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OzoNews

A fortnightly electronic news update on ozone and climate protection and the implementation of the Montreal Protocol brought to you by OzonAction

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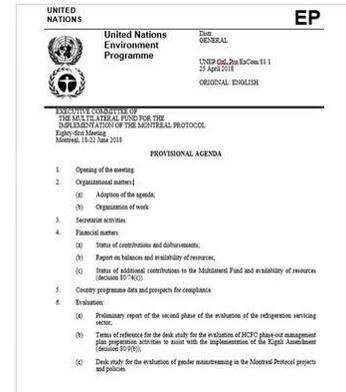
| 15 May 2018

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Global

1. Eighty-first meeting of the Executive Committee, Montreal, 18 to 22 June 2018 - Provisional Agenda



EXECUTIVE COMMITTEE OF THE MULTILATERAL FUND FOR THE IMPLEMENTATION OF THE MONTREAL PROTOCOL

Eighty-first Meeting, Montreal, Canada, 18-22 June 2018

PROVISIONAL AGENDA

1. Opening of the meeting.
2. Organizational matters:
 - (a) Adoption of the agenda;
 - (b) Organization of work.
3. Secretariat activities.
4. Financial matters:
 - (a) Status of contributions and disbursements;
 - (b) Report on balances and availability of resources;
 - (c) Status of additional contributions to the Multilateral Fund and availability of resources (decision 80/74(c)).
5. Country programme data and prospects for compliance.
6. Evaluation:
 - (a) Preliminary report of the second phase of the evaluation of the refrigeration servicing sector;
 - (b) Terms of reference for the desk study for the evaluation of HCFC phase-out management plan preparation activities to assist with the implementation of the Kigali Amendment (decision 80/9(b));
 - (c) Desk study for the evaluation of gender mainstreaming in the Montreal Protocol projects and policies.
7. Programme implementation:
 - (a) Status reports and reports on projects with specific reporting requirements;
 - (b) 2018 consolidated project completion report.
8. Business planning:
 - (a) Update on the status of implementation of the 2018-2020 consolidated business plan of the Multilateral Fund and financial planning for the triennium 2018-2020;
 - (b) Tranche submission delays.
9. Project proposals:
 - (a) Overview of issues identified during project review;
 - (b) Bilateral cooperation;
 - (c) Work programmes:
 - (i) UNDP's work programme for 2018;
 - (ii) UNEP's work programme for 2018;
 - (iii) UNIDO's work programme for 2018;
 - (iv) World Bank's work programme for 2018;
 - (d) Final report on the review of the overall structure of the Compliance Assistance Programme (decision 80/55(b)(i));
 - (e) Investment projects.
10. Matters related to the Kigali Amendment to the Montreal Protocol:
 - (a) Development of the cost guidelines for the phase-down of HFCs in Article 5 countries: Draft criteria for funding (decisions 78/3(i), 79/44(b) and 80/76(b));
 - (b) Key aspects related to HFC-23 by-product control technologies (decisions 78/5(e), 79/47(e) and 80/77(b)).
11. Implications for Multilateral Fund institutions in terms of expected workload in the coming years, including in relation to the Kigali Amendment for the phase-down of HFCs (decision 80/34(f)).
12. Draft report of the Executive Committee of the Multilateral Fund for the Implementation of the Montreal Protocol to the Thirtieth Meeting of the Parties.
13. Report of the Sub-group on the Production Sector.
14. Other matters.
15. Adoption of the report.

16. Closure of the meeting

[The Multilateral Fund for the Implementation of the Montreal Protocol, 30 April 2018](#)



2. OzonAction and EPEE are starting the second pilot of the HFCs Outlook Model

The UN Environment-OzonAction is teaming up with EPEE (the European Partnership for Energy and the Environment) to kick-off stage-II of their project so called "HFCs Outlook Model".

The latter is a scenario model for comparing local consumption and use of hydrofluorocarbons and hydrochlorofluorocarbons in different consuming sectors along with different projection scenarios for each substance.

OzonAction and EPEE are starting the second pilot of the HFCs Outlook Model which will engage seven countries: Bosnia and Herzegovina, Dominican Republic, Gabon, Guatemala, Honduras, Mali and Senegal. The new model that will be developed, at stage-II, aims at offering a simplified version of the model for countries with limited consumption.

Contact: [Ayman El-Talouny](#), UN Environment, OzonAction, Montreal Protocol Officer, Regional Office West Asia

[OzonAction, May 2018](#)

3. K-CEP's first-ever annual report

The Kigali Cooling Efficiency Program (K-CEP) recently marked its 1-year anniversary! We are excited to update you on our collective progress to increase and accelerate the climate and development benefits of the HFC phase-down by driving a major, simultaneous improvement in the energy efficiency of cooling.

Over the past twelve months, K-CEP has kicked off direct support to 38 countries and training for all 147 developing countries, committed \$30 million in funding, and facilitated collaboration between foundations, NGOs, universities, international organizations and the private sector – all in service to the Sustainable Development Goals, in particular climate progress.

On behalf of K-CEP's funders and the Efficiency Cooling Office, we offer deep appreciation for years of hard work by NGOs, governments, and many others on this mission to achieve efficient, clean cooling for all, and for all of the continued efforts that are to come. We are inspired by the creativity, passion, tenacity, and spirit of collaboration that pervades this work.



We invite you to learn more about and share K-CEP's philanthropic collaboration, programs, grantmaking, results, progress tracking, and more in our immersive Year 1 Annual Report.

There's a lot to discover! You will see how the movement for efficient, clean cooling is gaining momentum. Only together will we realize the huge climate and sustainable development benefits that are within reach.

We welcome your feedback and look forward to continuing to help governments, businesses, and consumers establish and increase cooling technology standards, unlock capital, and transform markets so that efficient, clean cooling can be accessible to all.

With "cool" wishes,

Dan Hamza-Goodacre
K-CEP Executive Director

[Explore the Annual Report](#)

4. New funding available to mobilize finance for efficient clean cooling



International finance programs working to strengthen energy efficiency alongside the transition to clean cooling are now able to apply for additional funding support from the Kigali Cooling Efficiency Program (K-CEP). The philanthropic initiative has opened applications for its third window of support, which will provide grants for technical assistance or other costs related to raising capital finance for existing programs.

K-CEP is making available up to USD 10 million under its finance window and is seeking initial applications for funding from USD 2 million to USD 5 million to support efficient clean cooling finance programs. These programs will need to bring existing capital funding from development banks, climate funds, governments, private sector banks, or other financial institutions to be used alongside this K-CEP support.

The finance window is designed to accelerate investment into efficient clean cooling, referring to air conditioning and refrigeration equipment that uses less energy and refrigerant gases (F-gases) with a lower global warming potential (GWP).

Providing efficient, clean cooling is a looming climate challenge facing a warming world. Cooling already accounts for more than 7% of global emissions and is set to grow as developing country economies expand. A simultaneous phase down of hydrofluorocarbons with the introduction of more efficient cooling could help avoid the equivalent of approximately 160 billion tonnes of CO₂ by 2050.

Phasing down these super-polluting F-gases is an internationally agreed legal requirement under the Kigali Amendment to the Montreal Protocol. The focus on energy efficiency will also reduce operating costs and carbon emissions from energy use while helping to unlock health, prosperity, and environmental benefits.

Successful applicants will be able to use the funding for technical assistance or to cover structuring and other incremental costs associated with raising capital finance to support activities that demonstrate additional efficiency benefits compared to a business-as-usual scenario. This finance window complements K-CEP's three other existing windows which support: capacity building (Strengthening for Efficiency); policy (Cooling Efficiency Policies, Standards, and Programs); and access (Access to Cooling).

Mijo Vodopic, Senior Program Officer at the John D. and Catherine T. MacArthur Foundation, one of K-CEP's founding partners, said:

"Efficient, clean cooling globally means better health outcomes, less wasted food, and more productive economies. That is why K-CEP is offering funds to cover necessary technical work, to help mitigate risks and cover additional management costs that can help unlock the huge amounts capital needed to accelerate the development and deployment of efficient, clean cooling."

Shilpa Patel, Head of K-CEP's Finance Window, said:

"Finance can be an essential lifeline to programs designed to support efficient clean cooling. We're excited about the range of programs this Finance Window could support by providing technical assistance for activities such as creating bankable propositions, raising awareness and providing technical advice and covering the incremental costs of raising capital finance such as the fees associated with guarantee facilities or interest rate subsidies on loans to end customers."

Tom Delay, Chief Executive of the Carbon Trust, which is supporting K-CEP to manage this finance window, said:

"We urgently need to catalyze new ways to deploy efficient, clean cooling solutions. Funding to support technical

assistance and implementation is key to unlocking the full potential of clean cooling finance programs. We're delighted to be supporting K-CEP on delivering this important work."

K-CEP will make funding decisions in two steps: initially seeking initial applications before requesting refined proposals from selected organizations.

The finance window is open to all types of organization including development banks, multi-lateral organizations, climate finance institutions, private sector banks and companies, and non-governmental organizations.

Funding can be provided for technical assistance (for example, creating bankable propositions, raising awareness, and providing technical advice) and covering the incremental costs of capital finance (for example, the costs of putting a guarantee in place).

This window is explicitly not designed to be the source of capital funding for a financial instrument and instead aims to play a catalytic role in unlocking this capital.

The initial application package is now available [here](#).

Inquiries can be sent to the Carbon Trust by [emailing](#).

K-CEP, 10 May 2018

5. France and Canada: Promoting sustainable development issues in international bodies

[...] France and Canada are working together to increase global awareness, including at the G7, G20, World Trade Organisation, International Energy Agency, Clean Energy Ministerial, Mission Innovation, Organisation for Economic Co-operation and Development, and within the United Nations to promote and ensure the swift implementation of the Paris Agreement.

We will make outreach efforts to encourage all countries to ratify and implement the Kigali amendment to the Montreal Protocol, and support the replenishment of the Global Environment Facility as well as the ongoing operationalization of the Green Climate Fund. [...]

Read/download the [full document/annex](#)

France Diplomatie, April 2018

FRANCE - CANADA CLIMATE AND ENVIRONMENT PARTNERSHIP

France and Canada share a commitment to safeguard the planet and the future of the generations to come. Together we will accelerate climate action and work together towards a clear and prosperous future. We recognize that the Paris Agreement is irrevocable and we are committed to its full and effective implementation. We support the Paris Agreement temperature goal of holding the increase to well below 2 degrees Celsius and pursuing efforts to limit the increase to 1.5 degrees. We also recognize that common rules for all Parties, with particular reference to the transparency framework and mitigation guidance, are essential to ensure the effective implementation of the Paris Agreement provisions. We are also firmly committed to gender equality and the empowerment of women. Women and girls are part of the fight against climate change and the energy transition.

The Pan-Canadian Framework on Clean Growth and Climate Change, adopted on December 9 2016, is Canada's plan — developed with provinces and territories and through engagement with Indigenous Peoples — to meet its emissions reduction target under the Paris Agreement, build climate resilience, and grow the economy. Canada's target is to reduce its emissions to 30 percent below 2005 levels, by 2030. Canada has its long-term, low carbon development strategy looking at pathways to 2050, which it launched at COP22 in November 2016.

On 6 July 2017, the French government adopted its Climate Plan to accelerate the energy transition and the implementation of the Paris agreement. This Climate Plan sets a new course to achieve carbon neutrality by 2050, reduce France's dependence on fossil fuels and promotes an inclusive approach.

To build on these decisions, France and Canada will collaborate to promote and quickly implement the Paris Agreement. To this end, our countries are committed to the following partnership: (See Annex for specific initiatives)

1) Reducing international ground, sea and air transport emissions

France and Canada will take joint action at the International Maritime Organization and the International Civil Aviation Organization in order to secure ambitious outcomes, to support the Paris Agreement temperature goal, for reducing greenhouse gas emissions in these sectors and to encourage innovation and further research.

France and Canada will work to lower greenhouse gas emissions from the ground transportation sector. Opportunities exist through new technologies, fuels, and innovation and efficiencies in energy production to substantially reduce emissions in this sector.

France and Canada encourage fuel-efficient consumer behaviour, collaborating on the adoption of green freight initiatives, sharing best practices on electric vehicle and alternative fuel infrastructure deployment and, supporting low carbon transportation fuel production and use.

2) Promoting energy efficiency

6. Greening the Cold Chain: CO₂ in the industrial sector



Don't forget to register to upcoming Carnot Refrigeration webinar hosted by sheccoBase, taking place on

16 May at 11 am GMT-4 (5pm GMT+2)

The webinar will provide an update of the latest trends in adoption of natural refrigerant-based technology in industrial refrigeration in North America (and globally), and highlight the expectations for future developments. The webinar will also explain the benefits of CO₂ in industrial refrigeration compared to H(C)FCs, ammonia and low-charge ammonia.

Register

New technological developments, particularly for compressors, have allowed CO₂ transcritical systems to reach higher capacities and capture a part of the industrial refrigeration market. This market is moving towards CO₂-only systems, partly due to the safety and technical challenges of using traditional ammonia.

Speakers

- Marc-André Lesmerises, President - Carnot Refrigeration
- Bob Hampson, Owner - Canneberges Becancour
- John Miranda, Founder and Chief Marketer - Emergent Cold Technologies
- Alvaro de Oña, Chief Operating Officer - shecco

Contact:

[Klara Skacanova](#), Manager Market Development, shecco

Africa

7. Maroc: Le Roi préside un conseil des ministres: Agriculture, textes de loi, conventions, nominations



Sa Majesté le Roi Mohammed VI a présidé, jeudi 19 avril 2018 au Palais Royal à Rabat, un Conseil des ministres au cours duquel il a été procédé à l'approbation de plusieurs textes de loi et de conventions internationales. [...]

Conventions Internationales

"Dans le cadre du raffermissement des relations du Royaume avec plusieurs pays frères et amis, du respect de ses engagements internationaux et de renforcement de la confiance et de la crédibilité dont jouit le Royaume, le Conseil des ministres a approuvé huit (08) conventions internationales, dont une à caractère multilatéral portant sur l'Amendement du Protocole de Montréal relatif aux substances qui appauvrissent la couche d'ozone, adopté à Kigali. [...]

[Medias24](#), April 2018

Latin America and Caribbean

8. Seminario taller sobre protección de la capa de ozono



Honduras - En la Ciudad de Puerto Cortes. La secretaria de Recursos Naturales y Ambiente y el PNUMA .Imparten un importante Seminario Taller sobre la protección de la capa de ozono.

La capa de ozono que protege la vida en la Tierra de la radiación ultravioleta sigue debilitándose. Aunque su manifestación más visible, el agujero sobre la Antártida, se está cerrando, la concentración de ozono atmosférico en otras latitudes del planeta sigue bajando.

El ozono es un filtro de moléculas de ozono (formadas por tres átomos de oxígeno, O₃) atrapa hasta el 99% de los rayos ultravioleta y buena parte de la radiación infrarroja.

Estos rayos ultravioleta son causales de enfermedades de piel y algunos tipos de cancer debido a esto es un tema muy importante que nos concierne a todos y le damos la importancia debida en harás de Proteger Nuestro Planeta.

[Federación Nacional de Agentes Aduanales de Honduras](#), Abril 2018

North America

9. Canada puts HFC phase-down plan in force

In line with Kigali, HFC imports will be reduced, and caps will be placed on GWPs in specific end uses.

The government of Canada on April 16 launched an HFC phase-down plan to limit HFC consumption by 85% by 2036, in line with the Kigali Amendment to the Montreal Protocol.



Mirroring the Amendment, the plan starts in 2019 with a 10% cut to “baseline” levels of HFC consumption, which are calculated using the consumption of HFCs and HCFCs from 2011 to 2013. The plan also puts caps on the GWP of gases that can be used in specific applications. The continuing reductions and caps are expected to bolster the transition to low-GWP alternatives like natural refrigerants.

In 2014, Canada’s Department of Environment and Conservation issued a Notice of Intent indicating the intention to regulate HFCs at national level and align with U.S. legislative measures as much as possible. Since then, the government put forward a plan in 2016 on measures to cut HFCs, including an HFC phase-down and sector-specific bans.

After receiving comments in 2016 and 2017, the full plan was announced in October 2017 with a set of regulations amending the existing Ozone-depleting Substances and Halocarbon Alternatives Regulations; the changes include the following:

Phase-down of bulk HFCs

Prohibitions on HFCs in certain types of equipment

Minor modifications to the HCFC provisions in the Regulations.

Much of the regulation focuses on imports since HFCs are commonly imported into Canada in bulk for use in the manufacture, servicing and maintenance of refrigeration and air-conditioning equipment, and in the manufacture of foam-blowing products.

Under the plan, bulk HFCs will receive an individual consumption allowance, which, when added together, will total Canada’s consumption baseline.

These consumption allowances will be distributed based on an individual importers’ share of Canada’s total HFC consumption in 2014 and 2015. The overall percentage reduction from the baseline, which is slightly different than under the Kigali Agreement, will be as follows:

Year	Reduction from Baseline (%)
2019	10
2024	40
2030	70
2034	80
2036	85

Sector-specific bans

Under the second part of the plan, the use of high-GWP HFCs will be prohibited in specific products as of a certain year, as follows:

Product	GWP of refrigerant in product	Date
Stand-alone medium-temperature refrigeration system	1,400	Jan. 1, 2020
Stand-alone low-temperature refrigeration system	1,500	Jan. 1, 2020
Centralized refrigeration system	2,200	Jan. 1, 2020
Condensing unit	2,200	Jan. 1, 2020
Chillers	750	Jan. 1, 2025
Mobile refrigeration system	2,200	Jan. 1, 2025
Motor vehicle air-conditioning (MVAC)	150	Jan. 1, 2021 model year of vehicles
Domestic refrigeration	150	Jan. 1, 2025

10. US expects \$12.5bn Kigali trade boost

The US air conditioning and refrigeration industry claims that the country's failure to ratify the Kigali Amendment to phase down HFCs will lead to job losses and a decline in US exports.

The claims are made in a joint report from the Air-Conditioning, Heating, and Refrigeration Institute (AHRI) and the Alliance for Responsible Atmospheric Policy that has been sent to the White House, EPA and State Department.

The report, Economic Impacts of US Ratification of the Kigali Amendment, insists that ratification of Kigali is crucial to continuing and maintaining the US leadership that was strengthened and expanded by its support of the Montreal Protocol.

Explaining that US industry strongly supports ratification of the Kigali Amendment, it says: "The Kigali Amendment provides a global platform for gradual introduction and commercialisation of next generation technologies in the US and in the rapidly expanding global market.

"Prior transitions under the Montreal Protocol enabled these strong US industries to maintain their technology leadership. The new Kigali Amendment, which creates a clear path toward global adoption, will have a similar effect."

The report maintains that US implementation of the Kigali Amendment would be good for American jobs, while both strengthening America's exports and weakening the market for imported products and enable US technology to continue its world leadership role.

"Without Kigali ratification, growth opportunities will be lost along with the jobs to support that growth, the trade deficit will grow, and the US share of global export markets will decline," it says.

It is estimated that Kigali ratification would also add \$5bn per year to the value of US exports and reduce imports to the tune of \$6.5bn per year by 2027. Adding in the impact of fluorocarbon manufacture, the US trade balance would total more than \$12.5bn per year.

Kigali ratification is also expected to add an additional 33,000 jobs by 2027. Adding in the indirect and induced effects of ratification, the report estimates the number of additional jobs would rise to 150,000.

The report also argues that Kigali ratification would drive the reclaimed refrigerant business, with a sales increase of \$800m per year and a further 4,000 jobs. In addition, Kigali would create 1,400 research and development jobs.

The report also highlights the need to maintain the technological and economic strength of the US HVACR industry. The export market to meet the needs of China, India, Latin America, and Africa is expected to grow by 6% per year over the next decade. Without ratification, the US share of that market, currently 7.2%, would slip to 6.2% over the next decade, the report argues.

Domestic investments in new technology to meet Kigali requirements would enable the US to outperform in the export market, increasing the US global export market share to 9%.

The Alliance for Responsible Atmospheric Policy counts all the leading refrigerant suppliers and a number of major manufacturers amongst its members, including Carrier, Daikin, Danfoss, Emerson, Ingersoll-Rand and Johnson Controls.

There have been indications that the US administration supported the goals and approach of the Kigali Amendment, but earlier this year a top White House official advised that the Trump administration would need concrete evidence of its economic benefits.

[CoolingPost, 4 May 2018, By Neil Everitt](#)





11. Ozone Officers from South Asia, South East Asia and West Asia discuss key Montreal Protocol issues in Beijing

Forty-eight National Ozone Officers (NOOs) from South Asia, South East Asia and West Asia attended the Joint Network Meeting in Beijing on 8th April 2018.

The Joint Network Meeting was held back-to-back with 'Ozone2Climate' Technology Roadshow and Industry Roundtable, and organized by UN Environment's OzonAction in collaboration with the Foreign Economic Cooperation Office for China, Ministry of Ecology and Environment (FECO MEE).

Network meetings are a part of an ongoing service of OzonAction's Compliance Assistance Programme (CAP) to support network countries in implementing their Montreal Protocol commitments. The Network meeting was financially supported by the Protocol's Multilateral Fund.

The Joint Network Meeting was opened with welcome remarks from Dr. Shamila Nair-Bedouelle, Head of UN Environment's OzonAction, Mr. Yu Lifeng, Deputy Director General of China's FECO MEE, and Mr. Tu Ruihe, Head of the UN Environment China Office.

Dr. Nair-Bedouelle welcomed the Ozone Officers from the three networks and encouraged them to share experiences and knowledge for achieving their obligations under the Montreal Protocol. Dr. Nair-Bedouelle stated that "The challenges are immense, where the Kigali Amendment for HFCs would enter into force from 2019 and at the same time, countries have to achieve 35% reduction in HCFCs from their baseline by 2020.

Joint Network Meetings such as these provide the NOOs a forum to learn from best practices and achieve the collective goal through south-south cooperation." She also thanked especially FECO MEE for their warm hospitality.

Mr. Lifeng welcomed the Ozone Officers to Beijing and stated that "As an active player in the undertaking of global environmental governance, China will continue to honor its due international obligations, strengthen international cooperation, join hands with international community to build a clean and beautiful world, and protect our common homeland."

Mr. Ruihe commended the efforts of the ozone officials, UN Environment and FECO MEE in demonstrating success in environment protection. He emphasized the deep appreciation and value of UN Environment's partnership with the Chinese Government on ecological and environmental conservation. He said, "UN Environment has been working with China on greening of the One Belt One Road Initiative."

Ms. Tina Birmpili, the Executive Secretary of the Ozone Secretariat, presented to the Ozone Officers the key issues that will be considered by the Parties to the Montreal Protocol at their upcoming 40th Open-Ended Working Group in July 2018.

The Joint Network Meeting followed-up on the recommendations and discussions of the First Inter-Regional Thematic Workshop & Regional Network Meetings for National Ozone Officers held earlier in January 2018 in Paris, and particularly focused on aspects related to the challenges in the refrigeration servicing sector, lessons learnt from HCFC phase-out activities and foreseeable barriers for HFC phase-down in the future.

The three networks also discussed possible opportunities for south-south cooperation in strengthening cross-border enforcement, developing technician certification systems, developing/adopting standards for handling flammable refrigerants and advancing import/export information sharing between countries through the informal Prior Informed Consent (iPIC) mechanism.

There were also two parallel sessions where the South Asia/South East Asia and the West Asia networks discussed specific topics relevant to their respective networks such as major country updates, Kigali enabling activities, technician training, enforcement capacity building and technology selection trends.

Contact: [Hu Shaofeng](#), UN Environment, OzonAction Montreal Protocol Regional Coordinator, South Asia-South East Asia and the Pacific

[UN Environment, OzonAction, April 2018](#)



Participants of the workshop



National Ozone Unit Team of Bangladesh
Department of Environment

12. Bangladesh and UN Environment host dialogue between neighbours to enhance trade coordination on ozone-damaging chemicals

The 'Border Dialogue for HCFC (hydrochlorofluorocarbon) Trade Coordination and Cooperation' took place from 9-10 May 2018 in Dhaka, Bangladesh. This thematic meeting was hosted by the Government of Bangladesh and organized in collaboration with UN Environment's OzonAction Compliance Assistance Programme (CAP) to support countries in implementing their commitments under the Montreal Protocol on Substances that Deplete the Ozone Layer. The Border Dialogue was opened by Mr. Anisul Islam Mahmud, Minister for Environment and Forests and Mr. Md. Rezaul Hasan, National Board of Revenue. The participants included representatives of Customs agencies, National Ozone Units and Border Security officials of six neighbouring countries: Bangladesh, Bhutan, China, India, Myanmar and Nepal. Representative of the UN Office of Drugs and Crime (UNODC) Container Control Programme and UN Environment also participated in the meeting.

The discussion covered various areas of customs and ozone authorities' cooperation to ensure better monitoring and control of trade in Ozone Depleting Substances (ODS) for accurate data reporting and prevention of illegal trade. The concerned substances include, for example, hydrofluorochlorocarbon (HCFC) refrigerant gases used for air conditioning and refrigeration equipment. The meeting also included a number of cross-country bilateral sessions to review and reconcile the official annual import and export data that each country is required to submit under Article 7 of the Montreal Protocol. These data are highly important as they are used to determine each country's compliance with its international commitments under the ozone treaty.

Three key issues emerged from the dialogue:

The need to integrate risk profiling for ODS into trade control and border enforcement; Strengthening of cross-border collaboration; and the need to reconcile the data not only at the national level but also between the trading countries before the submission of Article 7 data.

Various options of dealing with seized illegal stock were also intensively discussed. Bhutan's choice of reshipping such seizures back to the country of origin was highlighted. Participants found this type of dialogue useful and effective for strengthening the cooperation between customs and ozone authorities at national level as well as among the neighbouring countries. This Border Dialogue is the continuation of one held previously in Nepal in December 2016.

Contact: [Liazzat Rabbiosi](#), UN Environment, OzonAction - Montreal Protocol, Regional office for Asia and the Pacific

UN Environment, OzonAction, May 2018

13. How to improve sustainable AC use in India?



A new report highlights key recommendations to increase the use of air-conditioning in India using R290.

A report published this month – by the Indian Energy and Resources Institute (teri), the Natural Resources Defense Council (NRDC) and the Institute for Governance & Sustainable Development (IGDSD) – purports to provide a guide to how India can improve its use of air-conditioning in a sustainable and energy efficient way. The use of R290 appears as a key recommendation.

“Keeping cool in India is not just a matter of comfort”, Frances Beinecke from the NRDC explains, “It’s a matter of life and death. This report offers key strategies to transform the air conditioning market to tackle global climate change while providing much needed cooling to billions. The market for air conditioners is growing fast in South Asia and this type of smart planning is crucial to our future.”

The report, called ‘[Improving Air-conditioners in India](#)’, notes is that the South Asian country already has R290 hydrocarbon-based split-AC available.

However, market penetration remains low with just 2% of 2017 estimated room AC (RAC) sales in India using R290. Still today, RAC units with R-22, a HCFC with a GWP 1760 and a small ODP, make up around 70% of sales.

The Kigali Amendment that calls for a global phase-down of HFCs “will likely require most countries to eventually use the lowest-GWP refrigerants available, such as HC-290 (propane), with its much lower GWP of 3”, the report notes.

The report notes that the HFC blend R32, with its GWP of 677, remains a limited alternative as it will also eventually be subject to Kigali.

Though R290 remains flammable and training is needed to make India ready to use this natural refrigerant. “HC-290 is replacing HCFC-22 in the market. Hundreds of thousands of room ACs using HC-290 have been sold in India, including the highest efficiency room ACs, and it has low GWP”, the report notes.

R290 is also known for its energy efficiency. “HC-290, another climate-friendly refrigerant used in India, was compared to HCFC-22, and demonstrated a 7 to 8% energy efficiency benefit over HCFC-22 at 52°C and 55°C, respectively”, the report explains.

Godrej Appliances, for example, is mainly using HC-290 for government projects and has “the most energy efficient room AC in India – a 5.8 ISEER [a seasonal efficiency ratio that is certified by the Indian government] 1-ton room AC, with the highest efficiency already at ISEER 6.15 as of April 2018”.

The report highlights that having minimum standards on the market of ISEER above 4.0 will mean that more energy efficient air-conditioners using low-GWP refrigerants like R290 will also be placed on the market.

The importance of labelling & standards

The Indian Bureau of Energy Efficiency Star Labelling program is already strengthening AC efficiency standards and labels every year.

The report also advocates making customers aware of energy efficiency labels and the GWP of the refrigerant in the system could further increase the use of sustainable and energy efficient AC.

Bulk programmes have also been used in India to reduce the price of energy efficient and more environmentally friendly air-conditioners. One joint venture by the Energy Efficiency Services Limited (EESL), a joint venture of India’s Ministry of Power and several government owned companies, bought 10,000 R290 ACs with an ISEER of 5.2 from Godrej.

The report notes the R290 RACs are still more expensive than standard HFC-based units, which constitutes an important barrier.

One key way of helping increase the price reduction of R290 ACs may be to increase the energy efficiency requirements and lower the GWP requirement. “Looking forward to future tenders, several manufacturers have

expressed hope that EESL will steadily increase the minimum ISEER requirement beyond ISEER 5.2 and include a lower-GWP refrigerant requirement”, the report notes.

It also thinks manufacturers of R290 system could outsource compressors, heat exchangers and other components to other Indian company’s meaning a lower cost for production purposes.

Hydrocarbons21, 30 April 2018, By Charlotte McLaughlin

West Asia

14. Bahrain: Environmentally friendly refrigerants have proven operationally

البحرين: أجهزة التبريد الصديقة للبيئة أثبتت جدواها من الناحية التشغيلية



أكد رئيس قسم الهندسية الميكانيكية في كلية الهندسة بجامعة البحرين الدكتور بدر درويش المناعي، أن التحول إلى استخدام أجهزة التبريد والتكييف الحديثة الصديقة للبيئة أثبت جدواه من كفاءة التشغيل، وتحسين الأسعار، علاوة على حفظ البيئة، مشيداً بتوجهات المجلس الأعلى للبيئة ووزارة الصناعة والتجارة والسياحة، لتوطين هذه الأجهزة

جاء ذلك خلال معرض ومنتدى أحدث تقنيات استهلاك الطاقة في نظم التبريد والتكييف الذي نظمه قسم الهندسة الميكانيكية يوم الاثنين (7 مايو 2018م) في مقر الجامعة في مدينة عيسى

وشارك في المنتدى ممثلون عن المجلس الأعلى للبيئة، والأمم المتحدة، والشركات المتخصصة في التبريد والتكييف. وافتتح المعرض المصاحب للمنتدى نائب رئيس الجامعة لخدمات تقنية المعلومات والشؤون الإدارية والمالية الدكتور محمد صالح الأنصاري

وأشار د. المناعي إلى أن المنتدى والمعرض يهدفان إلى تسليط الضوء على التقنيات الحديثة الصديقة للبيئة في مجالات التبريد والتكييف والتدفئة، والتشريعات الجديدة في هذا المجال بهدف رفع وعي طلبة الهندسة في هذا الموضوع الحيوي، وممارسة الجامعة لمسؤوليتها تجاه المجتمع

ونوه إلى أن الحدث تشارك فيه عدة جهات معنية، مثل: برنامج الأمم المتحدة للبيئة، والمجلس الأعلى للبيئة، والشركات المستوردة والمصنعة لتقنيات التبريد والتكييف. وأعرب رئيس قسم الهندسة الميكانيكية عن تأييده للتحول الإلزامي الذي أقرته مملكة البحرين نحو هذه التقنيات التي تساعد على تقليل استهلاك الطاقة، مما يعني حفظ الموارد، وعدم الإضرار بالبيئة

ومن ناحيته، أوضح منسق برنامج عمل الأوزون التابع للأمم المتحدة أيمن الطالوني، أن المنظمة ملتزمة بدعم أنشطة حماية البيئة، والتعاون مع الحكومات في المنطقة لوضع برامج متقدمة لحفظ البيئة، من بينها برامج توطين التكنولوجيا الصديقة للبيئة

ولفت الطالوني إلى وجود تسارع في إدخال هذه التقنيات، مشيداً بالدور الذي تقوم به حكومة البحرين عبر مؤسساتها الرسمية لإدخال تقنيات التبريد والتكييف الصديقة للبيئة، فهي إحدى الدول الموقعة على بروتوكول مونتريال لحماية طبقة الأوزون

كما أوضح المسؤول الوطني للأوزون في المجلس الأعلى للبيئة الدكتور حسن المبارك، أن المجلس هو الجهة الرئيسية لإصدار التصاريح لأجهزة التبريد والتكييف، وذلك على أساس نوع التكنولوجيا ومميزاتها ولفت د. المبارك إلى أن عملية التقنين التي يقوم بها المجلس تهدف إلى التحكم في الغازات التي تنبعث من هذه الأجهزة، وتلحق أضراراً بطبقة الأوزون في مسعى لحمايتها بحسب مقررات بروتوكول مونتريال الذي توافقت عليه الدول الموقعة

وأكد أن المجلس رخص لتقنيات تبريد صديقة للبيئة ذات كفاءة عالية، وفي الوقت نفسه تقلل من استهلاك الطاقة، وهو الأمر الذي يعود بالنفع على المستهلك والبيئة والموارد العامة

Europe & Central Asia

15. Sweden rejects F-gas exemption request

The Swedish Environmental Protection Agency has turned down a request from the country's heat pump association for exemption from the F-gas quota system.

The association Svenska Kyl & Värmepumpföreningen (SKVP) sent a letter to the Swedish EPA in February arguing that high refrigerant prices and shortages would impact European environmental targets. Claiming to be in a "vulnerable" situation, the SKVP asked that the heat pump industry be given reasonable time for conversion to alternative low GWP refrigerants.

The association requested an exemption under Article 15.4 of the F-gas Regulation EU 517/2014, which allows an exemption from the quota for up to four years for applications, products or equipment, where alternatives are not available, or cannot be used for technical or safety reasons and/or where a sufficient supply of HFCs cannot be ensured without entailing disproportionate costs.

In rejecting the request, the Swedish EPA argues that the refrigerant price increases are in line with the intentions of the regulation to drive the development of lower GWP alternatives.

"The specific data on price increases, etc, that have been submitted are generally held and are therefore not sufficient to justify submitting the application to the EU Commission," the Swedish EPA writes in its reply.

It also observes that no similar requests have been made by other European industry organisations, but an exemption would cover all the companies in Europe. The SKVP, it said was not mandated to represent all relevant companies in Europe.

The SKVP has not yet decided whether it will appeal the decision. "We have just received the message and need to first settle down and analyse the Swedish Environmental Protection Agency's response before we can assess how we choose to proceed with the case," said SKVP CEO Per Jonasson. "However, I would like to emphasise that the need for exceptions, as we formulated it, to our greatest extent remains," he added.

[CoolingPost, 6 May 2018, By Neil Everitt](#)



Featured



**OZONE
SECRETARIAT**

OZONE SECRETARIAT

- [40th Meeting of the Open-ended Working Group of the Parties to the Montreal Protocol](#), 11-14 July 2018, Vienna, Austria
- Vienna Convention and Montreal Protocol Meetings: A Primer - [Read/Download](#)
- [29th Meeting of the Parties to the Montreal Protocol](#)
- [28th Meeting of the Parties to the Montreal Protocol](#)
- Final text of the Kigali Amendment to the Montreal Protocol available in all the six official UN languages ([A](#) [C](#) [E](#) [F](#) [R](#) [S](#))
- OEWG 39: The 39th Session of the Open-ended Working Group of the Parties to the Montreal Protocol on

Substances that Deplete the Ozone Layer, preceded by the 58th meeting of the Implementation Committee under the Non-Compliance Procedure for the Montreal Protocol, held on 9 July and a workshop on safety standards relevant to the use of low-GWP alternatives to HFCs, held on 10 July 2017.

- [Draft report of the thirty-ninth meeting of the Open-ended Working Group of the Parties to the Montreal Protocol on Substances that Deplete the Ozone Layer - Addendum](#)

- [Draft report of the thirty-ninth meeting of the Open-ended Working Group of the Parties to the Montreal Protocol on Substances that Deplete the Ozone Layer](#)

- Click [here](#) for further information.
- Browse through the Ozone Secretariat “[In Focus](#)” to learn about latest updates.
- Click [here](#) for Montreal Protocol Meetings Dates and Venues

The UN Environment Assessment Panels have been the pillars of the ozone protection regime since the very beginning of the implementation of the Montreal Protocol. Through provision of independent technical and scientific assessments and information, the Panels have helped the Parties reach informed decisions that have made the Montreal Protocol a world-recognized success.

UNEP initiated the process of setting up the assessment panels in 1988, pursuant to Article 6 of the Montreal Protocol, to assess the scientific issues of ozone depletion, environmental effects of ozone depletion, and the status of alternative substances and technologies and their economic implications.

Four panels, namely the panels for Scientific, Environmental Effects, Technology, and Economic Assessments were formally established and approved at the First Meeting of the Parties to the Montreal Protocol in 1989 where their first set of Terms of Reference were adopted. Shortly after the Second Meeting of the Parties in 1990, the Panels for Technical Assessment and the Panel for Economic Assessment were merged into one Panel called the Technology and Economic Assessment Panel (TEAP), which together with the Scientific Assessment Panel (SAP) and the Environmental Effects Assessment Panel (EEAP) make up the three assessment panels active today.

In accordance with Article 6 of the Montreal Protocol and subsequent decisions of the Parties, the three panels carry out a periodic assessment at least every 4 years. The first assessment reports were published in 1989 and since then major periodic assessments have been published by all three panels in 1991, 1994, 1998, 2002, 2006 and 2010. For each periodic assessment, the key findings of the panels are synthesized into a short report. The full SAP assessment report for 2014 was published in December 2014, while the EEAP assessment report for 2014 was published in January 2015.

PROGRESS & QUADRENNIAL ASSESSMENT REPORTS

- [EEAP](#)
- [SAP](#)
- [TEAP](#)

SYNTHESIS REPORTS

- [2014 assessments](#)
- [2010 assessments](#)
- [2006 assessments](#)

[Assessment Panels List of Meetings](#)



THE MULTILATERAL FUND FOR THE IMPLEMENTATION OF THE MONTREAL PROTOCOL

- [2018 Executive Committee Primer](#)
- [Report and other Documents](#) for the 80th meeting of the Executive Committee
- [Agenda](#) for the 80th meeting of the Executive Committee
- [Report](#) of the 79th meeting of the Executive Committee

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OZONACTION

A screenshot of the RAC Videos app interface. It shows a grid of video thumbnails with durations: 2:34, 1:28, 1:43, 2:23, 3:17, 1:09, 2:04, and 3:40. A QR code is displayed to the right of the grid. Below the QR code are two buttons: "Download on the App Store" and "GET IT ON Google Play". The text "RAC Videos" is visible at the bottom of the grid.

New videos available on the OzonAction RAC video application

A series of new videos has just been released on the Refrigeration and Air-conditioning Technician Video Series application, with a focus on working with flammable refrigerants ...

50,000 downloads and counting!

To install, search for "RAC Video" in the Google Playstore or Apple IOS store, or scan the QR code.

OzonAction launches initiative to highlight 'Women in the refrigeration and air-conditioning sector'

OzonAction, in cooperation with UN Women, is seeking to collect experiences and short 'stories' from women working in the refrigeration and air-conditioning (RAC) sector. From female service technicians to installers, from designers to trainers, from manufactures to RAC associations, UN Environment OzonAction are looking to highlight your experience...

"Women in the RAC Sector" [flyer](#) | [Submission Form](#)

Learn more [UN Environment, OzonAction, March 2018](#)



UN environment | **OzonAction MEETINGS**

An online portal that provides **National Ozone Units and other participants** access to the documentation for meetings, workshops and side events organised by **OzonAction's Compliance Assistance Programme**

FEATURES

- **Pre-session** distribution of concept notes, logistics information, agendas & meeting documents
- **In-session** sharing of presentations delivered during the meeting & updated documents
- **Post-session** circulation of meeting reports & recommendations
- **Secure** operations with password protection before & during meetings

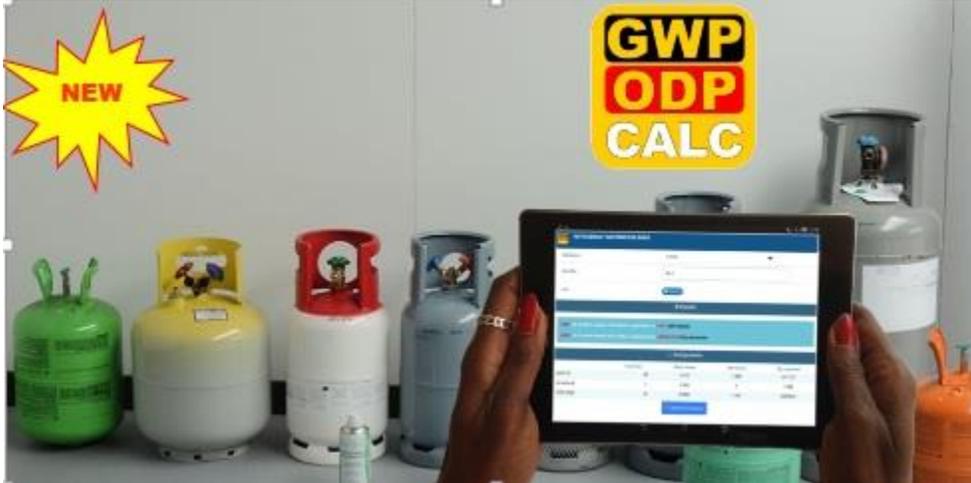
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www.ozonactionmeetings.org

Visit the [OzonAction Meetings Portal](http://www.ozonactionmeetings.org) and learn more about our current, upcoming, and future events



OzonAction Scoop- A tri-annual newsletter by UN Environment, OzonAction under the Multilateral Fund for the Implementation of the Montreal Protocol.
Issue#1 | Issue#2



The application allow you to easily convert ODP, CO₂-eq and metric quantities of refrigerants and other chemicals

- Helps in understanding and reporting under the Montreal Protocol (and future commitments under the Kigali Amendment)
- The calculator will automatically perform the conversion between metric tonnes, ODP tonnes and/or CO₂-equivalent tonnes (or kg) and display the corresponding converted values
- The app includes both single component substances and refrigerant blends
- The components of a mixture and their relative proportions (metric, ODP, CO₂-eq) are also displayed.

Available for free from the Apple IOS store and Google PlayStore. Search for "GWP ODP CALC" in the Playstore to install!

Download it Now!



OzonAction Smartphone Application WhatGas? Quickly search for the information you need

- Chemical name
- Chemical formula
- Chemical type
- ASHRAE designation
- Trade names
- HS code
- CAS number
- UN number
- Montreal Protocol Annex and Control measures
- Ozone depleting potential (ODP)
- Global warming potential (GWP)
- Blend components
- Toxicity and flammability class
- Main uses

OzonAction Smartphone Application WhatGas?
Available for **free** in the Google Play and Apple IOS Store
Scan the QR code or search for “UNEP”, “OzonAction” or “WhatGas?”



The Kigali Amendment to the Montreal Protocol - Opportunities and Next Steps - OzonAction Video

The Parties to the Montreal Protocol on Substances that Deplete the Ozone Layer reached agreement at their 28th Meeting of the Parties on 15 October 2016 in Kigali, Rwanda to phase down hydrofluorocarbons (HFCs). The UN Environment, OzonAction developed a video to find out from renowned international scientific, health, technical, financial and national experts about background and significance of this Kigali amendment.

The amendment presents many opportunities: improving the environment, refrigeration and air-conditioning systems and especially energy efficiency. It also presents new challenges. It is absolutely critical now for industry, governmental bodies and civil society to work together to adopt greener technologies in each country of the world and fight global warming.

[OzonAction YouTube](#) | See also: [United Nations Treaty Collection](#)

OzonAction Factsheets



Click [here](#) to access **OzonAction Series of Fact Sheets** relevant to the **Kigali Amendment**.

HS Nomenclature (HS Codes) for HCFCs and Certain Other Ozone Depleting Substances
Post-Kigali Update

INTRODUCTION

In recent years, trade patterns in ozone depleting substances (ODS) have changed with the complete phase-out of chlorofluorocarbons (CFCs) as of 1 January 2010 (except for a few exempt uses), the hydrochlorofluorocarbon (HCFC) phase-out in progress and the increased trade hydrofluorocarbons (HFC) and other alternatives as replacement alternatives.

To better facilitate monitoring of trade in ODS, the Parties to the Montreal Protocol requested the World Customs Organization (WCO) to revise the Harmonized Commodity Description and Coding System, used in the Harmonized System (HS) codes for HCFCs. This resulted in providing headings 28.53 of Chapter 28 with the objective of assigning specific eight digit HS to the most commonly used HCFCs, and at the same time labelling individual HCFC codes previously assigned to CFCs. This amendment entered into force on 1 January 2012. With the 2016 Kigali Amendment to the Montreal Protocol phase-down HCFCs it is expected that a future amendment of the HS will assign separate HS codes for the most commonly used HFCs and other non-fluorinated HCFCs.

HS Classification for ODS (2012)

Under the HS 2012 HCFCs and certain other ODS are to be classified in the HS as follows:

Chapter 28. Organic chemicals

28.53 Halogenated derivatives of hydrocarbons.

2853.1 - Halogenated derivatives of acyclic hydrocarbons containing two or more different halogens

2853.11 - Chlorofluoromethane (=HCFC-22)

2853.12 - Dichlorodifluoromethane (=HCFC-123, covers two isomers)

2853.13 - Dichlorotrifluoromethane (=HCFC-113, covers two isomers including the most popular HCFC-113B)

2853.14 - Chlorodifluoromethane (=HCFC-141, covers 3 isomers, including the most popular HCFC-141B)

2853.15 - Dichloromethylfluoromethane (=HCFC-225, covers 3 isomers, including the most popular HCFC-225ba and HCFC-225ca)

2853.16 - Bromochlorodifluoromethane, bromochlorotrifluoromethane and dibromochlorotrifluoromethane

2853.17 - Other (= all remaining HCFCs and a number of other halogenated derivatives of acyclic hydrocarbons containing two or more different halogens, including other than the following ozone depleting substances controlled by the Montreal Protocol: hydrochlorofluoromethane (HCFC) and bromochloromethane (BCMC))

Download & present a comparison table showing the previous HS classification of ODS until 31 December 2011 (HS 2007) and the revised classification, which were applicable from 1 January 2012 (HS 2012). Information is also provided on the current HS codes for ODS-containing mixtures (see back page).

HS codes for HCFCs and certain other Ozone Depleting Substances ODS(post Kigali update)

The Kigali Amendment to the Montreal Protocol: HFC Phase-down

INTRODUCTION

The Parties to the Montreal Protocol on Substances that Deplete the Ozone Layer reached agreement at their 28th Meeting of the Parties on 15 October 2016 in Kigali, Rwanda to phase-down hydrofluoro-carbons (HFCs).

HFCs are commonly used alternatives to ozone depleting substances (ODS). While not ozone depleting substances themselves, HFCs are greenhouse gases which can have high or very high global warming potentials (GWPs), ranging from about 12 to 14,800.

The phase-down of HFCs under the Montreal Protocol has been under negotiation by the Parties since 2009 and the successful agreement on the Kigali Amendment (Decision XXXVI) and accompanying Decision XXXVII) continues the historic legacy of the Montreal Protocol.

This fact sheet summarises and highlights the main elements of the Amendment of particular interest to countries operating under Article 5 of the Protocol (Article 5 Parties).

OVERVIEW OF AMENDMENT

The Kigali Amendment adds to the Montreal Protocol the phase-down of the production and consumption of hydrofluoro-carbons (HFCs) and the main features of the amendment are the following:

- The Kigali Amendment will enter into force on 1 January 2019, provided that it is ratified by at least 25 Parties to the Montreal Protocol (90 per cent ratification) by the COP Party.
- There are five groups of Article 5 Parties with different control dates and phase-down schedules (see chart and graph on page 2).
- Some non-Article 5 Parties have already submitted calculations and different initial phase-down rates from the main group (non-Article 5 Parties) (see chart and graph on page 3).
- A new Annex F has been added to the Protocol. This lists the HFCs separated into two groups:
 - Annex F, Group 1: all HFCs (except HFC-125 and HFC-134a)
 - Annex F, Group 2: HFC-23.
- Global warming potential values have been added to the Protocol for HFCs and selected HCFCs and CFCs (see page 6).
- Production, consumption, import, export and stocks as well as consumption balances of HFCs and its equivalent in carbon dioxide (CO₂) equivalents.
- Businesses are to be calculated from both HFC and HCFC production/consumption.
- There is an exemption for high ambient temperature countries (see page 4).
- Trade and export licensing systems for HFCs must be in place by 1 January 2019.
- Trade and Parties that have not ratified the Amendment ('non-Parties') will be banned from 1 January 2023.
- The Executive Committee is required to develop, within two years, guidelines for licensing of the phase-down of HFCs.
- A timeline of the HFC phase-down is provided on page 4.

The Kigali Amendment to the Montreal Protocol: HFC Phase-down - The phase-down of HFCs under the Montreal Protocol on Substances that Deplete the Ozone Layer has been under negotiation by the Parties since 2009 and the successful agreement on the Kigali Amendment at the 28th Meeting of the Parties on 15 October 2016 in Kigali, Rwanda to phase-down hydrofluoro-carbons (HFCs) continues the historic legacy of the Montreal Protocol.

This factsheet summarises and highlights the main elements of the Amendment of particular interest to countries operating under Article 5 of the Protocol (Article 5 Parties).

Refrigerant Blends: Calculating Global Warming Potentials
Post-Kigali Update

INTRODUCTION

The number of single component refrigerants with different thermodynamic properties suitable for different types of equipment is limited. Growing demand for refrigerant and air conditioning with diversified applications has led to a continued search for suitable refrigerant blends. A number of such blends have been developed by mixing two or more single component refrigerants in different proportions. The resulting blends have entirely different properties from that of its components.

While it is common to use the term 'blends' in the context of the Montreal Protocol, it is important to note that the term 'mixtures' is also used to describe refrigerants which are composed of more than one component. The terminology 'mixture' is specifically used in the World Customs Organization and Harmonized Commodity Description and Coding System, also known as the Harmonized System (HS) codes.

TYPES OF REFRIGERANT BLENDS

A refrigerant blend or mixture of refrigerants is made up of two or more single component refrigerants. These blends can be of two types: 'Azeotropic' and 'Zeotropic'.

Azeotropic blends

These blends behave like a single component refrigerant, in that they boil and condense at a constant temperature or at a constant pressure. In the azeotropic mixture, there is no change in composition during the phase change. These blends are assigned numbers for ASHRAE codes in the 500 series, e.g. R502A.

Zeotropic blends

These blends boil and condense through a range of temperatures at a given pressure. This range of temperatures is called the 'temperature glide'. Zeotropic blends are assigned ASHRAE codes in the 400 series, e.g. R404A, R407C, etc.

Global warming potential (GWP)

Global warming potential (GWP) is a measure which enables comparison of the global warming effects of different gases. It compares the amount of heat trapped by a certain mass of a gas to the amount of heat trapped by a similar mass of carbon dioxide over a specific period of time. Carbon dioxide was chosen by the Intergovernmental Panel on Climate Change (IPCC) as the reference gas and its GWP is taken as 1.

Following the 2016 Kigali Amendment, the Montreal Protocol has adopted flexible licensing system for ODS in HFCs. All the individual HFCs and blends which have been incorporated into the list of the Protocol in Annexes A, C and F.

GWP values for some common refrigerants

Substance	GWP value
CFC-12	10,900
HCFC-22	1810
HCFC-124	800
HCFC-142b	2100
HFC-134a	1430
HFC-152a	124
HFC-23	14,800
HFC-32	675
HFC-125	3000
HFC-134a	1430
HFC-124ah	<1
HFC-124af	<1
R-290 (Propane)	3

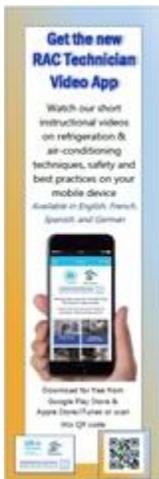
Refrigerant Blends: Calculating Global Warming Potentials (post-Kigali update)



Global Warming Potential (GWP) of Refrigerants: Why are Particular Values Used? (post-Kigali update).



Tools Commonly used by Refrigeration and Air-Conditioning Technicians



OzonAction Multimedia Video Application: Refrigeration and Air-conditioning Technician Video Series - 50,000 download to date - OzonAction has launched an exciting new application which hosts series of short instructional videos on techniques, safety and best practice for refrigeration and air-conditioning technicians.

This application, consisting of short instructional videos on techniques, safety and best practice, serves as a complementary training tool for refrigeration and air-conditioning (RAC) sector servicing technicians to help them revise and retain the skills they have acquired during hands-on training.

New videos on flammable refrigerants just added!

Please share with your RAC associations, technicians and other interested stakeholders...

OzonAction Multimedia Video Application: Refrigeration and Air-conditioning Technician Video Series

Available in the [Android Play Store](#) and [Apple Store/iTunes](#).
(Just search for "OzonAction", or scan this QR code)



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.

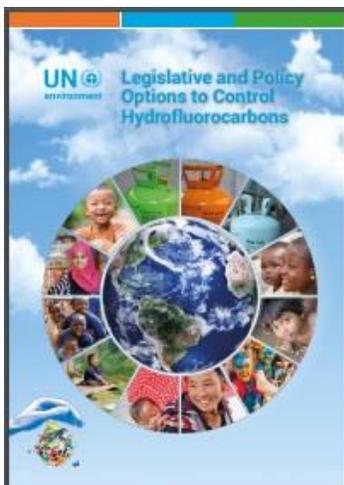
OzonApp eDocs+ available in the [Android Play Store](#) and [Apple Store/iTunes](#).
(Just search for "OzonAction", or scan this QR code)



Publications



Twinning of National Ozone Officers and Energy Policymakers - Under the Kigali Cooling Efficiency Program (K-CEP), UN Environment is implementing a two-year "twinning" project to build the capacity of National Ozone Officers and national energy policymakers for linking energy efficiency and Montreal Protocol objectives in support of the Kigali Amendment.



Legislative and Policy Options to Control Hydrofluorocarbons

In order to follow and facilitate the HFC phase-down schedules contained in the Kigali Amendment, the Parties, including both developed and developing countries, will have to implement certain measures.

This booklet contains a recommended set of legislative and policy options which the developing (Article 5) countries may wish to consider for implementation. It is intended to be a guide/tool for countries.

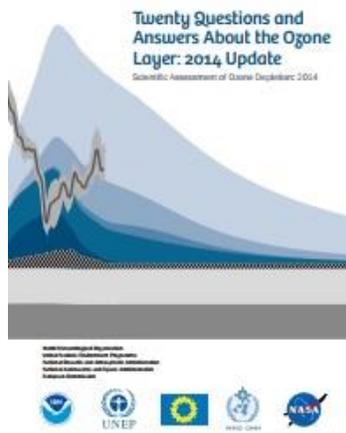
Events

2018

- [12th Conference on Phase-change Materials & Slurries for Refrigeration & Air Conditioning](#), 21-23 May 2018, Orford, Quebec, Canada
- [13th IIR-Gustav Lorentzen Conference on Natural Refrigerants](#), 18-20 June 2018, Valencia, Spain
- [9th Ibero-American Congress of Refrigeration Science and Technology](#), 19-21 June 2018, Valencia, Spain
- [24th International Compressor Engineering Conference at Purdue](#)
- [17th International Refrigeration and Air Conditioning Conference at Purdue](#)
- [5th International High-Performance & Green Buildings Conference at Purdue](#)
9-12 July 2018, West Lafayette, Indiana, USA
- [International Conference on Emerging Technologies for Sustainable and Intelligent HVAC&R Systems](#), 27-28 July 2018, Kolkata, West Bengal, India
- [Solar Heating and Cooling Forum](#), 9 August 2018, Brisbane, Qld, Australia
- [25th International Congress of Refrigeration](#), 24-30 August 2018, Montreal, Canada
- [1st IIR International Conference on the Application of HFO Refrigerants](#). 2-5 September 2018, Austin Court Conference Centre, Birmingham, United Kingdom.
- [The Future of HVAC Conference 2018](#), 12–13 September, Melbourne, Australia.
- [3rd IIR Conference on Cold Application in Life Sciences 2018](#), 12-14 September 2018, St. Petersburg, Russia
- [3rd IIR Conference on Cold Application in Life Sciences 2018](#), 12-14 September 2018, St. Petersburg, Russia
- [8th International Conference on Magnetic Refrigeration at Room Temperature \(Thermag VIII\)](#), 16-20 September 2018, Darmstadt, Germany
- [Healthcare ColDays](#), 15 November 2018, Lyon, France,

See other [IIR upcoming events](#)

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.

Lead Author:
Michaela I. Hegglin
Coauthors:

David W. Fahey, Mack McFarland, Stephen A. Montzka, Eric R. Nash



[Primer on Hydrofluorocarbons \(HFCs\)](#) - IGSD -11 January 2018

Summary:

Fast action under the Montreal Protocol can limit growth of hydrofluorocarbons (HFCs), prevent 100 to 200 billion tonnes of CO₂-eq by 2050, and avoid up to 0.5°C of warming by 2100.

Lead authors:

Durwood Zaelke, Nathan Borgford-Parnell, and Stephen O. Andersen.

Contributing authors:

Kristin Campbell, Xiaopu Sun, Dennis Clare, Claire Phillips, Stela Herschmann, Yuzhe Peng Ling, Alex Milgroom, and Nancy J. Sherman.



The [IIR International Dictionary of Refrigeration Available in 11 languages](#), the complete version of the International Institute of Refrigeration (IIR) International Dictionary of Refrigeration is now freely accessible online.

The IIR International Dictionary of Refrigeration offers researchers, industrialist or administrations the practical resources required to produce content related to refrigeration technologies in multiple languages.

This online tool allows you to find definitions, in English and French, of scientific and technical terms, as well as identify terms in the language of your

choice and find corresponding translations in the 10 other languages.

The dictionary provides term searches in Arabic, Chinese, Dutch, English, French, German, Italian, Japanese, Norwegian, Russian and Spanish.

The dictionary in numbers:

- more than 4,300 terms in English and French, including 800 synonyms,
- around 3,500 definitions in English and French,
- approximately 7,800 terms, synonyms and definitions
- content in 11 languages.

This international tool is the result of the work of nearly 200 experts, members of the IIR network, from around 30 countries throughout the world.

The dictionary's content covers all areas of refrigeration such as:

- basic principles (thermodynamics, transfer of heat and mass ...)
- production of refrigeration (refrigerated systems, refrigerants...)
- refrigerated installations
- methods of chilling, refrigeration and freezing
- storage, transport and distribution
- refrigeration applications for perishable products and the agro-food industry
- air conditioning
- heat pumps
- cryogenics
- environment

Access the International Dictionary of Refrigeration on the IIR [website](#)



Letter to the Editor

Refrigerants: There is still no vision for sustainable solutions

Risto Ciconkov

Refrigerants: There is still no vision for sustainable solutions

by Risto Ciconkov

Letter to the Editor, International Journal of Refrigeration

[Abstract and highlights](#)



University of Birmingham. "[Draining peatlands gives global rise to greenhouse laughing-gas emissions.](#)" ScienceDaily, 28 March 2018.

Miscellaneous



I am in the Montreal Protocol Who's Who... Why Aren't You?

The United Nations Environment, OzonAction, in collaboration with Marco Gonzalez and Stephen O. Andersen are updating and expanding the "Montreal Protocol Who's Who" as part of the 30th Anniversary of the Montreal Protocol celebration.

The new website was launched during the 29th Meeting of the Parties to the Montreal Protocol, Montreal, Canada, 20-24 November 2017.

We are pleased to invite you to submit your nomination*, and/or nominate Ozone Layer Champion(s). **The short profile should reflect the nominee's valuable work related to the Montreal Protocol and ozone layer protection.**

Please notify and nominate worthy candidates through the [on-line form](#)

We look forward to receiving your nomination(s), and please feel free to contact our team for any further assistance concerning your nomination.

Take this opportunity to raise the profile of men and women who made an important contribution to the Montreal Protocol success and ozone layer protection.

- View the «Montreal Protocol Who's Who» **introductory video**
- Contact : [Samira Korban-de Gobert](#), UN Environment, OzonAction

** If you are already nominated, no need to resubmit your profile*



New *International Journal of Refrigeration* service for IIR members - As of January 2017, not only will IIR members continue to receive the hard copy of the journal but IIR membership will now also give members access to the complete archives of the International Journal of Refrigeration (IJR) online. Designed with IIR members in mind, this new and practical electronic subscription gives members substantial advantages:

- Immediate and permanent access to the latest research and to IJR archive
- Access the latest articles as soon as they become available online.
- Browse, search and read each one of the nearly 4,500 papers since Volume 1, Issue 1.
- Unlimited access to seminal contributions to the field of refrigeration dating

back to 1978.

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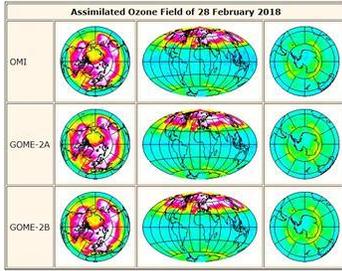
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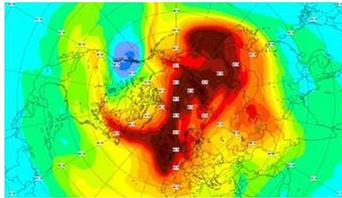
To access this new service, click "[activate my e-IJR subscription now](#)" and follow the instructions.



International Observers - New AREA membership category - Due to the significant worldwide interest in European legislative developments and the increase in competence of personnel who handle new refrigerants, AREA is pleased to introduce its brand new "International Observer" membership category. This provides a fantastic opportunity for non-European RACHP installer bodies the world, to benefit from the expertise and discussions within Europe through access to AREA. Contact: info@area-eur.be



TEMIS -- Near-real time global ozone field. The in near-real time delivered total ozone columns, derived from satellite observations, are input to a data assimilation program which provides global ozone fields for today and a forecast for the coming days.



Copernicus Atmosphere Monitoring Service. Since 7 February, CAMS has predicted the appearance of an ozone mini-hole over western Canada around 12-13 February. The 5-day forecast from the ECMWF Copernicus Atmosphere Monitoring Service (CAMS) showed the location of this ozone mini-hole and predicted its shape and size. This prediction was broadly consistent with other leading global atmospheric composition forecasting centres. Satellite observations acquired on 12 and 13 February data assimilation actually confirmed these predictions. "It is a nice way for us to show that our models really work and can accurately predict these kinds of events," says Mark Parrington, senior scientist for CAMS...

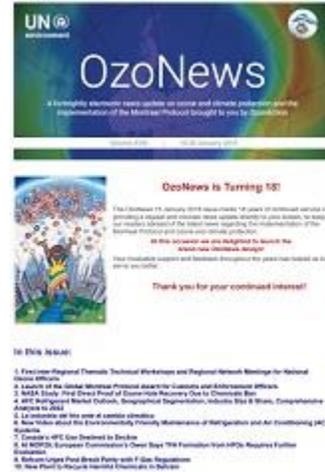


The 2018 Climate & Clean Air Awards are now open for nominations! For the 2nd consecutive year, we are calling on the SLCP community to recognise the projects and policies making an impact on climate change and air pollution.



AIRAH Awards 2018 nominations now open! The AIRAH Awards recognise the individuals, companies, research projects and products across the diverse specialist fields that make up the HVAC&R industry. Open to individuals, companies, corporate bodies, institutions and government authorities, the 2018 Awards will recognise work carried out during 2016/2017.

Current and previous OzoNews Issues, are available from
OzonAction website



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The United Nations Environment (UNEP), Economy Division, OzonAction provides OzoNews as a free service for internal, non-commercial use by members of the Montreal Protocol community. Since its inception in January 2000, the goal of OzoNews is to provide current news relating to ozone depletion and the implementation of the Montreal Protocol, to stimulate discussion and promote cooperation in support of compliance with the Montreal Protocol. With the exception of items written by UNEP and occasional contributions solicited from other organizations, the news is sourced from on-line newspapers, journals and websites.

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