



Policies for a sustainable RAC sector: The European Approach

The new EU Regulation on Fluorinated Greenhouse Gases – Content, Context and International Perspective

**Round Table Discussions on
*A Sustainable Transformation of the Refrigeration and Air-conditioning Sector***

7th November 2014, New Delhi, India

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European Commission
DG Climate Action**



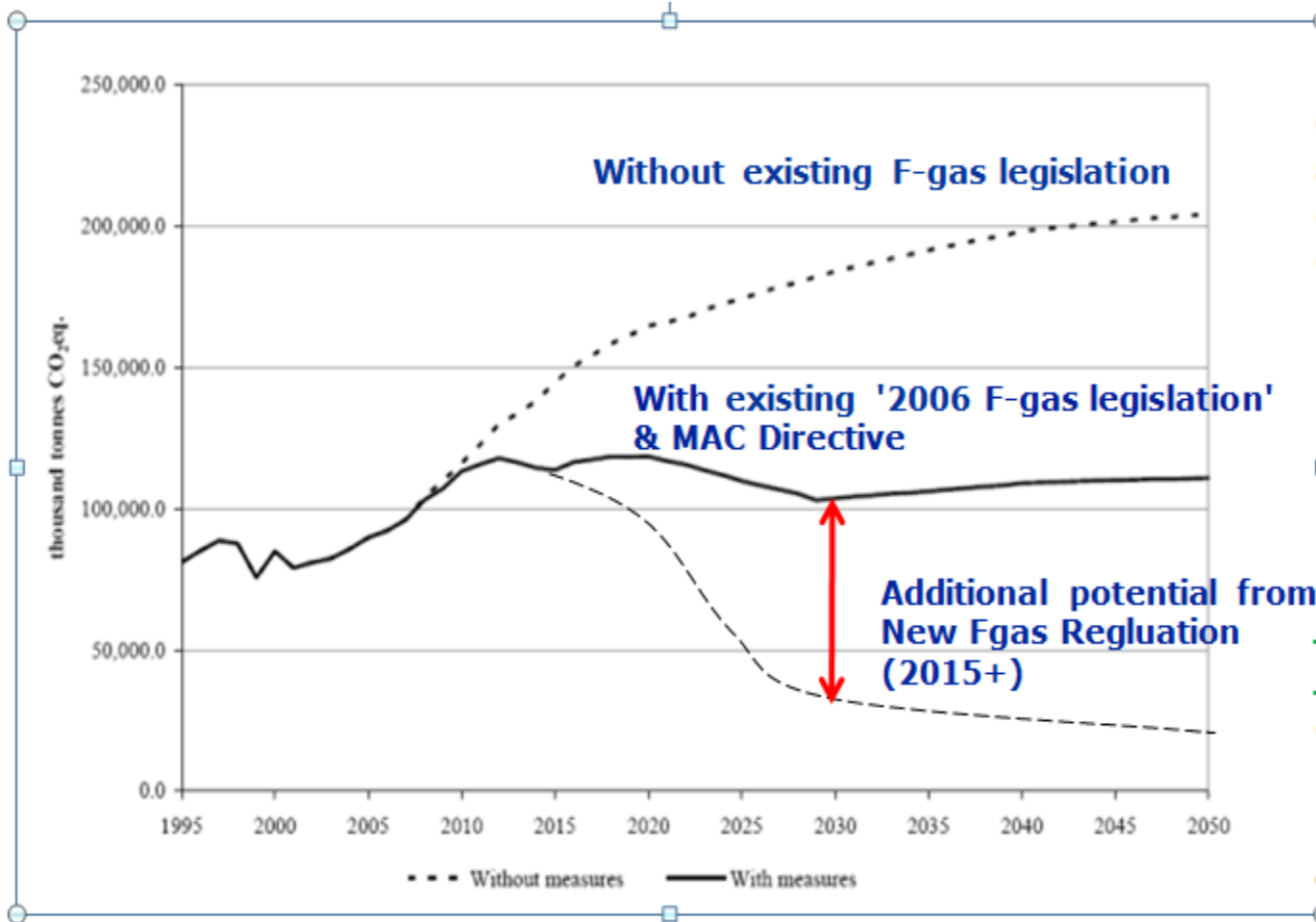
The need for (further) EU action

- EU 2050 climate targets is to reduce GHG emissions by 80-95% (1990-level)
EU Low Carbon Economy Roadmap: non-CO2 emissions (non-agricultural) must decline by 70 to ~ 80% by 2050
- EU F-gas emissions *increased* by 60%
- Suitable alternatives with low GWP are available for most F-gas applications

Background



EU F-gas emissions in 1995-2050



Legislation from 2006 can achieve a stabilization of emissions, reducing emissions by almost 50%

→ Not sufficient for EU climate goals, Roadmap

New Fgas Regulation will decrease emission by >70 Mt CO₂eq. (two-thirds of today!)



Regulation (EU) No 517/2014 on Fluorinated Gases

applies from 1 January 2015

20.5.2014

EN

Official Journal of the European Union

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REGULATION (EU) No 517/2014 OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL
of 16 April 2014
on fluorinated greenhouse gases and repealing Regulation (EC) No 842/2006
(Text with EEA relevance)

THE EUROPEAN PARLIAMENT AND THE COUNCIL OF THE EUROPEAN UNION,

Having regard to the Treaty on the Functioning of the European Union, and in particular Article 192(1) thereof,

Having regard to the proposal from the European Commission,



Two strategies to reduce emissions

- Prevent leakage and emissions
 - Emission prevention and leak checks -> Art. 3 - 6
 - Control of by-production -> Art. 7
 - End of life treatment of products and equipment -> Art. 8,9
 - Training and qualification -> Art. 10
 - Information for users (labelling, product infos) -> Art. 12
- Avoid the use of F-gases
 - Training and qualification
 - Ban on new applications -> Art. 11
 - Ban on uses -> Art. 13
 - **Phase-down of HFC supply** -> Art. 15 ff.

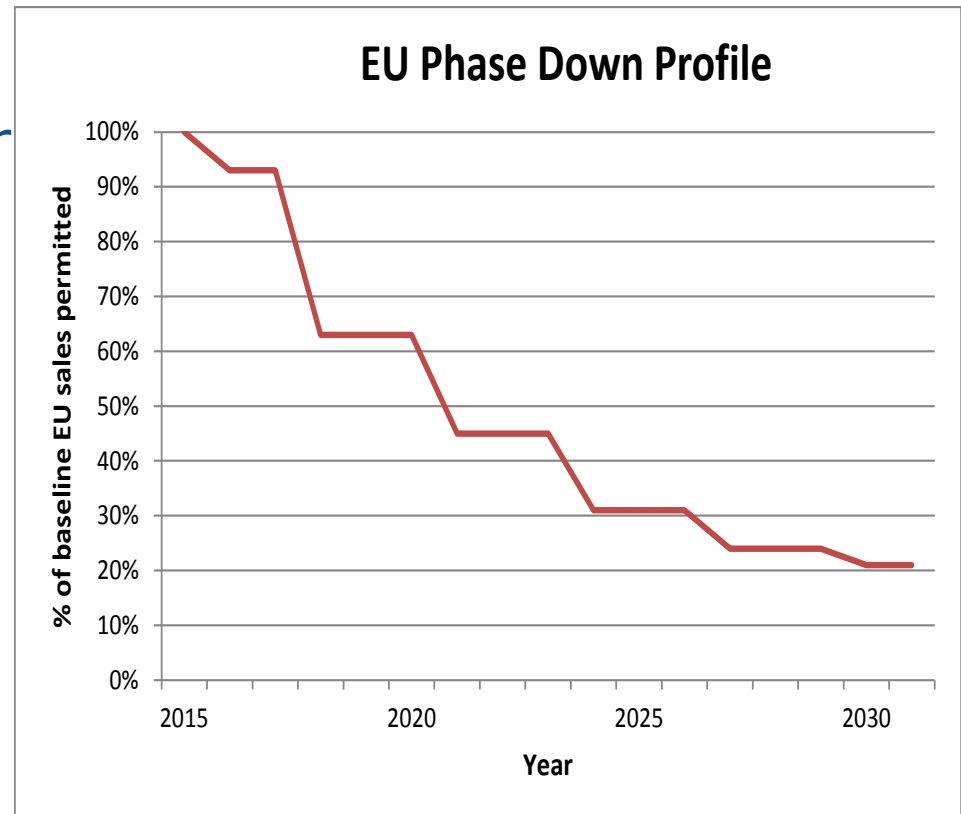


HFC phase-down – the main novelty

- The phase-down concerns:
 - **All HFC bulk gases placed on the EU market (imports + EU production)**
 - **HFCs in imported pre-charged RAC equipment reduce quotas for bulk supply from 2017**
- Companies are assigned quotas in CO₂ equivalent, leaving flexibility in actual substances to be put on market
 - **More HFCs can be sold when their GWP decrease accordingly!**

EU HFC phase-down, starting in 2015

- **Upstream: Reduce current EU supply of HFCs in 3 year steps by (almost) 80% in 2030**
- Freeze in 2015, first reduction step in 2016
- Tail-end for applications where there are no alternatives today





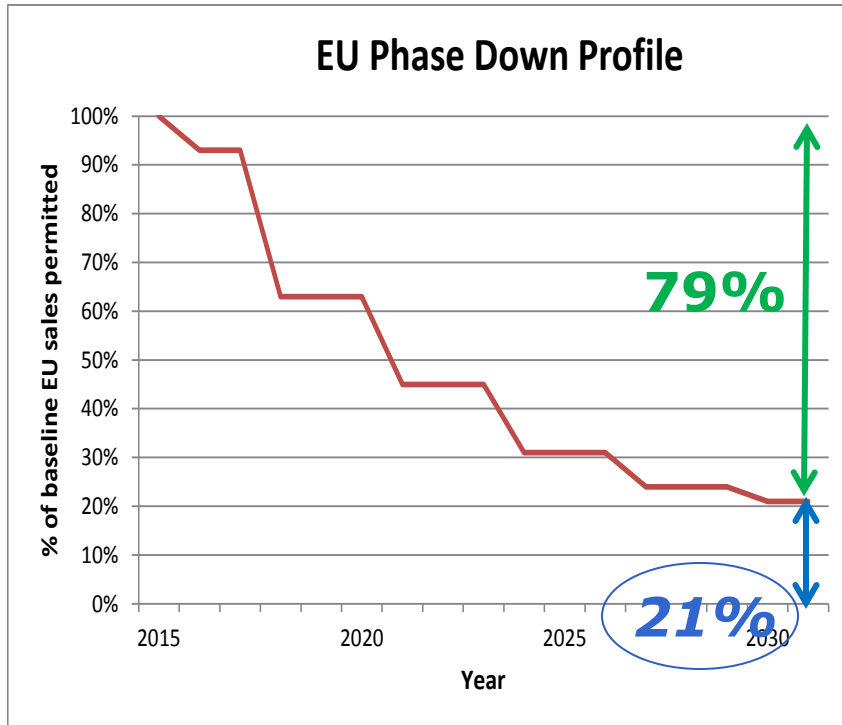
HFCs in pre-charged equipment

- Of the EU HFC demand, **11%** is imported in pre-filled equipment, rising to **18%** in 2030
- If not addressed, risk of circumvention of the phase-down!

Solution: As of 2017, obligation to ensure that all HFCs quantities filled in equipment are "accounted for" under the EU phase-down

- Filling in the EU, or
- outside the EU, with HFCs bought in the EU, or
- authorisation to use quota from a quota holder (may also be a non-EU HFC producer with own EU quota)

Verification through declarations of conformity and audited reports submitted by the importer



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...		

No need to have all alternatives available right away!

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



Bans and their context

1. Addressing non-HFCs and by-production

- Use bans for SF₆ in magnesium production
- Recovery of HFC-23 by-production

2. Steering the HFC phase-down

- Ban to service existing equipment with high GWP HFCs,
- Additional placing on the market bans for new equipment ('sign-posting')

Guiding principles:

- Existing equipment should not become obsolete
- Bans only when alternatives are available (= safe, **energy efficient**, economically viable)



Great attention by stakeholders on the bans...

*but **it's the phase-down** that will drive most changes (not sector-specific and thus flexible)*

Average GWP today ~2000

-> In 2030 average GWP <400 (21%)

- A solution with GWP ~750 is not good enough unless other sectors do more...
- In a saturated markets substantial savings can be achieved by replacing old R-404a or R-410a equipment
- Risky strategy for growing markets!
- High-GWP HFCs and blends have no future in standard applications



Ban on servicing with high GWP HFCs

1. Applies as of 2020
2. Large refrigeration equipment
 - Above 40 tonnes CO₂ eq charge size
 - Excluding equipment for temperatures below -50°C
3. HFCs above GWP 2500
 - Mainly R-404a
4. Recycled HFCs can be used until 2030

Placing on the market restrictions



	RAC Market	% 2010 HFC Demand	Approximate GWP Threshold for New Product Ban				Restrictions in EU legislation
			150	700	1400	2500	
Refrigeration	Domestic refrigeration	0.2%	●				banned from 2015 (GWP>150)
	Commercial Small Hermetic	0.2%	●				banned from 2020 (>2500) and 2022 (>150)
	Commercial Condensing Units	4%	●	●	●	●	banned from 2020 (>2500)
	Commercial Multipack	33%	●	●		●	banned from 2020 (>2500) and 2022 (>150) [allowing cascades with GWP<1500]
	Transport Refrigeration	1%	●	●		●	
	Industrial Small / Medium DX	8%	●	●	●	●	banned from 2020 (>2500)
	Industrial Large DX	3%	●			●	banned from 2020 (>2500)
	Industrial chillers	1%	●	●			banned from 2020 (>2500)
	Industrial flooded	0.1%	●			●	banned from 2020 (>2500)

Key to Traffic Lights

●	Ban suitable (but may need small number of exemptions in some sectors)
●	Ban may be suitable for part of sector, but more commercial development needed
●	Ban not suitable at this time

Placing on the market restrictions



RAC Market	% 2010 HFC Demand	Approximate GWP Threshold for New Product Ban				Restrictions in EU legislation	
		150	700	1400	2500		
Air-Conditioning and Heat Pumps	Small portable units	1%	●				banned from 2020 (<150)
	Split systems	20%	●	●			banned from 2025 (<750)
	Packaged systems	0.4%	●	●			
	VRF systems	2%	●	●			
	Small and medium chillers	6%	●	●			
	Large chillers	2%	●				
	Domestic hydronic heat pumps	1%	●	●			
	Other heat pumps	1%	●	●			
	MAC: cars and vans	10%	●				banned via MAC Directive (2011 for new car types, 2017 for new cars)
	MAC: large vehicles	7%	●	●			

Key to Traffic Lights

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Based on work by SKM Enviro

The international context

- EU phase-down demonstrates that measures are feasible
- 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

There is a unique window to save efforts and money by acting now,

- *reducing existing use of HFCs, and*
- *using low-GWP alternatives to replace HCFCs*

in the framework of the Montreal Protocol on Ozone Depleting Substances



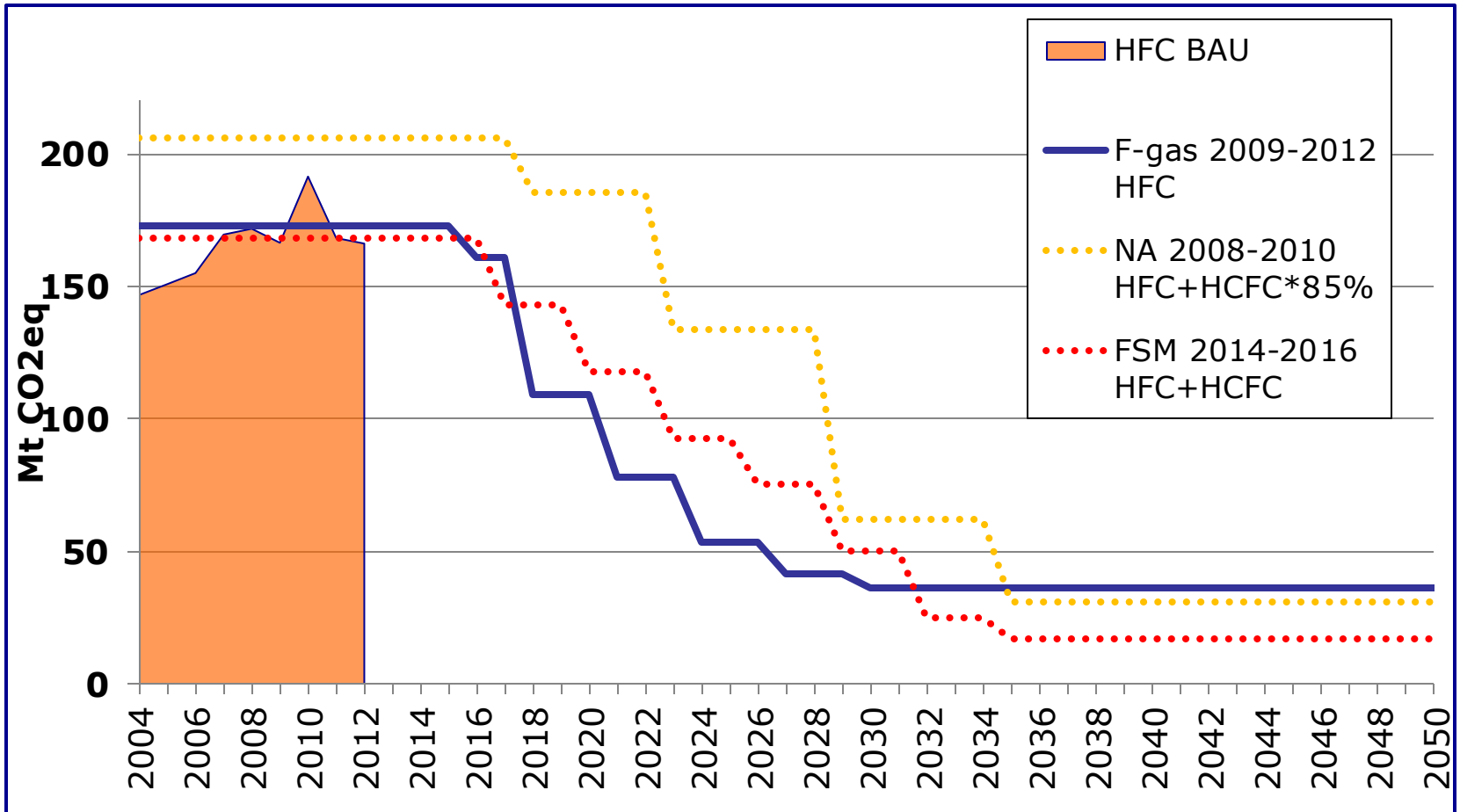
The EU approach

- Support for HFC amendment proposals
- Encourage other Article 2 parties to pursue a similar level of ambition as the new EU Regulation
- Consideration of elements that could be changed to reach international consensus:
 - For Article 5 parties: Focus on maximizing **climate benefits of the HCFC phase-out**
 - Freeze of combined HCFC and HFC consumption, expressed in CO₂ equivalents
 - Collection of data on HFCs before deciding on long-term reduction schedule

Addressing HFCs under the Montreal Protocol



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



Impact of 2014 proposals by NA = North America, FSM = Federated States of Micronesia on the EU HFC consumption



To know more...

http://ec.europa.eu/clima/policies/f-gas/legislation/docs/fluorinated_greenhouse_gases_en.pdf

http://ec.europa.eu/clima/policies/f-gas/legislation/documentation_en.htm

...and of course: cornelius.rhein@ec.europa.eu

Thank you for your attention!