

18th session of the Conference of the Parties to the
United Nations Framework Convention on Climate Change

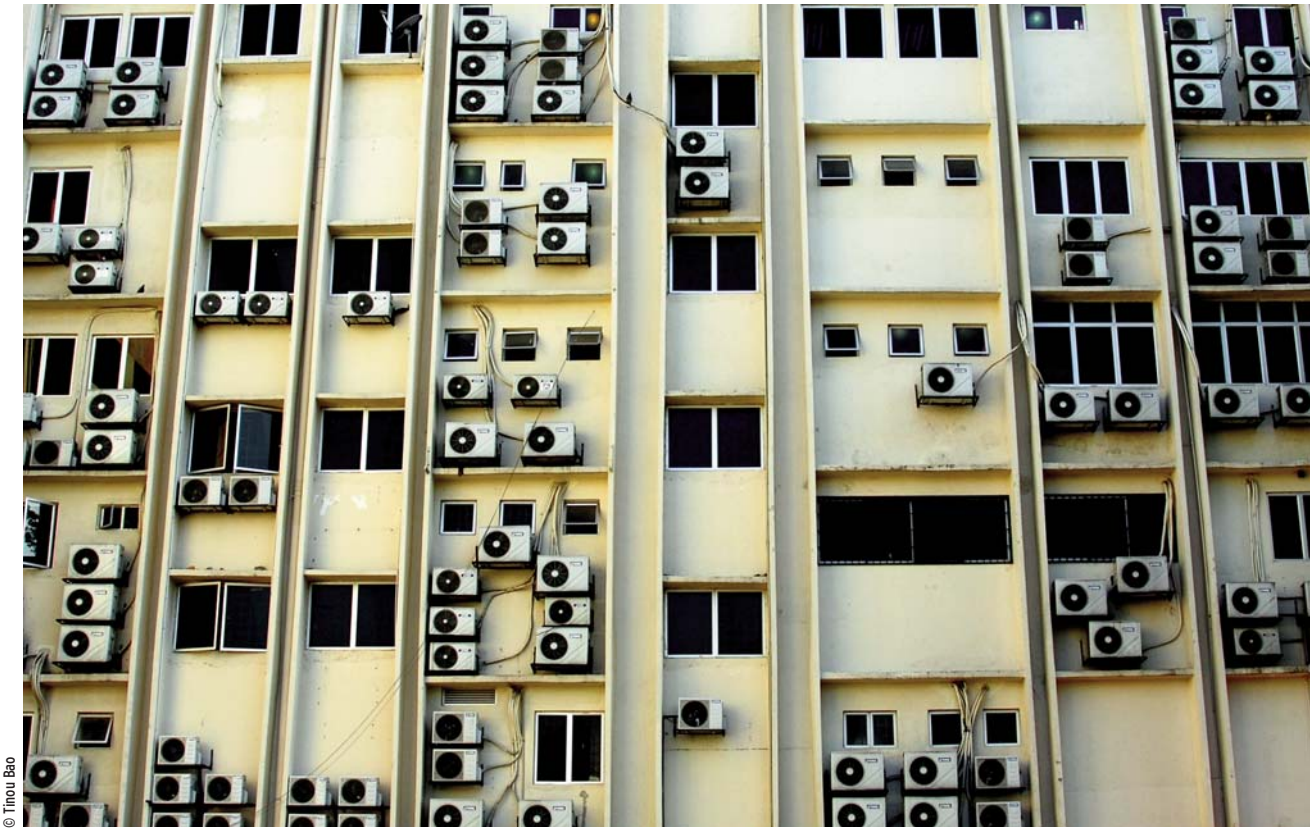
CLOSING THE EMISSIONS GAP

Time to phase out HFCs

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Aerial view of Greenland
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Hydrofluorocarbons (HFCs) are man-made fluorinated gases (F-gases) developed and commercialised to replace CFCs, HCFCs and other chemicals that deplete the ozone layer. Unlike CFCs and HCFCs, HFCs do not destroy ozone; however, they are powerful greenhouse gases (GHGs), with global warming potentials (GWP) hundreds or thousands of times more powerful than carbon dioxide (CO₂). HFCs are primarily used in refrigeration, air conditioning, foam blowing, aerosols, fire protection and solvents. Climate-friendly alternative refrigerants and technologies are available, and are being developed, which means that HFCs can be phased out over time.

HFCs represent around 1% of global GHG emissions.¹ Although their contribution to climate forcing is still relatively small, it is expected to soar in the coming decades, with emissions of high-GWP HFCs increasing at a rate of 10-15% per year.² Unless action is taken, global HFC emissions could reach 5.5–8.8 gigatonnes (Gt) of CO₂-equivalent emissions (GtCO₂e) per year in 2050, equivalent to 9–19% of projected global CO₂ emissions under a business-as-usual scenario.³ This increase could even be as high as 28–45% compared with projected CO₂ emissions in a 450ppm CO₂ stabilization scenario. A large share of the increase will take place in developing countries, where emissions are projected to be as much as 800% greater than developed countries' emissions by 2050.⁴

By 2050, the accumulation of HFCs in the atmosphere is expected to increase radiative forcing by up to 0.4 W m² relative to 2000. This increase could constitute as much as one-fifth to one-quarter of the expected increase in radiative forcing due to the build-up of CO₂ since 2000, according to some scenarios.⁵

THE GIGATONNE GAP

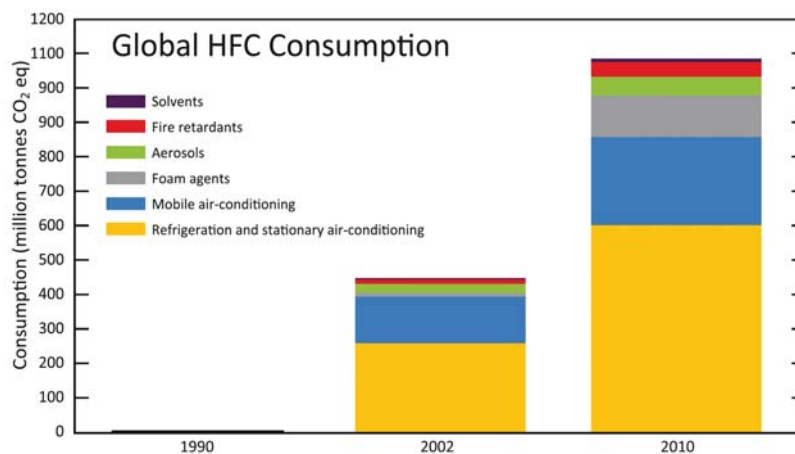
The Emissions Gap Report 2012, recently published by UNEP, shows that there is an 8 to 13 GtCO₂e gap between the emissions reductions required to limit global temperature rise to 2 degrees centigrade between now and 2020 and current pledges. This represents a sizeable increase compared even to last year's report, which estimated the gap to be between 6-11 GtCO₂e.⁶ What is more, the gap is likely to be at the top of the estimated range. As UNEP notes

“There is increasing uncertainty that conditions currently attached to the high end of country pledges will be met and in addition there is some doubt that governments may agree to stringent international accounting rules for pledges. It is therefore more probable than not that the gap in 2020 will be at the high end of the 8 to 13 GtCO₂e range.”⁷

Although this is clearly a matter of grave concern, UNEP estimates the technical potential for reducing emissions by 2020 to be about 17 ± 3 GtCO₂e at marginal costs below US\$ 50-100/t CO₂e reduced.⁸

Parties to the UNFCCC are currently discussing initiatives to address the pre-2020 ambition gap under the Ad Hoc Working Group on the Durban Platform for Enhanced Action (ADP). At the intersessional meeting in

“UNEP estimates the technical potential for reducing emissions by 2020 to be about 17 ± 3 GtCO₂e”



UNEP Synthesis Report, 2011, “HFCs: A Critical Link in Protecting the Climate and Ozone Layer”. Estimated global consumption of HFCs by various sectors, expressed in millions of CO₂ equivalent tonnes, for 1990, 2002, and 2010.



“The Montreal Protocol is uniquely positioned to adopt and implement a phase-out of HFCs”

Bangkok in August-September 2012, three general ways of increasing the level of ambition were proposed, including “Recognising additional supplementary actions and initiatives undertaken at sub-national, national and international levels.” One of the actions listed under this approach is “Reducing production and use of HFCs under the Montreal Protocol”.⁹ At Bangkok and in their recent ADP submissions, a number of Parties gave their strong backing to this approach.¹⁰ Against this backdrop, the European Union has proposed formalising a set of International Cooperative Initiatives (ICIs) that “have demonstrable potential, in addition to existing pledges, to close the emissions gap between now and 2020”.¹¹ As part of this initiative, the EU suggests holding a discussion on “how to promote further the global phase-out of F-gases, and how to support this work under the Montreal Protocol.”¹²

MONTREAL PROTOCOL HFC PROPOSALS

Proposals to amend the Montreal Protocol to regulate production and use of HFCs have been filed every year since 2009 by Micronesia, and by Canada, Mexico and the United States. Since that time, despite the formal support of over half the Parties to the Montreal Protocol for action to regulate HFCs, progress on the so-called “Amendment Proposals” has been repeatedly blocked.

The countries blocking the Amendment Proposals frequently invoke the UNFCCC as the most appropriate forum to discuss HFCs. However, while it is

true that HFC emissions are included in the Kyoto basket of greenhouse gases, production and consumption are not. There is a clear legal imperative for their production and consumption to be dealt with under the Montreal Protocol as HFCs were introduced as a direct substitute of the phase-out of ODS and the Montreal Protocol is obligated to prevent any adverse effects being caused by the phase-out of ODS.

The Amendments proposed by Canada, Mexico and the US would provide estimated avoided emissions of 2.2 GtCO₂e by 2020 and 85 GtCO₂e by 2050, with an additional 11.3 GtCO₂e from HFC₂₃ byproduct control.¹³ With anticipated gains in energy efficiency factored in to reflect technological improvements historically associated with the phase-out of CFCs and HCFCs, the potential mitigation could increase significantly.

HFCs are different from most other GHGs because they are intentionally produced and not waste products. They have been developed and commercialised as a direct result of the Montreal Protocol phase-out of ozone depleting substances. They are only used in approximately 200 industrial sectors. For nearly all of these sectors, they can be replaced with low-GWP alternatives or not-in-kind technologies and the Amendment Proposals give ample time for developing new alternatives for those few sub-sectors where alternatives are not commercially available. The Proposals also specifically state that additional funding will be provided to the Montreal Protocol’s funding mechanism, the Multilateral Fund, to pay the incremental costs of an HFC phase-out

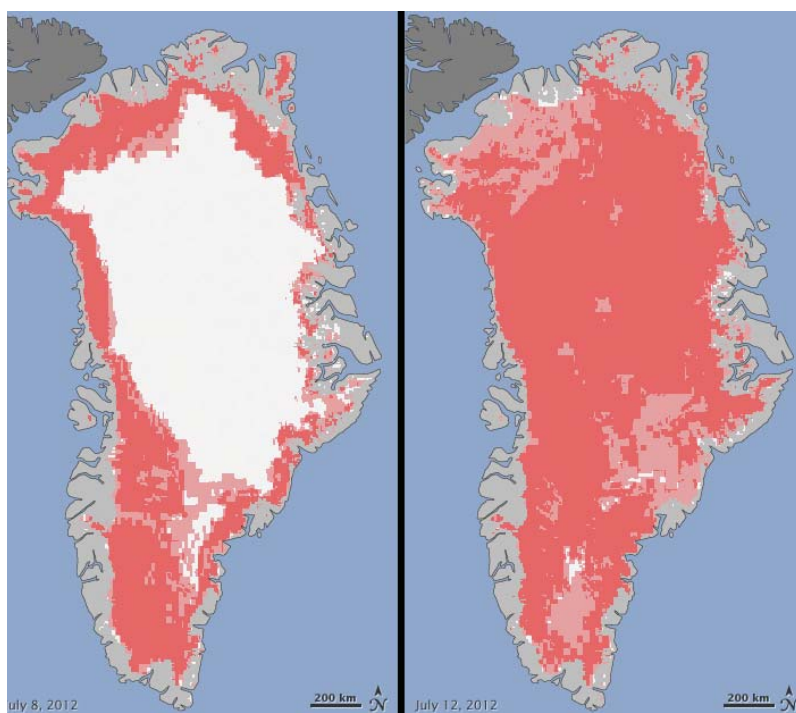
The Montreal Protocol is uniquely positioned to adopt and implement a phase-out of HFCs. It has the technical, scientific and financial institutions in place, with a proven track record of phasing-out HFC precursors from the exact same industrial sectors that currently use HFCs. Moreover, the fluorocarbon industry has indicated its support for an HFC phase-down.¹⁴

At CoP 18, Parties will continue to discuss enhancing pre-2020 mitigation ambition in order to bridge the widening emissions gap. EIA calls on Parties to:

- Seek substantive progress on identifying actions to close the emissions gap between now and 2020 as a matter of utmost priority.
- Give their formal support in the shape of a CoP decision to urge the Montreal Protocol to undertake a global phase-down of the production and consumption of HFCs, recognising that emissions of these substances are included in the GHGs covered by the UNFCCC.

BELOW:

The irrefutable reality of climate change: Nearly the entire ice sheet covering Greenland experienced some degree of melting for several days in July 2012. According to measurements, an estimated 97 percent of the top layer of the ice sheet had thawed at some point in mid-July, the largest extent of surface melting observed in three decades of satellite observations.



RIO+20 FINAL DOCUMENT TEXT, ADOPTED BY PARTIES JUNE, 2012



RIO+20
United Nations
Conference on
Sustainable
Development

At the Rio+20 Conference earlier this year, the nations of the world agreed: *"We recognize that the phase-out of ozone depleting substances is resulting in a rapid increase in the use and release of high global warming potential hydrofluorocarbons to the environment. We support a gradual phase-down in the consumption and production of hydrofluorocarbons."*

THE MONTREAL PROTOCOL

Widely hailed as the "world's most successful environmental treaty", the Montreal Protocol was adopted in 1987, entering into force two years later and achieving universal participation in 2009.

Its objective was to reduce the production and consumption of ozone depleting substances (ODS), following the discovery that the use of chlorofluorocarbons (CFCs) and other man-made chemicals was leading to the destruction of the ozone layer.

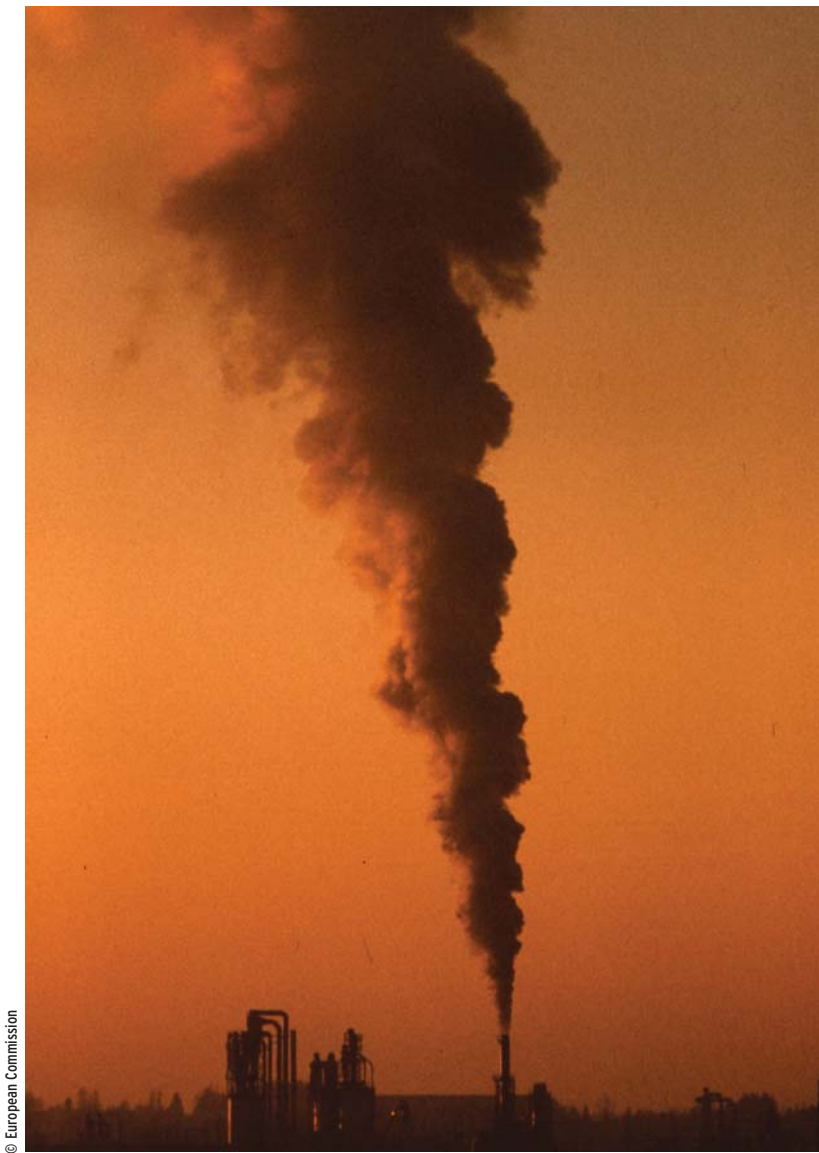
As of 2011, the 197 Parties to the Montreal Protocol have reduced their consumption of ODS by a staggering 98 per cent¹⁵ in accordance with strict and binding schedules in both developed countries ("non-Article 5 Parties") and developing countries ("Article 5 Parties"). With the elimination of CFCs virtually complete, the Montreal Protocol is now phasing-out the remaining class of ODS, HCFCs.

Under the Montreal Protocol all Parties have accepted firm reduction commitments. These commitments are based upon the legal principle of common but differentiated responsibilities that incorporates a grace period for Article 5 countries allowing them to implement mandated phase-out

schedules after non-Article 5 countries, in recognition of developed countries' larger historical contribution to ozone depletion and developing countries' right to continued growth and development. In addition, the Montreal Protocol has financially supported the phase-out of ODS in developing countries through developed country contributions administered by the Multilateral Fund.

Because most ozone destroying chemicals are also powerful greenhouse gases, the Montreal Protocol has already made an invaluable contribution to the fight against climate change, leading to emissions reductions of 8 gigatonnes of CO₂-equivalent per year between 1988 and 2010.¹⁶ According to UNEP, the avoided annual emissions of ODSs (approximately 10 Gt CO₂e in 2010 alone) is about five times greater than the annual emissions reductions target for the first commitment period (2008-2012) of the Kyoto Protocol.¹⁷ However, rapidly rising HFC emissions will largely negate the positive climate benefit of the ODS phase-out to date, unless action is taken to phase-out HFCs.





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HFC-23 AND THE CDM

Billions of dollars have been channelled through the Clean Development Mechanism (CDM) for HFC-23 destruction since the mid-2000s. Nevertheless, atmospheric concentrations of this super greenhouse gas have continued to rise.

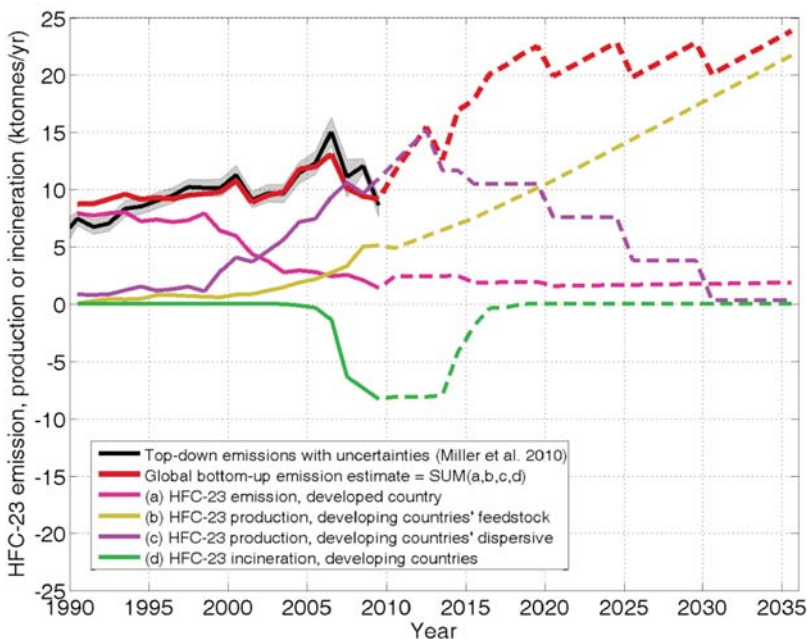
Indeed, as scientific studies indicate, over 90% of annual HFC-23 emissions (approximately 8.6 Gg – 127 million tonnes CO₂e) originate from non-CDM HCFC-22 production facilities in China.¹⁸ Meanwhile, project developers in India and China have made staggering windfall profits by monetizing beyond all proportion an abatement process that costs less than US \$0.20 or €0.17/CO₂e tonne.¹⁹

In essence, the CDM has at best only partially addressed HFC-23 emissions whilst subsidising and encouraging over-production of HCFC-22, an ODS that is currently being phased out by the Montreal Protocol.

HFC-23 PROJECTS DISCREDITED

HFC-23 is a by-product of HCFC-22 (an ODS) manufacture, and one of the most powerful known GHGs with a GWP of 14,800 and an atmospheric lifetime of 270 years. Since 2007, several billion dollars have been channeled through the UNFCCC's CDM for 18 HFC-23 abatement projects – 11 in China, five in India and one each in Argentina, Mexico and South Korea.

In response to evidence that HCFC-22 and HFC-23 waste production levels were being maximised by manufacturers in order to gain more carbon credits, the European Union banned HFC-23 credits along with other industrial gas credits from the world's largest carbon market, the European Emissions Trading Scheme as of April 2013. A somewhat weaker response came from the CDM Executive Board (EB), which has changed the methodology for HFC-23 abatement projects hosted by the CDM by bringing the permissible waste ratio down from three to one percent. This means that the maximum emission reductions that can be claimed is one tonne of HFC-23 for every 100 tonnes of HCFC-22. Under the old methodology, developers were able to claim three tonnes of HFC-23 for every 100 tonnes of HCFC-22 produced.²⁰



HFC-23 emissions, production and incineration data and projections 1990-2035

Miller & Kuijpers, 2011

The methodology revision has little impact however, since it only applies to projects when they are renewed, not existing projects.

In a further blow to the world's greatest carbon scam, the CDM Policy Dialogue, an independent high-level panel established to take stock of the CDM published a report concluding that "For projects that reduce emissions of certain industrial gases, the main aims of the CDM in these areas have now been achieved."²¹ The authors of the report recommended in no uncertain terms that the Executive Board should "Stop registering new projects involving gases with comparatively low marginal costs of abatement (e.g. projects that reduce HFC-23 and projects that reduce N₂O from adipic acid plants) [...]"²²

With the exception of Japan, all Kyoto Parties, as well as the CDM's own advisory board, have made it clear that HFC-23 offsets have no place in the future of international carbon markets. With little or no interest in the development of new CDM HFC-23 projects or renewal of existing projects, current and ongoing HFC-23 emissions must be addressed outside the CDM.

Given the low costs involved, and the profits made to date by the industries producing HFC-23 waste through the CDM, governments should mandate capture and destruction by producers. The HFC amendment proposals to the Montreal Protocol offer an alternative

cost effective solution to addressing all HFC-23 emissions through the funding of the incremental costs involved in capturing and destroying the by-product. In response to the actions taken to remove HFC-23 credits, current and former government officials have threatened to start venting HFC-23.²³ The UNFCCC should urge the Montreal Protocol to control HFC-23 emissions through clean production of HCFC-22.

- At CoP 18, the SBSTA, will once again discuss options to address the implications of the establishment of new HCFC-22 facilities seeking to obtain Certified Emissions Reductions (CERs) for the destruction of HFC-23. EIA urges Parties to follow the guidance provided by the CDM Policy Dialogue, and to make new HCFC-22 facilities ineligible under the CDM.

CDM POLICY DIALOGUE RECOMMENDATION 2.4:

"Stop registering new projects involving gases with comparatively low marginal costs of abatement (e.g. projects that reduce HFC-23 and projects that reduce N₂O from adipic acid plants), which have matured to the point of being ready to graduate from the CDM. Regulation may be needed to ensure the phase-out of these industrial gases."



CONCLUSION

As documented in the recent International Energy Agency Report,²⁴ the possibility of limiting GHG emissions to levels that avoid runaway and irreversible climate change is almost gone.

Since CoP 17, the pre-2020 emissions gap has increased and the window of opportunity for dealing with this global catastrophe has narrowed. Multiple studies have demonstrated that delaying action to address emissions means steeper and more costly actions in the medium term. Neither the climate nor the global economy can afford to wait; concerted action and strong political commitment at the highest level will be required to ensure that the situation does not spiral out of control.

At Doha, Parties must do everything in their power to achieve substantive and meaningful progress on closing the multi-gigatonne gap between current pledges and the emissions reductions required to

limit global temperature rise to 2 degrees centigrade. Time is not on our side, but as UNEP's recent report makes clear, 17 GtCO₂e-worth of solutions are there for the taking.²⁵

The time for action on HFCs has arrived; failure to do so will result in an additional year of inertia and circular debates. Following the strong statement from world leaders at the Rio+20 conference in June, Parties at Doha must send a clear and unambiguous message to the international community, endorsing a global production and use phase-out of HFCs and urging the Montreal Protocol to undertake this phase-out without delay, whilst recognising that HFC emissions remain under the jurisdiction of the UNFCCC.

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