



A possible PFAS REACH Restriction of F-gases



30
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Agenda

- 1) EPEE Introduction**
- 2) The F-Gas Regulation Revision**
- 3) The role of F-Gases to achieve climate neutrality goals**
- 4) A PFAS REACH restriction?**
- 5) End-of-Life measures for F-Gases**
- 6) Q&A session**

EPEE – the Voice of RACHP in Europe

1. Full Value Chain of Refrigeration, Air Conditioning and Heat Pump Industry
2. Small – medium – large companies
3. National and sectoral associations
4. Over 200,000 direct employees, over €30bn turnover in Europe
5. Main activities:
 - Promote **Decarbonisation** of Heating & Cooling
 - Ensure responsible management of all types of **Refrigerants**
 - Advise on **Eco-design and -labelling**



The F-Gas Regulation Revision

F-gases: why they matter and what are about

- F-gases are essential to daily life: in industrial, commercial and residential refrigeration, air-conditioning systems and heat pumps, as well as in hospitals and fire protection, and several other applications.
- HFCs were developed in the 1990s to replace the ozone-depleting substances (CFCs and HCFCs), which were phased-out globally.
- This process was carried out under the Montreal Protocol and further level of ambition in the phase down of HFCs is established under the Kigali Amendment, at the international level.
- Today, F-gases are ozone-friendly, very energy efficient and safe for users and the public thanks to their low toxicity level and non-flammability.
- In addition, HFOs have a very short atmospheric life-time and ultra-low GWP (Global Warming Potential) values, typically below 10 (i.e. significantly reduced compared to conventional (saturated) HFCs)



The Key principles of the F-Gas regulation

The EU is taking regulatory action to control F-gases, as part of its policy **to combat climate change**

 The objective of the F-Gas Regulation is to reduce emissions of F-gases by addressing:

Life cycle assessment:

- ✓ The containment, use, recovery and destruction of F-gases
- ✓ The control of certain uses of the gases
- ✓ The application of 'placing on the market' prohibitions on certain products and equipment

Identification:

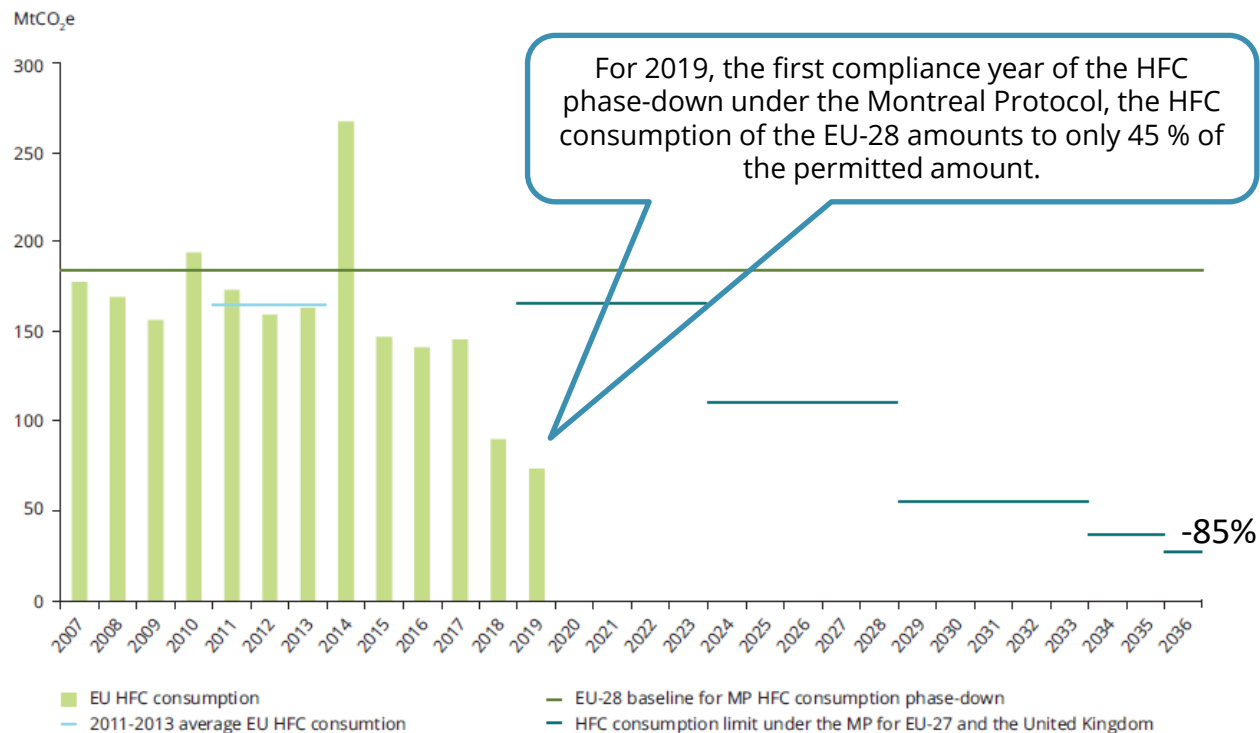
- ✓ The labelling and disposal of products and equipment containing those gases

Compliance:

- ✓ The reporting of information on those gases
- ✓ The training and certification of personnel and companies involved in activities covered under this Regulation

Data from the European Environmental Agency (EEA)

Figure ES.2 EU progress under the Montreal Protocol HFC phase-down



Notes: HFCs covered under the Montreal Protocol include all HFCs covered under EU F-gas Regulation No 517/2014, except HFC-161 (see Annex 1). The geographical scope of presented HFC consumption data is the EU-28 except Croatia for the period 2007-2008 and the EU-28 for the period 2009-2019. MP, Montreal Protocol.

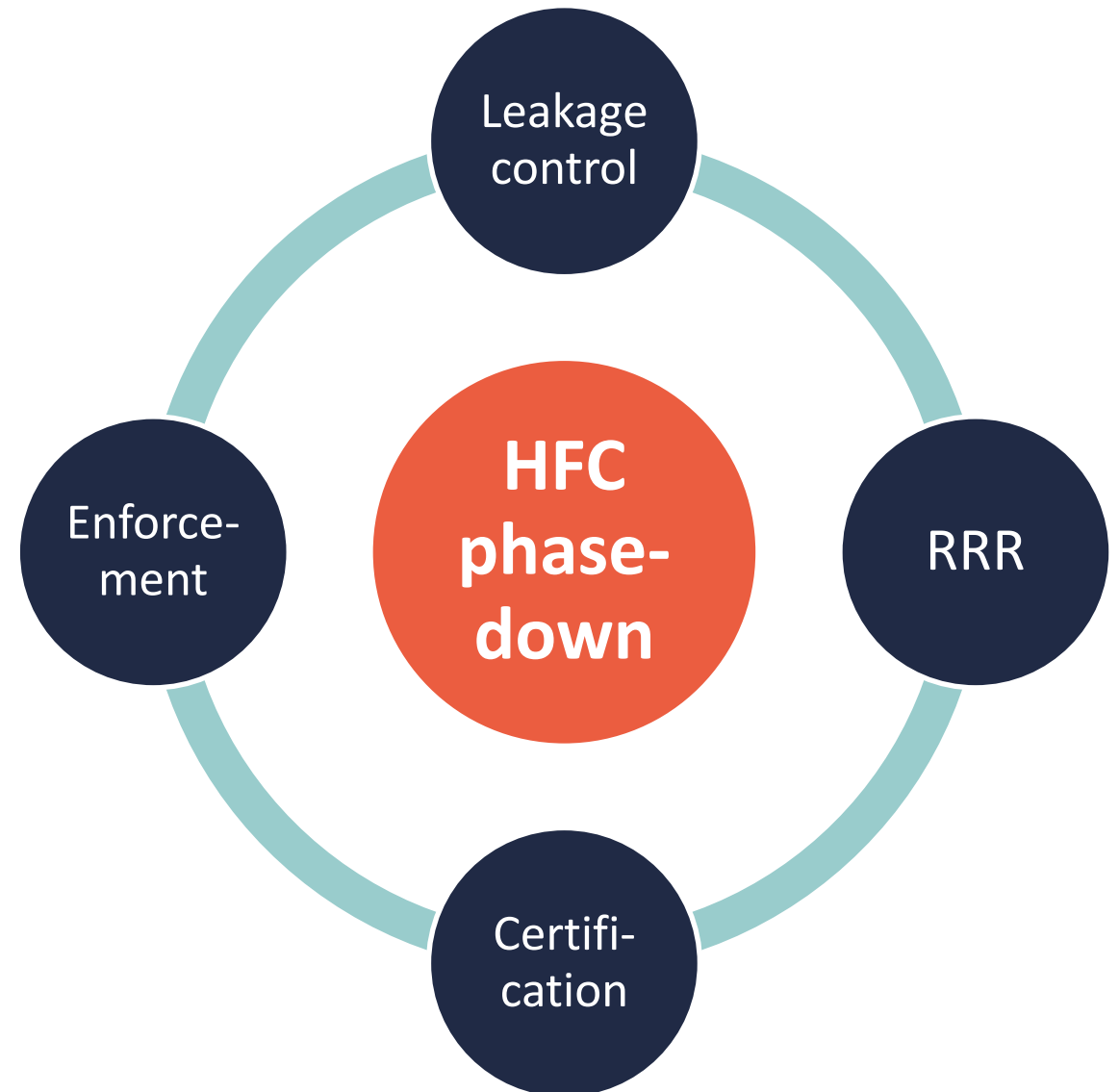
Sources: EC (2011, 2014); EEA (2019, 2020b).

Note: there are scope and counting differences between F gas regulation and Montreal Protocol. (do not compare based on the % of the phase down steps)

This is explained in detail in table A.4.2 of the EEA report

Priorities for the F-Gas Regulation Revision

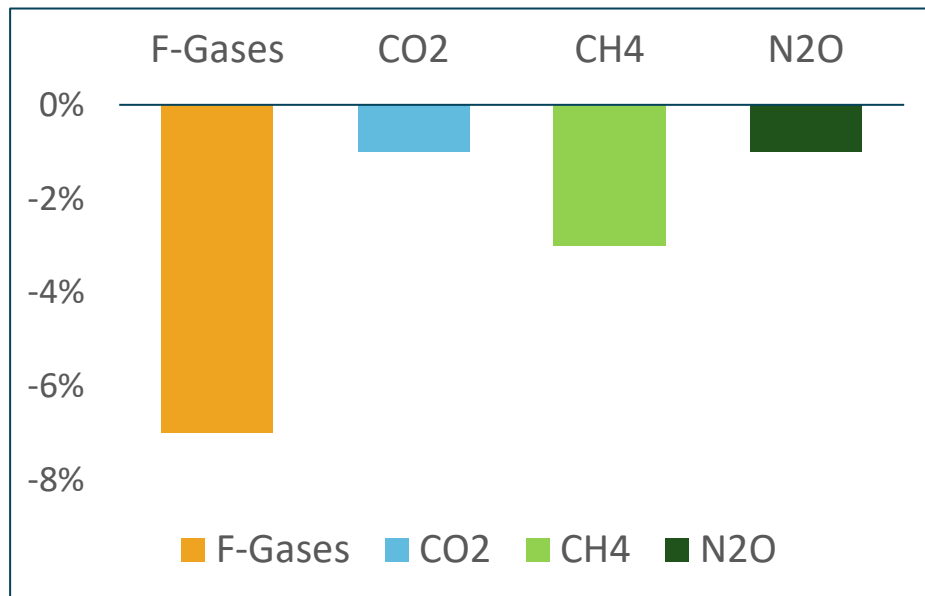
- **The HFC phase-down is the strongest and most successful instrument to drive the move towards lower GWP technologies.**
 - ✓ Safety
 - ✓ Energy Efficiency
 - ✓ Affordability
- **Leakage control**
 - ✓ Addresses energy efficiency, safety and emission reduction
 - ✓ Can be further improved with electronic logbooks and extended to all types of refrigerants
- **Recovery Recycling Reclaim (RRR)**
 - ✓ Contributes to emission control throughout the life-cycle and can be further improved by extending it to all types of refrigerants
- **Enforcement**
 - ✓ Needs to be further improved to ensure harmonised implementation across EU, a level playing field for all actors and to prevent illegal trade



The Role of F-Gases to achieve climate neutrality goals

The F-Gas Regulation works!

Relative reduction in %
2018 vs. 2015



F-Gases achieved highest relative emission reductions (in CO₂-eq) since 2015

- Since 2015, F-Gas emissions have started to fall as a result of the EU's F-Gas Regulation + MAC Directive. **By 2030, the European Commission expects 65% F-Gas emission reductions compared to 2014.**
- The F-Gas Regulation foresees a review process which has started very recently. **Major steps include:**
 1. Evaluation of the effectiveness of the Regulation
 2. Elaboration of a draft proposal by the European Commission
 3. The European Parliament, the European Council and the European Commission need to agree on a final revised version.
- **First round of stakeholder feedback:** >20 Industry associations agree that the focus needs to be on **better enforcement and implementation, illegal trade, alignment with Kigali, training and certification for non-fluorinated refrigerants, safety and energy efficiency.**

A PFAS REACH Restriction?

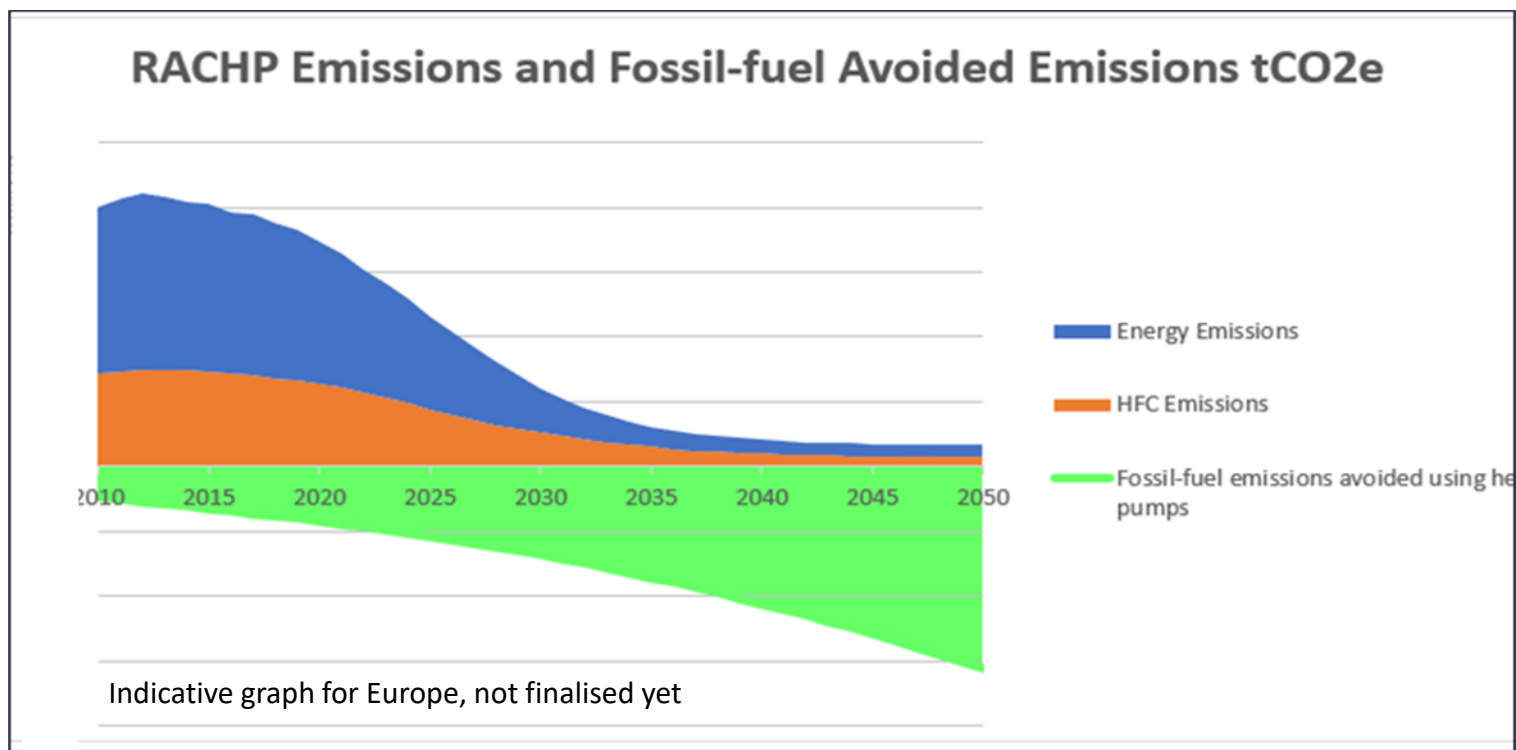
- ❑ A European **broad definition of PFAS** has now been released, that should apply to all sectors including F-gases.
- ❑ Competent Authorities should take into account the existing risk management measures in place and the fact that the on-going revision of the F-Gas Regulation offers an opportunity for strengthening its successful measures (with a particular focus on '**End of Life**' measures and the **prevention of emissions**)
- ❑ Several existing regulatory measures are already addressing F-gases, in addition to the F-Gas Regulation, in relation to the protection of health and the environment:
 - **Other measures** are established in the Eco-design + General Product Safety Directive, Low Voltage Directive, ATEX Workplace Directive and the [Industrial Emissions Directive](#), as well as the Pressure Equipment Directive, Machinery Directive, Seveso III Directive, national building codes, and EN378, EN60335-2-40, EN60335-2-89. EN 13313/pr, EN ISO 22712 Standard on competence of personnel.

- ❑ F-gases are still essential for the *functionality of society* and alternatives cannot offer the same level of safety, cost-efficiency and affordability of use.
- ❑ Refrigerant's choice depends on many different factors and still mainly depends on technology and application, as well as location, site conditions, including climate conditions. In the complex RACHP sector, what is applicable for one segment cannot be considered by default applicable for another.
- ❑ An example is for the low temperature applications (below -50°C), which are required to store material for medical or biochemical use. For such applications, for example, there is still no viable alternative to replace F-Gases and the consequences would be dramatic.
- The market moves towards alternatives whenever this is possible from a safety, energy efficiency and affordability perspective.
- A REACH restriction on PFASs would immediately heavily impact on this choice and on the *functioning of society*.
- *PFAS F-gases covered under REACH would disregard the existing measures of the F-Gas regulation to prevent emissions and risk to be disproportionate and raise double regulations concerns.*

Low GWP HFCs and HFOs refrigerants are essential to achieve the EU climate neutrality goal and tackle the needs of society in relation to the Heating and Cooling sector!



Modelling to get the priorities right



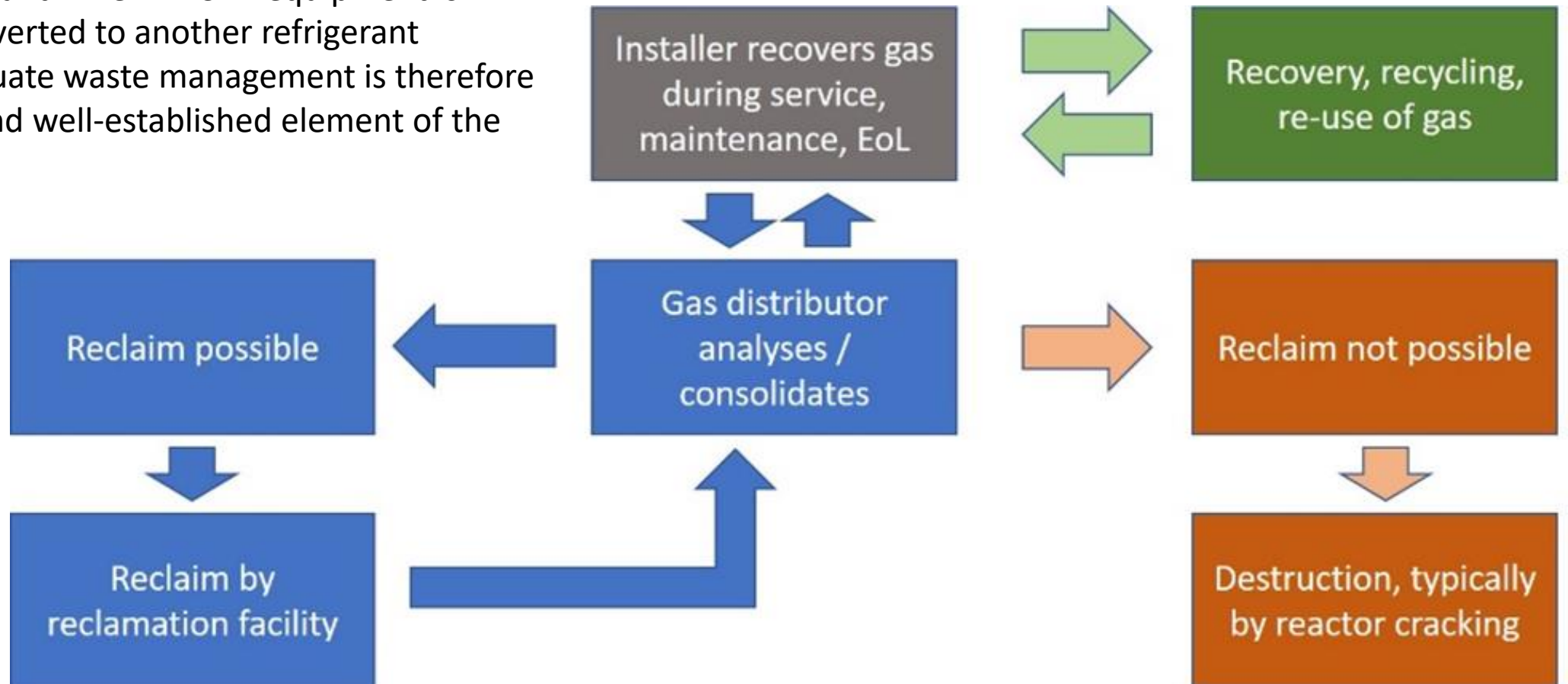
EPEE modelling, in cooperation with UNEP and Gluckman Consulting, shows the relative importance of energy related emissions versus refrigerant related emissions and the huge abatement potential of heat pumps (mitigating emissions related to fossil fuel technologies in heating)



End-of-Life ('EoL') measures for F-gases

A simplified overview of the waste stream

The F-Gas Regulation prohibits the intentional release of F-Gases and stipulates mandatory recovery at EoL and when RACHP equipment is serviced or converted to another refrigerant (retrofit). Adequate waste management is therefore an important and well-established element of the RACHP sector.



- F-gases are used in **closed systems** and **recovered at the end-of-life (EoL)**. The F-gas Regulation specifies a robust recovery mechanism for all substances within scope, including the prevention of emissions, the precautions to limit emissions to the greatest extent possible during production, transport, and storage, as well as at the recovery, recycling, reclaim (RRR), destruction and disposal phase.
- **Leakage control is of key importance** for reducing emissions, ensuring safety, and maintaining energy efficiency.
- For the EoL of equipment containing refrigerants (e.g. domestic refrigerators, air conditioning systems in cars etc.) a dedicated waste stream management is also required under the WEEE Directive and the ELV Directive.

EPEE supports additional measures to be strengthened in order to address environmental concerns in the F-Gas Regulation, also through the training and certification requirements, leakage control and prevention of emissions.

- **If F-gases are contained, they cannot impact the environment.**

5 Key takeaways

- ❑ HFCs are under control due to the phase down established in the F-gas Regulation
 - ❑ *The low GWP substitutes are in the focus of REACH*
 - ❑ *Alternatives can be used in some cases, but NOT in all applications.*
 - ❑ *Considering the numerous challenges to address climate change mitigations: heat pumps are pivotal.*
 - ❑ *The main new heat pump platforms are using low GWP F-gases.*
- THEREFORE, It is impossible to comply to climate targets unless low GWP F-gases are considered.*

Q&A session

Contact details

[Redacted]
Policy Director

EPEE

46 Avenue des Arts
1000 Brussels, Belgium

email: [Redacted]@epeeglobal.org

Web: www.epeeglobal.org

Twitter: @EPEESecretariat