



The EU F-Gas Regulation:  
Key Principles, Status and 7 Lessons Learned  
*Ozone2Climate Roundtable, Shanghai*



April  
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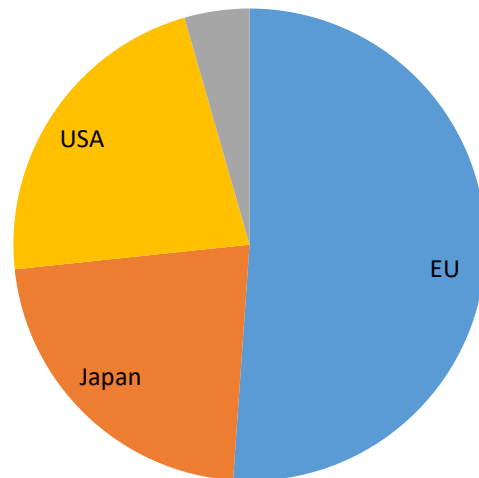
# Who is EPEE?

**Founded in 2000, headquartered in Brussels**

**Currently 48 members from three continents:**

- OEMs : heat pumps, a/c, refrigeration
- Component manufacturers
- Gas producers
- Installers
- National & international associations

South Korea and China

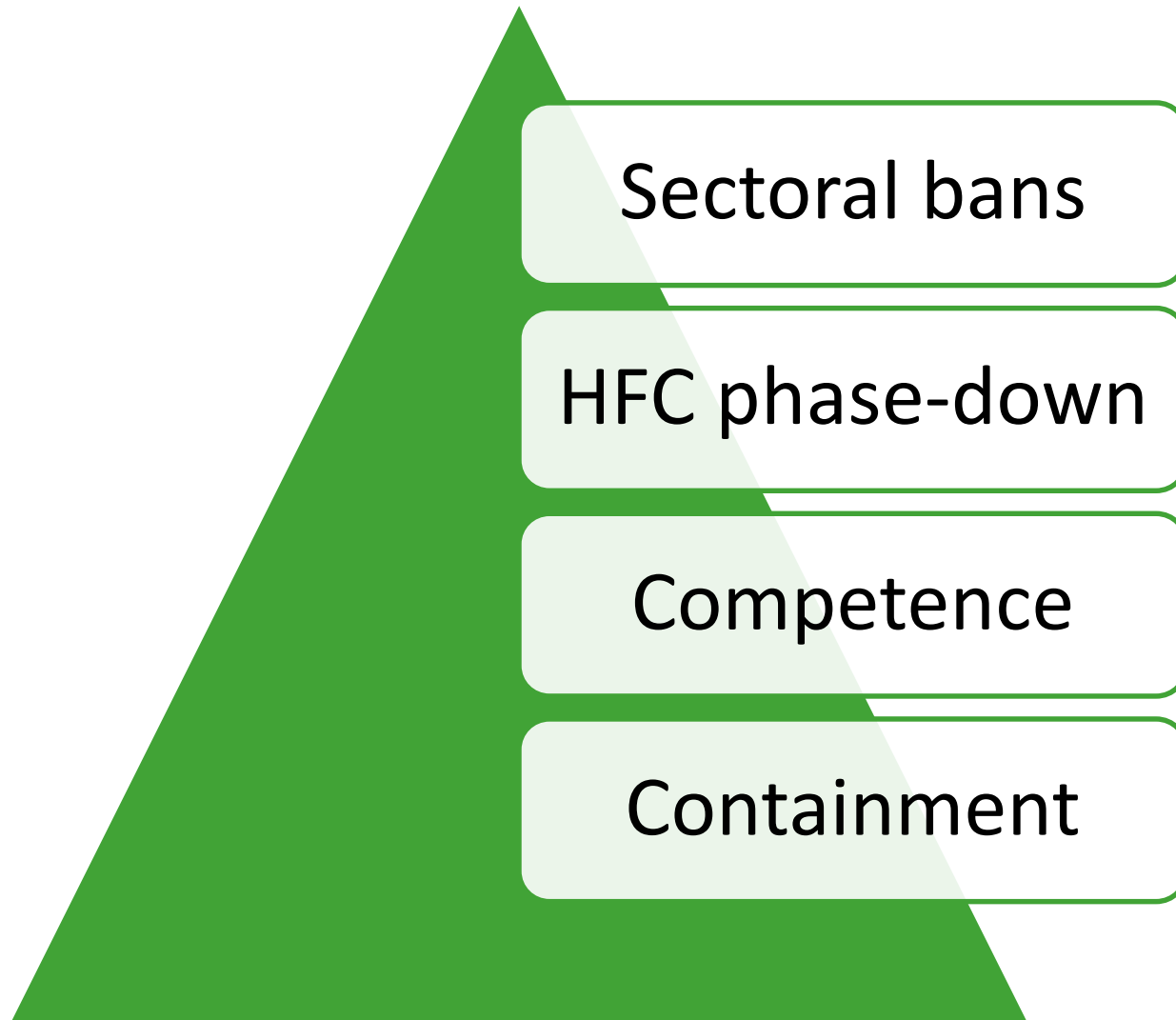




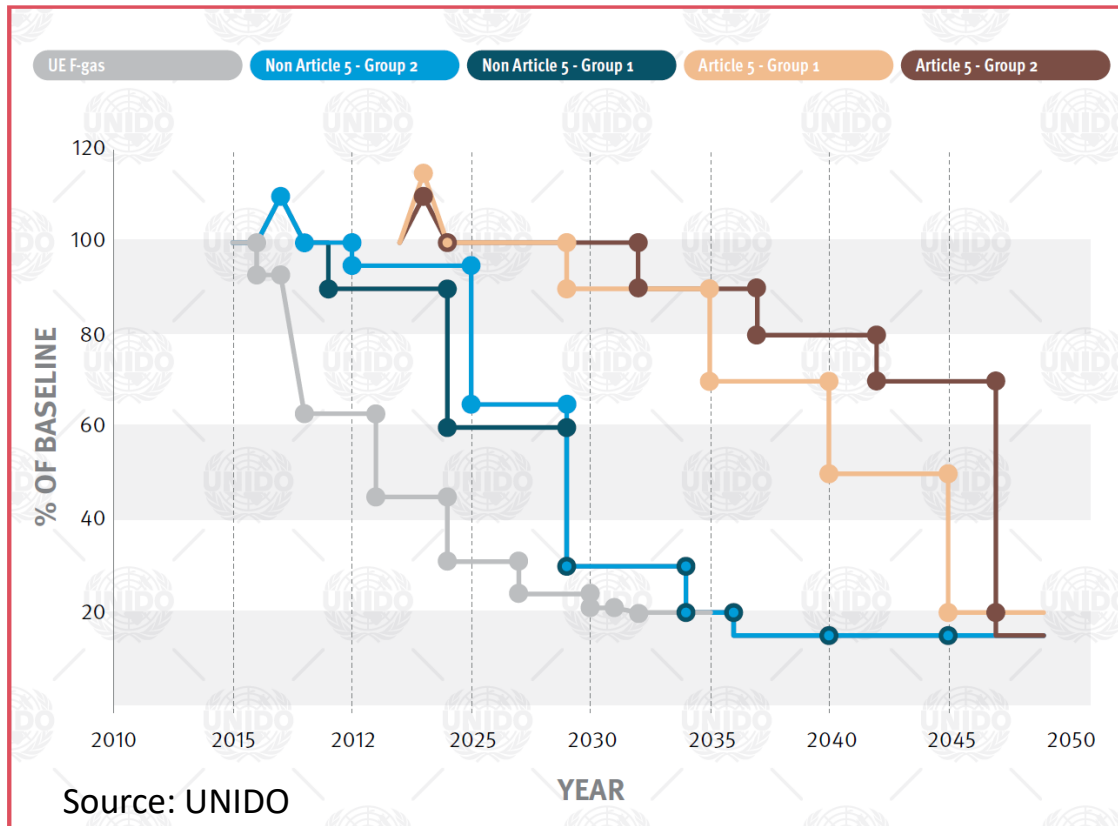
The EU F-Gas Regulation

# KEY PRINCIPLES AND STATUS

# The 4 main pillars of the F-Gas Regulation



# The EU HFC phase-down vs. Kigali

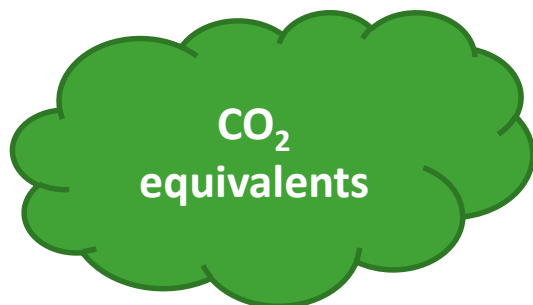


- EU phase-down much steeper than Kigali
- Baseline: average quantities placed on EU market between 2009 and 2012 („grandfathering“)
- 10% New Entrants Reserve
- Only bulk gas manufacturers and importers can apply for quota
- Importers of precharged equipment need authorisations for HFC contained in equipment

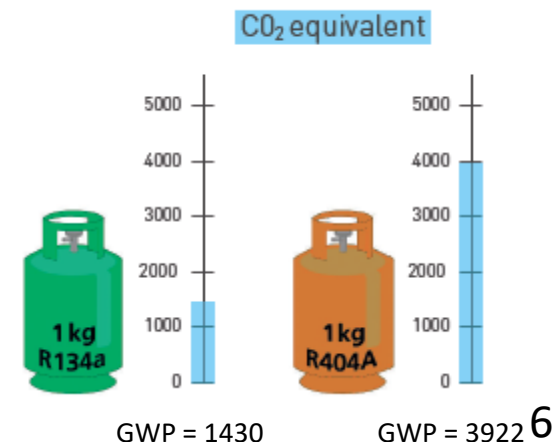
# How does the phase-down work?

**The phase-down is based on CO<sub>2</sub>-equivalents and it is not sector specific**

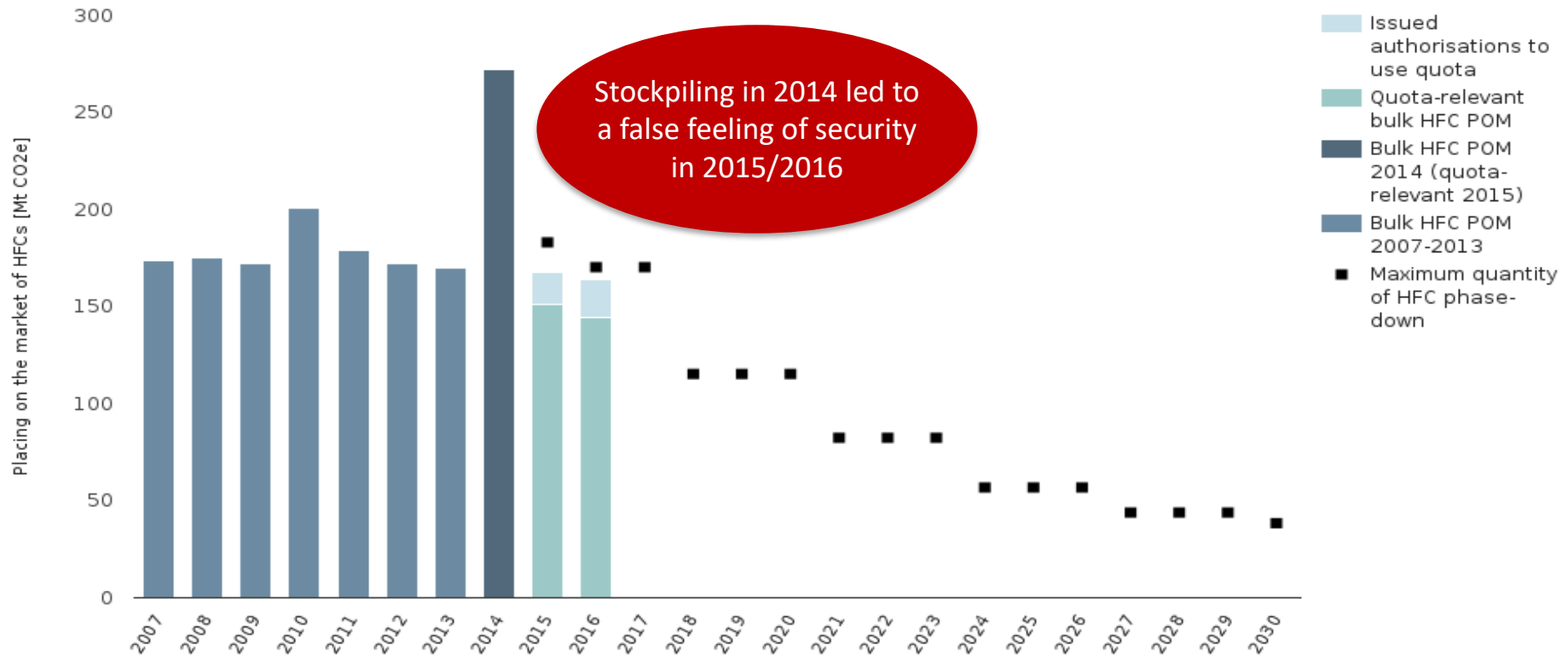
- It does not ban specific refrigerants but impacts particularly those with a high GWP
- Calculation of CO<sub>2</sub>-equivalents: kg x GWP
- **There are several ways to ease the pressure of the phase-down :**
  1. Reduce the GWP of the refrigerant
  2. Reduce the refrigerant charge size of the equipment
  3. Reduce leakages
  4. Recover, recycle and reclaim refrigerants



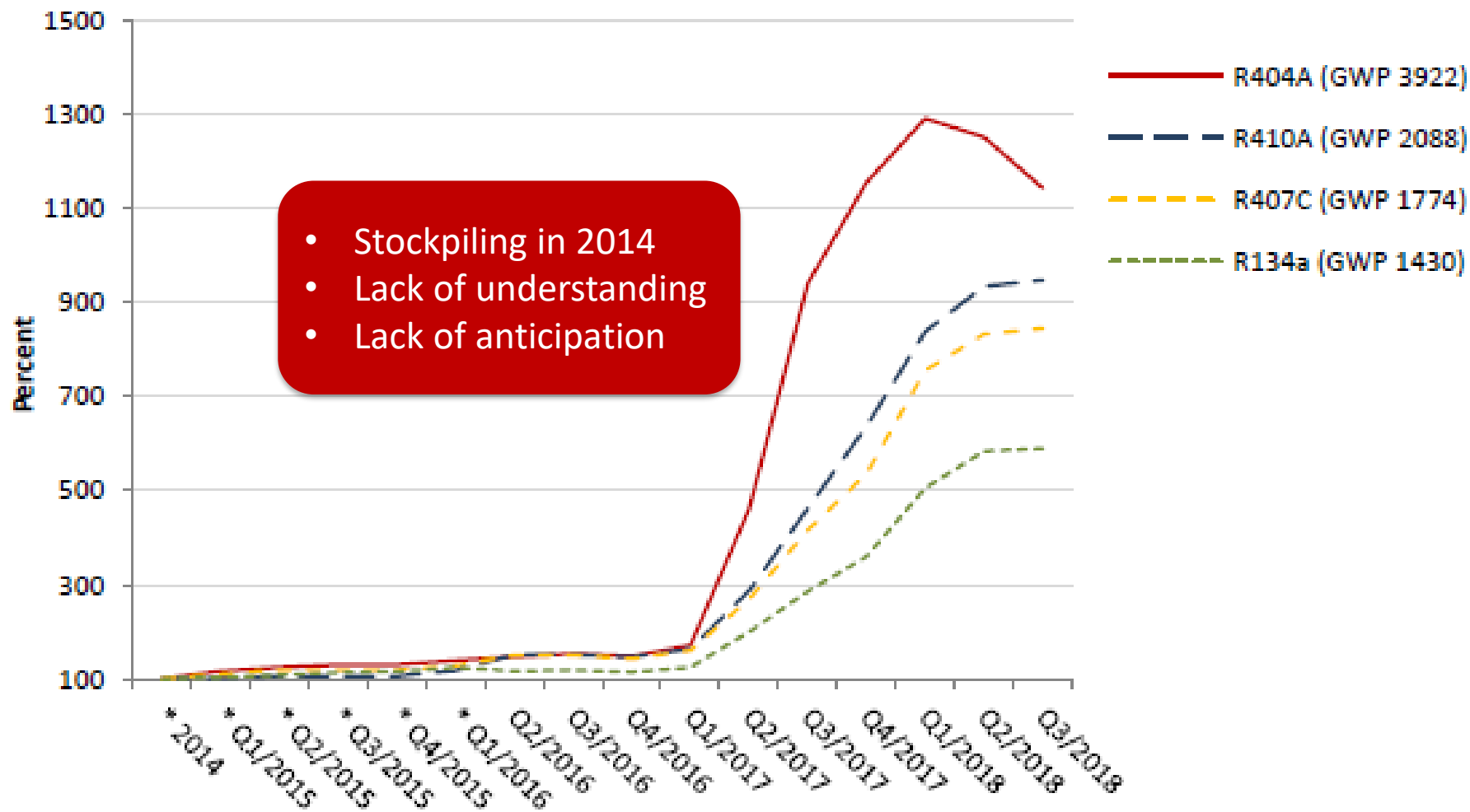
The higher the Global Warming Potential of an HFC, the higher the quantity of CO<sub>2</sub>-equivalent 1 kg of refrigerant represents.



# On track: Progress under the EU Phase-Down



# EU Price Monitoring



\* Data recorded within a previous price monitoring project



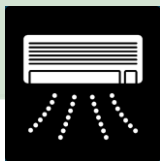
# Some major EU Trends

## New Equipment A/C

**Small splits <3kg:**  
large proportion  
uses R-32

**DX A/C 3kg – 12 kg:**  
rapidly moving to  
R-32

**A/C water chillers:**  
many models with  
HFOs available



## New Equipment Supermarkets

**No new equipment  
with R-404A**

**Large equipment:**  
lots of CO<sub>2</sub>

**Small plug-in  
equipment:**  
hydrocarbons

**Medium size:**  
encouraging signals  
for CO<sub>2</sub>, A2Ls  
hydrocarbons



## Existing Equipment Supermarkets

**Many have invested  
in leak reduction**

**Many have begun  
retrofit programs**

**Big companies  
become self-  
sufficient:**  
recovered R-404A  
for top-ups



## Recovery / Recycling / Reclaim

**Rapid growth in  
reclaim  
infrastructure**

**High price of R-  
404A provides  
incentive for  
recovery/reclaim**



The European Experience

# 7 LESSONS LEARNED FROM EUROPE

# Preliminary remarks

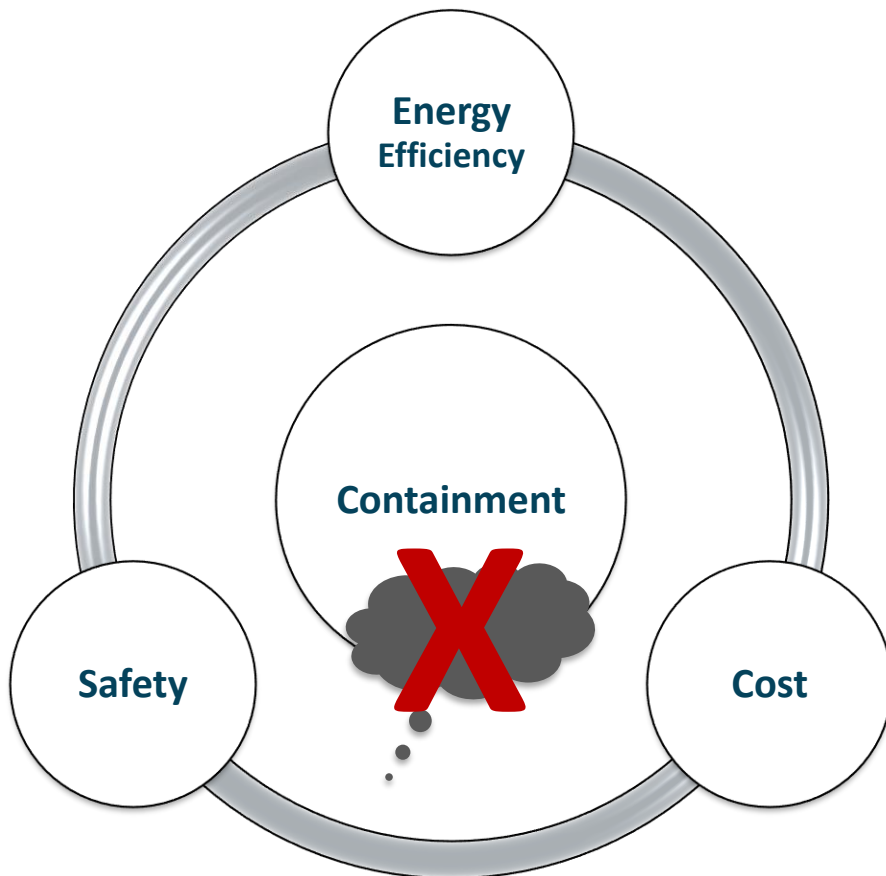


- The full paper can be downloaded on the EPEE website: [www.epeeglobal.org](http://www.epeeglobal.org)
- The EU approach is ONE of MANY ways to achieve HFC consumption reduction steps. There is no one-size-fits-all solution and rules always need to be adapted to the particularities of the respective country and market.
- Developed and developing countries have different characteristics and need tailor-made measures considering many different factors such as market size, manufacturing base or relying on imports, etc.

# Lesson #1: The Basics



Containment & Competence should be the basis of any measure targeting direct f-gas emissions



## → How to achieve containment:

- Design
- Quality of manufacturing
- Quality of installation & maintenance

## → The F-Gas Regulation requires:

- Regular leak checks
- Leak detectors for larger systems
- Certification requirements for technicians
- Labelling

# Lesson #2: Data & Communication



Governments should reach out to the entire supply chain to ensure successful design and implementation of regulation

Cooperation with industry



Solid data



Communication



**Otherwise risk of disproportionate price increases, refrigerant shortages , illegal imports ...**

**To ensure the safe and efficient operation of HVACR equipment:**

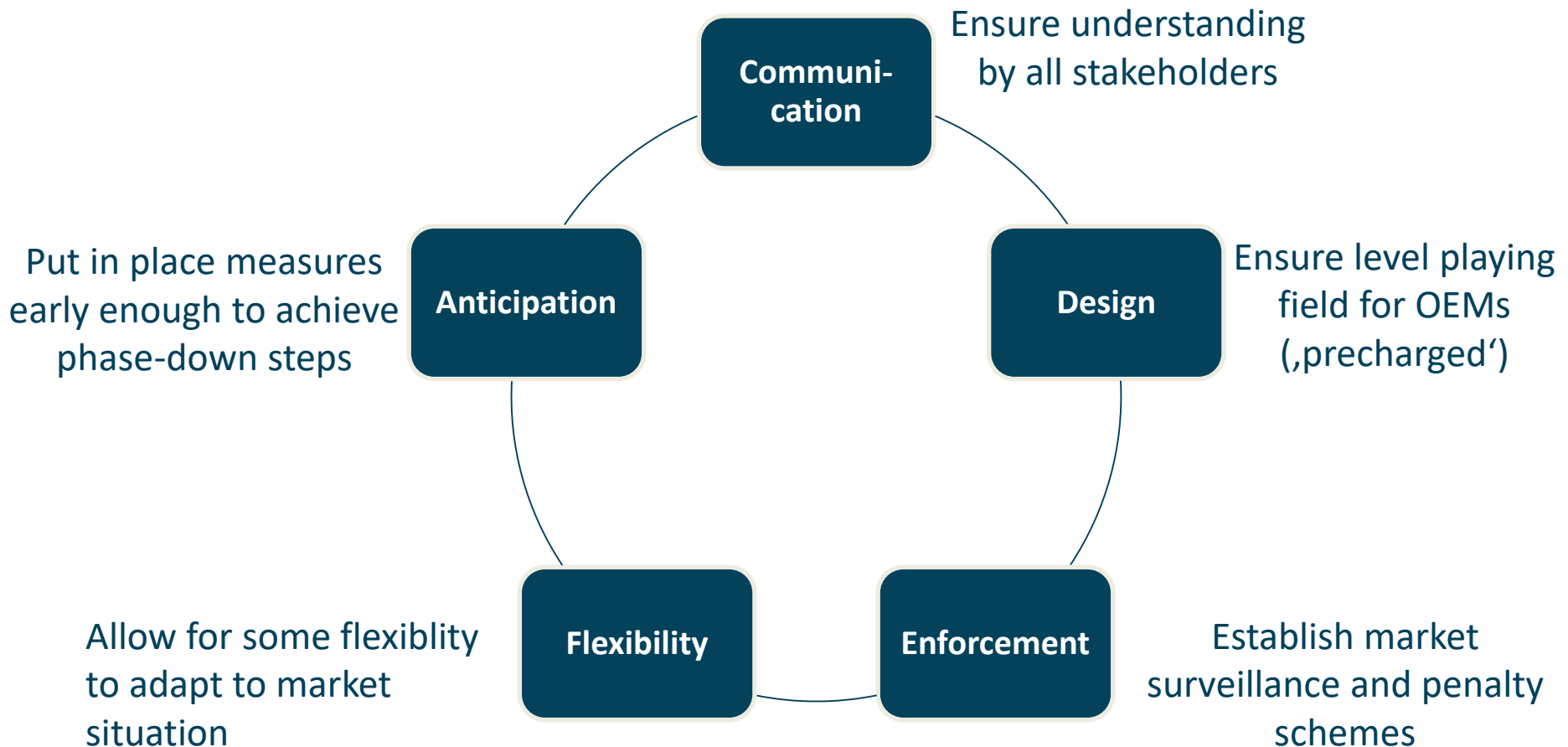
- ➔ **Cooperation:** Governments need to reach out to industry to understand the market
- ➔ **Data:** Policy measures need to be based on solid data: e.g. EPEE commissioned several studies (Armines, SKM Enviro, Gluckman Consulting)
- ➔ **Communication:** All stakeholders need to be aware of the new measures and understand how they will impact them to anticipate compliance



# Lesson #3: Governance



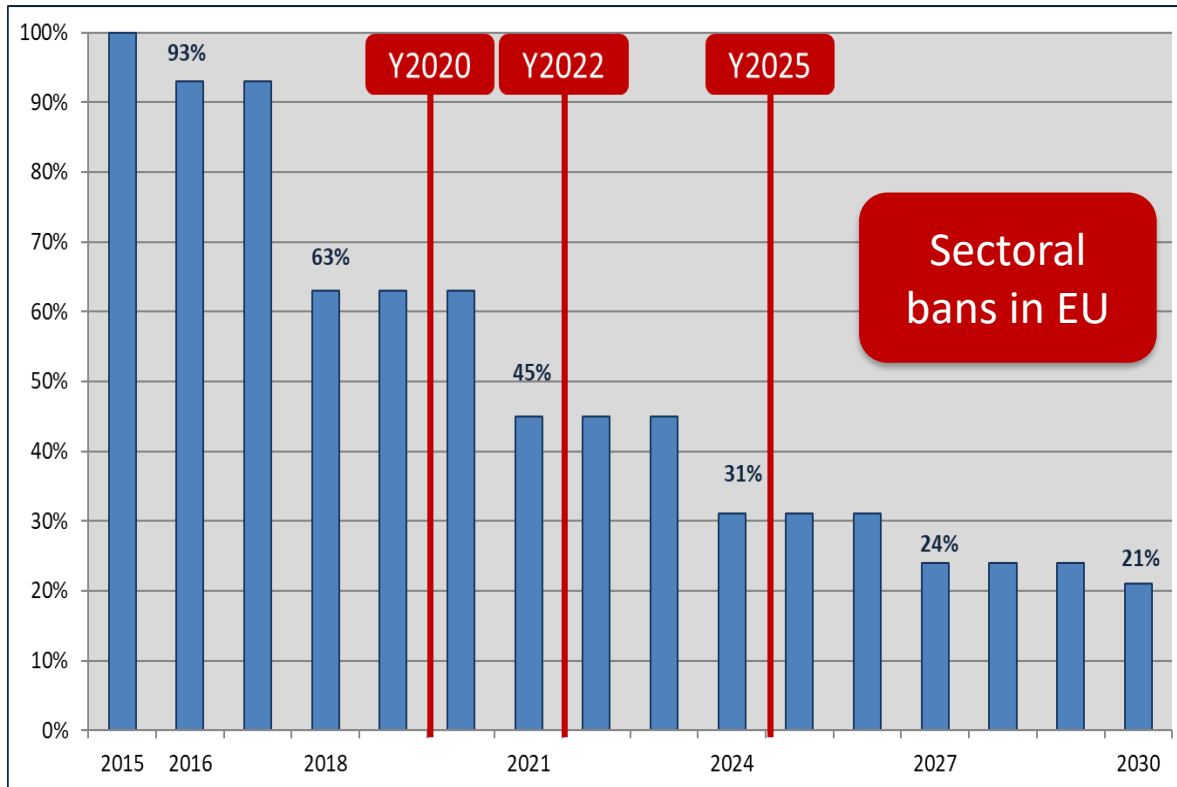
The phase-down principle works but requires excellent governance



# Lesson #4: Alignment



When combining different measures, they need to be aligned and their respective role clearly communicated to the market

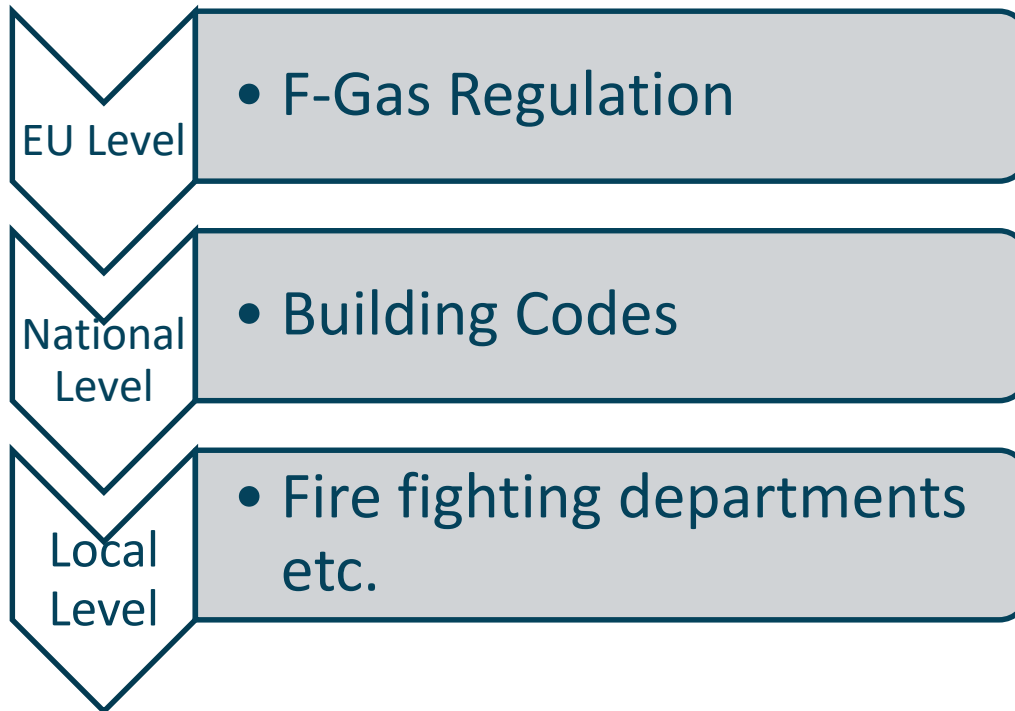


- ➔ Opinions diverge whether sectoral bans are necessary & when they should kick in
- ➔ Stakeholders must understand that the phase-down will force the move twds lower GWP refrigerants
- ➔ Sectoral bans must not be used as an excuse by market players to hold back on necessary action to comply with the phase-down

## Lesson #5: Anticipation



Building codes and standards need to be ready for and aligned with national legislation

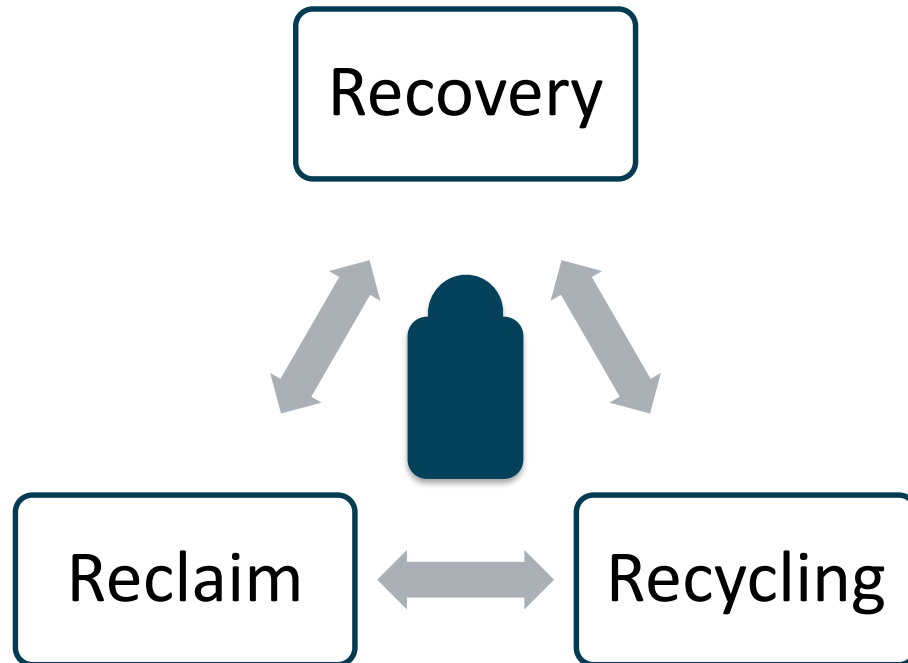


- ➔ The lower the GWP of a refrigerant, the more likely it will be flammable
- ➔ Building codes at national level or at local level are mandatory and sometimes prohibit the use of flammable refrigerants
- ➔ National and local building codes need to be adapted to the use of flammable refrigerants

## Lesson #6: Resources



Recovery, recycling, reclaim and reuse of gases are crucial elements to achieve HFC consumption and emission reductions

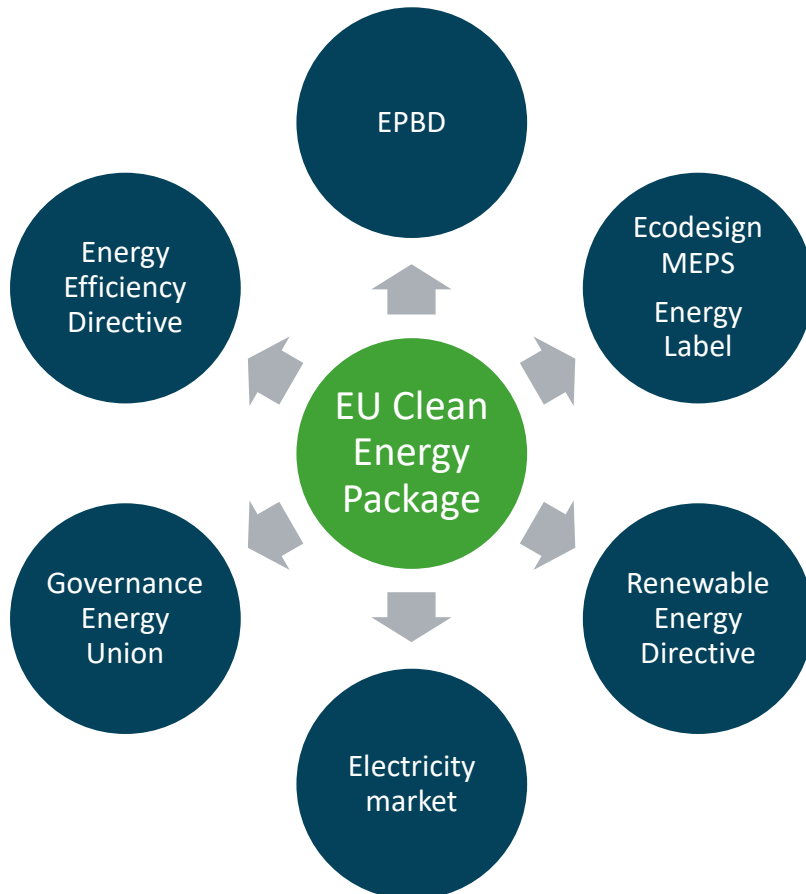


- ➔ Adequate infrastructure
- ➔ Waste legislation needs to allow for the transport of used refrigerant across borders
- ➔ Careful monitoring to avoid that virgin product is filled in cylinders that are labelled as “reclaimed”: buying from reputable sources will reduce that risk

# Lesson #7: Indirect Emissions



Energy efficiency should not be compromised by F-Gas rules and should be addressed in dedicated legislation



- ➔ The largest share of emissions from HVACR equipment is due to the energy use ('indirect' emissions)
- ➔ To effectively reduce emissions, dedicated legislation is indispensable, e.g. for buildings (EPBD) and products (MEPS, energy labelling)
- ➔ When designing phase-down measures, **the need for refrigerants that allow for higher efficiency needs to be considered**



# Conclusions

- HVACR is indispensable for a safe and comfortable life in today's society.
- The HVACR market will grow significantly in the coming decades: this is an opportunity for the industry but also a huge responsibility.
- There are many top of the line, sustainable technologies readily available.
- Refrigerants are just one piece of the puzzle and the HFC phase-down is just one tool among others to achieve emission reductions.
- Direct measures such as containment, recycling/reclaim and charge size reduction can be very effective and should be prioritized.
- Indirect emissions represent the largest share and need to be addressed in dedicated legislation.



# Thank you for your attention – Questions?

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