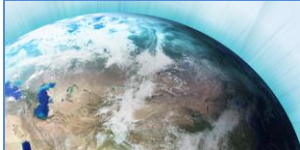


Update on the Illegal Trade in Ozone-Depleting Substances – The Environmental Investigation Agency (EIA) briefing to the 38th meeting of the Open-Ended Working Group of Parties to the Montreal Protocol, in Vienna, Austria, from July 18-21, 2016.



The global beverage giant (The Coca Cola Company) is putting natural refrigerants at the heart of its sustainability strategy – and is keen to share its experience with partners around the world... [The Natural Voice Magazine](#), #1, July 2016, p. 21

Environmental Investigation Agency (eia) briefing, [The Importance of Ambition in the 2016 HFC Phase-Down Agreement](#), outlining key aspects of the proposals and calling on Parties to seek an agreement securing the highest climate ambition.



MISCELLANEOUS

Vacancy Announcement // Programme Management Officer, United Nations Environment, OzonAction, PARIS. Click [here](#) to learn more/Apply | **Deadline 29 October 2016**

The International Institute of Refrigeration (IIR) is delighted to announce [IIR new Working Group on Careers in Refrigeration “CaRe”](#), chaired by Dr Catarina Marques. [Learn more](#)



US EPA GreenChill Webinar: "**Transcritical CO₂ Operations in Warm Ambient Conditions**"

Date: Tuesday, 1 November 2016, Time: 2:00 pm to 3:00pm (Eastern time)

Description: Rusty Walker from Hillphoenix will be presenting on transcritical CO₂ system design and operations in warm ambient conditions.

To join the webinar: 1. Go to <http://epawebconferencing.acms.com/warmtranscriticalco2/>

2. Select "Enter as a Guest". It is important that you select the option to enter as a guest. 3. Enter your name. 4. Click "Enter Room". 5. Click "OK".

For audio: 1. Call the toll free call-in number: 1-866-299-3188 (706-758-1822 from outside the U.S.) 2. Use Conference Code: 202 343 9185#



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