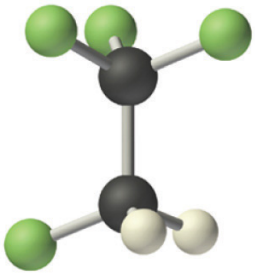
Last week, the parties of the Montreal Protocol took an important step to broaden their treaty's chemical controls to contribute to limiting climate change.

The chemicals at issue are the HFCs, or Hydrofluorocarbons. (Like the other halogenated chemicals relevant to ozone depletion, the acronym tells you the chemical composition of the class of chemicals. The HFCs are derivatives of simple hydrocarbons – methane, ethane, propane – in which some, but not all, of the hydrogen atoms bonded to the carbon core are replaced by fluorine. Crucially, they do not contain any chlorine. The numbers and letters that follow the acronym identify the specific configuration of particular chemicals.) These



HFC-134a, CH_2FCF_3

chemicals had no large-scale commercial use before the Montreal Protocol's phasedown of CFCs starting in the 1990s, but have grown rapidly since then. They are used in multiple applications, of which the biggest are as working fluids in refrigeration and air conditioning. They're in the cooling equipment in your food store. They're in your car's AC system. (This is the biggest use: HCF-134a in mobile AC accounts for about one quarter of all global HFC use). HFC consumption has been growing at between 10 and 15 percent per year.

HFCs aren't the only class of chemicals that were introduced as substitutes for CFCs and have seen rapid growth since the 1990s. This description also applies to the HCFCs (Hydrochlorofluorocarbons), but there is a crucial difference between the two groups that makes this week's decision particularly important. The HCFCs posed obvious problems from the moment they were introduced, because they were the readiest alternatives to CFCs for many applications in the first rush to cut CFCs. But like the CFCs, the HCFCs are also ozone-depleting, just much less so. Figuring out how to control them thus posed a clear "hurry up and wait" tension: it was urgent to scale them up quickly to replace CFCs (thereby cutting ozone loss by 90 to 99 percent), yet it was also necessary to limit their ultimate use because of the remaining 1 to 10 percent. To thread this needle, parties negotiated phaseouts for HCFCs at the same time as they were completing the phaseouts of CFCs, but with long time horizons to allow paying off the investments in producing and using them. In the rich countries, the phaseout schedule for HCFCs is a 90% cut this year

(2015), tightening to a near-full phaseout in 2020 except for a small, 0.5% “service” tail” of continued allowed use as needed to service existing equipment through its end of life. (The pahseout for developing countries occurs ten years later).

The HFCs are a different matter. They were also introduced in the 1990s as alterantives to ozone-depleting CFCs, and have also experienced rapid growth since then. But unlike HCFCs, HFCs do not destroy atmospheric ozone at all. They are, however – like the CFCs, the HCFCs, and indeed all the chemicals controlled for ozone protection – powerful greenhouse gases that contribute to anthropogenic global heating and climate disruption.

The HFCs thus posed the awkward situation in which two global treaties, targeting two different but both serious global environmental problems, were working at cross-purposes: the Montreal Protocol was promoting expansion of HFCs, even while the climate treaties have been trying to limit them as part of their (thus far not very successful) pursuit of limits to anthropogenic greenhouse gases.

This situation has left parties to the Montreal Protocol in a quandary. Presiding over the most successful international environmental treaty in history, should they expand it to control new chemicals that don’t harm the environmental value they are charged with protecting but harm a different one? I addressed the general issues pro and con controlling HFCs in a previous post on this topic. Pro: opportunity to address a serious and growing environmental problem, in the institutional setting that has the most relevant experience, technological expertise, and networks of participants to craft an effective (and bounded) agreement. Con: Dilute the Protocol by acting outside its original mission, perhaps even outside its legal authority; set a precedent for potential future bids to target any environmental problem in the Protocol, because it has a good track record of solving problems.

Last week in Dubai, at their 27th Meeting, Parties to the Montreal Protocol agreed to negotiate an amendment to limit HFCs, with the aim of adopting it at their next meeting, late in 2016. They agreed that the Protocol has legal jurisdiction, and is the most practical site to pursue reductions of HFCs. Significant issues remain to be negotiated over the coming year – e.g., technological availability of HFC alternatives in specific uses, risk of market power in their production, adequacy of financial support for additional costs imposed on developing countries. But these are issues the Montreal Parties have successfully navigated many times before, and there is good basis for confidence that they will be able to resolve them again.