

Research Paper | Summary

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A Global Response to HFCs through Fair and Effective Ozone and Climate Policies

Hydrofluorocarbons (HFCs) are replacements for many of the chlorofluorocarbons (CFCs) and hydrochlorofluorocarbons (HCFCs) currently being phased out under the Montreal Protocol on Substances that Deplete the Ozone Layer. Unlike those ozone-depleting substances (ODS), HFCs do not destroy the ozone layer, but they are very powerful greenhouse gases (GHGs) – up to thousands of times more damaging to the climate than carbon dioxide – and their use is currently growing faster than any other category of GHGs. Projections show HFC use increasing as much as 30-fold by 2050, adding up to 0.1°C of global average temperature rise by mid-century, and increasing up to fivefold, to 0.5°C, by 2100. This clearly makes it more difficult to limit the rise in global temperature to the internationally agreed ceiling of 2°C – and thereby avoid dangerous climate change – by the end of the 21st century.

As GHGs, HFCs fall under the purview of the 1992 United Nations Framework Convention on Climate Change (UNFCCC) and are explicitly listed under the UNFCCC's 1997 Kyoto Protocol, which controls emissions of HFCs and other GHGs. They are not, however, subject to any specific measures under the climate agreements, and this is unlikely to change in the near future. Accordingly, the last five years have seen proposals to amend the Montreal Protocol to phase down the production and consumption of HFCs.

Such a step would have a number of advantages. Since substitutes already exist for almost all uses of HFCs, the consumption and production phase-out model of the Montreal Protocol is better suited to controlling HFCs than the emissions limits controls of the climate regime; and the individuals and organizations involved in implementing the Montreal Protocol have accumulated substantial experience and expertise in dealing with precisely those industrial sectors in which HFCs are used, including refrigeration and air-conditioning, foams, solvents and aerosols.

This paper, which draws on the discussions at a workshop held at Chatham House in April 2014, outlines the main issues around the question of how best to craft a fair and effective global response to the growth in HFC use. A number of key issues are central to the debate: the principle of equity between developed and developing countries; the availability of alternatives to HFCs; the need for financial support for developing countries; the legal relationship between the climate and ozone regimes; and, underlying all these, the need for political will to resolve these challenges.

Replacing HFCs: alternatives, barriers and opportunities

A wide range of mature and sustainable substitutes for, and alternatives to, HFCs already exists, and others are rapidly developing. In some applications, however, there is still no clear choice of alternatives; and in many applications economy of scale and competitive prices have not been reached, and/or new (and potentially superior) alternatives are only just emerging. This suggests that a flexible approach to the phase-down of HFCs is sensible, allowing countries to determine which HFCs in which applications to phase down first.

As the experience of the Montreal Protocol has shown, the single most effective action the international community can take is to create a climate of regulatory certainty that HFCs will be phased down. The agreement on the original Protocol, in 1987, and its subsequent amendments and adjustments, spurred a wave of technical innovation that saw the emergence of substitutes (both alternative substances and alternative technologies) at a much faster rate than had originally been

anticipated. Although several countries already regulate HFC use, a global regulatory framework is preferable to a patchwork of different national regulations which does not send such a clear signal.

The Montreal Protocol's experience has also shown that additional benefits can be expected from the development of new technologies. Every new generation of refrigeration and air-conditioning systems, for example, has shown increases in energy efficiency, generally by at least 20 per cent in each transition; and further innovations in turn build on those new developments.

The speed of action is important: the faster the transition can begin, the less HFC-using equipment is installed and the lower the future demand for HFCs for servicing. This points to the need for financial assistance to be made available for developing countries even before any potential control schedule is applied. This is particularly true given that – unlike in the early years of the Protocol – new technologies using HFCs and their alternatives are emerging and being commercialized in developing as well as developed countries.

Governments, in both developing and developed countries, can do much to accelerate the development, commercialization and implementation of alternatives, in advance of, or alongside, regulation. Public procurement policies can be used to favour non-HFC-using equipment acquired by the public sector; and standards, such as those for buildings, can be modified to prefer or require equipment using HFC alternatives.

Finance

The availability of financial assistance, including support for institutional strengthening, training and access to appropriate technology, to help developing countries make the transition to climate-friendly alternatives to HFCs lies at the heart of the debate. For most developing countries, which have just begun the transition away from HCFCs, the immediate focus of efforts will be on preventing further increased use of HFCs. This 'leapfrogging' – moving from HCFCs directly to climate-friendly alternatives – would deliver important benefits to the climate, as well as being cost-effective in the long run as compared with a two-stage scenario.

In principle, there are many possible sources of funding for avoiding and reducing HFC use, in both the climate and ozone regimes. Funding under the ozone regime has the major advantage of predictability, with its regular formal replenishment rounds specifically addressing the funding needs of a particular phase-out schedule. The Montreal Protocol Multilateral Fund (MLF) has proved successful in its targeting of funds and partnerships with implementing agencies and governments. At the same time, although general expressions of intent have been voiced, donor countries have not yet made explicit pledges to fund a transition away from HFCs.

The issue of funding under the climate regime has always been more contentious, with long-standing controversies over funding allocation and adequacy. Climate finance also has a far wider range of potential uses of funds, with HFCs not occupying a particularly high profile. However, in terms of sheer quantity, the sums available to the climate change regime will inevitably be greater, even if donor countries fall short on their promises.

Combining the institutional advantages of the ozone regime with the larger sums available through climate channels could prove to be a fruitful approach. One option would be to enable joint funding between the MLF and the new Green Climate Fund (GCF; or Global Environment Facility – GEF).

Even before agreement on a global phase-down, there are immediate steps that can be taken. Depending on the funding available, the MLF premium for projects converting HCFC uses to low-GWP (low-global warming potential) alternatives could be increased above 25 per cent. The GEF could adopt similar guidelines for its support to transition economies. Another useful measure would be to fund the drawing up of HFC inventories in developing countries, many of which do not have a clear picture of their current patterns of HFC consumption.

The ozone and climate regimes: relationships and responsibilities

One argument against the introduction of HFC control schedules into the Montreal Protocol has been that HFCs are already included under the climate regime. This ignores the distinction of production and consumption controls under Montreal and emissions controls under Kyoto. Furthermore, it is by no means uncommon for substances or activities to be subject to more than one multilateral environmental agreement, and the fact that the climate and ozone regimes share similar goals means that, *a priori*, there is no legal conflict or incompatibility between them. None the less, establishing clear boundaries of responsibility to ensure legal clarity between the climate and ozone regimes would be useful.

As the 2013 G20 Leaders' Declaration, for example, has argued, HFCs could continue to be included 'within the scope of UNFCCC and its Kyoto Protocol for accounting and reporting of emissions'. An arrangement could be envisaged whereby countries would report their detailed production and consumption data under the Montreal Protocol, and emissions under the climate regime. The more detailed data would then be useful for the implementation of effective measures (e.g. management plans and country programmes) to reduce HFC use under the Montreal Protocol. Similarly, the existing mechanisms for information-sharing and technical cooperation – for example between the two regimes' secretariats – could be extended and strengthened.

The negotiations on a future agreement under the climate change regime provide an opportunity to develop a new approach. Whatever its legal nature, the new, 2015 text could be drafted so as to be legally consistent with any sharing – or transfer – of responsibilities for HFCs with the Montreal Protocol that might be agreed. Collaboration between the two regimes could be established in a number of different ways. Any new arrangements on HFCs could be included as legal text in the 2015 agreement, if this takes the form of a new legal treaty; this could have a similar form to the wording in the Kyoto Protocol on aviation and marine bunker fuel emissions, control of which has been 'delegated' to other international bodies. Decisions by the UNFCCC COP (Conference of the Parties) and Montreal Protocol MOP (Meeting of the Parties) could set out the new arrangements, in whatever detail was deemed necessary, and perhaps establish a memorandum of understanding – covering, for example, collaborative funding arrangements.

There are many other ways in which national and regional action could be motivated through the climate regime. A COP decision could encourage parties to take accelerated action on HFCs at domestic and regional levels. A political declaration, adopted at a COP, could do something similar;

a register of pledges of action on HFCs could be initiated, including funding pledges to assist developing countries with phase-down. Furthermore, the UN Secretary-General's scheduled 2014 Climate Summit also provides an opportunity for countries and regions to make such political declarations.

Issues and options under the Montreal Protocol

There are strong arguments for adding HFCs to the Montreal Protocol, with their own control schedules and access to finance from the MLF. Developing specific international control schedules for HFCs – like the ODS phase-out schedules under the Protocol – sends a clear signal to industry, encouraging the development and commercialization of alternatives; such a signal is unlikely to be delivered by the climate regime, the controls of which extend over a wide basket of gases and are not substance-specific. Unlike the climate regime, the institutions of the Montreal Protocol have considerable experience of dealing with exactly those sectors, such as refrigeration and air-conditioning, in which HFCs are being used. Also, the MLF, with its narrower focus and stable basis of funding, is more likely to be able to deliver targeted financial assistance than are the climate funds. Moreover, the Montreal Protocol possesses an effective compliance regime.

Article 2.2(b) of the Vienna Convention, the Montreal Protocol's parent agreement, provides a possible legal mandate for action on HFCs in its commitment to 'control, limit, reduce or prevent human activities under their jurisdiction or control should it be found that these activities have or are likely to have adverse effects resulting from modification or likely modification of the ozone layer'. It could also be possible to decide that HFCs are not controlled substances in the meaning of the Protocol (since current proposals, at least, do not envisage their total phase-out) but are 'other substances' which would be subject to similar control measures but which would continue to be emitted.

Any amendment to the Protocol needs to set out the baseline, ultimate phase-down target and interim steps, and differentiate between developed and developing countries. The amendments tabled for the last five years address these issues, but given persistent opposition to them, it is worth exploring potential modifications. This includes:

- For non-Article 5 parties, a potential joint HCFC/HFC baseline, and a phase-down for a significant reduction by 2030 (similar to some existing national regulations).
- Given the high volume of HFC products manufactured in developing countries, a long grace period for Article 5 parties may be less necessary than in the case of ODS; it would allow a long period of growth of HFC use while denying access to MLF funding. One solution is to make financing available to Article 5 parties wishing to phase down in advance of the control schedule.
- Given also the relatively poor data on HFC inventories in some developing countries, another option is to adopt an initial binding commitment of avoiding an increase in climate impact as a result of HCFC phase-out efforts, leaving the determination of a full reduction schedule to a future date.

- Alternatively, Article 5 parties could agree to a freeze in HFC consumption, leaving the future reduction schedule to be determined when better information becomes available.
- Given the large share of production in Article 5 parties (mainly China), there may be less of a case for a grace period for production.
- HFCs could be divided into groups for the purpose of controls, allowing tailored control of each application; this would allow each sector to do its part in protecting the climate, protect companies from HFC price increases when alternatives are not available, and avoid sheltering HFC uses where alternatives are easily available but other sectors are more easily satisfying the phase-down.
- Given that the amendments so far propose only a phase-down, not a phase-out, there is less of a case for the kind of exemptions used for essential uses of ODS after their total phase-out.

Conclusions

Rising HFC use poses a significant threat to intergovernmental efforts to combat climate change. Arising largely from the success of the Montreal Protocol, yet falling also within the climate regime, the issue provides a stark example of how the global atmosphere scorns arbitrary legal divisions. The result is that, at present, there is a glaring regulatory gap, with HFCs not being dealt with effectively in either regime. This is, however, by no means inevitable: both regimes can and should be mutually reinforcing. The fact that they are not is due partly to outstanding concerns, and partly to politics.

Practical ways of moving forward to address the remaining concerns and try to unblock the politics include solid assurances from donor countries over finance; a request to the ozone and/or climate change secretariats to prepare a (joint) paper on issues of cooperation and legal concerns; and continued analysis of emerging alternatives to HFCs.

Although challenging, there is no reason why the international community cannot come together to address this new problem of coordination and ensure that legal regimes support each other, especially when the potential gains to be made are so great. All that is needed is the political will – and political courage – to do so.

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