



Update on the review of EU Fgas and ODS policies

Side Event at MOP35 Montreal Protocol

DG CLIMA, European Commission

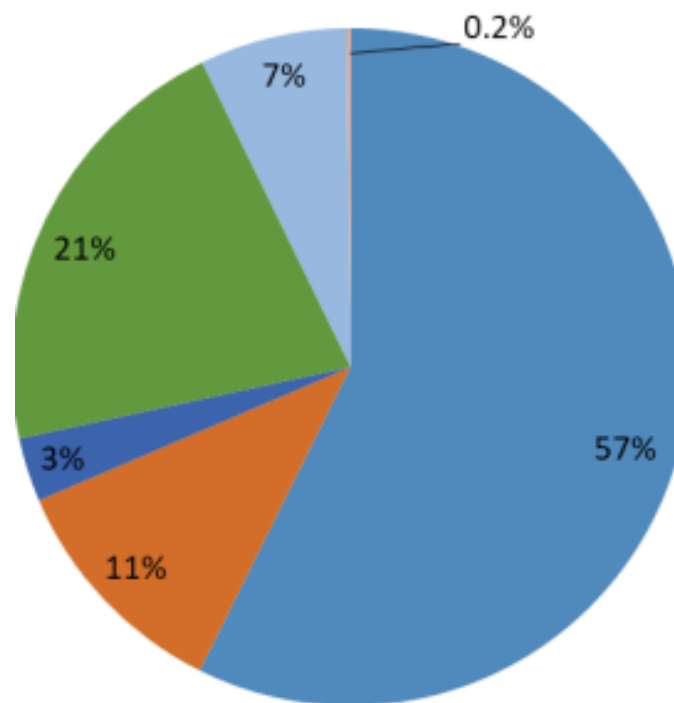
Nairobi, 23 October 2023

EU policies on F-gases – short history

- **2006 First F-gas Regulation**
 - Focus on **containing F-gases (“refrigerant management”)**: leak checks, training and certification of technicians, emission prevention, gas recovery and destruction,..
 - Some prohibitions (e.g. one-way cylinders, windows/footwear/wheels, mono-component foams, some aerosol uses,..)
- **2007 MAC Directive** (use refrigerant with $GWP < 150$ in AC of passenger cars, from 2011+ for new types, 2017+ for all new cars)
- **2014 Second F-gas Regulation** (HFC quota system and some accompanying prohibitions)
 - **2016 Kigali Amendment**
- **2024 Third F-gas Regulation**

Types of F-gases supplied to EU market (% CO2e)

Gas	GWP (AR 4, 100 years)
CO ₂	1
CH ₄	25
N ₂ O	298
HFC 134a	1 430
HFC 404A	3 922
HFC 410A	2 088
HFC 125	3 500
HFC 23	14 800
PFCs	ca. 7 000 – 12 000
SF ₆	22 800
NF ₃	17 200



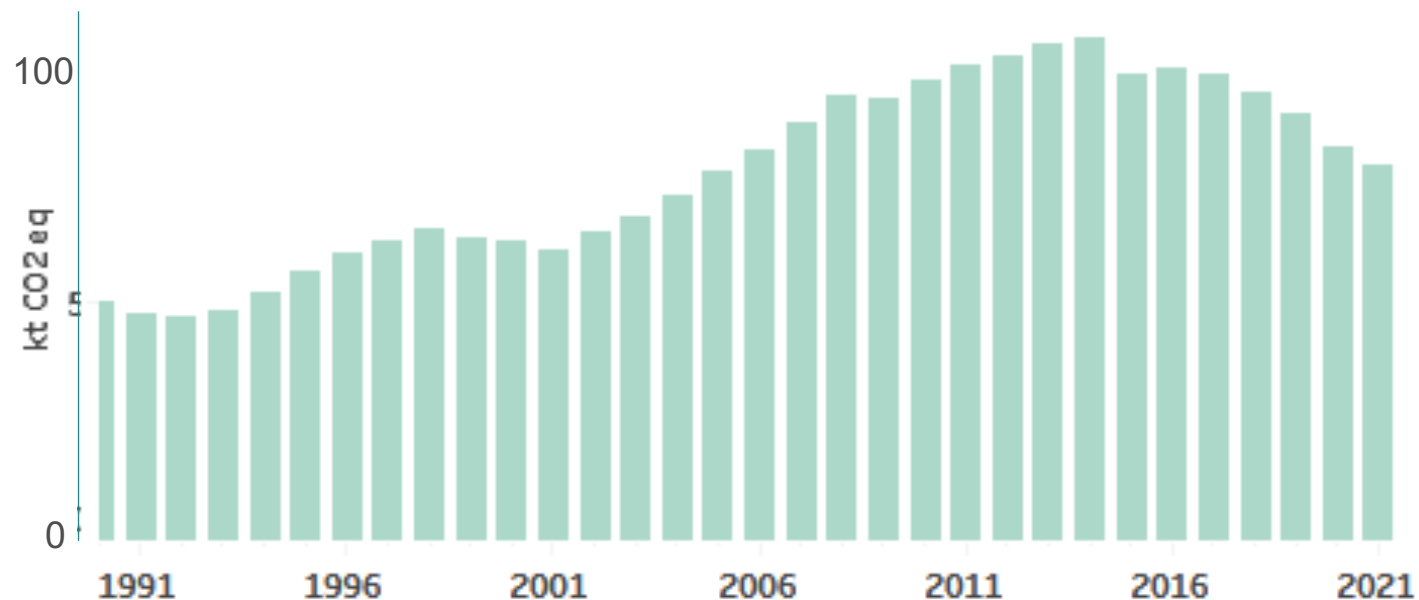
- HFCs (bulk)
- HFCs (equipment)
- PFCs
- SF6
- NF3
- Other F-gases

Source: EEA 2023 Report on fluorinated greenhouse gases

Building on a successful 2014 F-gas Regulation

F-gas emissions on steady decline since 2016. 25% decline from peak (2014: 105 Mt CO₂e)

Emissions in EU-27



Source: EEA GHG data viewer

...but also some remaining challenges

- **Continuing emissions** from some sectors and some fluorinated substances where this could be avoided due to technological progress
- **Safety codes, but important new developments with IEC 60335-2-89** (commercial refrigeration) and IEC 60335-2-40 (air conditioning)
(HEAT ECA presentation 28 March 2022: Savings of 15 billion tonnes CO₂eq possible!)
- Still low number of **service personnel** qualified to install equipment with climate-friendly alternatives
- Evidence of some **illegal activities**, e.g. HFC imports
- **Monitoring** gaps and efficiency issues

New Rules for F-gas and Ozone policies



- Proposal for a **new EU F-gas & ODS Regulation** on 5 April 2022
- Presidency of the Council (EU Member States) and the Rapporteur of the European Parliament reached **a political agreement** on 5 October 2023
- Next steps:
 - ENVI Committee (Parliament side) of the political agreement
 - The agreed text to be put for adoption to the Council and Parliament. Thereafter, publication in Official Journal of the EU
- **Expectations that the new laws will be in place from early 2024 onwards**

New rules on HFCs and other Fgases

HFC consumption

(New) placing on the EU market of HFCs

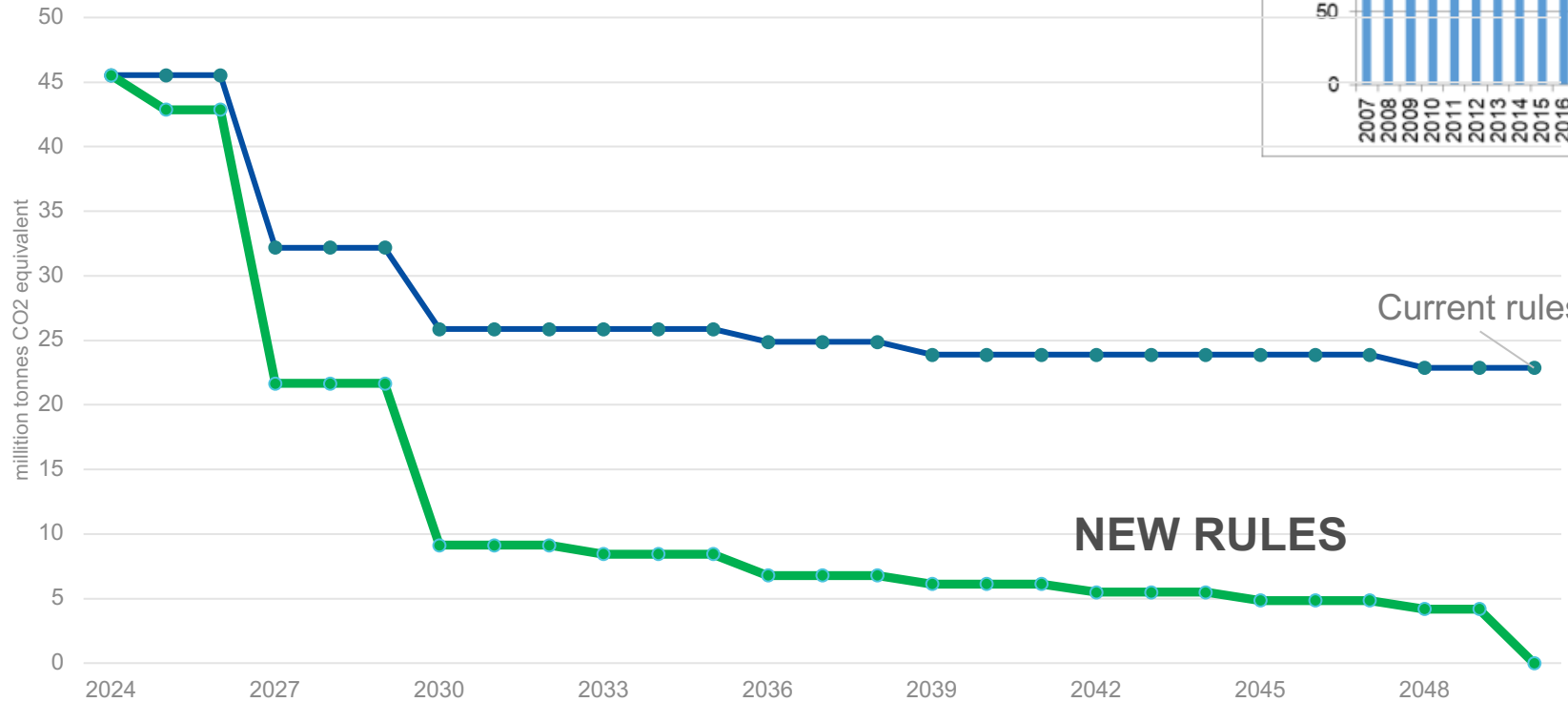
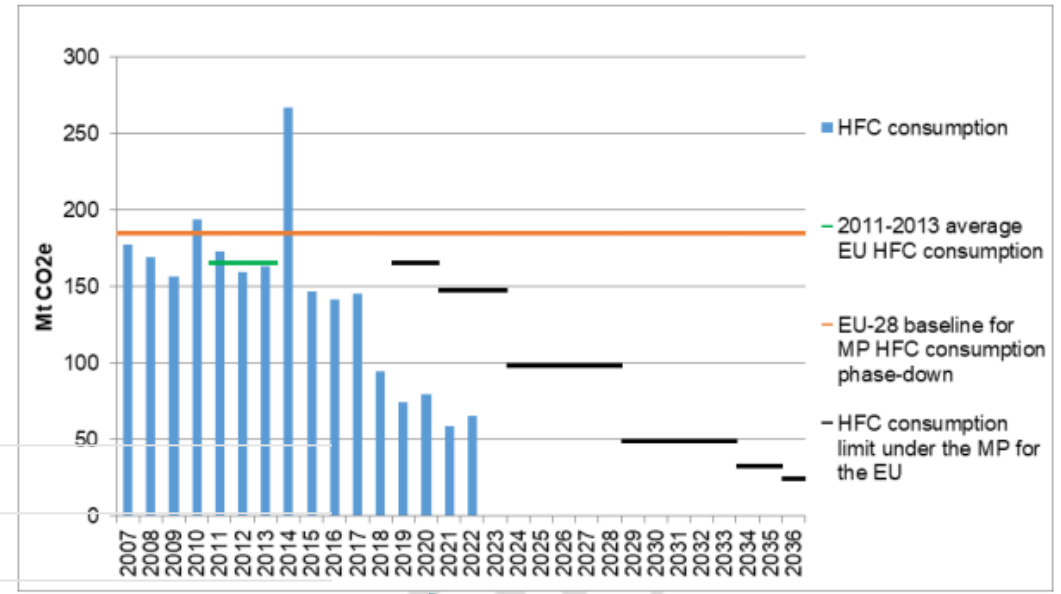


Figure 6-1 EU progress under the Montreal Protocol HFC phase-down



Metered Dose Inhalers (MDIs)

- HFCs to produce MDIs **fall under the market-wide quota system from 2025**
- Quota allocation to this sector („smooth phase-in“)
 - 2025-26 Based on current market demand („freeze“)
 - 2027-2029 Reduction to 85%
 - 2030+ as other sectors
- Several manufacturers have announced **EU market introduction of climate-friendly alternatives in 2025**, to be completed by 2030 for whole suite of products
- **Main alternative:** R152a (GWP of 124: Reduction of 12-26x of GWP of commonly used HFCs)

Prohibitions/Restrictions

A prohibition is sensible when there are safe and energy efficient alternatives available

→ *Today this is the case in many sectors already:*

- *Use of R404A (GWP 3922) in refrigeration (prohibited since 2020) and R410A (GWP 2088) is not necessary anymore*
- *In most sectors one can go to below a GWP of 150 or avoid completely HFCs, with alternatives such as propane, ammonia, CO2 etc.*

Introduction of new prohibitions typically come with the possibility to be exempted due to safety requirements!

Some examples:

https://ec.europa.eu/clima/policies/f-gas/alternatives_en

Additional rules on products & equipment

Refrigeration

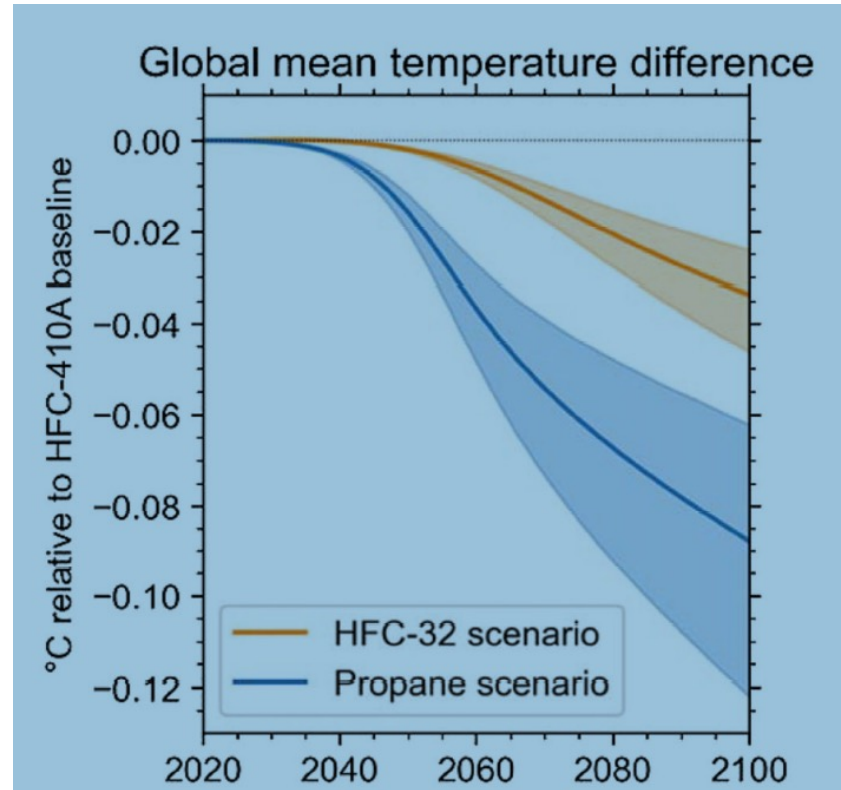
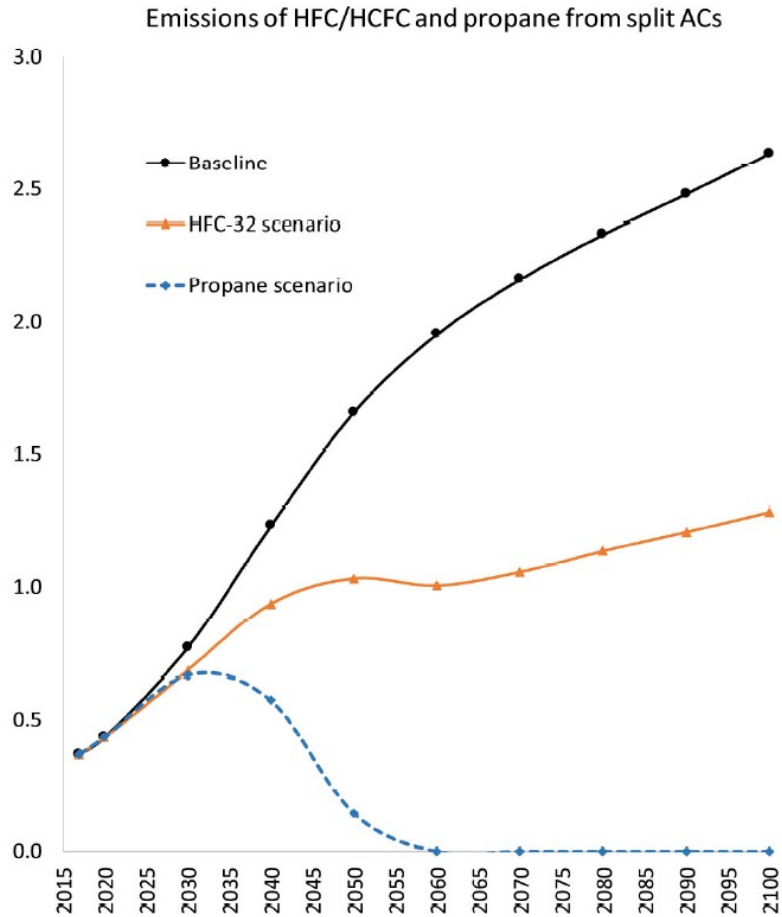
- Domestic refrigeration: <GWP150 from 2015; No F-gases from 2025
- Fridges/freezers for commercial use: <GWP150 from 2025
- Other self-contained refrigeration equipment: <GWP150 from 2025
- All other refrigeration equipment: <GWP150 from 2030
- Small chillers ($\leq 12\text{kW}$): <GWP150 from 2027; No F-gases from 2032
- Large chillers ($> 12\text{kW}$): <GWP750 from 2027

Additional rules on products & equipment II

Air Conditioning

- **Small self-contained AC & heatpumps (≤ 12 kW): **<GWP150** from **2027**, **No F-gases** from **2032****
- **Large self-contained AC & heatpumps: <GWP150** for 12-50kW (**2027**) and **>50kW (2030)**
- **Small split AC & heatpumps (≤ 12 kW): <GWP150 from **2027/29**, **No F-gases** from **2035****
- **Large split AC & heatpumps (> 12 kW) : <GWP150 from **2033****

A crucial sector: Split AC



→ Global action can save 0.1 degrees C of warming just from this sector!

Purohit et al. (2022). PNAS.

Additional rules on products & equipment III

Other sectors

- Extension of placing on the market ban of **non-refillable containers** to prohibit all import, subsequent supply, use or export (empty, partially filled, or filled)
- **Aerosols**: <GWP150 from 2018, **No F-gases** from **2030**
- **Foams**: <GWP150 from 2023, **No F-gases** from **2033**
- **Personal care products** (e.g. mousses, foams, sprays): **No F-gases** from **2025**
- **Skin cooling equipment**: <GWP150 from 2025

Control of other F-gases

- On **SF₆** (GWP of 25200):
 - **Putting into operation of switchgear** with F-gases (medium voltage) and GWP>1 (high voltage) prohibited from 2026-2032 (4 categories), unless not feasible for site-specific and use conditions (proved by tendering process)
 - **Servicing of existing switchgear** with virgin SF6 prohibited from 2035
- Use of **desflurane** (anaesthetic with GWP of 2590) unless required for medical reasons
- Emission prevention measures necessary also for e.g. **H(C)FOs, SF6, NF3, Sulfuryl fluoride, inhalation anaesthetics, PFCs,...**
 - Intentional release prohibited
 - Operators and manufacturers shall take all feasible measures to minimise leakage
 - Undertakings shall take all necessary precautions to limit releases to the greatest extent possible during production, storage, transport and transfer

New enforcement and implementation rules

Removal of Banks

- From 2025, **ODS and Fgas-containing foams** in laminated boards and foams panels, when old buildings are renovated, refurbished or demolished, must be handled in a way to ensure that **emissions are avoided** and the **gases therein are destroyed**
- Savings of more than 180TCO₂e by 2050 possible from that measure

Export bans

All **ODS equipment already banned from export** (since 2009), except if for laboratory/analytical uses, destruction, critical use containing halons.

New: **Export prohibitions** on foams, technical aerosols, stationary refrigeration and air conditioning **equipment with F-gases** (if covered by EU import bans) with a **GWP of 1000**

New: EU Undertakings must ensure that export of RAC equipment does not violate import restrictions that the **importing country has notified under the Montreal Protocol**

Fighting illegal activities

- Quota allocation: Quota holders need to..
 - Fulfil certain conditions, e.g. experience in trade in chemicals
 - Pay for their quota
- Customs
 - Digitisation and automation of custom controls: Every relevant shipment counter-checked with EU-central database
 - Reinforced custom rules, controls of trade
- Control
 - Inspections, penalties and cooperation between authorities
- Monitoring, Reporting & Verification
 - Burden reduction (e.g. electronic verification) but also closing of gaps, Member States encouraged to use electronic reporting systems to collect emissions data

Industrial emissions

- Feedstock: Future negative list on ODS **feedstock uses** where alternatives are available
- Detailed **emission reporting** on ODS by producers and feedstock users
- Include monitoring & some recovery/destruction and leakage check obligations (solvents, fire equipment) on **VSLs** including MC, DCM, PCE, 2-BTP,..
- Evidence must be provided that **R23 has been destroyed** when an ODS or an F-gas is placed on the market including during import.

Proposed changes on Containment

- Extend scope of **training and certification** to
 - **HFC Alternatives (HFOs and other relevant (i.e. natural) alternatives)**
 - **Energy efficiency aspects**
 - Certification required for
 - installation/servicing/maintenance/repair/decommissioning of HFO equipment
 - leak checking of HFO equipment
 - recovery of HFO equipment
- Extend scope to **mobile equipment** (refrigerated van, trucks & trailers, containers, train waggons; AC in light and heavy duty vehicles, off road machinery, trains, metros, buses, trams and aircraft) in addition to stationary RAC, fire protection, ORC, electrical switchgear

What do we expect out of this?

- **Emission reductions:** By 2050, avoid (cumulatively) ca 500 MtCO₂eq additional savings from both Regulations
- **Modest Costs:** In *most cases* will be low compared to those asked of non-Fgas sectors on the pathway to climate neutrality, and will in *all cases* be proportionate
- **Energy savings** for endusers of refrigeration and air conditioning equipment due to more efficient equipment
- **Stimulating effects** (output, innovation, employment), particularly on the equipment sector and its supply industry,
- **Significantly improved control** over the policy, allowing effective enforcement in the Member States, at a moderate increase in administrative burden to companies and authorities
- And, with respect to certification, **better trained personnel** to handle climate-friendly technologies

Thank you

https://climate.ec.europa.eu/eu-action/fluorinated-greenhouse-gases/eu-legislation-control-f-gases_en



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