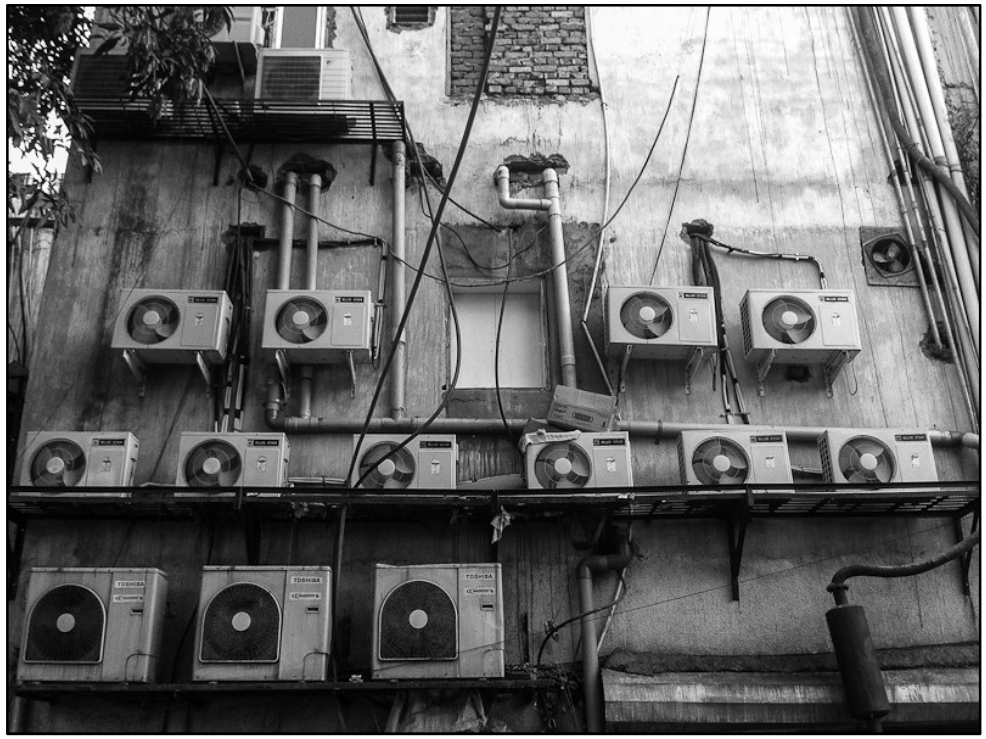
International Policy Update on HFCs



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Outline

1. **Action at the domestic level**
   - Action in the US in focus
   - Action in EU in focus
2. **Action at the international level**
   1. High-level agreements
   2. Montreal Protocol
3. **Key dates & conclusions**

Domestic Action on HFCs Globally

- US SNAP & CAFÉ (more later)
- EU F-gas Directive (more later)
- EU MAC Directive systems already bans the use of f-gases with GWPs higher than 150; new type vehicles covered in 2013, all vehicles sold in EU covered by 2017.
- Australia - carbon tax
- Japan - phases down HFCs, promotes low-GWP equipment and products, containment in commercial equipment, registration and approval of fillers and recyclers)
- New Zealand (levy on goods containing HFCs linked to price of carbon)

- HFC taxes have been imposed or are under consideration in France, Spain, Norway, Denmark, Sweden, Slovenia, and Poland.
- In Switzerland, a strengthened f-gas regulation will ban HFCs in several AC and refrigeration applications.
- Containment, storage, record-keeping, recovery, reclamation, destruction policies: Denmark, France, Sweden, Germany, Netherlands, Belgium, Luxembourg, France, Czech Republic, Hungary, Slovakia, Estonia Poland.

Action on HFCs in the US

EPA Clean Car Standards

- EPA's clean car standards annually increase average automobile fuel efficiency over model years 2012-2025
- Auto companies earn credits toward for fuel efficiency by phase down from HFC-134a to low-GWP alternatives
- American companies are shifting to HFO-1234yf, but HFC-152a and CO_2 are also approved

Significant New Alternatives Policy

- Obama's June 2013 Climate Action Plan directs EPA to phase down HFCs by "identifying and approving climate-friendly chemicals and prohibiting uses of the most harmful alternatives"
- The Climate Action Plan also includes reducing HFCs in federal government procurement.

SNAP Program

- ***Significant New Alternatives Policy (SNAP) Program***
- Uses existing Clean Air Act authority to evaluate substitutes that reduce overall risk to human health & environment in industrial sectors – e.g., Refrigeration, A/C, Foams, Solvents, Fire Suppression, Aerosols, etc.
- Considers: ODP, GWP, flammability, toxicity, local air quality, ecosystem effects, occupational & consumer health/safety
- Alternatives are listed as acceptable, unacceptable and acceptable with conditions for use

SNAP Status:

Domestic and Commercial Refrigeration and Chillers

Low-GWP Acceptable Substitutes*:

Chemical	GWP	Application(s)
R-290 (propane)	3.3	commercial stand-alone refrigerators and freezers
Ammonia	0	refrigeration, chillers, commercial ice machines
CO2	1	vending machines, retail food refrigeration
HFO-1234ze, 1233zd(E)	4.7 – 7	chillers
R-600a, R-441A	<10	household refrigerators and freezers

- EPA developing a proposed rule that will add alternatives where current options are limited
- Since refrigerants are flammable, EPA is planning to propose appropriate use conditions that adopt safety standards

Refrigerant	GWP	End Use and Application EPA is Considering					
		Household Refrigerators	Retail refrigerator stand-alone	Vending	Very Low Temp Ref	Heat Transfer	Home AC-Self-contained
Ethane	6				√	√	
Isobutane*	8		√	√			
Propane*	3	√		√			√
R-441A* (HC blend)	<5		√	√			√
HFC-32	675						√

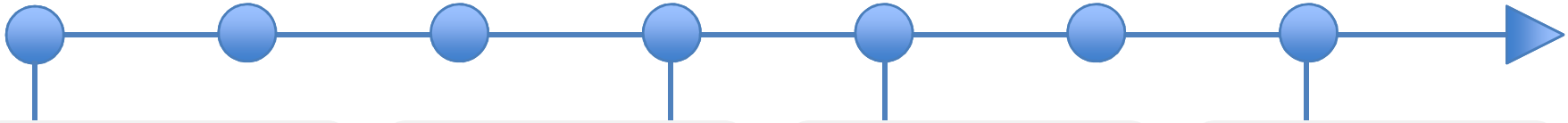
Likely SNAP Actions

- Vending Machines, Sand-Alone and Reach-in Coolers
  - Phase-down HFC-134a and high-GWP blends
- Multiplex Supermarket Systems
  - Phase-Down HFC-507A, HFC-404A and high-GWP blends
  - Keep HFC-407A, HFC-407Fand other options for now
- Motor Vehicle A/C
  - Phase-Down HFC-134a

Action in Europe

- Mobile air conditioning (MAC) Directive (No. 2006/40/EC)
  - Prohibits refrigerants with GWP > 150 after 2017
  - Phasing out HFC-134a
- Proposed New F-gas Regulation for stationary HFC uses – final approval is expected this month
  - Freeze in 2015 and phase down by 79% in 2030
  - Bans based on GWP:
    - Ban on servicing with HFCs with GWP > 2,500 (mainly R404A) from 2020.
    - Bans refrigerants with GWP > 150 for domestic refrigerators and freezers from 2015 – place on market ban.
    - Bans refrigerants with GWP > 750 for single split air-conditioning systems with less than 3kg charge size - place on market ban.

Key International Engagements



Jun 2013

BASIC countries joint statement to multilaterally address HFCs

Chinese President Xi Jinping and **U.S. President Barack Obama** agree negotiations phase down of HFCs under Montreal Protocol

Sep 2013

G20 Leaders' declaration for complementary initiatives to UNFCCC using expertise and institutions of Montreal Protocol

Indian Prime Minister Manmohan Singh and **U.S. President Barack Obama** agree to discuss HFCs under Montreal Protocol

Oct 2013

India opposes amendment of the Montreal Protocol at Meeting of Parties, agreed way forward includes

Discussion Group on HFC Management

TEAP study to evaluate HFC growth, alternatives and costs of global phase down

Additional demonstration projects proposed to the multilateral fund

Dec 2013

European Union is passing a Directive to phase-down F-gases in fridges, room A/C, chillers, foams and aerosol products with nearly an 80% reduction by 2030

This strengthens the 2006 MAC Directive that requires GWP < 150 refrigerants in automobile AC by 2017

International Engagement – TEAP Study

- Update on HFC alternatives including commercial availability, efficiency, economic viability, suitability for high ambient temperature regions, safety and ease of use
- Study on HFC growth
- Estimate cost of global phasedown, environmental benefits of various phase down scenarios

International Engagement

Workshops, Reporting and Demonstration Projects

- Workshop at the 2014 spring Montreal Protocol meeting to continue discussions on HFCs
- Parties will provide to the Ozone Secretariat with information on their domestic policies on reducing HFCs
- The Executive Committee of the Multilateral Fund will consider additional demonstration projects to validate low-GWP alternatives and technologies

International Support

- Amendment proposals are co-sponsored by developing countries including Micronesia, Mexico, Morocco & Maldives
- A wide coalition of developing countries support formal Amendment negotiations: dozens of African Group countries (including South Africa), Russia & Eastern Europe, and numerous small island states.
- 108 Parties to the Montreal Protocol signed the *Bangkok Declaration,* calling for the use of low-GWP alternatives.
- Through May 2013, 112 Parties joined the even stronger *Bali Declaration.*

Key Dates in 2014

Apr 2014	TEAP HFC Assessments Published on Line
Jul 11-18	Bangkok, Meeting of Montreal Protocol and HFC Workshop
Sep 23	New York, Ban Ki Moon UN Climate Summit
Nov 17-21	Nairobi, 26th annual Meeting of the Parties to the Montreal Protocol
Dec 1-12	Lima, 20th Conference of the Parties to the Kyoto Protocol

Key Points

- Amendment proposals continue to gain support.
- Countries are moving away from HFCs voluntarily and through regulation and other policies.
- Industry is leading the move away from high GWP HFCs.
- Early movers will capture markets.
- Industry participation and feedback is essential to good policy design.

Questions/Contact

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