

"The Climate Benefits of a Rapid Global HFC Phase-out"  
Introductory remarks:

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1. Because of their potent global warming impact Greenpeace has been warning against the massive uptake of HFCs since the early 1990s.

In 1993 Greenpeace revolutionized the domestic refrigeration sector by developing hydrocarbon domestic refrigerator technology, so called Greenfreeze. The advent of Greenfreeze concretely rebutted the claims of the chemical industry that only their fluorocarbon substances, such as HCFCs and HFCs can replace CFCs to meet our cooling needs. Today there are approximately 1 billion Greenfreeze refrigerators in the world, and it is projected that by 2020 close to 80 % global production will be using hydrocarbons,

15 years ago Greenpeace began calling for a global phase-out of HFCs by 2020. Today Greenpeace is still calling for a rapid global phase-out of HFCs.

Obviously, given today's realities, such phase will not happen by 2020 but we believe that with sufficient resolve, an early phase out is technologically feasible.

2. Climate Tipping points: The critical question that must guide all climate related policies, including the elimination of HFCs, is how fast is the world approaching climate tipping points, those points of no return. When will human activity force the balance of nature over the top. From that perspective every percentage of unnecessarily caused global warming is too much.

Sybren Drijfhout, a professor at the university of Southampton explains tipping point in a most graphic manner: "Think of someone leaning back on two legs of a chair. The tipping point is when you're exactly in between two states. A tiny perturbation" —a gentle shove— will make the system tip over. <sup>1</sup>

We need to think of tipping points when considering today's realities as recently reported by the World Meteorological Organization. <sup>2</sup>

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<sup>1</sup> <https://phys.org/news/2017-01-climate-science-bedeviled.html#jCp>

<sup>2</sup> <https://public.wmo.int/en/media/press-release/climate-breaks-multiple-records-2016-global-impacts>

-It is very likely that 2017 will be one of the three hottest years on record, (along with 2015 and 2016)

-2017 has witnessed many high-impact events around the planet including catastrophic hurricanes and floods, debilitating heat waves, forest fires and drought

- Long-term indicators of climate change such as increasing carbon dioxide concentrations, sea level rise and ocean acidification continue unabated

- Arctic sea ice coverage remains below average and previously stable Antarctic sea ice extent was at or near a record low

-30% of the world's population now living in climatic conditions that deliver prolonged extreme heat waves

- In 2016, 23.5 million people were displaced during weather-related disasters

- Concentrations of CO<sub>2</sub> in the atmosphere today are higher than any time in the last three million years, and are increasing more rapidly than at any point in the last 66 million years

Given the rapid onslaught of global warming climate chaos, it is critical that all available measures are taken, as soon as technologically feasible, to eliminate all human contributions to greenhouse gas emissions. Rapidly phasing-out HFCs is one of the more readily available measures.

3. Greenpeace commissioned Öko-Recherche to estimate the additional climate benefits of a rapid HFC phase-out (by 2020, 2025 and 2030), in contrast to the climate benefits of the Kigali Agreement HFC phase-down schedule.

The study references a total HFC phase-out, in comparison to the gradual HFC phase-down schedule of the Kigali Agreement.

The first finding reinforces the fact that the Kigali HFC Phase-Down Agreement is a vital step towards protecting the climate. It is therefore an imperative that the Agreement is ratified immediately by all Parties .

Additional findings indicate that the Kigali Agreement has even greater potential to benefit the climate under a more ambitious agenda that globally phases-out HFCs by no later than 2030 and preferably sooner.

A rapid global HFC phase-out not only has climate benefits but would also make good business sense. It would immediately encourage developing countries to leap frog HFCs and thus preempt having to have yet another phase-out scenario further down the road.

4. The climate benefits of an early HFC-phase out are even more pronounced when viewed through the 20 year GWP metric, but for the purposes of this report the 100 year GWP is used. Greenpeace advocates for the inclusion of the 20 year GWP metric for the formulation of HFCs related climate policies.

The GWP<sub>20</sub> index provides a more accurate measure of the short term climate benefits of eliminating HFCs.

Furthermore, it would clarify the meaning of low GWP substances. While GWP<sub>100</sub> values of some substances may seem deceptively attractive to some policy makers, the same substances measured using GWP<sub>20</sub> become much less appealing. A prime example is HFC-32, with a GWP of 675 over 100 years and 2,330 over 20 years.

5. Greenpeace urges the Parties to elevate the Kigali Agreement phase-down schedule to a global HFC phase-out, while ensuring that high GWP HFCs are replaced by truly low-GWP substances, that have a GWP of less than 20.

Furthermore only sustainable replacements should be used. In this regard, HFOs can not be considered as sustainable because of their potential to bring forth yet another environmental disaster through TFA accumulation.

Fortunately there are technologically proven, cost effective and efficient alternatives to HFCs that use natural refrigerants or not in kind alternatives for most cooling sectors. And new ones are rapidly emerging in the pipeline.

6. Greenpeace is very pleased to be working with Öko-Recherche to calculate the climate benefits of an ambitious HFC phase-out, in line with the 1.5 degree Celsius target of the Paris Climate Agreement. Barbara Gschrey, the lead author of the paper will now present the key findings.