

Carbon Trading Imperils the Climate Protection Legacy and Ambitions of the Montreal Protocol

Synopsis

The Montreal Protocol on Substances that Deplete the Ozone Layer is often referred to as the world's most successful environmental treaty, having phased out more than 99 per cent of the production of ozone-depleting substances (ODS), setting the ozone layer on the path to recovery and avoiding as much as 2.5°C warming by the end of the century.¹

Implementation of these ODS controls in Article 5 Parties has been supported since 1991 through unparalleled, cost-effective funding under the Multilateral Fund (MLF), which estimates that, based on the MLF's aggregated disbursements of \$3.63 billion through 2021, it cost the fund \$0.07 to remove one CO₂-equivalent tonne from the atmosphere.²

EIA is therefore concerned that discussions on funding models for activities related to ODS and hydrofluorocarbon (HFC) management and destruction are focusing primarily on carbon trading and the sale of carbon offset credits, which are essentially permissions to pollute. EIA has previously raised concerns, including: needless damage to the climate system; derogation from the adverse effects provision (Article 2.1) of the Vienna Convention; the danger of perverse incentives; improper management and accounting; a variety of equity issues; privileging private rent-seeking over public benefits; and the threat carbon trading poses to the climate protection legacy of the Montreal Protocol.³

In this briefing, EIA looks at how carbon trading schemes operate and how they are applied – or are proposed to apply – to ODS and HFC management and destruction, along with some of the many problems that can arise from an offsetting, carbon credits-based approach. We discuss various more cost-effective, efficient and environmentally sound alternatives for addressing ODS and HFCs, including a global management framework – supported by a sustainable finance mechanism – which does not involve trading in these pollution permits.

We also recommend, as a first principle, choosing approaches that minimise environmental harm and remain in full compliance with the Vienna Convention.

Background

One of the most significant legacies of the Montreal Protocol is its enormous contribution to the protection of the global climate system.

Because the chlorofluorocarbons (CFCs) and hydrochlorofluorocarbons (HCFCs) phased out to protect the ozone layer were also highly potent greenhouse gases, the successful phase-out of these ODS will have avoided an estimated 0.5-1°C in additional global warming by 2050, with still further warming avoided by the mitigated impact of

increased ultraviolet (UV) radiation reducing the amount of carbon held in plants and soils.⁴

This impressive climate mitigation legacy provided a major incentive for the Parties to adopt the Kigali Amendment in 2016, launching the global phase-down of hydrofluorocarbons (HFCs). Even though HFCs are not ODS, the Parties made the explicit choice to augment the Montreal Protocol's climate protection legacy by phasing them down. This was due both to their high global warming potentials (GWPs) and, importantly, in recognition of the fact that their rapid and ongoing growth was a direct result of action taken under the Montreal Protocol to protect the ozone layer.

Through the Kigali Amendment, the Montreal Protocol remained in compliance with Article 2.1 of the Vienna Convention by preventing adverse effects on the climate system (i.e. from greater HFC emissions due to increased production and consumption) due to efforts to protect the ozone layer (i.e., the phase-outs of CFCs and HCFCs). Overall, it is projected that the Kigali Amendment will prevent roughly 420 billion tonnes of carbon dioxide equivalent (GtCO₂eq) HFC emissions by 2100, making it potentially the single largest climate mitigation measure ever adopted.⁵

Since the Kigali Amendment was adopted, both the Parties and the Ozone Secretariat have expressed further interest in using the treaty to deliver additional, urgently needed global climate mitigation. Meanwhile, key opportunities for the Montreal Protocol to deliver such mitigation have been identified, offering the collective possibility of preventing billions of tonnes of additional CO₂-eq emissions.⁶

At present, however, the Montreal Protocol risks tarnishing its legacy by failing to reject, and even potentially endorsing, unnecessary and environmentally harmful measures that risk exacerbating the climate challenge at a time of utmost emergency.

The challenge of ODS banks and future end-of-life emissions from refrigerant and air-conditioning (RAC) equipment and foams is certainly an issue that Parties to the Montreal Protocol must address and a significant opportunity for climate mitigation.

However, several companies are now undertaking, or proposing to fund, the destruction of ODS and HFCs by selling climate pollution permits known as carbon credits. Because many ODS are also high GWP climate pollutants, these carbon trading companies seek to profit from their destruction by generating climate pollution permits that are equivalent in CO₂ terms to the quantities of gas they destroy. They can then sell these permits to companies emitting greenhouse gases for use as 'offsets', a preferred approach by many companies, favoured over the often more expensive but urgently needed task of reducing their own emissions.⁷

While big emitters benefit from buying offset credits (or, more aptly, pollution permits) instead of reducing their own emissions, and project developers and traders profit from selling the large number of credits generated, the communities in which credit generating activities take place often see little of the profit, nor any contribution towards their own country's climate targets.⁸ Rather, the only thing that they, and all of us, are guaranteed to see is ongoing climate damage resulting from continued emissive practices that are supposedly justified by offset claims.

In the end, we are left with enormous amounts of climate pollution that would never have been emitted if destruction of the refrigerant gases were mandatory (with appropriate support in place), or if fluorochemical companies were made to take

responsibility for the harmful substances they produce. EIA firmly believes Parties can work collaboratively to establish a means of funding ODS bank recovery and destruction, without needing to resurrect and repackage their climate impact in saleable form.

Carbon offsets are an irresponsible approach to address the climate emergency. When the global net carbon budget for limiting warming to 1.5°C or even 2°C is net negative through 2100, every possible tonne of CO₂-eq emissions should be avoided.

At a bare minimum, stakeholders should endeavour to eliminate ODS and HFCs in a manner that minimises environmental harm. The Montreal Protocol must not turn its back on its storied climate protection legacy, nor support policies that violate Article 2.1 of the Vienna Convention, by endorsing the sale of climate pollution permits to fund its work.⁹

Refrigerant gas destruction as a source of climate pollution permits

In the context of Montreal Protocol gases, those interested in selling pollution permits present themselves as providing a solution to the challenges of ODS banks: how to collect and destroy stockpiles of refrigerant gases that could leak into the atmosphere and damage the ozone layer and/or climate system. They also have an eye on the HFCs now being phased down, with some companies already generating highly questionable credits for HFC reclamation and re-sale, based on the entirely unsupported claim that every tonne of gas recovered means a directly equivalent decrease in virgin production.

Project developers target refrigerant gases with high global warming potentials (GWPs) for destruction because the greater the climate impact of the gas obtained and destroyed, the greater the number of carbon credits – climate pollution permits – that can be generated and sold. Sometimes project developers can obtain these refrigerant stockpiles at little to no cost (figures rarely being accurately disclosed) from countries that are eager to rid themselves of pollutants they don't have the capacity to manage or store.

This consistent failure to disclose costs perpetuates a lack of transparency around what proportion of the global profit generated by selling offset credits actually contributes to climate action, a consistent issue across voluntary carbon markets.¹⁰

Collecting stockpiles of confiscated refrigerants from national authorities, for example, requires none of the effort or costs involved in collecting refrigerants from used equipment and is permitted under most of the methodologies used by those carbon trading companies currently operating (so long as the national government in question does not have a destruction requirement in place). Source countries typically receive no support for having managed the refrigerant, nor any other benefits from providing gases that become the source of millions of dollars in transactions. These countries and their National Ozone Units may not even be aware of the profits and climate emissions elsewhere that result from the scheme.

To better understand the basic process, we can consider, as examples, the destruction of CFC-12 and destruction of the HFC blend R-410A.

The global warming impact of CFC-12 is more than 10,000 times that of carbon dioxide on a 100-year basis, with the most recent SAP assessment listing its GWP as 12,500. By

this measure, to destroy one kilogramme of CFC-12 is equivalent to eliminating the climate impact of 12,500 kg of CO₂ emissions, or more than 12 tonnes of CO₂. Therefore, if a carbon credit/pollution permit for one tonne of CO₂-eq sells for \$20, then by destroying only 1kg of CFC-12, the project developer could generate and sell \$250 of carbon credits. At a carbon offset price of \$50-100 per tonne of CO₂e, the revenues would be even higher, about \$600-1,250, just to destroy a single kilogram of CFC-12.

If a similar approach were taken with HFCs, one can estimate the outcome. For example, destroying 1kg of R-410A, which has a GWP of 2,088, would result in about two tonnes (CO₂-eq) of carbon credits being generated. At a price of \$20 per tonne CO₂-eq, these could be sold for roughly \$40. Therefore, in this example, the scheme is profitable if the gas can be collected and destroyed for less than \$40 per kg. However, if the market price for a carbon credit rose to \$50 or \$100 per tonne CO₂-eq, the same effort would be profitable even at a much higher cost for the collection and destruction of the gas. Again, the higher the GWP of the gas destroyed (and the higher the market price for the offset credit), the more profitable the project is for the developer. Unfortunately, from an environmental perspective, this is only because higher GWPs lead to the generation of a larger number of carbon pollution permits that can be sold and used by emitting businesses.

The question then remains as to whether there is any environmental benefit to be gained from funding climate or environmental harm mitigation through offset credits. The fallacy of this can be demonstrated by looking again at CFC-12 as a hypothetical example. While there would be an environmental benefit in the form of ozone layer protection from collecting and destroying CFC-12 banks, the potential harm to the climate would not be eliminated, but rather moved elsewhere, with no net gain for the climate system. The climate harms from the destroyed gas are effectively resurrected, transferred and ensured through equivalent greenhouse gas emissions released at another location.

Historically, the realisation of both benefits from the controls under the Montreal Protocol has been the reason for the treaty's success. This offsetting approach is therefore trading off the Montreal Protocol's legacy by funding action to protect the ozone layer through action that permits harm to the climate. This, EIA believes, is in direct contravention of the adverse effects provision (Article 2.1) of the Vienna Convention on the Protection of the Ozone Layer, which specifically mentions climate.

This argument is outlined in more detail in our recent report to members of the Executive Committee of the Multilateral Fund.¹¹

Perverse incentives: carbon markets can increase refrigerant emissions

A carbon crediting approach to refrigerant gas destruction also risks creating a perverse incentive that ultimately increases total emissions. This is precisely what happened during the infamous HFC-23 Clean Development Mechanism scandal under the Kyoto Protocol, when additional HCFC-22 was manufactured simply because payments to destroy its by-product, HFC-23, were greater than the cost of producing the underlying HCFC-22.¹² Countless millions of tonnes of greenhouse gases were manufactured and spewed into the atmosphere, all for profit under the guise of reducing greenhouse gas emissions.

The risk is similar when companies are being paid to destroy other refrigerant gases, especially those still on the market or, as in the case of HFCs, still being produced. In the example above, R-410A destruction was estimated to be profitable if the gas could be obtained and destroyed for less than \$40 per kg. In some regions, R-410A can be purchased on the market for about \$10 per kg. The danger of a perverse incentive is acute when a harmful product drives more profits from its collection and destruction than it costs to obtain on the market.

When the companies producing and selling the greenhouse gases on the market are the same companies later making additional profits from collecting and destroying those gases, the risk of perverse incentives grows even more severe. Of course, if such companies can ably collect and destroy dangerous pollutants at the end of their lifetimes, then such practices should be mandated in order to be allowed to put the dangerous products on the market in the first place, as the overall goal should be to lower the environmental impact of greenhouse gas consumption.

The sale of offsets allows pollutant producers to earn a second round of profits from the very feature that makes their products so dangerous, i.e., their high GWP. Instead, we should simply require these pollutants to be collected and destroyed at the end of lifetime, with no pollution permits generated from the destruction.

Equity issues

For project developers aiming to obtain refrigerant gases for destruction at low cost and then sell the subsequently generated credits at high margins, the potential to make a significant financial profit is clear, especially when the GWP of the gases they collect and the market price of the offset credits they sell are both high. Also clear is the financial incentive for those entities purchasing offset credits, since buying these 'permissions' to pollute generally costs far less than investing in action to reduce emissions across their own supply or value chains.

Conspicuously less clear is the benefit to those Article 5 (A5) countries and local communities from which the ODS destroyed to generate offset credits is often collected. These countries and communities often receive little to no money for the gases whose destruction promptly generates large profits. As noted by Carbon Market Watch, across the voluntary carbon market landscape there is simply no "clear line" drawn between what project developers tout as "benefits sharing" versus simply paying local communities for their work.¹³ Significantly, the carbon trading industry has opposed calls from the most climate-vulnerable nations, asking for a guarantee that a portion of the global profits from carbon trading go towards funding adaptation where its need is most acute.¹⁴

As with other carbon markets systems, a carbon crediting system based on refrigerant gas destruction may persist only for as long as big emitters can cheaply secure the pollution permits they need. As the cheap mitigation is exhausted by buyers who apply any emissions reductions credits to their own ledgers, the host countries are often left with only the more expensive climate mitigation measures, which they will still be required to undertake in order to meet their own domestic targets. And with no newly built destruction or management facilities, when interest in crediting projects dries up, they could be left, again, with potent stockpiles of refrigerant gases and few, if any, means to address them.

These points highlight another core critique of the carbon offset approach. While the offset idea is often sold on claims of driving investment in decarbonisation and sustainable development, the fundamental interest of the system is in fact for emitters to maintain the status quo, to keep emitting. The system exists to give emitters the option to pay a small cost precisely not to have to change the underlying activities that drive their emissions.

It is not surprising that such systems have chronically underdelivered in terms of the investment needed to drive transformational change, both at source and in the locations where the credit-generating activities take place.¹⁵ Indeed, carbon offset schemes often serve to delay the genuine action and investment needed to lower emissions in the very sectors that most frequently utilise offsetting approaches. They allow the emitting entities to avoid investment in reducing their own emissions and they disincentivise local authorities where banks are found from implementing more effective regulatory approaches which could result in lower overall costs and billions of tonnes fewer CO₂-eq emissions.

More effective solutions to the refrigerant banks challenge

Simple regulatory measures are much more efficient as a means of addressing both ODS and HFC banks. Direct regulatory measures have lower overall costs and offer much greater environmental protection as they can permanently eliminate any climate and ozone pollution impacts related to the refrigerant gases collected and destroyed. There is no need to concoct a scheme to derive profits from preventing some harms while selling rights to permit others, especially when all harms can be cost-effectively prevented.

Looking to the future, end-of-life management could be supported by including an upfront recovery fee within the original price of the refrigerant, coupled with a requirement that the seller collects and destroys the pollutant it has put on the market. Alternatively, an upfront fee could finance a global fund to deliver support to local management and destruction operations.

There are several possible approaches, but a strong regulatory framework and a sustainable financing mechanism are needed to enable developing countries to ensure the management of refrigerants throughout their lifecycles.

With regard to existing banks, it is important to note that the Montreal Protocol has not only the ability to bring about such efficient, low-cost, low-harm outcomes, but it has already taken the first step. The Multilateral Fund has opened up a window to support countries assessing inventories of refrigerant gases.

The Montreal Protocol has an important role to play in helping to develop a more effective approach: a global framework for end-of-life management of refrigerant gases which could include Extended Producer Responsibility systems, mandating an upfront fee in refrigerant sales to enable producers to recover their product or to support a fund to cover the end-of-life costs, such as collection and destruction. The Montreal Protocol can also help develop the principles by which these systems should operate, such as favouring management approaches that, unlike carbon markets, minimise environmental harms, including the total ozone and climate pollution that enters the atmosphere.

Conclusion

The Montreal Protocol has numerous opportunities to resolve the challenge of ODS and HFC banks and to help ensure the safe management and destruction of refrigerant gases at the end of their lifetimes.

The MLF's funding window for ODS banks inventories should be just the first step in deploying the resources required to address this challenge in a cost-effective and environmentally sound manner. This opportunity for the Montreal Protocol to once again deliver massive climate mitigation and ozone protection is too precious to miss at a time of climate emergency.

Issuing rights to emit climate pollution equal to what is mitigated elsewhere does not prevent emissions, it merely shifts where they take place. Where carbon credits are used to offset emissions sooner than the ODS banks that were destroyed would have leaked, then the emissions are not just shifted geographically for private profit, but in fact their release into the atmosphere has been accelerated, exacerbating climate change in the short-term even further.

In the global climate emergency, government officials, business leaders and environmental advocates worldwide are fervently seeking climate change mitigation opportunities, particularly those that are low-cost and rapidly implementable. The opportunity to destroy fluorinated gases with extraordinarily high GWPs before they leak is precisely such an opportunity.

The objective should be to collect and destroy these gases and to completely and permanently prevent their potential climate and ozone damage. There is no reason to allow equivalent climate pollution back into the atmosphere, nor deliver pollutant producers a second round of profits from their dangerous products when instead they should have an obligation to help recover and destroy them.

Living up to its history of increasing ambition and its vision to accomplish more for the climate system, the Montreal Protocol community can come together once again to turn a dangerous threat into an extraordinary climate mitigation opportunity. With a global framework of coordinated regulatory approaches backed by a mechanism for sustainable finance, the Montreal Protocol can effectively address existing banks of ODS and HFCs and future end-of-life management of refrigerant gases in a manner that, in compliance with Article 2.1 of the Vienna Convention, prevents adverse effects on the climate system.

The Montreal Protocol must secure both the complete climate and ozone protections it has always achieved and continue to strengthen, rather than undermine, its tremendous climate protection legacy.

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