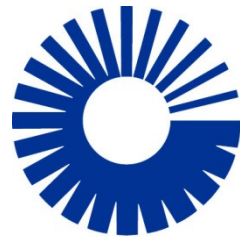




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16-17 March 2015 in Brussels



**United  
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Implementation of the new EU F-Gas Regulation-  
a view from the industry

March 16, 2015

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Juergen Goeller, Director Sustainability, Refrigeration

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# NEW EU F-GAS REGULATION

## Central elements

### 2050 Low Carbon Roadmap

#### Containment & Competence

Regular leakage checks

Training and certification of installers

#### HFC Phase-Down

Reduction of HFC consumption

2020: -37%

2022: -55%

2025: -69%

2030: -79%

#### HFC Use Restrictions

2015: **GWP>150**  
Domestic Refrigeration

2020: **GWP>150**  
Moveable Room A/C

2020: **GWP>2500**  
New stationary refrigeration equipment

2022: **GWP>150**  
Multipack refrigeration systems >40kW (except indirect cascades >1500)

2025: **GWP>750**  
Single split A/C < 3kg

#### Other Provisions

2015: Extension to Transport Refrigeration

2015: Extended Reporting On HFC Supplies

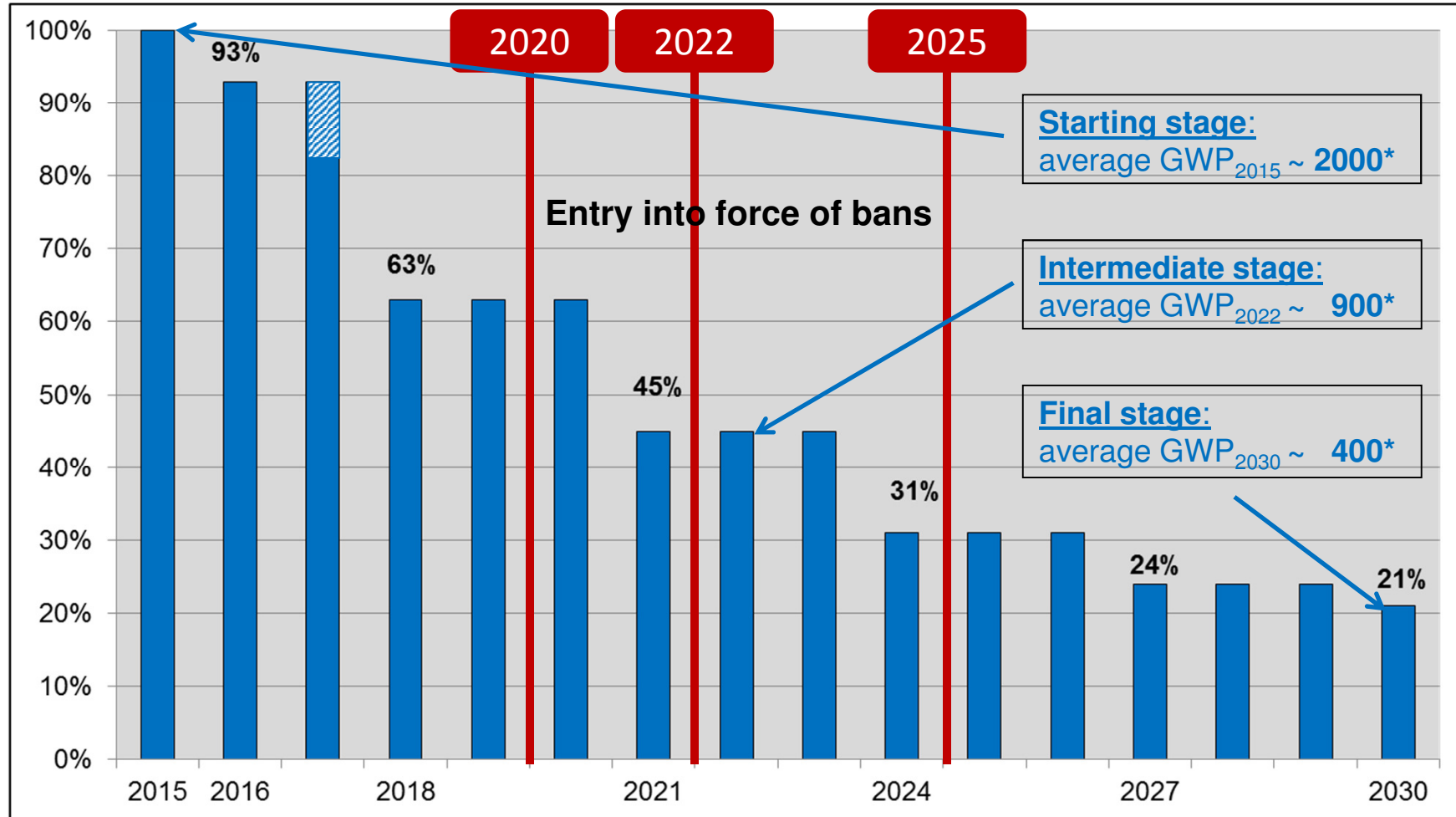
2015: New charge size thresholds for mandatory leakage checks (CO<sub>2</sub> eq.)

2017: Traceability scheme for accounting of HFC's contained in pre-charged equipment

2020: **GWP>2500**  
Service/ maintenance of refrigeration equipment

# HFC PHASE-DOWN SCHEME

## Main lever of the new regulation



\* Source : EU Commission

# TRANSITION TO LOW GWP REFRIGERANTS

## Impact of specific HFC use restrictions

### 2015: ban of HFCs with GWP>150

- Domestic refrigerators and freezers



### 2020: ban of HFCs with GWP> 2500

#### • **New refrigeration equipment**

- Hermetically sealed refrigerators and freezers for commercial use
- All stationary refrigeration equipment, except for temperature < -50°C



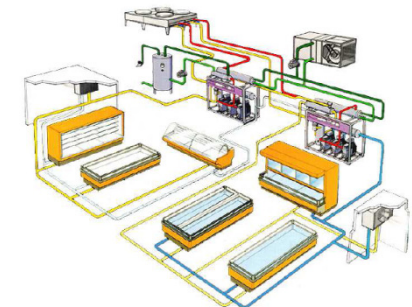
#### • **Existing refrigeration equipment** (service & maintenance)

- Except small equipment (<40t of CO<sub>2</sub>-eq), military, temperature < -50°C
- Recycled/ reclaimed HFCs with GWP>2500 can still be used until 2030

### 2022: ban of HFCs with GWP>150

#### • **New refrigeration equipment**

- Hermetically sealed refrigerators and freezers for commercial use
- Large commercial refrigeration equipment (>40kW), except indirect cascade refrigeration systems (GWP>1500)



# TRANSITION TO LOW GWP REFRIGERANTS

## Impact of specific HFC use restrictions

### 2020: ban of HFCs with GWP>150

- Movable room air-conditioning appliances:
  - hermetically sealed equipment which is movable between rooms by the end user



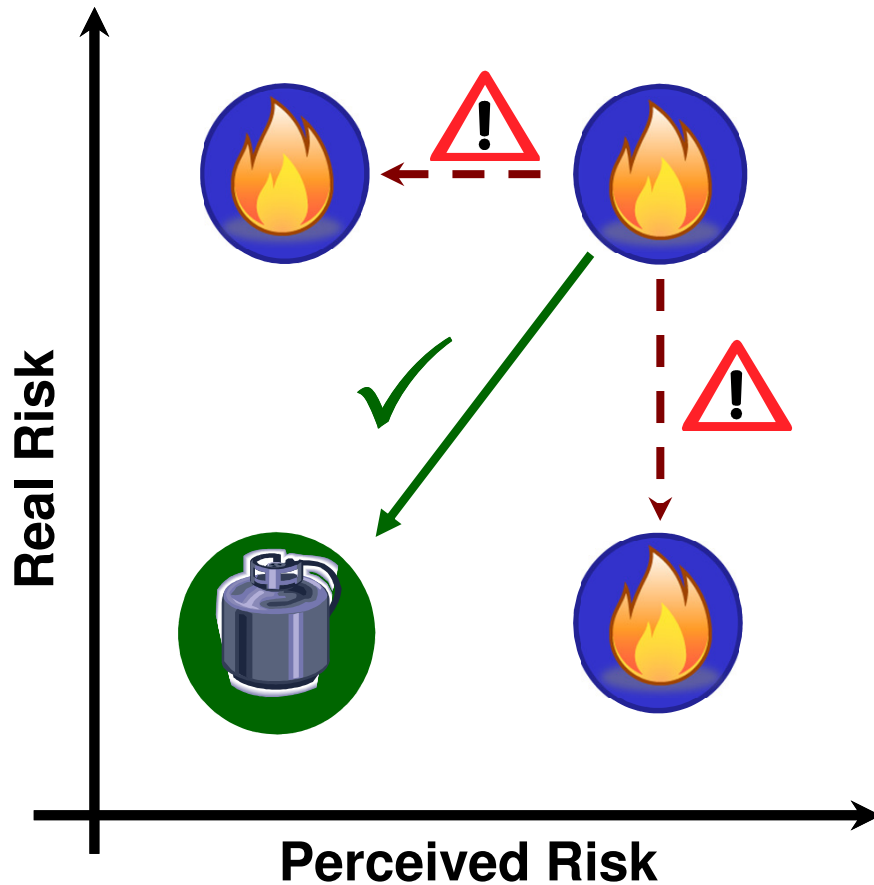
### 2025: ban of HFCs with GWP>750

- Single split air-conditioning systems
  - containing less than 3kg of fluorinated greenhouse gases



# TRANSITION TO LOW GWP REFRIGERANTS

## Real and perceived risks



### Reduce Real Risk:

#### •Training of Installers

- Only < 12% of installers in the EU are trained for the use of flammable, toxic, high pressure refrigerants

#### •Adaptation of Codes & Standards

- Codes & Standards need to be adapted (e.g. ISO5149, EN378...), to enable the safe use of flammable refrigerants

### Reduce Perceived Risk:

#### •End-user behaviour

- HVAC segments: End-users need to gain experience and confidence in flammable refrigerants where applicable
- Transport and commercial refrigeration segments: end-users need to fully understand and evaluate the risks when considering A2L or A3 refrigerants
- Risk determines purchasing behaviour

# NEW EU F-GAS REGULATION

## Impact on operators/ retailers

### **Avoid buying new HVAC equipment with R404A/ R507 (but OK for transport & commercial systems)**

- Watch out for 2017/ 2018 : large cut under the HFC phase-down scheme
- Develop refrigerant strategy for new systems
- Use low and lower GWP refrigerants if possible
- **Apply natural refrigerants where feasible**

### **Prepare for service ban on R404A/ R507**

- Anticipate and act early
- Reclaimed/ recycled refrigerant can still be used until 2030!

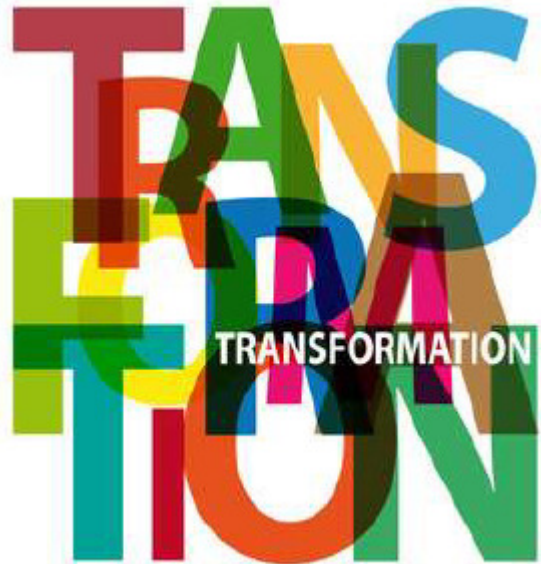


### **New thresholds for leak checking and detection – now based on CO<sub>2</sub>-equivalent**

- Threshold drops from 3kg to 1.3kg of R404A
- Leak detection system requirement drops from 300kg to 127kg R404A

# NEW EU F-GAS REGULATION

## Key industry activities



- Appropriate education and training of installers is a key priority
- Standards and building codes need to be adapted to mildly flammable refrigerants
- Refrigerant producers develop new lower GWP refrigerants and blends
- Equipment manufacturers develop new technologies





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