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Environmental Protection Agency
An Ghníomhaireacht um Chaomhnú Comhshaoil
National Waste Prevention Programme

Summary Guide to the HFC Phase Down

The F-gas Regulations[1] came into force on 1st January 2015. This guidance document summarises the key requirements specified in these Regulations i.e. the **phase-down** of HFC's placed on the EU market.

Additional requirements of these Regulations can be found on www.fgases.ie.

1. Why Reduce HFC Usage?

With the successful phase-out of Ozone Depleting Substances (ODS), such as CFCs, halon and R22, the production and use of F-gases as ODS replacements has been growing strongly in recent years.

F-gases are very potent Greenhouse Gases (GHGs) with high to very high Global Warming Potentials[2] (GWP) of up to several thousand times that of Carbon Dioxide (CO_2) and thus contribute to global climate change if released to the atmosphere.

Since equipment and products containing F-gases have a long lifetime, and have a tendency to leak if not properly maintained and/or monitored, continued use of F-gases will result in emissions of F-gases into the atmosphere well into the future through leaking equipment.

2. What is the Phase Down?

The phase down is a gradual reduction in the quantity of bulk HFC which can be placed on the EU market by **producers** and **importers**. As required by the F-gas Regulation, the quantity of new (or virgin) HFC that can be placed on the market decreases year on year starting from 1st January 2016[3]. The phase down also covers equipment pre-charged with HFC, starting from **1st January 2017.**

[1] Regulation EU No. 517/2014 which came into force on 1st January 2015 and repealed F-gas Regulation EC No. 842/2006
[2] Global Warming Potential is the climatic warming potential of a gas relative to that of Carbon Dioxide (CO_2).
[3] Provision for the phase down is set out in Article 15 of the F-gas Regulation.

3. Who Does the Phase Down Apply to?

Producers and **Importers** who place HFC on the market in quantities **> 100 tonne CO_2 equivalent (t CO_2 eq)**[4], with certain exemptions (outlined in Table 1 below).

- Operators of equipment which relies on HFC
- Contractors who service and maintain equipment containing HFC.

Table 1: HFC Category Exemptions

Producers and importers who place HFC on the market in quantities < 100 t CO_2 eq
Pre-charged equipment until 1st January 2017
HFC imported for destruction
HFC used in feedstock[5] applications
HFC which is supplied to a person[6] for direct export outside the European Union (EU)
HFC for use in military equipment
HFC for use in the etching or cleaning of semiconductor materials
From 1st January 2018: HFC used in the production of metered dose inhalers

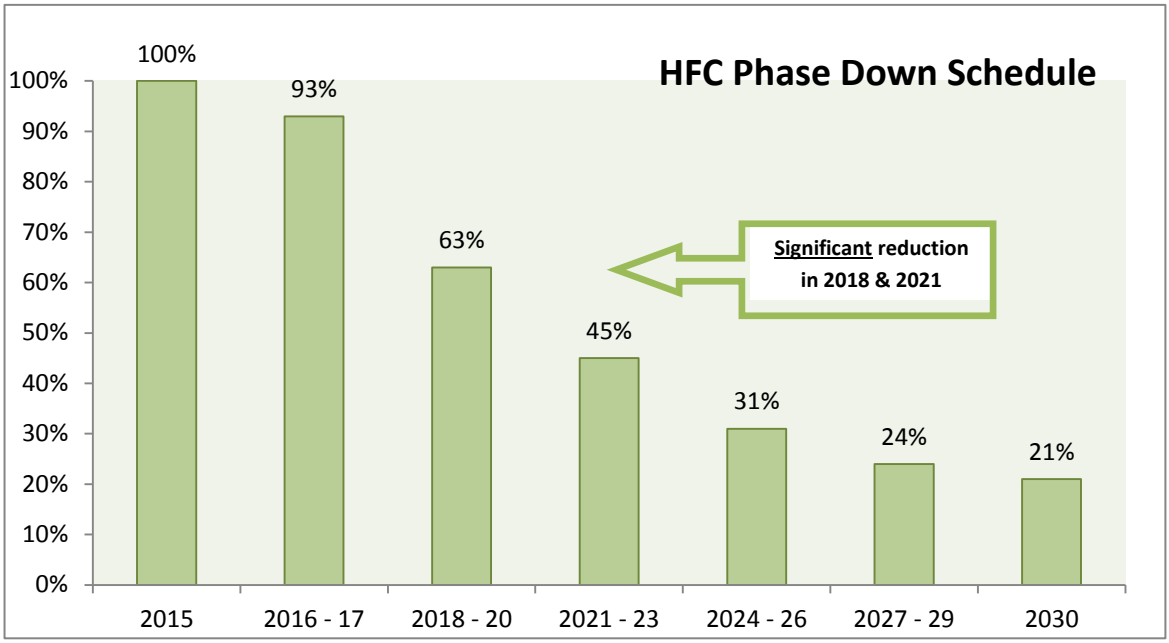
4. How does the Phase Down Work?

Phase Down Schedule

Bulk HFC quantities permitted to be placed on the market by producers/importers (referred to as Quotas) will be reduced year on year in accordance with the phase down schedule set out in Annex V of the F-gas Regulation and as illustrated in Figure 1.

[4] Global Warming Potential (GWP) of the refrigerant, expressed as tonnes of CO_2 equivalent.
[5] Feedstock is an F-gas which has been chemically transformed and which has insignificant emissions.
[6] A "person" includes operators, producers, importers, contractors etc. - full definition available in Article 2 of Regulation 517/2014.

Figure 1: HFC Phase Down Schedule



In 2015 the quotas (in CO_2 eq) for each producer or importer is 100% of the average volume of HFC placed on the market between the years 2009 - 2012. From 2015 onwards the quota allocated to each producer/importer will reduce.

Until 2018 the phase down is modest. However, there are very significant reductions in 2018 (reduced to 63% of 2015 amount) and again in 2021 (reduced to 45% of 2015 amount).

The phase down means that by 2030 the annual quantity of HFCs placed on the market and available to operators of equipment containing HFC will be reduced by 79% when compared to 2015.

Quota Allocation

In order to be allocated a quota producers/importers are required to register to the HFC Register on the European Commission (EC) website.

The EC maintains a registry of quotas allocated to producers/importers for each year beginning with the year 2015.

The quota allocation process distinguishes between two types of companies:

1. "*Incumbents*", which have reported production or imports in the period 2009-2012 and
2. *"New entrants*", which intend to manage at least 100 t CO_2 eq of HFCs in 2015 but have not previously reported to the EC.

For incumbents a reference value is calculated based on the annual average HFC volume placed on the market by each producer or importer from **2009 to 2012** (referred to as the reference year).

So, **for example,** if a producer has a quota of 2,000 t CO_2 eq (which is the average volume they placed on the market between 2009- 2012) then the quantity that can be placed on the market in 2015 is 2,000 t CO_2 eq, in 2016 - 2017 it is 1,860 t CO_2 eq and in 2018 - 2020 it is 1,260 t CO_2 eq etc.

For new entrants a quota is allocated based on declared needs.

Pre-Charged Equipment accounts for 11% of imported HFC. From **1st January 2017** pre-charged RAC[7] and heat pump equipment cannot be placed on the market unless HFC quantities (in CO_2 eq) charged into the equipment is included within the quota allocated to the respective producer/importer. The issue of pre-charged equipment is addressed in Article 14 of the F-gas Regulation.

Quotas assigned to incumbents can be transferred to another producer/importer (refer to Article 18 of the F-gas Regulation).

5. What are the Implications of the Phase Down?

Producers/Importers

- Must not exceed the allocated quota (penalties may apply for non conformance).
- In order to meet quota and future phase down targets F-gas alternatives with lower GWP should be considered.
- Early planning is critical - common F-gases with high GWP (such as R404A) are likely to be in short supply.

Operators/Contractors

- Reduced availability of common F-gases may have implications for business critical equipment and may necessiate the replacement of certain equipment.
- Retrofitting of equipment may be required to accommodate alternatives gases with lower GWP.
- GWP of gases needs to be considered when purchasing/recommending new equipment.

The phase down will push the use of alternative gases with lower GWP and will result in reduced availability of common HFCs with high GWP (e.g.R404a and R227ea (FM 200)). Early planning is vital in order to prepare for phase down targets and ensure the efficient and continued operation of equipment.

[7] Refrigeration and Air Conditioning.