



# The EU experience: Regulating fluorinated gases (F-gases)

UNFCCC ADP Technical Expert Meeting on non-CO<sub>2</sub> GHG  
Working Group Session on Fluorinated Gases  
Bonn, 22 October 2014

## EU F-Gas Policy for 28 Member States

### **(1) F-Gas Regulation 2006**

*- Focus on "Refrigerant Management": leak checks, training and certification, recovery of gases after use, some restrictions in particular on emissive uses*

### **(2) MAC Directive 2006**

*- bans of high GWP HFCs in passenger cars and light trucks*

### **(3) New F-Gas Regulation 2014**

*- Reduction of HFC sales by 79% in 2030 ("EU phase-down")*  
*- Phase-out of high GWP fluorinated gases in many areas of refrigeration, air conditioning, foams, fire protection and aerosols*

*→ F-Gases were targeted early on in the EU as cost-effective mitigation measures*

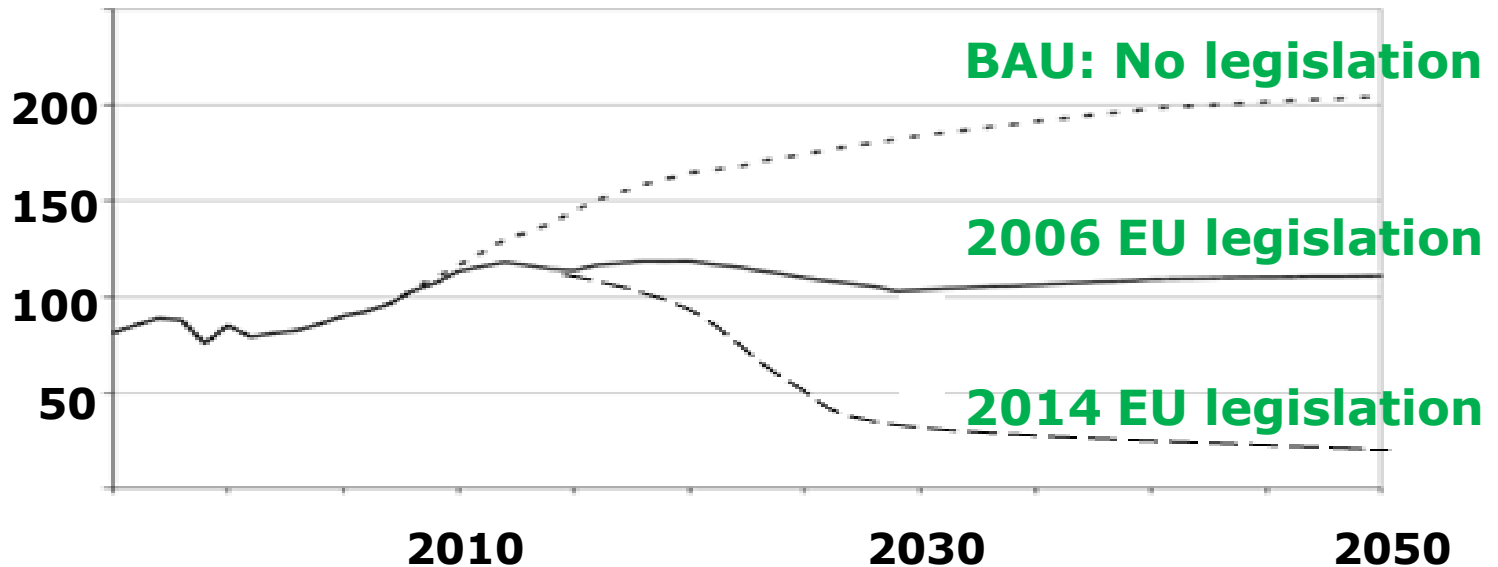
*→ EU Member States can use reductions in F-gases towards their Kyoto targets. Several Member States have introduced additional action on F-Gases, including taxes and bans*

# PROJECTIONS



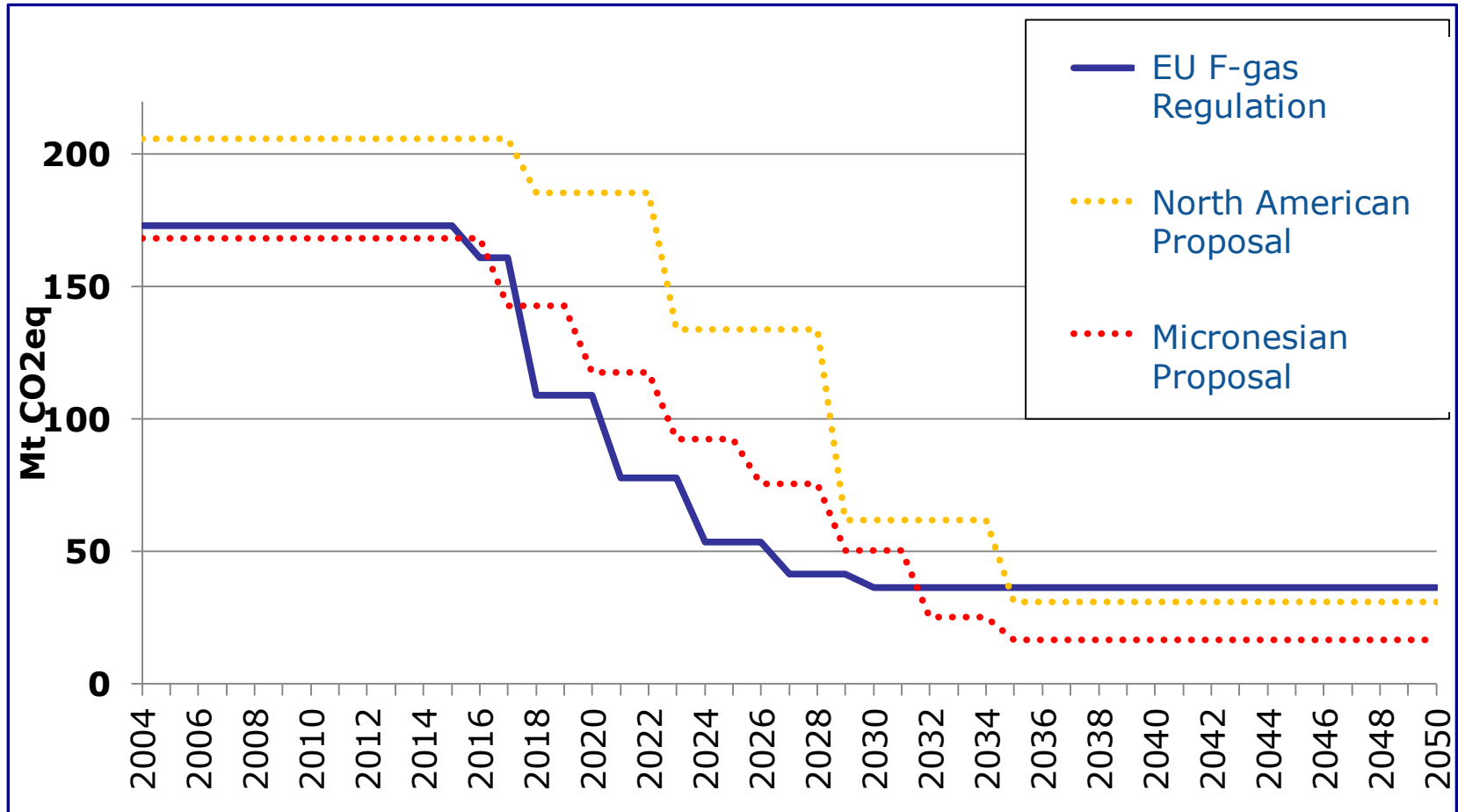
## EU: F-gas emissions

Mt CO<sub>2</sub>eq.



***Cumulative savings of 1.5 Gt by 2030 and 5 Gt by 2050!***

# AMBITION



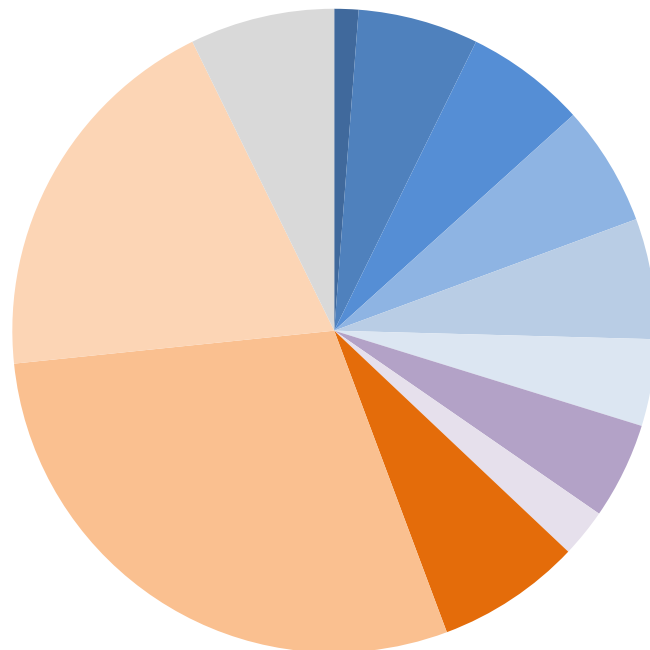
→ For the period 2018-2030, the EU HFC phase-down (= legislation in force) meets all international phase-down proposals (under Montreal Protocol)

- *EU phase-down demonstrates measures are feasible and alternatives are available for most applications*
- *Increased EU demand for alternative technologies*
  - innovation and economies of scale also in other markets
  - hence reducing costs of a global phase-down of HFCs
- *Looking for international collaboration to achieve faster reductions of HFC consumption*
- *Emission savings at global level are a magnitude higher (up to 90Gt CO<sub>2</sub>eq.) than those achievable at EU level*

*There is a unique window to save money and effort by acting now, by (i) reducing existing use of HFCs, and (ii) using low-GWP alternatives when replacing ozone depleters*

## E.g. Availability of Alternatives to high GWP HFCs

### 2015 Consumption in developing countries (Article 5 Montreal Protocol)

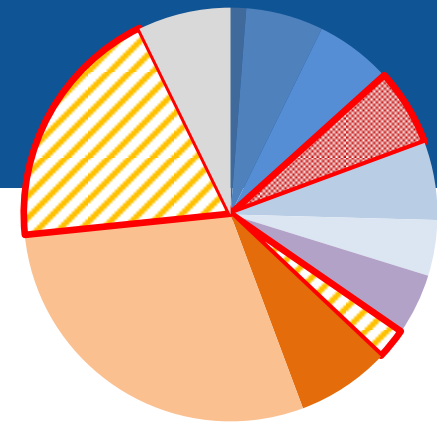


- private fridges, freezers
- commercial plug-in fridges
- small condensing units <5kW
- condensing units >5kW
- centralised supermarket refrigeration
- large industrial refrigeration
- displacement chillers
- centrifugal chillers
- AC portable/windows
- AC single split <7kW
- AC single/multi split >7kW
- AC cars

- Need to examine availability of alternatives at sub-sectoral level
- Some equipment sub-sectors use more HFCs than others

Source: Oeko-Recherche et al., 2014  
based on data from TEAP, 2014

# BARRIERS (2)



## Suitability @ High-Ambient Temperatures

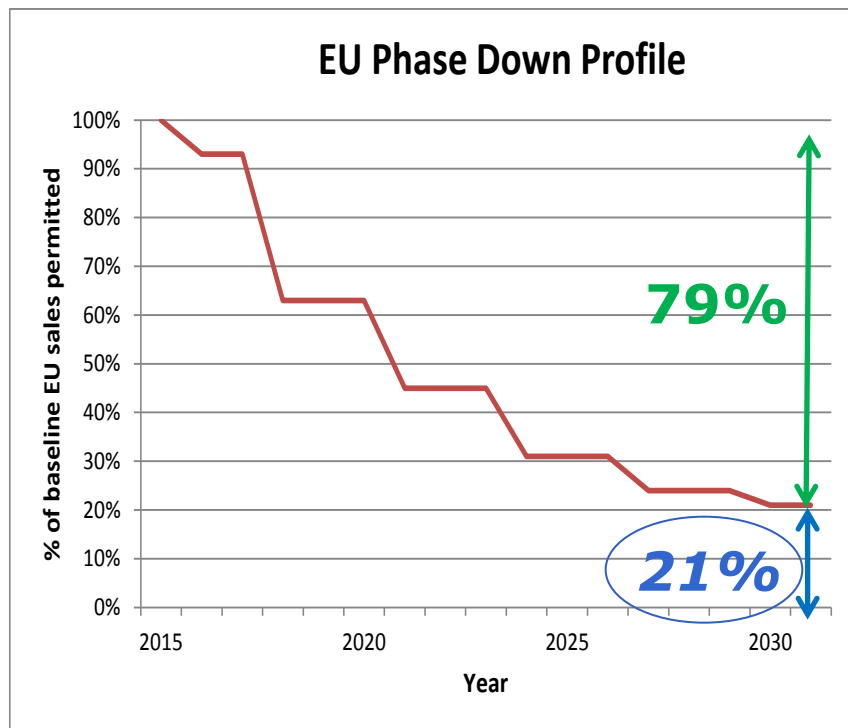
Source: Oeko-Recherche et al., 2014

<b>Alternatives</b> → Equipment sector ↓		<b>Hydrocarbon</b> GWP<10	<b>Ammonia</b> GWP<10	<b>HFO</b> GWP<10	<b>R32&amp;HFO blends</b> GWP=200-400 R32 GWP=675
private fridges		●	●	●	●
commercial plug-ins		●	●	●	●
condensing units	< 5kW	●	●	●	●
condensing units	> 5 kW	●	●	●	●
centralised system supermarket		●	●	●	●
large industrial refig.		●	●	●	●
AC plug-ins		●	●	●	●
AC Single split	< 7kW	●	●	●	●
AC Single/Multi split	> 7kW	●	●	●	●
AC cars		●	●	●	●
displacement Chillers		●	●	●	●
centrifugal Chillers		●	●	●	●

# SOLUTIONS



## "Signposting"



Products & Equipment	Date of prohibition	GWP threshold
Aerosols	2009/2018	150
Foams	2020/2023	150
Plug-in Refrigeration	2015/2022	150
Large Supermarket	2022	150
Plug-in AC	2020	150
AC single-split	2025	750
Etc...		

### Allow time for further technological development by:

- Phase-Down: **Gradual decline** allows industry to innovate, **Tailend** for most difficult sectors
- Signposts: **Fixed enddates** in sub-sectors where alternatives are fully available → buying time for more difficult sectors to continue using HFCs under a phase-down scenario



## *(1) Phasing Down of HFCs under the Montreal Protocol*

- Profit from **existing and well-functioning means of implementation** including financing, technology transfer and capacity building
- Dealing with consumption under Montreal and emissions under the UNFCCC can be **fully complementary and supportive** actions
- EU experience shows that **developed countries can reduce HFCs quickly**. Existing barriers for developing countries need to be addressed, but avoiding the phase-in of high GWP HFCs wherever possible will save money and, in many cases, energy!

## *(2) Immediate Action*

- European Commission is funding UNEP to carry out a number of **pilots** in developing countries (SIS, Africa). A number of EU Member States are also providing **know-how transfer and support** on alternative technologies
- EC and Member States support HFC action through the CCAC

## To know more...

[http://ec.europa.eu/clima/policies/f-gas/index\\_en.htm](http://ec.europa.eu/clima/policies/f-gas/index_en.htm)

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