

# NEW EU REGULATION F-GAS 2024/573: IMPLICATIONS

Released: 31 december 2024



**GeneralGas**  
PASSIONATELY COOL

  
**KRYON**  
Gas Refrigeranti

 **B-BRAZE**  
Gas Brazing

 **G-TEC**  
Technical Gases

 **GK-TOOLS**  
Professional Tools

 **GK-LAB**  
Chemical Products

# GeneralGas at a glance

GeneralGas is an industry leader in the Air Conditioning and Refrigeration sectors.

Since **50 years** we guarantee **expertise** and **excellence** in products and services to our Customers.

The consolidated partnership with leading multinationals in the sector, such as **Honeywell Fluorochemicals** and **Chemours** (formerly DuPont) has allowed us to develop a high specialized know-how and acquire a solid European leadership position.





In every trait of **nature** there is something wonderful to preserve.

# Quality & Certifications



We adopt and undertake to respect high quality standards of products and services, such as **UNI EN ISO 9001:2008** and **AHRI 700**



At our laboratory we provide **analytical and testing services for refrigerants**, in full compliance with international standards **AHRI 700**.



Our factory in Cernusco sul Naviglio (MI) is ISO 9001 certified, and we are **authorized by the Province of Milan** and the **Italian Ministry of Environment** to the storage (R13), recovery (R3) and disposal (D15) of waste from CFC, HCFC and HFC.



## KRYON

Refrigerant Solutions



## G-TEC

Technical Gases



## B-BRAZE

Gas Brazing



## GK-TOOLS

Professional Tools



## GK-LAB

Chemical Products



[www.saldogas.it](http://www.saldogas.it)

Refrigerants  
Welding equipment  
Brazing equipment



Engineering  
Reclamation services



**50 years of expertise**  
in the **HVACR** sector

Production and  
distribution of  
refrigerant gases  
**HFC, HFO Low GWP,**  
**CO<sub>2</sub> (R744), propane**  
**(R290)**

Distribution of  
lubricants,  
chemicals,  
instruments and  
equipment for  
HVACR market

European leader in  
Refrigerant Gas  
**Recovery, Disposal**  
and **Reclamation**  
Services

**3 production**  
**facilities** in Italy  
**6 logistic depots** and  
**20 agents** with depot  
in Italy

Market share in Italy  
about  
**30%**

Turnover  
2023 (HVACR only)  
**77.6** MM€

Export to **EU27, USA,**  
**Middle East**

# Commercial Partners

Official Authorized Distributor for HFC and HFO Refrigerants

**Honeywell**

Solstice®



**Koura**

**ARKEMA**

Exclusive Distributor for Italy

**Fieldpiece**



**VALUE**®

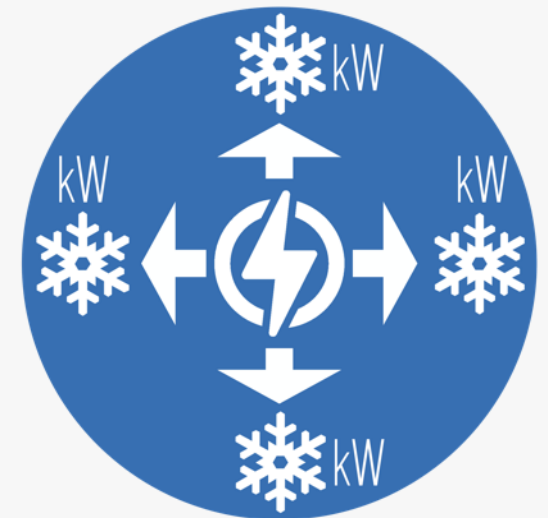
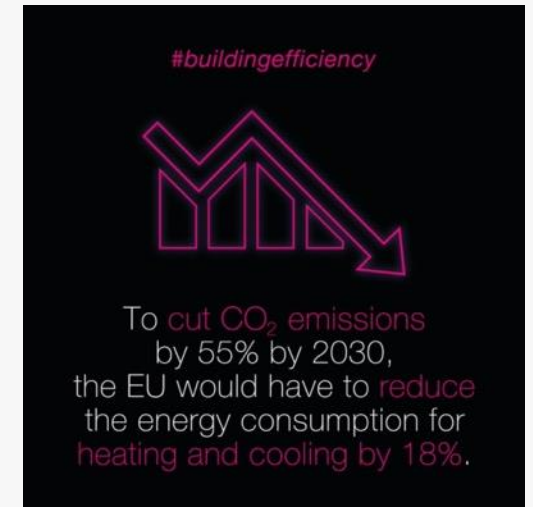
Authorized Distributor



# New F-Gas Regulation 2024/573

## Background

- EU F-Gas policy has the specific objectives of:
  - discourage the use of fluorinated gases with a high global warming potential (GWP)
  - encourage the use of alternative substances or technologies, when these allow:
    - a reduction in greenhouse gas emissions;
    - without compromising:
      - ✓ **security**
      - ✓ functionality
      - ✓ **energy efficiency**
- preventing leaks from equipment and **proper end-of-life treatment of fluorinated gases** in applications → circular economy, extended producer responsibility (EPR)





# Revision of F-Gas Regulation - 2024

## Status of the adoption process of the new regulation



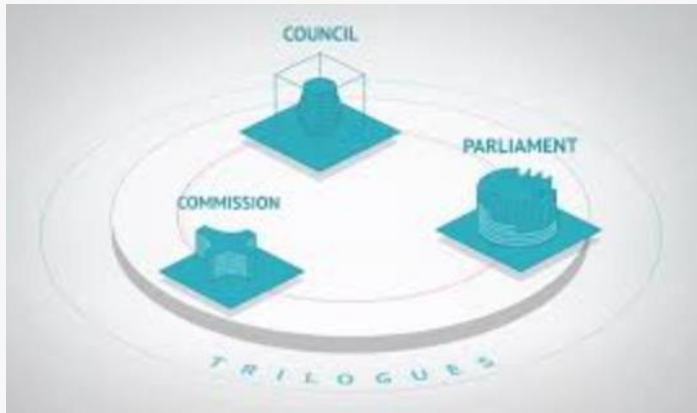
**EUROPEAN COMMISSION:** With the aim of controlling emissions of fluorinated gases, EU Regulation 517/2014 is in its third revision. The proposal was published in April 2022



**EUROPEAN PARLIAMENT:** Opinion of the Committee on Industry, Transport, Research and Energy (ITRE) delivered on 24 January 2023, vote of the Committee on the Environment (ENVI), leader, delivered on 30 March 2023.



**EUROPEAN COUNCIL:** On 5 April the Member States agreed on a mandate for the Presidency to start negotiations with the European Parliament on the revision of the F-Gas Regulation.



### TRILOGUES:

The Council, the Commission and the Parliament concluded the so-called TRILOGUES (trialogue negotiations) at their fourth session on 5/10/2023 and agreed on the final form of the regulation. The agreement was formally adopted by the three institutions, and then voted in the European Parliament on 16/1/2024, approved by the European Council and then published in the Official Journal of the EU on 20/2/2024. **It entered into force and therefore became law in every state of the European Union as of March 11, 2024.**

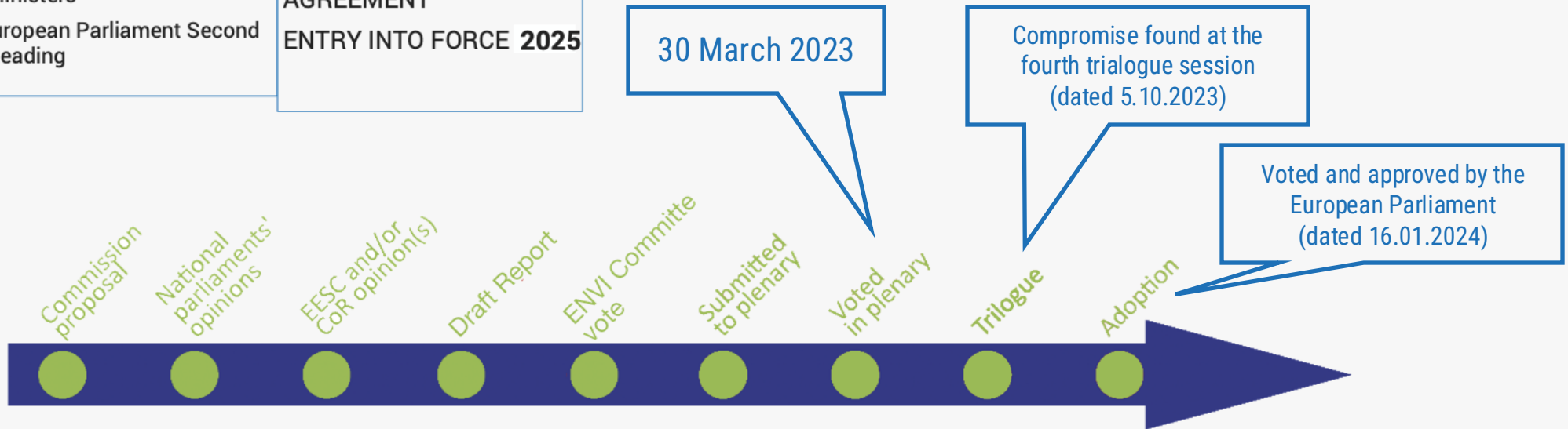
# New Fgas Regulation (EU) 2024/573

- On 20 February 2024, the text of the new Regulation was published in the Official Journal of the European Union.
- The new Regulation (EU) 2024/573 of the European Parliament and of the Council of 7 February 2024 on fluorinated greenhouse gases amends Directive (EU) 2019/1937 and repeals Regulation (EU) No 517/2014
- As a consequence, as of March 11, 2024, it has become law in every state of the European Union.
- Since it is a regulation, it does not require national implementing decrees, except in the parts where it is expressly indicated; It must therefore be complied with from the outset.



[https://eur-lex.europa.eu/legal-content/IT/TXT/PDF/?uri=OJ:L\\_202400573](https://eur-lex.europa.eu/legal-content/IT/TXT/PDF/?uri=OJ:L_202400573)

# EU Fgas Revision TIMELINE



# Proposed Revision of F-Gas Regulation - 2024

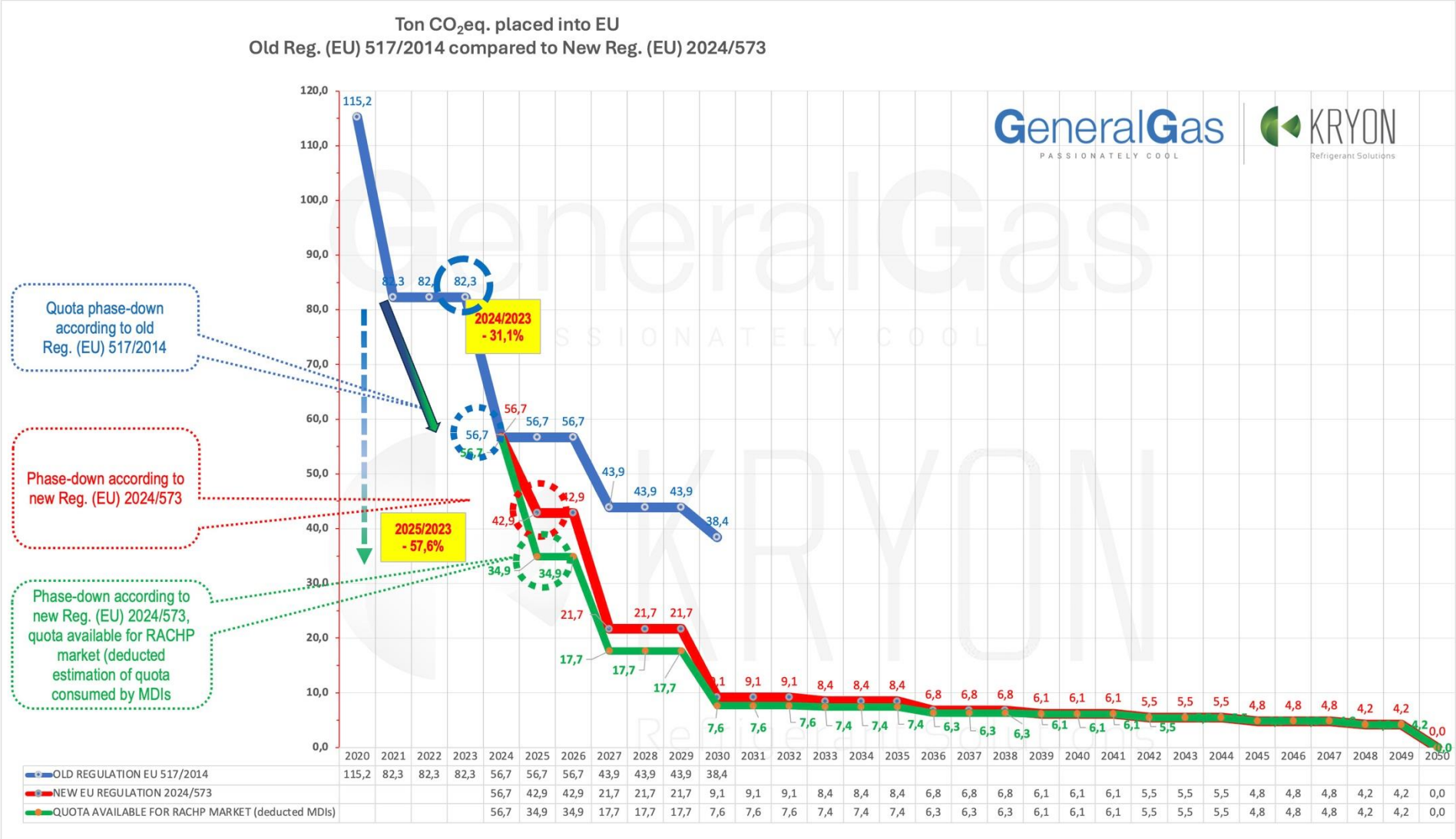
## What is meant by 'CO<sub>2</sub> equivalent'?

- The **quota** (or EU marketing authorisation) represents the maximum **amount of** fluorinated refrigerant gases that can be placed on the EU market
- This quantity is not expressed in metric tons (or kg of gas) but rather in **tons of CO<sub>2</sub><sub>eq.</sub>**
- The CO<sub>2</sub>eq. value is obtained by multiplying the kg of gas by the specific GWP of the gas
  - R134a – GWP = 1.430 → 1 kg R134a = 1,430 Ton CO<sub>2</sub><sub>eq.</sub>
  - R410A - GWP = 2.088 → 1 kg R410A = 2,088 Ton CO<sub>2</sub><sub>eq.</sub>
  - R448A - GWP = 1.387 → 1 kg R448A = 1,387 Ton CO<sub>2</sub><sub>eq.</sub>
- The higher the GWP value of the gas → the lower the quantity in kg for the same **share consumed**
- 100,000 tons of CO<sub>2</sub><sub>eq.</sub> available for marketing, can be spent:
  - 25,080 kg of R404A or
  - 72,100 kg of R448A



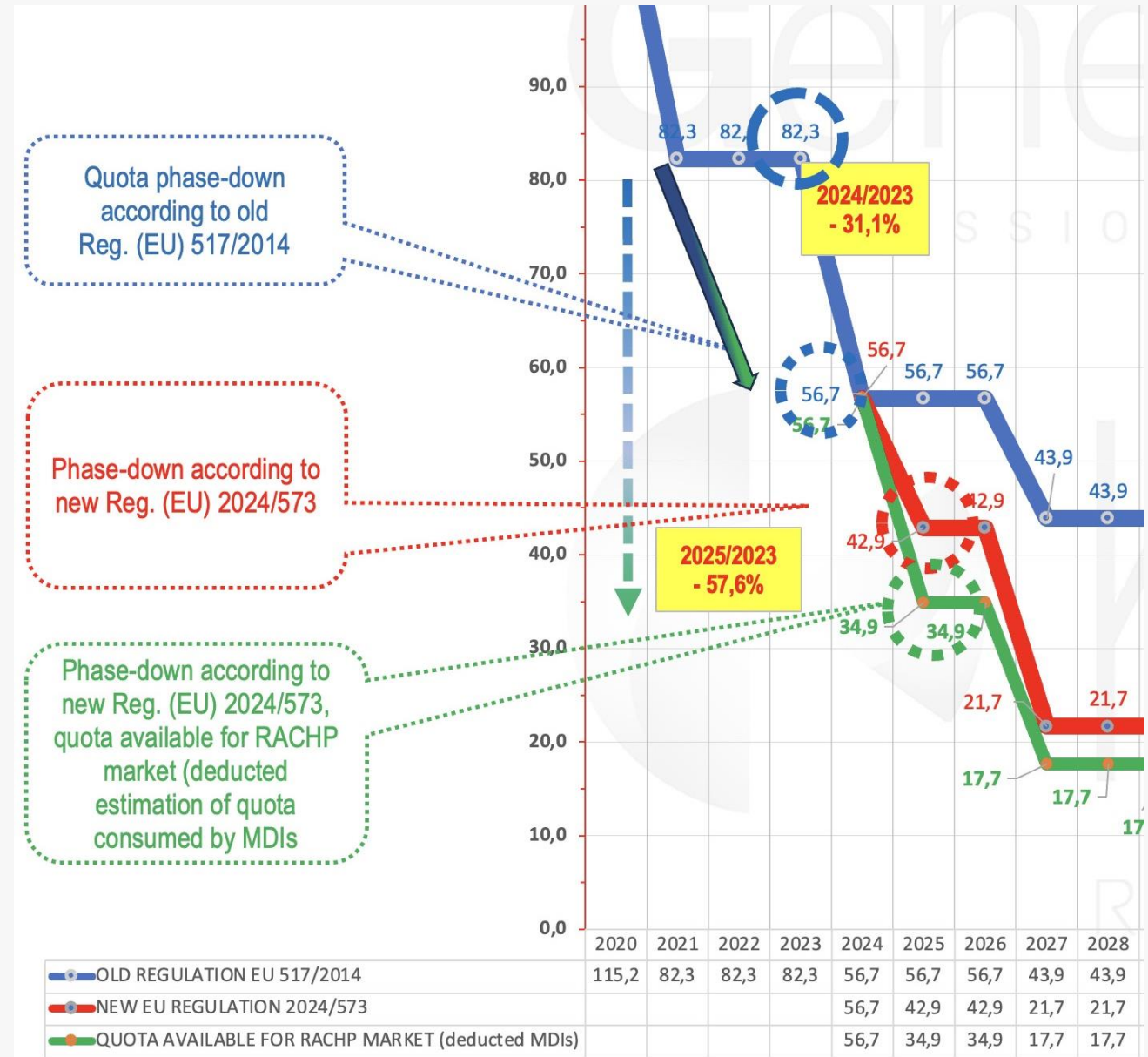
Note: as required by art. 19 of the new Regulation, from 1 January 2025 also **metered medical inhaler MDIs** (for asthma and respiratory diseases), loaded with HFCs mainly R134a - will not be able to be placed on the market, unless HFCs are accounted for under the quota system.

This specific application, which has so far been exempted from the CO2 quota system, has an impact of approximately **8 million tons of CO2eq.**





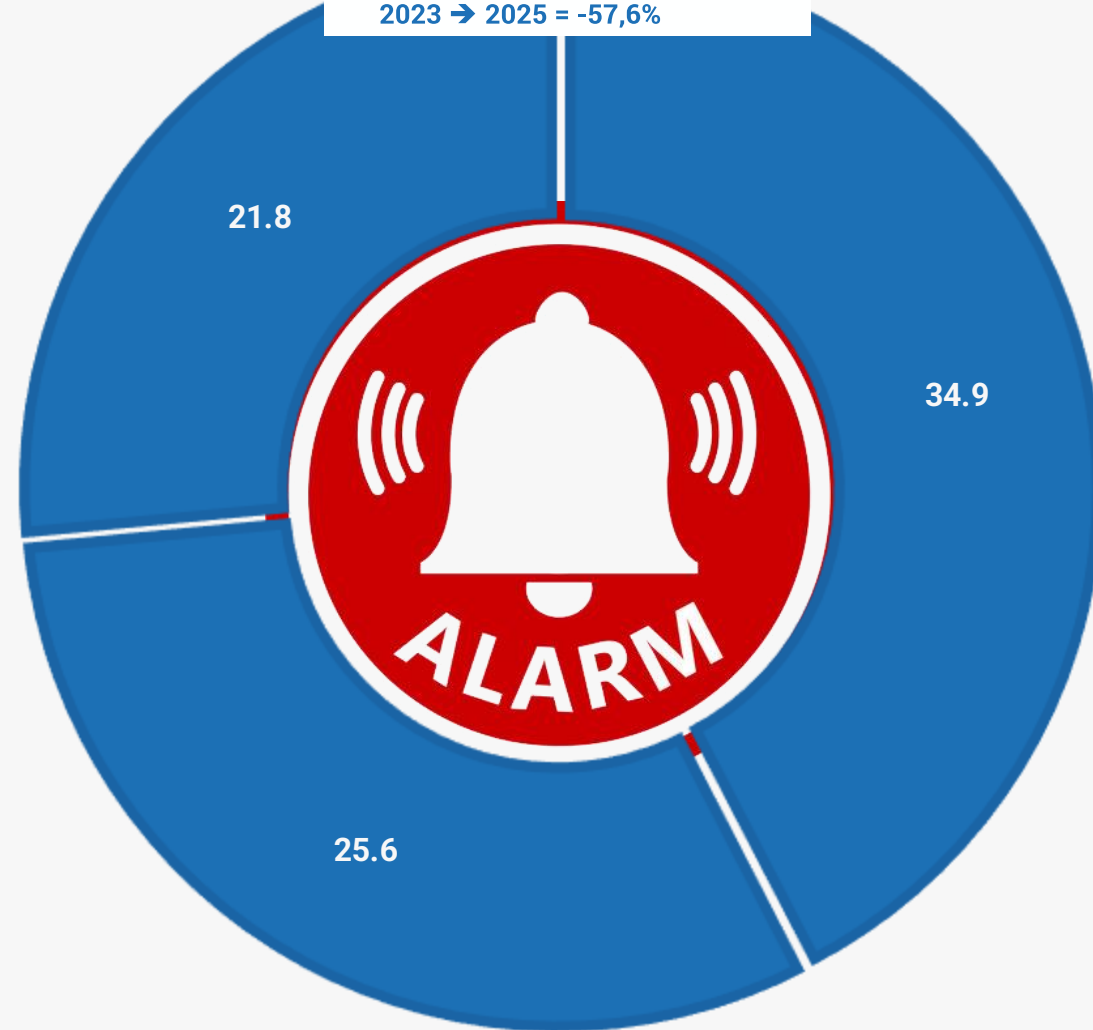
- Phase down TonCO<sub>2</sub>eq.
  - 2023 → 2024 = -31,1%**
- Phase down TonCO<sub>2</sub>eq. available for **RACHP** market
  - 2023 → 2025 = -57,6%**



# Quota 2023 82,3 MMTon CO<sub>2</sub> 100%

- Phase-down quota TonCO<sub>2</sub>eq.  
**2023 → 2024 = -31,1%**
- Phase-down TonCO<sub>2</sub>eq. available for **RACHP** market  
**2023 → 2025 = -57,6%**

- Phase-down quota TonCO<sub>2</sub>eq.  
**2023 → 2024 = -31,1%**
- Phase-down TonCO<sub>2</sub>eq. available for **RACHP** market  
**2023 → 2025 = -57,6%**



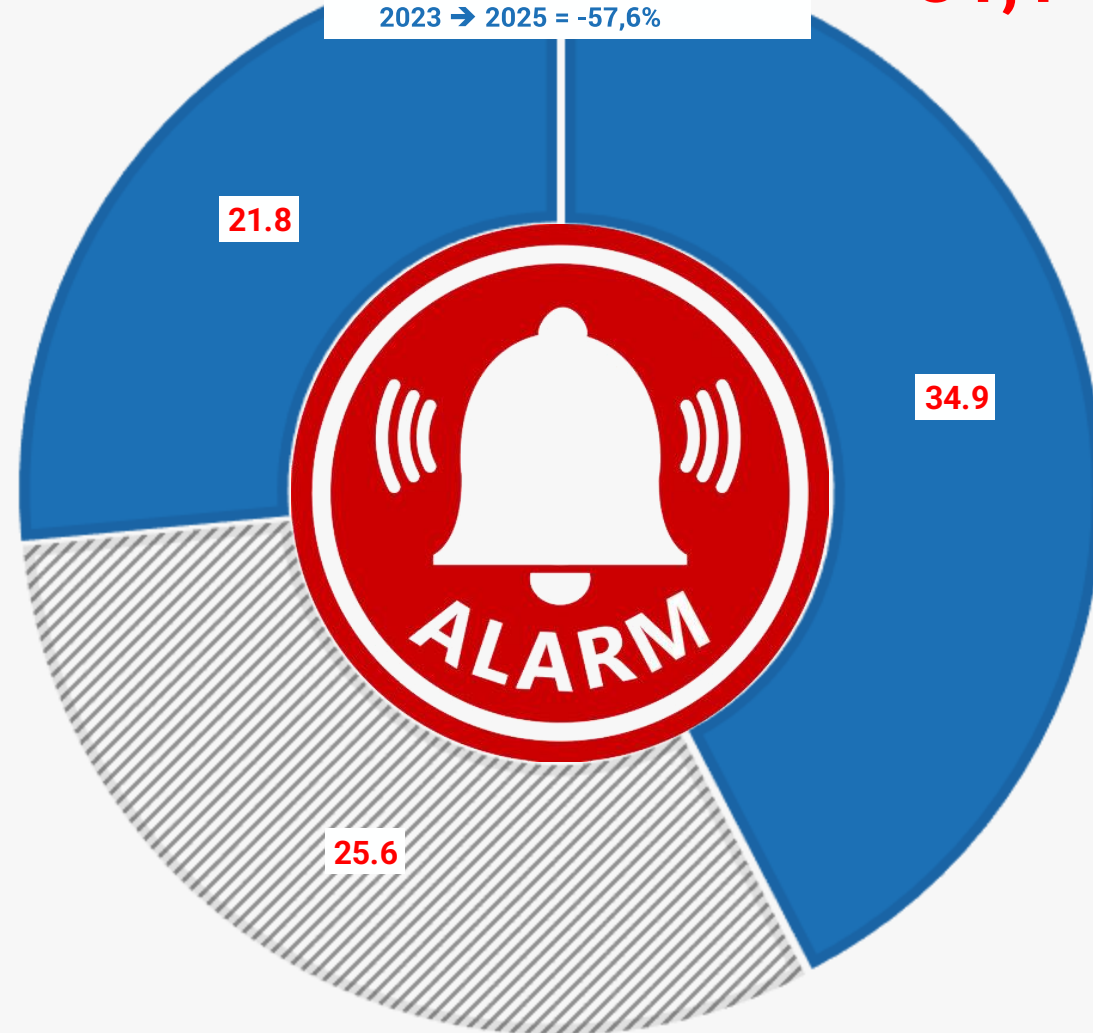
# Quota 2024

## 56,7 MMTon CO<sub>2</sub>

### -31,1% Vs 2023

- Phase-down quota TonCO<sub>2</sub>eq.  
**2023 → 2024 = -31,1%**
- Phase-down TonCO<sub>2</sub>eq. available for RACHP market  
**2023 → 2025 = -57,6%**

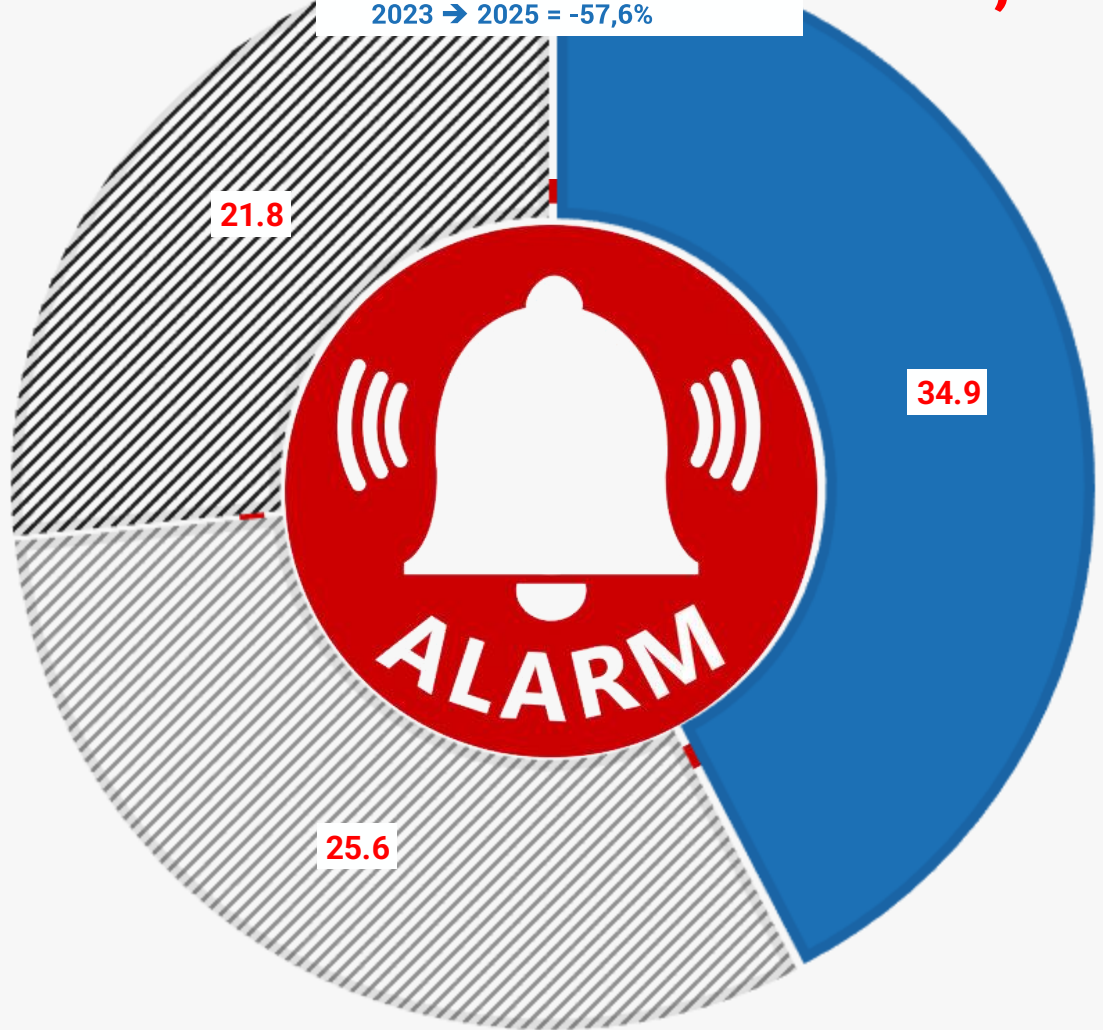
- Phase-down quota TonCO<sub>2</sub>eq.  
**2023 → 2024 = -31,1%**
- Phase-down TonCO<sub>2</sub>eq. available for RACHP market  
**2023 → 2025 = -57,6%**



# Quota 2025 34,9 MMTon CO<sub>2</sub> -57,6% Vs 2023

- Phase-down quota TonCO<sub>2</sub>eq.  
**2023 → 2024 = -31,1%**
- Phase-down TonCO<sub>2</sub>eq. available for RACHP market  
**2023 → 2025 = -57,6%**

- Phase-down quota TonCO<sub>2</sub>eq.  
**2023 → 2024 = -31,1%**
- Phase-down TonCO<sub>2</sub>eq. available for RACHP market  
**2023 → 2025 = -57,6%**





# Fgas quota in sharp decline!

## How to deal with new scenario?

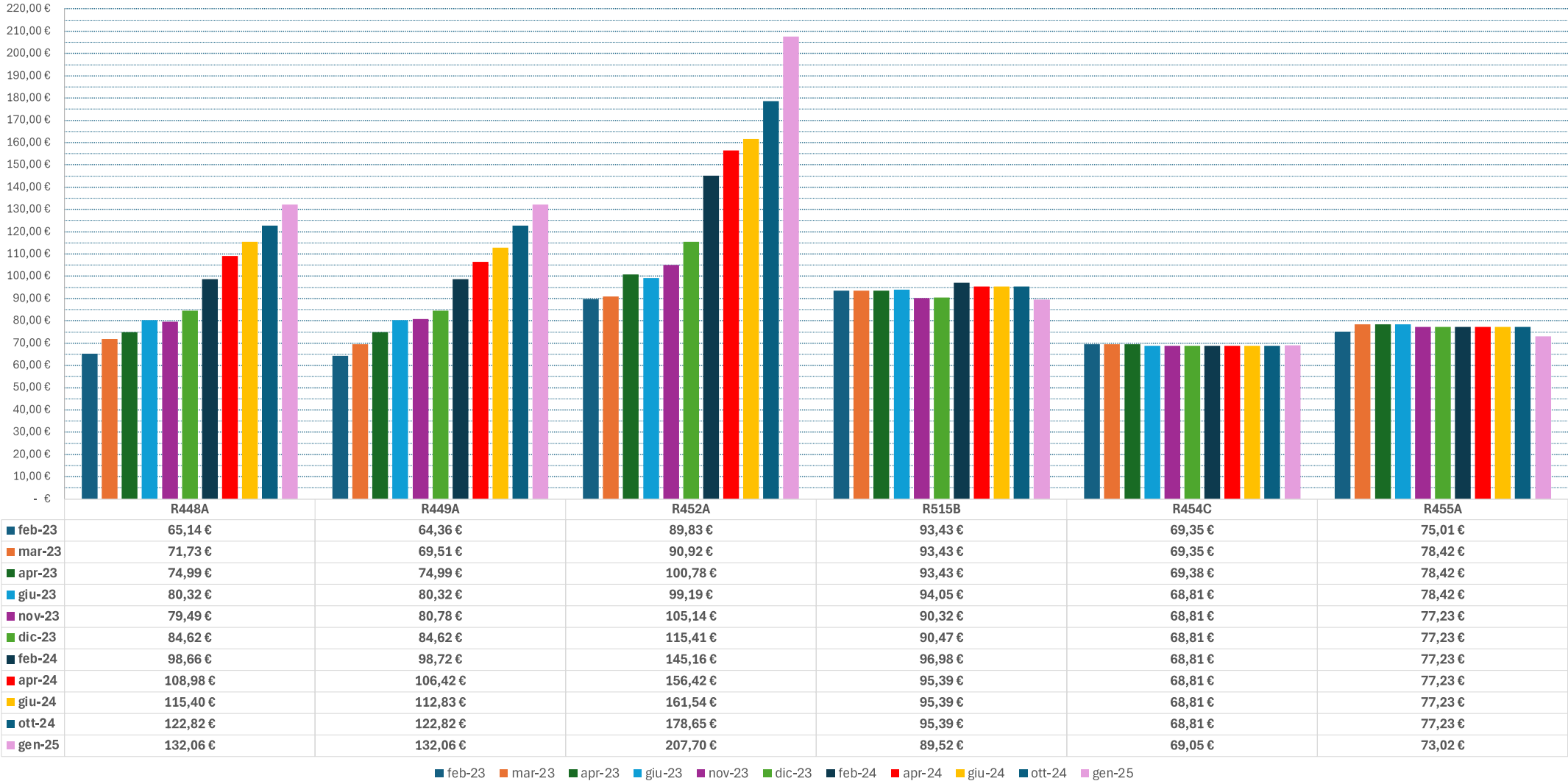


- Is it time to start thinking about building new systems with **A2L refrigerants only**?
- A2Ls consume much less altitude (about a tenth of R448A-R449A)
- Today, a **price difference of about € 20.00/kg** applies between an A2L refrigerant and a mid-GWP refrigerant (such as R448A and R449A) in favour of A2L (R454C and R455A)
- This difference, if we **compare the A2L with the 452A, goes to about 45.00 €/kg**, since the 452A consumes a lot of quota (GWP = 2,141 almost 15 times greater than the A2L)
- As the Fgas quota decreases, the 452A will be increasingly difficult to find
- Virgin **404A** will be **banned** as of 1<sup>st</sup> January, 2025



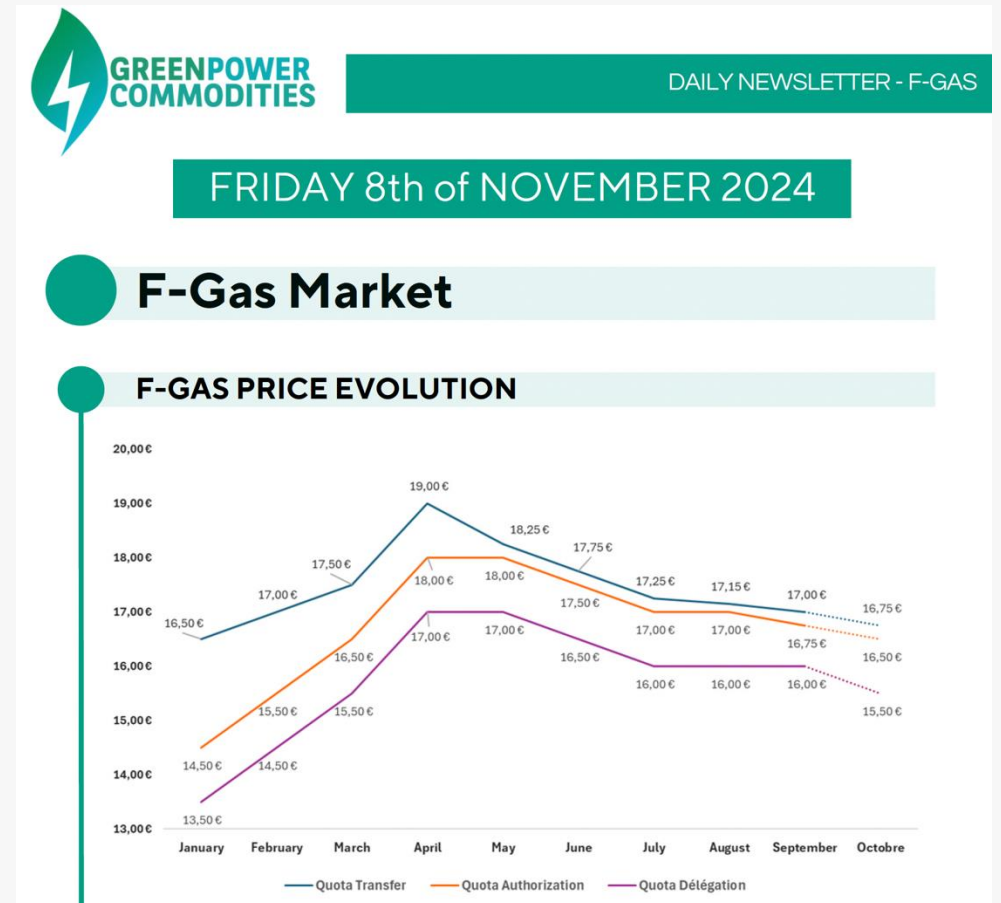
# Price Trend over time (retail prices)

ANDAMENTO PREZZI MISCELE MID-GWP HFC/HFO VS MISCELE HFO A2L ULTRA LOW GWP - prezzi listino al pubblico



# The value of the Fgas share drives the Fgas price

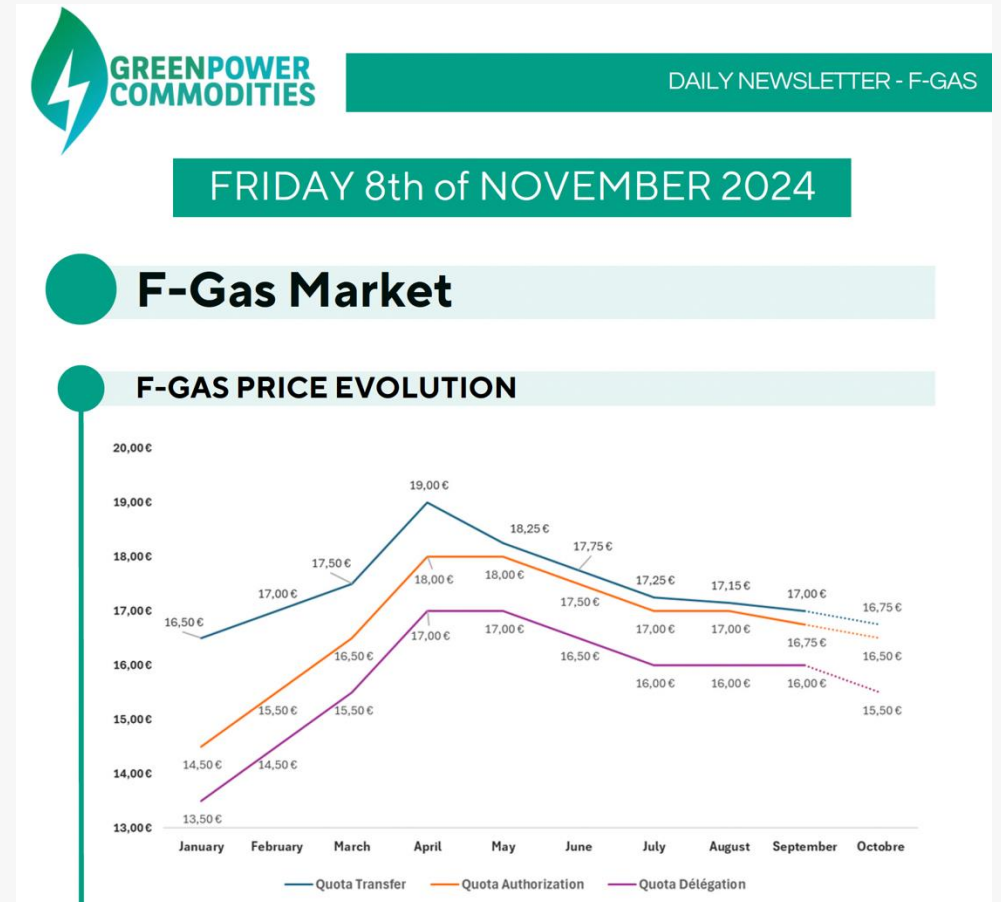
- The **value of the Fgas quota** is a publicly available figure
- In Q4, the value of the 'incumbent' quota, which is required to import Fgas in bulk (isotanks or drums), varied in the range of € 16.75-17.00/ton CO<sub>2</sub>eq.
- To the price of the Fgas quota, which is compulsory to import, it is of course necessary to add the value of the raw material at source (in almost all cases China)
- Example: R410A = GWP 2.088 Ton CO<sub>2</sub>eq. /kg gas
  - $2.088 \times 16.75 \text{ €/Ton CO}_{2\text{eq.}} = 34.97 \text{ €/kg}$  + cost of imported raw material 4.00 €/kg + customs duties 6.5% = **total cost € 39.23 €/kg** (cost for the importer, who has to anticipate the investment, take care of the whole import process including payment of customs duties and VAT, unload the gas from the isotank, transfer it into his own containers and apply his sales margin)



Source: Vertis Environmental Finance | F-Gas Monthly Newsletter | January 2024

# The value of the Fgas share drives the Fgas price

- The **value of the Fgas quota** is a publicly available figure
- In Q4, the value of the 'incumbent' quota, which is required to import Fgas in bulk (isotanks or drums), varied in the range of € 16.75-17.00/ton CO<sub>2</sub>eq.
- To the price of the Fgas quota, which is compulsory to import, it is of course necessary to add the value of the raw material at source (in almost all cases China)
- Example: R134a = GWP 1.430 Ton CO<sub>2</sub>eq. /kg gas
  - $1.430 \times 16.75 \text{ €/Ton CO}_{2\text{eq.}} = 23.95 \text{ €/kg}$  + cost of imported raw material 4.00 €/kg + customs duties 6.5% = **total cost € 28.21 €/kg** (cost for the importer, who has to anticipate the investment, take care of the whole import process including payment of customs duties and VAT, unload the gas from the isotank, transfer it into his own containers and apply his sales margin)

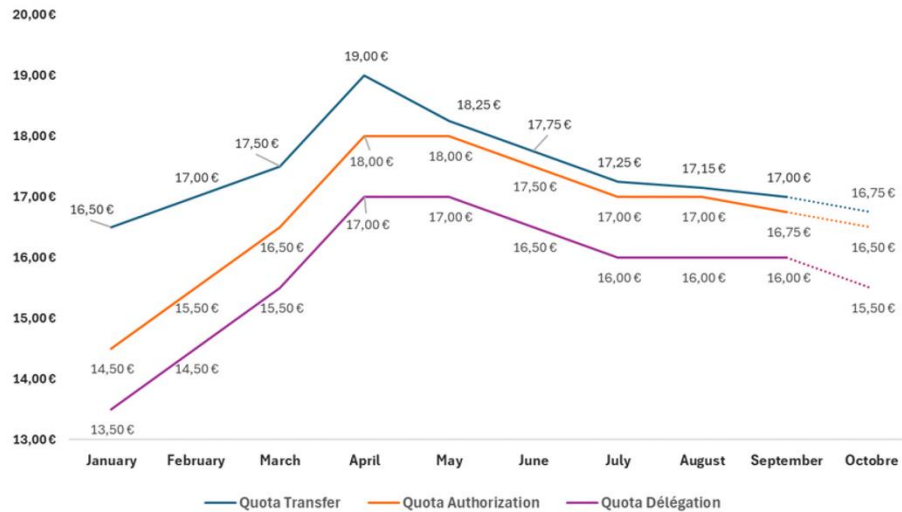


Source: Vertis Environmental Finance | F-Gas Monthly Newsletter | January 2024

FRIDAY 8th of NOVEMBER 2024

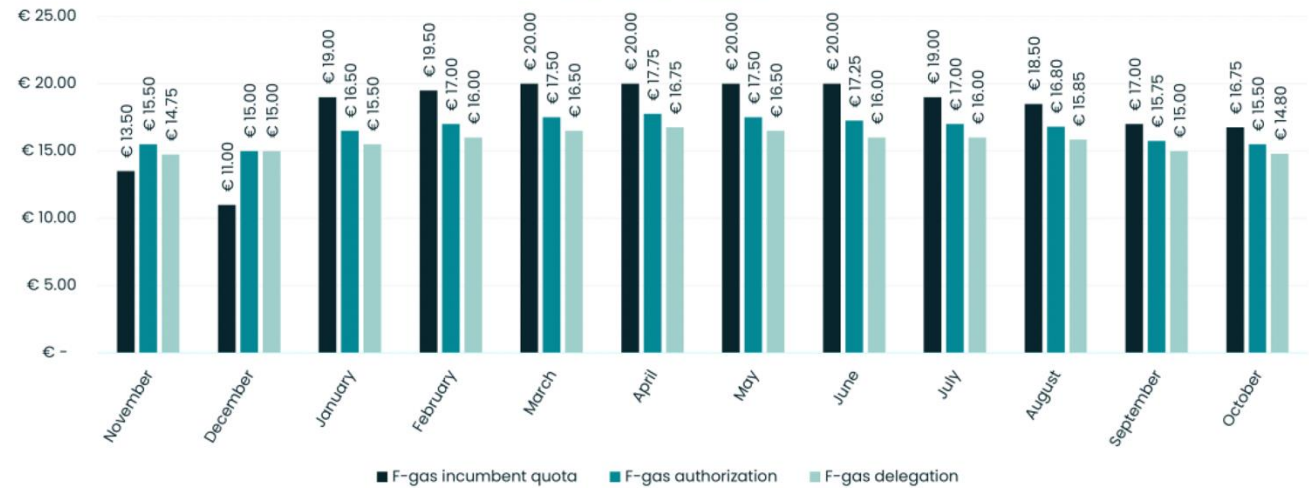
## F-Gas Market

### F-GAS PRICE EVOLUTION



### EU F-gas prices (instruments)

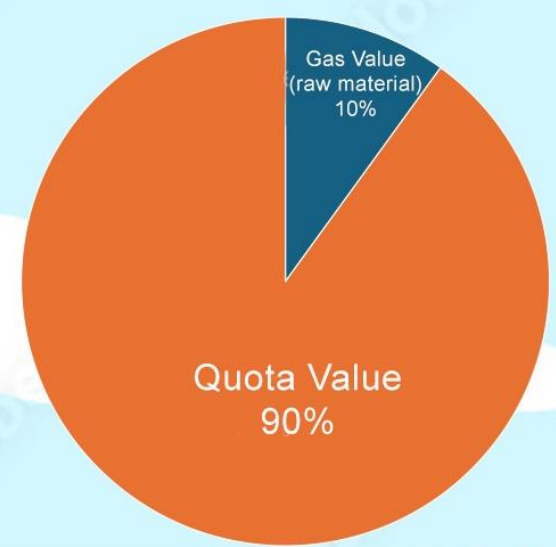
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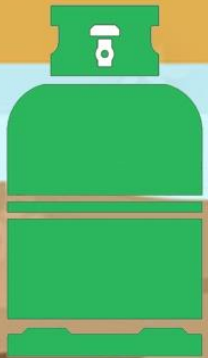
# CO<sub>2</sub> Quota =

Authorisation for Regular Placing  
on the Market in the European Union



## LEGAL

Placed on the EU market  
with Regular  
Authorization  
(CO<sub>2</sub> Quota)



## ILLEGAL

Placed on the EU market  
without Authorization  
(CO<sub>2</sub> Quota)





# What is the risk for the technician who uses such counterfeit refrigerants?

- **Technical issues**, related to the use of an out-of-specification refrigerant (lower efficiency of the equipment, loss of the correct correspondence between Pressure and Temperature values, etc.);
- Problems in communicating to the FGas telematic bank about the type of refrigerant charged in the equipment;
- **Alteration of the GWP** of the refrigerant contained in the equipment;
- **Pollution of the refrigerant** present in the equipment with potential damage claim by the owner of the equipment;
- **Problems related to safety at work** due to possession - in the best case - of a refrigerant safety data sheet (R448A, R449A or R452A) not related to the substance actually handled.

# Revision of (EU) F-Gas Regulation - 2025

## Taxation on the F-Gas share placed into the EU

- From 2025, allowances for the use of F-Gas will no longer be granted free of charge to producers and importers, but will be subject to payment of a **fee** equivalent to **€3.00/ton CO<sub>2</sub>eq.**
- Hence, **the allowances allocated in 2025 for the year 2026** will be subject to the above taxation, for each tonne of CO<sub>2</sub> equivalent allocated to the importer
- *This taxation will increase every three years thereafter, so as to ensure constant revenue, taking into account the quota phase in Annex II (as the quota decreases, the taxation for each TonCO<sub>2</sub> eq. increases).*
- It is certain that F-Gas producers will pass this burden on to the cost of the product, whose impact at source (**only share from taxation**, excluding the cost of the molecule) will be:
  - R410A (GWP 2,088) → **6.26 €/kg (taxation impact only)**
  - R134a (GWP 1,430) → **4.29 €/kg (taxation impact only)**
  - R32 (GWP 675) → **2.02 €/kg (taxation impact only)**
  - R404A (GWP 3,922) → **11.77 €/kg (taxation impact only)**
  - R448A (GWP 1,387) → **4.16 €/kg (taxation impact only)**

# Refrigeration - Use Limits new Reg. (EU) Fgas 2024/573

## Maintenance of existing systems - virgin refrigerants

- From 2025, the use of virgin fluorinated refrigerants listed in Annex I (HFCs) with a GWP of 2,500 or more for the servicing or maintenance of all refrigeration equipment will be prohibited.
- From 2032 the use of virgin fluorinated greenhouse refrigerants listed in Annex I (HFCs and HFC/HFO mixtures), with a GWP of 750 or more, for the servicing or maintenance of stationary refrigeration equipment, excluding chillers, will be prohibited.

Tipo gas	Qualità	01/01/25	01/01/30	01/01/32
R404A	vergine	(*)	NO	NO
R507A	vergine	(*)	NO	NO
All Fgas with GWP >2500	vergine	(*)	NO	NO
R452A	vergine	SI	SI	NO
R448A	vergine	SI	SI	NO
R449A	vergine	SI	SI	NO
All Fgas with GWP >750 and <2500	vergine	SI	SI	NO
All Fgas with GWP <750	vergine	SI	SI	SI

**R404A, R507, R422D virgin banned from 1<sup>st</sup> January 2025 on all installations (even those with a total charge of less than 40 Ton CO<sub>2</sub> eq.)**

# Refrigeration - Use Limits New Reg. (EU) FGas

## Maintenance of existing systems - **reclaimed refrigerants**

- The use of **reclaimed** or recycled fluorinated gases with a GWP value > 2,500 is permitted until **2030**, for service or maintenance of **all refrigeration equipment**
- The use of **reclaimed** fluorinated gases, listed in Annex I, with a **GWP >750 (and < 2,500)**, used for the maintenance or servicing of existing stationary refrigeration equipment, excluding chillers (chillers) is permitted **without time restriction**

Tipo gas	Qualità	01/01/25	01/01/30	01/01/32
R404A	rigenerato	SI	SI	NO
R507A	rigenerato	SI	SI	NO
Tutti i gas con GWP > 2.500	rigenerato	SI	SI	NO
R452A	rigenerato	SI	SI	SI
R448A	rigenerato	SI	SI	SI
R449A	rigenerato	SI	SI	SI
Gas con 750 < GWP < 2.500	rigenerato	SI	SI	SI
Gas con GWP < 750	rigenerato	SI	SI	SI

# Summary Table - Maintenance in Refrigeration (Commercial and Industrial)

Tipo gas	Qualità	01/01/25	01/01/30	01/01/32
R404A	vergine	(*)	NO	NO
R507A	vergine	(*)	NO	NO
Tutti i gas con GWP > 2.500	vergine	(*)	NO	NO
R452A	vergine	SI	SI	NO
R448A	vergine	SI	SI	NO
R449A	vergine	SI	SI	NO
Tutti i gas con 750 < GWP < 2.500	vergine	SI	SI	NO
Tutti i gas con GWP < 750	vergine	SI	SI	SI
R404A	rigenerato	SI	SI	NO
R507A	rigenerato	SI	SI	NO
Tutti i gas con GWP > 2.500	rigenerato	SI	SI	NO
R452A	rigenerato	SI	SI	SI
R448A	rigenerato	SI	SI	SI
R449A	rigenerato	SI	SI	SI
Gas con 750 < GWP < 2.500	rigenerato	SI	SI	SI
Gas con GWP < 750	rigenerato	SI	SI	SI

(\*) Solo in circuiti con carica complessiva < 40Ton CO2 eq



# Air Conditioning and Heat Pumps - Limits of Use

## Maintenance of Existing Installations - **Virgin and Reclaimed Refrigerants**

- From **2026** the use of **virgin fluorinated** refrigerants listed in Annex I (HFCs), with a **GWP of 2,500** or more, for the servicing or maintenance of **air conditioning and heat pump equipment is prohibited**.
- This ban on gases with GWP > 2,500 **seems to make no sense**, because in Air Conditioning and Heat Pumps there are no HFCs with GWP > 2,500.
- Use of regenerated refrigerants with GWP > 2,500 until 2032
- Use of **reclaimed** refrigerants with GWP < 2,500 **without time restrictions**

Tipo gas	Qualità	Before 01/01/26	01/01/26 - 01/01/32	After 01/01/32
Gas GWP > 2.500	virgine	SI	NO	NO
	rigenerato	SI	SI	NO
Gas GWP < 2.500	virgine	SI	SI	SI
	rigenerato	SI	SI	SI

# Revision of Regulation (EU) FGas - 2025

## New Installations - Stationary Refrigeration

### (2) Domestic Refrigerators and freezers



	1/1/2022	1/1/2025	1/1/2026	1/1/2027	1/1/2030	1/1/2032
FGas with GWP <150	YES	YES	NO	NO	NO	NO
R290	YES	YES	YES	YES	YES	YES
R744	YES	YES	YES	YES	YES	YES

### (3) Refrigerators and freezers for commercial use (self-contained equipment)



	1/1/2022	1/1/2025	1/1/2026	1/1/2027	1/1/2030	1/1/2032
FGas with GWP < 750	NO	NO	NO	NO	NO	NO
FGas with GWP <150	YES	YES	YES	YES	YES	YES
R290	YES	YES	YES	YES	YES	YES
R744	YES	YES	YES	YES	YES	YES

### (4) Any self-contained equipment, except chillers



	1/1/2022	1/1/2025	1/1/2026	1/1/2027	1/1/2030	1/1/2032
FGas with GWP < 2.500	YES	NO	NO	NO	NO	NO
FGas with GWP < 750	YES	NO	NO	NO	NO	NO
FGas with GWP <150	YES	YES	YES	YES	YES	YES
R290	YES	YES	YES	YES	YES	YES
R744	YES	YES	YES	YES	YES	YES



#### NOTE Definition of self-contained equipment

An **'autonomous appliance or system'** means a refrigeration apparatus containing an evaporator and condenser within the machine itself, i.e. a complete (non-split) refrigeration circuit, which therefore does not require a refrigerant gas connection to an external line (pipeline).






# Revision of Regulation (EU) FGas - 2025


## New Installations - Chillers for Refrigeration, Process, Preservation and Human Comfort (A/C):

**(7.b) & (7.c) Chiller with rated capacity up to and including 12 kW**  
 (legislation scheduled to be revised in 2023, with likely inclusion of refrigerants with GWP <150)



	1/1/2022	1/1/2025	1/1/2026	1/1/2027	1/1/2030	1/1/2032
FGas with GWP > 2.500	YES	YES	YES	NO	NO	NO
FGas with GWP < 2.500	YES	YES	YES	NO	NO	NO
FGas with GWP > 750	YES	YES	YES	NO	NO	NO
FGas with GWP <150	YES	YES	YES	YES	YES	NO
R290	YES	YES	YES	YES	YES	YES
R744	YES	YES	YES	YES	YES	YES
R717 NH3)	YES	YES	YES	YES	YES	YES

**(7.d) Chillers with rated capacity above 12 kW**



	1/1/2022	1/1/2025	1/1/2026	1/1/2027	1/1/2030	1/1/2032
FGas with GWP > 2.500	YES	YES	YES	NO	NO	NO
FGas with GWP < 2.500	YES	YES	YES	NO	NO	NO
FGas with GWP > 750	YES	YES	YES	NO	NO	NO
FGas with GWP <150	YES	YES	YES	YES	YES	YES
R290	YES	YES	YES	YES	YES	YES
R744	YES	YES	YES	YES	YES	YES
R717 NH3)	YES	YES	YES	YES	YES	YES

NOTE: A chiller is defined as a single system whose main function is to cool a heat transfer fluid (such as water, glycol, brine or CO2) for the purposes of refrigeration, process, conservation or human comfort.



# Revision Regulation (EU) FGas - 2025

## New installations: Stand-alone A/C systems and heat pumps (excluding

### (8.a) Plug-in room air conditioning equipment, movable between rooms by the end user

	1/1/2022	1/1/2025	1/1/2026	1/1/2027	1/1/2029	1/1/2030	1/1/2032	1/1/2033	1/1/2035
FGas with GWP > 150	NO	NO	NO	NO	NO	NO	NO	NO	NO
FGas with GWP <150	YES	YES	YES	YES	YES	YES	YES	YES	YES
R290	YES	YES	YES	YES	YES	YES	YES	YES	YES
R744	YES	YES	YES	YES	YES	YES	YES	YES	YES

### (8.b) & (8.c) Plug-in room air conditioning equipment, mono-blocks and other self-contained heat pumps, with a rated capacity of up to and including 12 kW

	1/1/2022	1/1/2025	1/1/2026	1/1/2027	1/1/2029	1/1/2030	1/1/2032	1/1/2033	1/1/2035
FGas with GWP < 2.500	YES	YES	YES	NO	NO	NO	NO	NO	NO
FGas with GWP < 750	YES	YES	YES	NO **	NO **	NO **	NO **	NO **	NO **
FGas with GWP <150	YES	YES	YES	YES	YES	YES	NO **	NO **	NO **
R290	YES	YES	YES	YES	YES	YES	YES	YES	YES
R744	YES	YES	YES	YES	YES	YES	YES	YES	YES

### (8.d) Monoblocks and other self-contained air conditioning equipment and heat pumps, with a rated capacity of more than 12 kW but not exceeding 50 kW

	1/1/2022	1/1/2025	1/1/2026	1/1/2027	1/1/2029	1/1/2030	1/1/2032	1/1/2033	1/1/2035
FGas con GWP < 2.500	YES	YES	YES	NO	NO	NO	NO	NO	NO
FGas con GWP < 750	YES	YES	YES	NO **	NO **	NO **	NO **	NO **	NO **
FGas con GWP <150	YES	YES	YES	YES	YES	YES	YES	YES	YES
R290	YES	YES	YES	YES	YES	YES	YES	YES	YES
R744	YES	YES	YES	YES	YES	YES	YES	YES	YES

### (8.e) Other self-contained air conditioning equipment and heat pumps

	1/1/2022	1/1/2025	1/1/2026	1/1/2027	1/1/2029	1/1/2030	1/1/2032	1/1/2033	1/1/2035
FGas with GWP < 2.500	YES	YES	YES	YES	YES	NO	NO	NO	NO
FGas with GWP < 750	YES	YES	YES	YES	YES	NO **	NO **	NO **	NO **
FGas with GWP <150	YES	YES	YES	YES	YES	YES	YES	YES	YES
R290	YES	YES	YES	YES	YES	YES	YES	YES	YES
R744	YES	YES	YES	YES	YES	YES	YES	YES	YES



NOTE: A 'monobloc' air conditioning unit is an air conditioning unit which contains all the typical components of an air conditioning system (refrigeration circuit, evaporator, compressor, condenser, fan, etc.).

\*\* NOTE: When **safety requirements at the installation site** do not permit the use of alternatives to fluorinated greenhouse gases with GWP of 150 or less, the GWP limit is still 750.



# Revision Regulation (EU) FGas - 2025

## New Installations - Split and Multisplit for A/C and Heat Pumps

(9.a) Single split systems, containing less than 3 kg of HFCs (listed in Annex I)

	1/1/2022	1/1/2025	1/1/2026	1/1/2027	1/1/2029	1/1/2030	1/1/2032	1/1/2033	1/1/2035
FGas with GWP > 750	YES	NO	NO	NO	NO	NO	NO	NO	NO
FGas with GWP < 750	YES	YES	YES	YES	YES	YES	YES	YES	YES
FGas with GWP < 150	YES	YES	YES	YES	YES	YES	YES	YES	YES
R290	YES	YES	YES	YES	YES	YES	YES	YES	YES
R744	YES	YES	YES	YES	YES	YES	YES	YES	YES

(9.b) Multisplit systems air to water with a rated capacity up to and including 12 kW (hydronics)

	1/1/2022	1/1/2025	1/1/2026	1/1/2027	1/1/2029	1/1/2030	1/1/2032	1/1/2033	1/1/2035
FGas with GWP < 2.500	YES	YES	YES	NO	NO	NO	NO	NO	NO
FGas with GWP < 750	YES	YES	YES	NO **	NO **	NO **	NO **	NO **	NO **
FGas with GWP < 150	YES	YES	YES	YES	YES	YES	YES	YES	NO **
R290	YES	YES	YES	YES	YES	YES	YES	YES	YES
R744	YES	YES	YES	YES	YES	YES	YES	YES	YES

(9.c) & (9.d) Multisplit systems air to air with a rated capacity up to and including 12 kW (VRF-VRV systems)

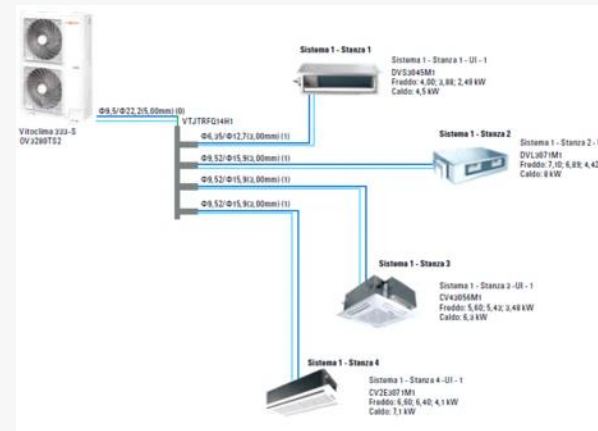
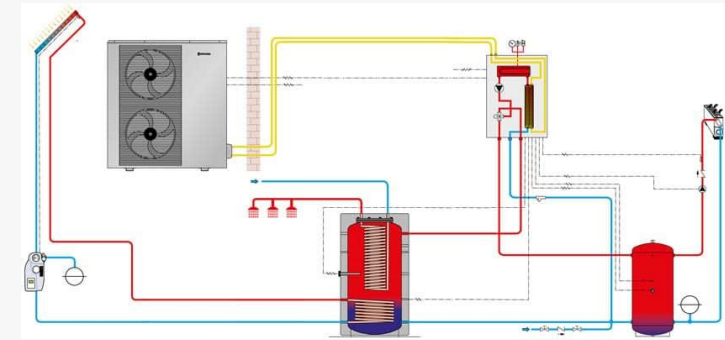
	1/1/2022	1/1/2025	1/1/2026	1/1/2027	1/1/2029	1/1/2030	1/1/2032	1/1/2033	1/1/2035
FGas with GWP < 2.500	YES	YES	YES	YES	NO	NO	NO	NO	NO
FGas with GWP < 750	YES	YES	YES	YES	NO **	NO **	NO **	NO **	NO **
FGas with GWP < 150	YES	YES	YES	YES	YES	YES	YES	YES	NO **
R290	YES	YES	YES	YES	YES	YES	YES	YES	YES
R744	YES	YES	YES	YES	YES	YES	YES	YES	YES

(9.e) & (9.f) Multisplit systems air to air and air to water with a rated capacity of more than 12 kW (hydronics, VRF-VRV)

	1/1/2022	1/1/2025	1/1/2026	1/1/2027	1/1/2029	1/1/2030	1/1/2032	1/1/2033	1/1/2035
FGas with GWP < 2.500	YES	YES	YES	YES	NO	NO	NO	NO	NO
FGas with GWP < 750	YES	YES	YES	YES	YES	YES	YES	NO **	NO **
FGas with GWP < 150	YES	YES	YES	YES	YES	YES	YES	YES	YES
R290	YES	YES	YES	YES	YES	YES	YES	YES	YES
R744	YES	YES	YES	YES	YES	YES	YES	YES	YES

\*\* NOTE:

When **safety requirements at the installation site** do not permit the use of alternatives to fluorinated greenhouse gases with GWP of 150 or less, the GWP limit is still 750.



# Other implications (OEM - non-EU export)

- **Export to non-EU countries of stationary refrigeration and air-conditioning equipment and heat pumps (Art. 22):**
  - From 2026 (one year after entry into force of the Regulation), the export of foams, technical aerosols, stationary refrigeration and air-conditioning equipment and heat pumps listed in Annex IV which contain or whose functioning relies on fluorinated greenhouse gases with a GWP of 1000 or more shall be prohibited. This prohibition shall not apply to military equipment and products and equipment which may be placed on the Union market in accordance with Annex IV.
- **Export and Import of HFCs with States that are not Parties to the Montreal Protocol and the Kigali Amendment thereto (Art. 25):**
  - As of 2028, the import and export of any HFCs and of products and equipment containing HFCs or whose functioning relies on such gases from and to any State or regional economic integration organisation that has not agreed to be bound by the provisions of the Protocol applicable to such gases shall be prohibited.

# Art. 5 – Periodic leak controls

## Maintenance: Stationary Refrigeration, A/C, Heat Pumps, Mobile Refrigeration (Refrigerated Trucks and Trailers)

- **No periodic leak check necessary :**
  - **Up to 5 Ton CO<sub>2</sub> eq.** if the system is charged with HFCs (Annex I) – e.g. 2.39 kg of R410a or 7.4 kg of R32
  - Up to 1 kg of gas if the system is loaded with HFO (Annex II, i.e. R1234yf, R1234ze etc.)
- **Hermetically sealed equipment**, if so marked, is not subject to periodic leak testing if:
  - The system is charged with less than 10 tonnes of HFC CO<sub>2</sub> equivalent (Annex I)
  - The system is charged with less than 2 kg of HFO (Annex II)
  - For the category of residential buildings only, the charge limit is extended to 3 kg
- **REMARKS:** from 13/3/2027 the above also applies to:
  - refrigeration units of refrigerated light vehicles, intermodal containers, including reefers, and railway wagons;
  - A/C equipment and heat pumps in heavy-duty vehicles, vans, non-road mobile machinery used in agriculture, mining and construction, trains, subways, trams and aircraft (*a regular inspection regime including leak checks is required to comply with the obligations*)

# Art. 5 – Periodic leak controls

## Maintenance: Stationary Refrigeration, A/C, Heat Pumps, Mobile Refrigeration (Refrigerated Trucks and Trailers)

- Equipment charged with **less than 50 tons of CO<sub>2</sub>eq. of HFCs or less than 10 kg of HFOs**
  - at least every 12 months or, if a leak detection system is installed in such equipment, at least every 24 months;
- Equipment charged with **more than 50 tons of CO<sub>2</sub>eq. and less than 500 tonnes of CO<sub>2</sub>eq. of HFCs, or more than 10 kg of HFOs and less than 100 kg of HFOs**
  - at least every 6 months or, if a leak detection system is installed in such equipment, at least every 12 months;
- Equipment charged with **more than 500 ton of CO<sub>2</sub>eq. of HFCs, or more than 100 kg of HFOs**
  - almeno ogni 3 mesi o, se in dette apparecchiature è installato un sistema di rilevamento delle perdite, almeno ogni 6 mesi.

# Full text on the GeneralGas website:

- <https://www.generalgas.it/f-gas.html>



**Atteso da tempo finalmente è realtà, superando una situazione di impasse che non faceva bene a nessuno.**

#### Accordo raggiunto

Al quarto Trilogo e trascorsi circa sei mesi, i negoziatori del Consiglio e del Parlamento Europeo hanno raggiunto un accordo sul phase-down degli HFC, ufficializzato in data 18/10/2023 dal Consiglio Europeo con comunicazione del Presidente Raül Fuentes Milano.

#### In attesa di ratifica

L'accordo dovrà essere ora ratificato dal CollePer e poi votato in sede di Parlamento (nel mese di gennaio 2024), per poi essere pubblicato sulla Gazzetta Ufficiale dell'UE ed entrare in vigore.

#### Riduzione delle emissioni

##### Le nuove norme

Mentre la legislazione europea esistente ha già limitato in modo significativo l'uso dei gas fluorurati, le nuove norme ridurranno ulteriormente le loro emissioni nell'atmosfera e contribuiranno a limitare l'aumento della temperatura globale, in linea con l'Accordo di Parigi.

Il pesante taglio della quota d'immissione di Fgas sul mercato dell'Unione Europea è confermato a 42.874.410 ton CO2eq, nel biennio 2025-2026 (taglio del 48% rispetto al valore 2023, che è di 82.300.000 ton CO2eq). Per





# Revision of F-Gas Regulation - 2024

## Implications / concerns / reflections

- A very aggressive phase-down could result in a **severe shortage of product** available for the **production of new equipment** and the **maintenance of existing equipment**.
- In particular, it is feared that there may not be enough product to power the **production of heat pumps**; these represent the most promising solution to replace natural gas/LPG boilers (**REPowerEU**, expected 60 million by 2030 in the EU) → there is a risk of undermining the EU's energy dependency reduction target and, at the same time, thwarting the CO<sub>2</sub> emission reduction target from fossil combustion.
- The scarcity of F-Gas is likely to put a strain on **the maintenance of existing systems**, in particular Commercial and Industrial Refrigeration, as the conversion from HFC to natural gas systems is technically very difficult, if not impossible.
- SAFETY (A/C and HP): **there are currently no suitable non-flammable**, or moderately flammable **fluids** (the use of explosive/flammable hydrocarbons in class A3 raises serious doubts for **safety reasons on direct expansion A/C systems**, given that propane would circulate in the systems and piping under trace at temperatures close to 80°C, at compressor outlet, and at pressures of around 12-14 bar).

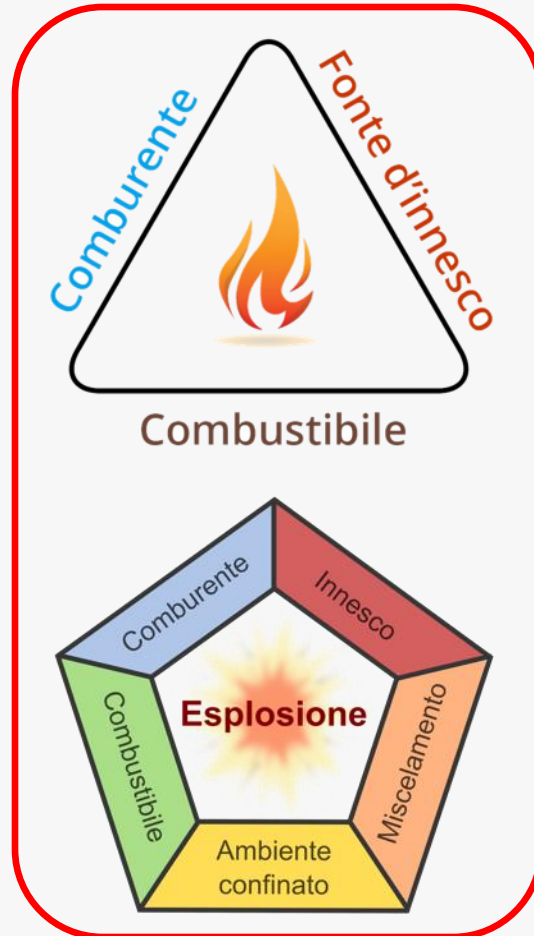


# F-Gas Regulation Revision - 2024

## Safety Risks of Replacing Non-Flammable Refrigerants A1 (HFC-HFO) and A2L (HFO)

- ✓ Flammability (R290 A3)
- ✓ Explosiveness (R290 A3)
- ✓ High working pressures (CO<sub>2</sub> up to 80-100 bar)
- ✓ Asphyxiation (CO<sub>2</sub>)
- ✓ Toxicity (NH<sub>3</sub>)

Do the skills exist to handle hazardous fluids?



# Revision of F-Gas Regulation - 2024

## Is the necessary expertise available?

- Great concern about a more than likely **serious skills gap at** European level → new technologies bring new demands (the Fgas 'licence' is certainly not supportive)
- Although there are half a million Fgas-certified technicians in Europe, a survey in 2021 found that **less than 10% of certified personnel are trained in alternative technologies** (flammables, explosives, toxic etc.). Who, today, is competent on EN378, Atex, etc.?
- Serious **risk to life for maintenance personnel and end users** (explosion, asphyxiation, toxicity)
- **This is an extremely critical factor for SMEs**, which make up the majority of companies offering RACHP installation and maintenance services → logical consequence: **concentration of interests in service, oligopoly**
- **Raising certification standards for** technicians is vital to safely handle alternative products such as CO2, ammonia or propane
- Need for **specialised training** and the need to renew the entire stock of instruments and equipment, which must be adapted to the new requirements





**Thanks for your  
attention!**

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