

ACTION ON HFCs: THE TIME IS NOW

Held up as a beacon of hope by environmentalists and Governments the world over, the Montreal Protocol has resulted in a 98 percent drop in the production and consumption of ozone depleting substances (ODS) such as CFCs since 1987,¹ corresponding to a reduction of over 10 billion tonnes of CO₂-equivalent emissions per year.²

This immense achievement, which has set the ozone layer on track for recovery by 2050, is now overshadowed by the looming climate threat of hydrofluorocarbons (HFCs), super greenhouse gases hundreds to thousands of times more potent than carbon dioxide. Rapid growth in the use of these chemicals, which are direct substitutes for ODS in refrigeration, air conditioning and other applications, is pushing the global climate system to the brink.

Some governments and major corporations are already moving ahead with plans to eliminate HFCs. Landmark legislative changes in some of the biggest HFC producing and consuming countries, as well as an historic commitment to adopt climate-friendly refrigeration from the global consumer goods industry show that the market is ready for change. Alternatives to HFCs are coming to market at an ever-increasing pace. However as developing countries embark on the phase-out of ODS, growth of HFC consumption in these same countries threatens to overshadow all that has been achieved so far.

In the quarter-century since its inception, the Montreal Protocol has prevented over 200 billion tonnes (Gt) of CO₂-equivalent (CO₂e) from reaching the atmosphere through the phase-out of ODS. Conservative estimates put future savings from a phase-down of the consumption and production of HFCs under the Montreal Protocol at 115 to 141 GtCO₂e by 40 years after adoption.³

EIA welcomes the organization of a Technical Expert Meeting (TEM) on non-CO₂ greenhouse gases at the sixth part of the second session of the ADP (ADP 2.6). This will be a timely opportunity to discuss the plethora of initiatives aimed at curbing HFC use worldwide, and the booming market in climate-friendly energy-efficient alternatives. We urge Parties to take full advantage of what promises to be an open and solutions-oriented discussion and explore ways in which the existing institutional framework under the Montreal Protocol can facilitate a global HFC phase-down. In addition to updating the Technical Paper on Options to Enhance Mitigation Ambition with the outcome of the TEM, we call on the UNFCCC and Ozone Secretariats to create additional opportunities for knowledge transfer between experts on both sides, as well as representatives from civil society and industry, and to allow on-going submissions to the ADP Virtual Expo, or a similar web-based platform.

WHAT ARE HFCs?

HFCs are refrigerants with global warming potentials (GWP) many hundreds to thousands of times higher than carbon dioxide. For example, HFC-404A, an HFC commonly used in supermarket refrigeration, is almost 4,000 times more potent than CO₂. This means that just 1kg of HFC-404A which leaks into the atmosphere is equivalent to four tonnes of CO₂ emissions.

GLOBAL SUPPORT FOR A PHASE-DOWN OF HFCs

Countries around the world continue to show support for an international phase-down of HFCs. At the recent UN Secretary General's Climate Summit in New York, countries, cities, non-state organisations and private sector entities committed to scale up actions to mitigate short-lived climate pollutants including HFCs.⁴ Earlier this month, the United States and India announced a plan to work together to phase out HFCs in a statement which recognized, "*the need to use the institutions and expertise of the Montreal Protocol to reduce consumption and production of HFCs, while continuing to report and account for the quantities reduced under the UNFCCC*".⁵ These pledges follow countless other high-level declarations, including two separate presidential agreements between China and the United States in 2013, the Arctic Council's call for a phase-down of HFCs under the Montreal Protocol in May of the same year, and the G20 leaders' statement at the St Petersburg summit.



ABOUT EIA

EIA is an independent campaigning organisation committed to bringing about change that protects the natural world from environmental crime and abuse. As part of our work, we have undertaken groundbreaking investigations into the illegal trade in ozone depleting substances (ODS) and have been closely involved in the international ozone and climate negotiations for well over a decade.

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UN Secretary General's Climate Summit Commitment on Phasing Down HFCs

We, the supporters of this Joint Statement, support an amendment to phase down the production and consumption of hydrofluorocarbons (HFC) under the Montreal Protocol, while emissions accounting and reporting remains under the United Nations Framework Convention on Climate Change (UNFCCC) and we will work with others to begin formal negotiations in 2014.

We will take action to promote public procurement of climate-friendly low-global warming potential (GWP) alternatives whenever feasible and gradually transition to equipment that uses more sustainable alternatives to high-GWP HFCs.

We welcome complementary private sector-led efforts, including a Global Cold Food Chain Council to reduce the use and emissions of high-GWP HFCs and enhance energy efficiency in the cold food chain while minimizing food spoilage, and a Global Refrigerant Management Initiative on HFCs in servicing with a goal of reducing global emissions by 30-50 percent within 10 years.

CHANGE IS UNDERWAY – COUNTRIES TAKE DOMESTIC ACTION ON HFCs

Progress towards an international agreement on an HFC phase-out under the Montreal Protocol is lamentably slow, but Governments are already taking important domestic action to begin tackling these super greenhouse gases.

In 2015, a new Regulation to control fluorinated gases will come into force in the European Union. It is by far the most ambitious HFC legislation in the world, setting out numerous use restrictions including new product and equipment bans, by-product destruction obligations and an economy-wide phase-down schedule. It will require businesses to rethink how they currently use HFCs and open up a huge market for HFC-free alternatives.

The HFC phase-down is supported by targeted sectoral bans on certain new

HFC-based equipment that will enter into effect over the next decade, including domestic refrigerators and freezers, technical aerosols, foams, movable room air-conditioners, stand-alone and large centralized refrigeration systems, single-split and mobile air-conditioning systems. Taken together, these measures represent cumulative savings of 1.5 GT CO₂e by 2030 and 5 GT CO₂e by 2050.⁶

YEARS	EU PHASE-DOWN SCHEDULE
2015	100%
2016-17	93%
2018-20	63%
2021-23	45%
2024-2026	31%
2027-29	24%
2030	21%

In addition, the United States (U.S.) is taking regulatory action under the Clean Air Act via its Significant New Alternatives Program (SNAP). The U.S. Environmental Protection Agency (EPA) proposed rules to prohibit (delist as acceptable substitutes) certain higher-GWP HFC alternatives and allow (list) a wide variety of equipment and products using natural refrigerants onto the U.S. market. Impacted sectors include consumer aerosols, foams, commercial refrigeration, domestic refrigeration, and mobile air-conditioning.⁷ The proposed rule on prohibitions will mitigate 40 million tonnes of CO₂e in 2020.⁸ In addition, the California Air Resources Board (CARB) recently adopted a Scoping Plan Update under the Global Warming Solutions Act of 2006, outlining new strategies and recommendations to reduce HFC emissions that build upon actions being taken by the U.S. EPA and the European Union.⁹

These countries are not alone. Canada, China and Japan, are also taking unilateral action, among others. In September 2014, Canada outlined plans to regulate HFCs in a line with the U.S. regulations.¹⁰ Japan has also put forth legislation to reduce HFC emissions and is providing 5 billion yen (€36 million) in subsidies for incentivizing non-HFC, natural refrigerants.¹¹ In addition, China announced earlier this year a new target to eliminate emissions of 280 million tonnes CO₂e of HFC emissions by the end of 2015 under the Twelfth Five-Year Plan.¹²

A GLOBAL TECHNOLOGY BOOM: HFC-FREE APPLICATIONS AROUND THE WORLD

A variety of climate-friendly, low-GWP alternatives to HFCs are currently available, including carbon dioxide, air, water, ammonia, hydrocarbons, and some “not-in-kind” technologies such as solar technologies and district cooling.¹³ In domestic refrigeration for example, over 40 percent of domestic refrigerators worldwide are already using hydrocarbons.¹⁴ As the transition continues, it is predicted that by 2020, 75 to 80 percent of new domestic refrigerators worldwide will use hydrocarbon refrigerants, rising to 95 percent by 2030.¹⁵ In the air conditioning sector, new HFC-free technologies have been found to have at least 30 percent increased energy efficiency over conventional air conditioning units.¹⁶ In the supermarket sector, which by 2015 will account for 47 percent of total annual refrigerant emissions, many companies are already

using energy efficient, HFC-free technologies, as documented extensively by EIA since 2009.¹⁷

Transitioning to low-GWP refrigerants slashes direct emissions and is therefore critical to mitigating climate change in the short term, but the benefits of HFC-free refrigeration extend beyond direct emissions reductions; energy efficiency gains from the use of natural refrigerant systems are also enabling end-users to cut their indirect emissions.

HFC-FREE SYSTEMS AND ENERGY EFFICIENCY: A DOUBLE WIN FOR THE CLIMATE

The significant energy efficiency gains associated with the installation of low-GWP refrigeration and air conditioning equipment are a crucial co-benefit of eliminating HFCs.

The large reductions in energy use associated with the phase-out of ODS under the Montreal Protocol are well-documented.¹⁸ With soaring demand for cooling in the emerging economies, aggregate energy efficiency gains from an HFC phase-down are likely to be far higher.

Retail chains that have made the switch from HFCs to climate-friendly natural refrigerants invariably report greater than anticipated efficiency gains from the installation of HFC-free systems.

For example:

- In Switzerland, where legislation bans the use of HFCs in most commercial applications, Coop Schweiz reports energy efficiency gains of 25-30 percent from its new natural refrigerant systems.¹⁹
- South African retailer Makro reports that its CO₂ systems generate energy efficiency returns of 35 percent in its domestic stores.²⁰
- H-E-B in the southern United States expects to achieve a 50% energy reduction in its Austin, Texas store, which uses natural refrigeration technology.²¹

Energy efficiency is one of the most effective weapons in the fight against climate change. The value of switching to energy-efficient HFC-free refrigeration technology should therefore be self-evident.

“Significant energy efficiency gains are a crucial co-benefit of eliminating HFCs.”

CONCLUSION

With an ever-widening gap between what is required to limit global temperature rise to less than 2°C and climate mitigation pledges under the UNFCCC, countries must urgently seize each and every opportunity to curb greenhouse gas emissions in the short term.²²

Measures to eliminate HFCs are underway in many countries around the world. Energy efficient, HFC-free technology will continue to flourish and early movers will

be rewarded. What is now required is an international agreement to accelerate the pace of change and empower developing countries to leapfrog outdated and costly technology.

EIA urges Parties to in Bonn to make 2014 a year of genuine climate action by backing the launch of formal negotiations on a global HFC phase-down under the Montreal Protocol this year.

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