



Challenges and Opportunities with Implementation of the EU F-Gas Regulation

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Outline

- Introduction to EIA
- Measures under the EU F-Gas Regulation;
- Global implications;
- Challenges;
- Solutions;
- Opportunities for Industry;
- Monitoring & Enforcement;
- Conclusions;
- Resources.

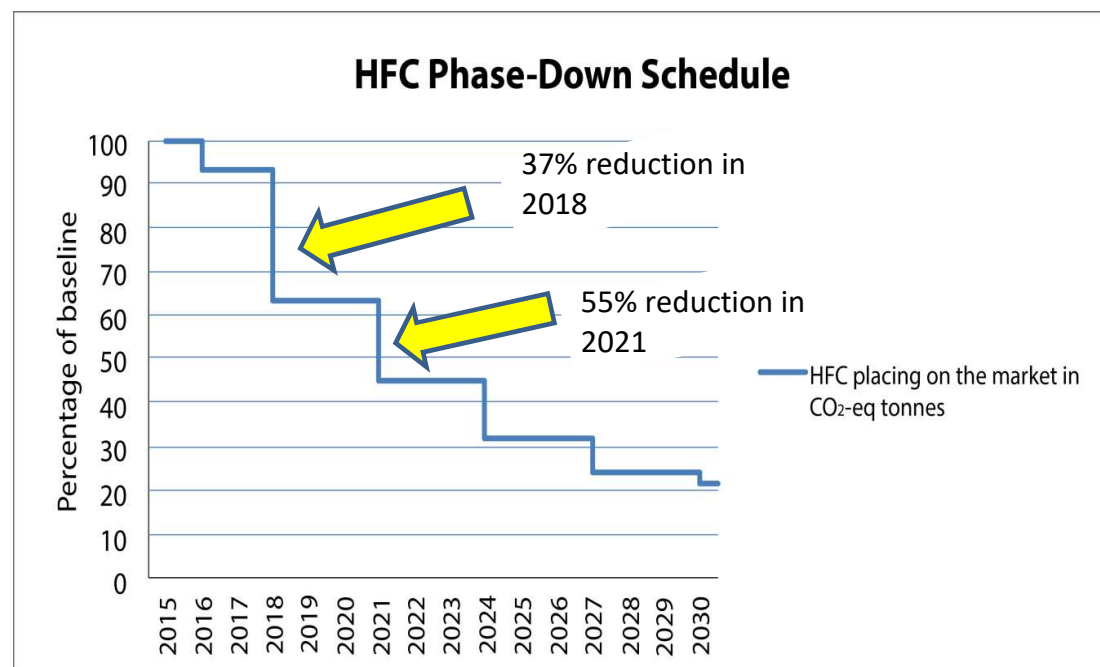
Environmental Investigation Agency (EIA)

- Independent non-profit NGO set up in London in 1984 – offices in UK and US;
- We investigate and campaign against environmental crime and abuse;
- Four programmes of work – climate, ocean, forest and wildlife;
- Climate – tackles climate change by eliminating powerful greenhouse gases used widely in the cooling sector, improving energy efficiency of replacement technologies and investigating the illicit trade in refrigerant greenhouse gases;
- More than two decades participating in Montreal Protocol meetings.



EU F-Gas Regulation – HFC Phase-down

Years	Allowable HFC consumption from baseline
2015	100%
2016-2017	93%
2018-2020	63%
2021-2023	45%
2024-2026	31%
2027-2029	24%
2030	21%

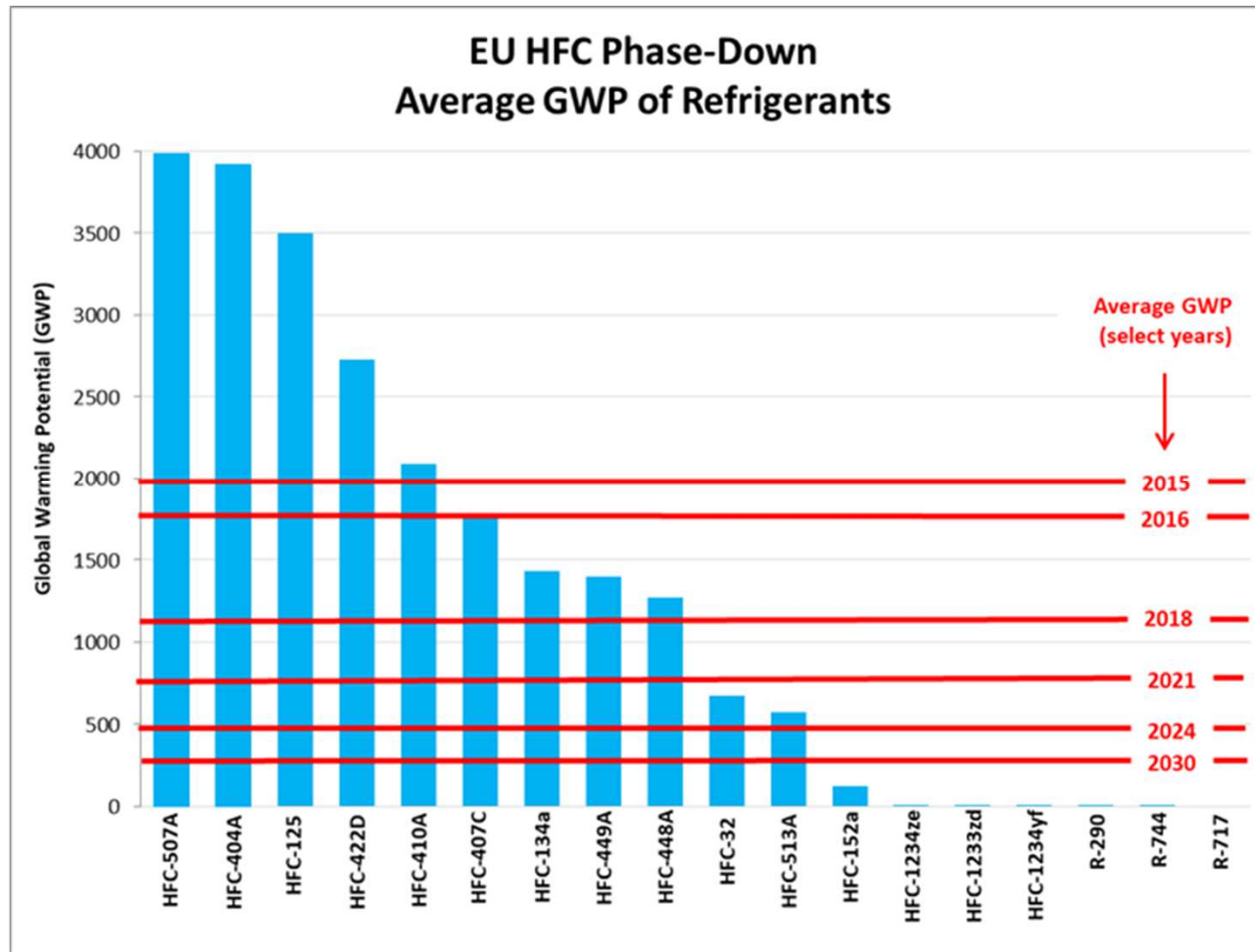


- Economy-wide phase-down of HFC supply on a CO₂-equivalent basis, baseline = av consumption 2009-2012 (approx. 182.5 MtCO₂e)
- Exempt uses - eg medical dose inhalers, military equipment – are subtracted from the HFC quotas available in 2018 onwards.

EU F-Gas Regulation – Other Measures

Products / Equipment	Date of Prohibition
Domestic refrigerators freezers containing HFC with GWP \geq 150	2015
Technical aerosols containing HFCs with GWP \geq 150	2018
<ul style="list-style-type: none"> Stationary refrigeration equipment containing HFC with GWP \geq 2500 Moveable room A/C containing HFCs with GWP \geq 150 XPS foams containing HFCs with GWP \geq 150 Commercial refrigerators / freezers containing HFCs with GWP \geq 2500 	2020
Multipack centralised commercial refrigeration systems containing HFCs with GWP \geq 150 (except in primary refrigerant circuit of cascade systems can use HFC with GWP $<$ 1500)	2022
Foams that contain HFCs with GWP \geq 150	2023
Single split A/C containing less than 3kg of HFCs with GWP \geq 750	2025

EU F-Gas Regulation - the phase-down drives the change

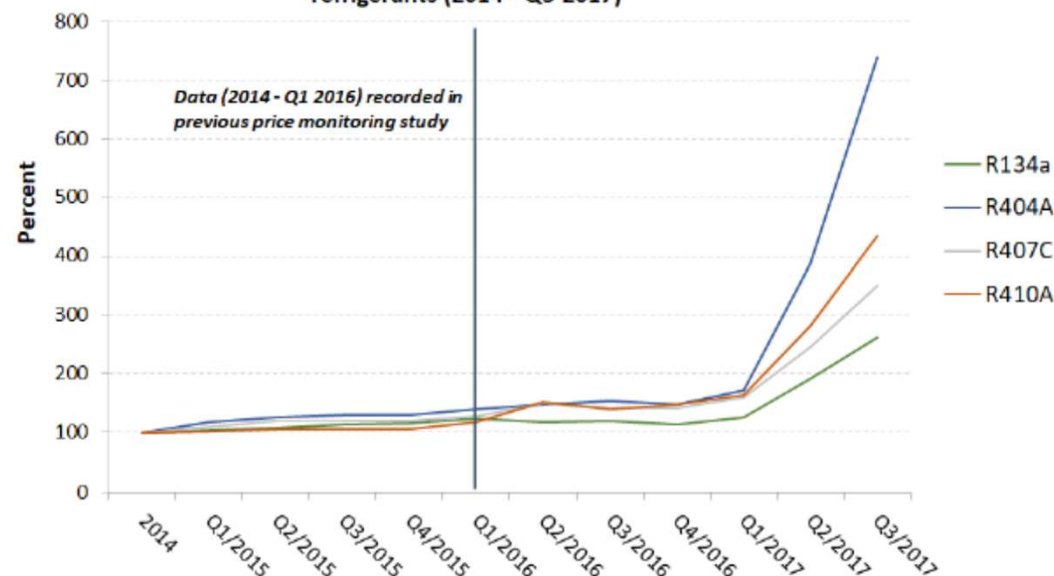


EU F-Gas Regulation - 2018 is the First Major Test

- Dramatic quota reduction is taking place.
- HFC supplies reduce by 37% in 2018 and 55% in 2021. Adjusted for pre-charged equipment these are **cuts of 48% in 2018 and 64% in 2021**.
- Some producers (e.g. Honeywell, Chemours) and distributors are no longer selling very high-GWP refrigerants in Europe (e.g. R404A)
- Very high increase in HFC prices in Europe in 2017 (>500%);
- Industry bodies are reporting HFC shortages.

..... Phase-down is working as expected
but concern that transition to low-GWP is not happening fast enough

Average purchase price (in €/t CO₂e, indexed to 2014) for the most common refrigerants (2014 - Q3 2017)



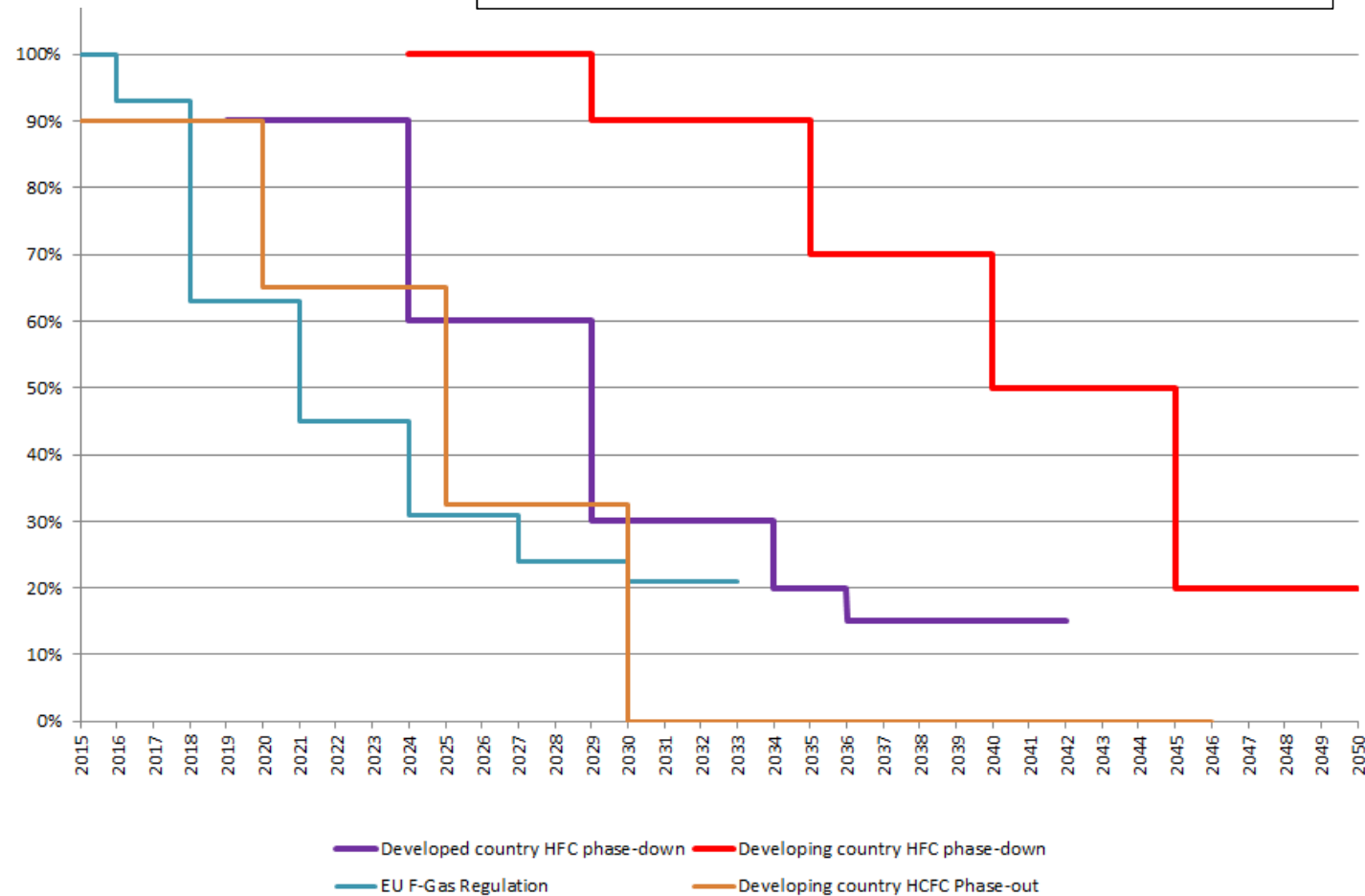
Average purchase price (€/t CO₂e) of HFC refrigerants in Europe – courtesy of European Commission

Global Implications

Successful implementation of the EU F-Gas Regulation can set pathway for a transition to sustainable climate-friendly cooling world-wide by:

- Increasing **market acceptance** of sustainable low-GWP technologies;
- Removing **barriers** to the adoption of flammable refrigerants.

Refrigerant phase-down schedules under Montreal Protocol and European F-Gas Regulation



Challenges

Strategic challenges

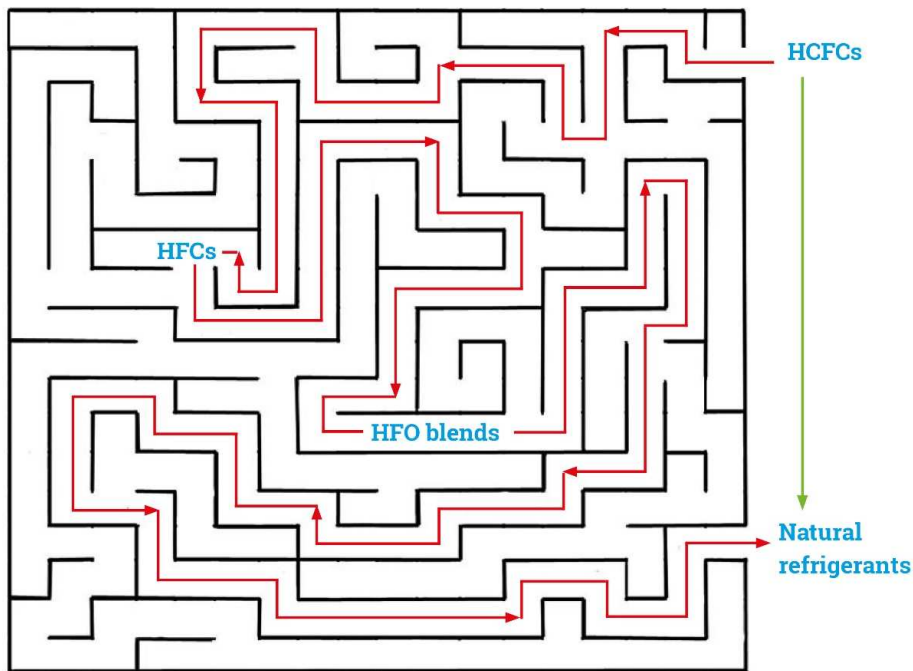
- End consumers do not understand the phase-down impacts – are not demanding long-term solutions;
- Industry associations are thinking only short-term (R404A/R507A);
- Installers are reluctant to switch to natural refrigerants;
- Member states are not offering adequate support.

Implementation challenges

- Outdated safety standards restrict the applicability of flammable refrigerants;
- Lack of trained technicians and engineers, particularly in the servicing sector;
- Need to optimise energy efficiency gains;
- Illegal trade.

Solutions:

EU Member states need to do more to increase market acceptance and adoption of low-GWP solutions, especially natural refrigerant solutions.



- ❖ Engage and educate end-users, particularly SMEs – they need an **HFC exit strategy** and demand long-term solutions from suppliers;
- ❖ Provide financial incentives to move early to low-GWP natural refrigerant technologies, especially for SMEs;
- ❖ Consider legislative incentives to avoid the phase-in of medium-GWP short-term alternatives, e.g. additional market restrictions on new HFC-containing equipment;
- ❖ Promote Public Procurement of natural refrigerant solutions.

Solutions:



Ammonia refrigeration training © GCAP Coolcast

Governments worldwide must do more to remove barriers to the adoption of natural refrigerants and optimise energy efficiency gains:

- ❖ **Mandate** training on natural refrigerants (in EU as part of F-Gas certification);
- ❖ Engage with institutions supporting training of technicians, e.g. www.realalternatives.eu
- ❖ Support and contribute to the safety standard debate at the Montreal Protocol, engage with national standards bodies to ensure standards are fit for purpose;
- ❖ Implement measures to increase energy efficiency in the cooling sector (e.g. MEPs and labelling).

Opportunities for Industry:

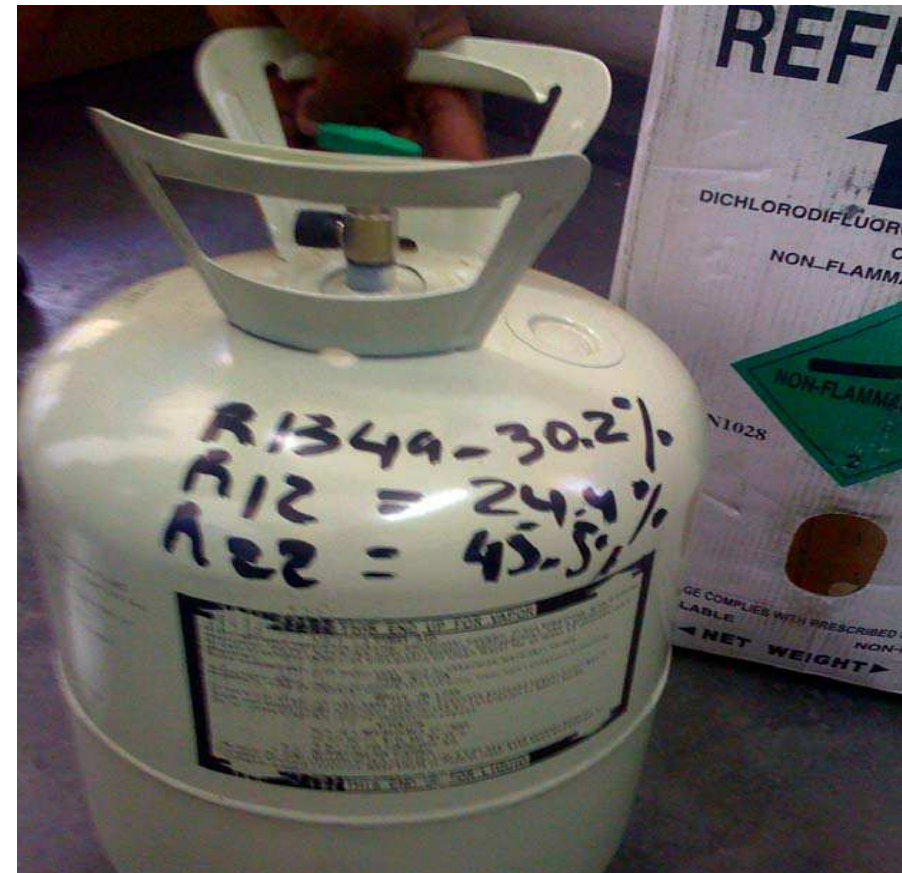
The global cooling sector is undergoing rapid transformation – this is an enormous opportunity for low-GWP technologies which offer sustainable, energy efficient and future proof solutions. There is a growing market in Europe for energy efficient low-GWP cooling solutions.

Industry needs to step up to the challenge:

- ❖ Engage with the Montreal Protocol process – raise awareness about the solutions you offer;
- ❖ Work with suppliers and contractors to build capacity in the servicing sector to deal with natural refrigerants;
- ❖ Ensure revision of safety standards to allow safe use of flammable refrigerants – companies offering natural refrigerant solutions need to take part in ongoing IEC and ISO discussions;
- ❖ Urge your government to enact measures to incentivise a one-time transition to low-GWP and to avoid the phase-in of medium-GWP HFC blends.

Monitoring & Enforcement

- Illegal trade in HFCs is already occurring in Europe, scale unknown;
- The Kigali Amendment requires all Parties to implement a licencing system by 2019;
- Licensing systems should cover all chemicals being used as refrigerants (e.g. including HFOs);
- Governments need to undertake proactive measures (customs training, monitoring internet trade, intelligence led enforcement);
- Utilising the Informal Prior Informed Consent (iPIC) mechanism should be considered for HFC trade.



Conclusions

Successful implementation of the EU F-Gas Regulation will support a global transition to sustainable cooling. This requires:

- Maintaining the existing ambition – no weakening of the phase-down;
- Additional Member State support (financial & legislative) in key countries;
- Avoiding the transition to medium-GWP HFCs and blends;
- Investment by industry into natural refrigerant technologies and support systems;
- A clear HFC-exit strategy for end-users so they demand the future-proof HFC-free solutions;
- Careful monitoring and enforcement in the early years.

- F-Gas Regulation handbook – Keeping Ahead of the Curve as Europe Phases Down HFCs. Available from www.eia-international.org in English, Chinese, French, German, Italian, Portuguese, Spanish.
- www.cooltechnologies.org : An online searchable database of sustainable cooling and refrigeration technologies



COOLTECHNOLOGIES
Working without HFCs

Thank you!

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