

Benefits of Rapid Action

Background: The timetable for the phase-down of HFCs agreed under the Kigali Amendment is described in [Kigali Fact Sheet 5](#). For non-Article 5 countries the phase-down begins with the first cut in HFC consumption in 2019, based on a baseline consumption for the period 2011 to 2013. For Article 5 countries, the phase-down timetable is delayed, to allow extra time for:

- a) baseline data to be collected (many Article 5 countries do not have historic data for HFC usage, so a later baseline period is required)
- b) lower GWP technologies to reach maturity and become widely available in Article 5 countries.

As detailed in [Kigali Fact Sheet 5](#), there are two groups of Article 5 countries:

- A5 Group 1 has a baseline period 2020 to 2022, a freeze in HFC consumption in 2024 and a first cut in consumption in 2029.
- A5 Group 2 has a baseline period 2024 to 2026, a freeze in HFC consumption in 2028 and a first cut in consumption in 2032.

Some Article 5 countries consider these timetables to be rather conservative and are investigating the possibility of achieving a faster transition away from HFCs. This Fact Sheet highlights the benefits of rapid action in terms of the potential to avoid costs and to achieve an improved environmental outcome.

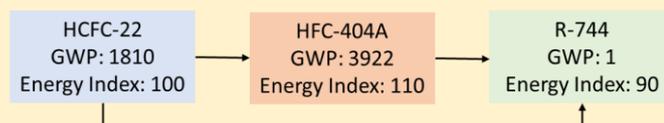
High GWP technologies can be avoided: It is very important to recognise that the “journey” from ozone depleting substances to zero OPD low GWP alternatives adopted in non-Article 5 countries was far from optimal. Because of the rapid phase-out of ODS in non-Article 5 countries there was an urgent need for alternatives and this led to the introduction of high GWP HFCs. Non-Article 5 countries are now going through a second technology transition to replace high GWP gases with lower GWP alternatives. As illustrated in the adjacent box, the use of high GWP HFCs not only led to significant direct global warming emissions, but also created extra energy consumption, leading to the emission of further CO₂ from power stations.

Article 5 countries are at a different stage on their ODS phase-out journey. HCFCs are still in widespread use and the high GWP HFCs have only recently begun to be introduced in these countries. Article 5 countries can significantly benefit by not repeating the mistakes made in non-Article 5 countries and avoiding the use of high GWP refrigerants.

At the time that refrigerants such as R-404A were first adopted, they represented the best technical option available. This is no longer the case. There are much better alternatives with lower GWP and improved energy efficiency. High GWP refrigerants should be avoided when better options are readily available. Article 5 countries should avoid using old and inefficient technologies that are no longer used in non-A5 countries.

Transition from HCFC-22 in food retail refrigeration

In most non-Article 5 countries supermarket refrigeration systems switched from HFC-22 to HFC-404A in the late 1990s, resulting in the use of a very high GWP refrigerant and poor energy efficiency. A second transition is now underway to ultra-low GWP options



Article 5 countries should consider a single step transition avoiding use of the high GWP R-404A. A crucial secondary benefit is that energy efficiency can be improved if R-404A is avoided. In Article 5 countries with a shortage of electricity supply this could reduce future investment in power stations.

High GWP technologies will not be “state-of-the-art”:

Refrigeration and air-conditioning products are steadily being improved in performance by equipment producers that want to ensure that their products are the best available in the market. In particular, energy efficiency of the latest products can be considerably better than the efficiency of products designed a few years earlier.

Equipment producers are working hard to produce new products that use lower GWP refrigerants, in response to the Kigali Amendment and to other regional legislation on HFCs, such as the rapid phase-down of HFCs in the European Union. Most producers are taking the opportunity to upgrade their products in relation to energy efficiency as well as to use lower GWP refrigerants. The older products using HCFCs or high GWP HFCs are not upgraded and become a “stagnant” out-of-date design. If Article 5 countries continue to use high GWP products for the next 10 years, there is a big risk that the new equipment being purchased will fall a long way short of state-of-the-art designs in terms of energy efficiency and other design features.

This issue is especially important for small air-conditioning systems. There is massive growth in the use of air-conditioning systems in many Article 5 countries. The electrical load from air-conditioning systems is a significant proportion of the total electrical load for the whole country. To minimise the investments required in power stations and electricity distribution it is important that state-of-the-art high efficiency air-conditioning units are being purchased. In the adjacent example, the 25% energy saving created through use of the latest lower GWP technology is typical of the improvements made over recent years. Older technologies must be avoided.

Efficiency of small split air-conditioning

Split air-conditioning units are widely used for cooling of domestic and commercial buildings. In Article 5 countries HCFC-22 is still widely used in new equipment, but it has become a “stagnant” technology. Most HCFC-22 systems use fixed speed compressors and old heat exchanger designs. The latest split air-conditioning units use the lower GWP HFC-32 refrigerant and include many new design features such as variable speed compressors and micro-channel heat exchangers. The latest units have considerably better energy efficiency. In the example illustrated below the state-of-the-art unit is 25% more efficient than the old technology.

Old technology HCFC-22 GWP: 1810 Energy Index: 100	State-of-the-art HFC-32 GWP: 675 Energy Index: 75
	

Getting early access to financial support:

Article 5 countries that plan to take rapid action over HFC phase-down will be able to get best access to funding support.

In September 2016, a group of philanthropic organisations and other donors pledged US\$ 80 million to help countries in need of assistance to implement an ambitious HFC amendment and improve energy efficiency. This funding will be targeted specifically at countries taking early action.

The Montreal Protocol Multilateral Fund (MLF) will provide funding to help Article 5 countries with the transition to low GWP alternatives. The precise details of new MLF funding arrangements are still being developed. However, the considerable amount of extra funding will be targeted at projects that involve the use of low GWP alternatives. Countries wishing to make use of this funding in the early years need to be making plans for rapid action.

Early contribution to national climate change targets:

It is recognised that reducing use of high GWP HFCs and HCFCs is one of the most cost effective ways of reducing greenhouse gas emissions. Under the Paris Agreement on climate change, all countries have made an Intended Nationally Determined Contribution (INDC) specifying the level of GHG emission reduction that the country will aim to achieve. Reducing the use and emissions of HFCs and HCFCs through rapid action can make a useful early contribution to these emission reduction targets.