



Putting Natural Refrigerants in the Public Spotlight

Fionnuala Walravens
**Environmental
Investigation Agency**





Outline

- About EIA
- Why HFCs, why Supermarkets?
- Chilling Facts campaign
- HFC-free refrigeration, challenges and rewards
- International perspectives
- Shaping global policy
- What role can we play?





Profile

- Established 1984
- Offices in London and Washington DC
- Combating environmental crime and abuse
- Campaigns: Species in Peril, Forests for the World, Global Environment
- Investigating illegal trade in ODS since 1997
- Key role raising awareness of effects of ODS phase out on HFC emissions at both Montreal (ozone) and Kyoto (climate) protocols. Calling for co-operative effort to enact global HFC phase out
- Awards: UNEP Global 500 Role of Honour, United States EPA “Best of the Best”





Why HFCs?

- Direct replacements to ODS-HCFCs.
- GWP R22 1800, R134a 1400, R404a 3260
- Current HFC atmospheric concentrations rising ~15%/year

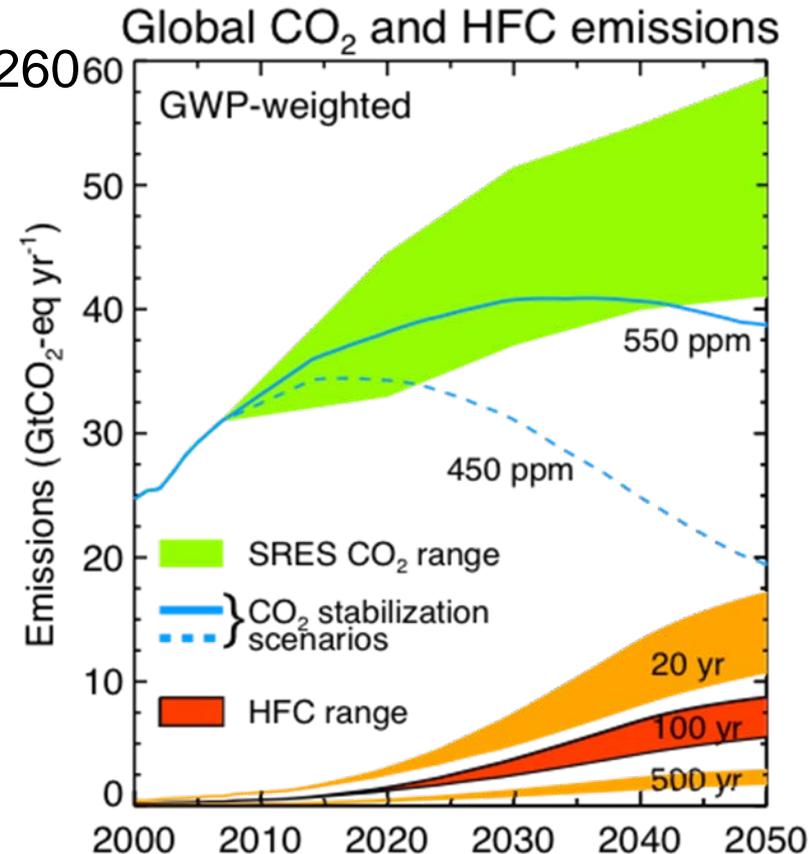
Projected rise in HFC emissions (excluding HFC-23!)

- 2020 ~1.6 GtCO₂/year
- 2050~5.5-8.8 GtCO₂/year

If no further action is taken on HFCs, 2050 emissions could occupy 45% of GHG allowance to meet 450ppm

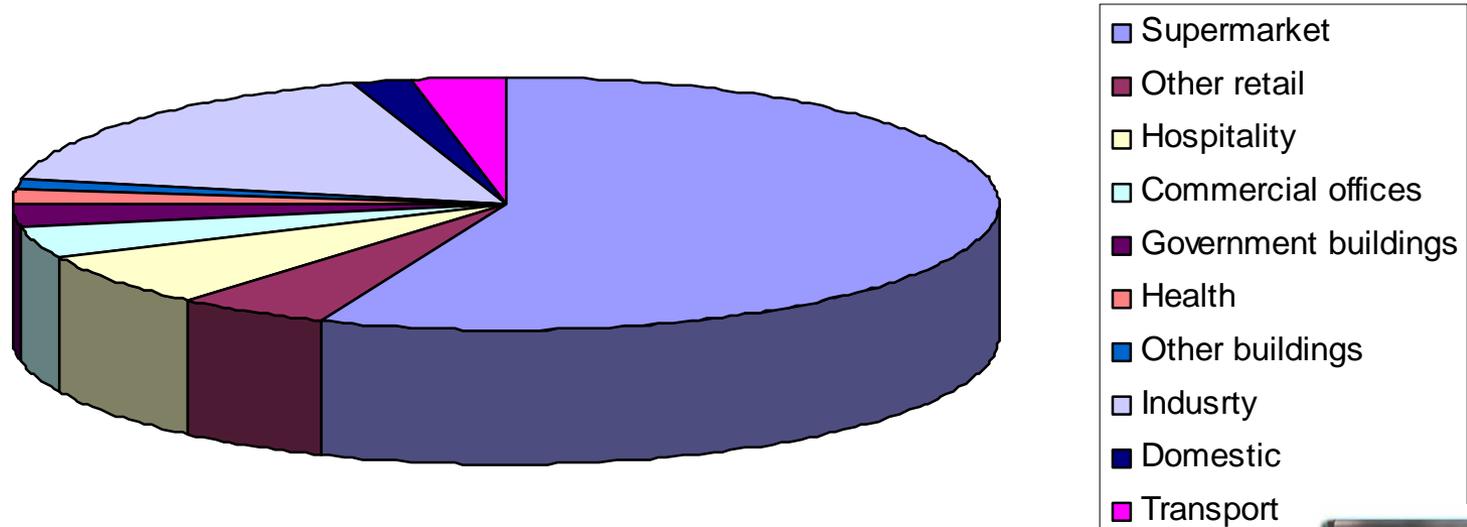
20 year GWP.....much worse

- **Time for global action**



Why Supermarkets?

RAC market subsector excluding Mobile Air Conditioning



- 2005: Supermarkets are biggest source of HFC emissions in UK 2 million tonnes CO₂-eq

(LACORS: Local Authorities Coordinators of Regulatory Services)

- 2007: UK supermarkets commit to phase out HFCs...





Engaging the public

- **Growing interest in climate**
- **Feeling of disempowerment**
- **Need actions that really have an impact**
- **Supermarkets listen to their customers**
- **Availability of alternatives but absence of regulatory stimulus and start up cost penalties**

Challenge:

- **Translating a technical matter in an easily accessible way**

=> BBC radio programme “Costing the Earth”

=> www.chillingfacts.org





Chilling Facts

Home | About the survey | Take action

How supermarket refrigeration is HEATING UP the planet

Psssst...! Did you know... leaky, old fashioned fridges and freezers in your supermarket are causing climate change?

Every year they release HFCs (refrigerant gases) into the atmosphere – emissions equivalent of you flying from London to New York 2.5 million times.

As climate friendly alternatives already exist, we thought we'd take a look into what supermarkets are doing to fix the problem.

Click on a supermarket logo to see how they did.

****Latest News****

A recent Early Day Motion (EDM), tabled by Clive Efford MP, is calling on all supermarkets to implement an immediate phase out of HFCs. In order to get as much support for the EDM as possible and ensure that new legislation is introduced to force supermarkets away from using climate wrecking HFCs, we need as many MPs signatures as possible.





EIA report-Methodology

- Survey
- Direct communication with supermarkets
- Internet
- Steering group:
Environmentally friendly refrigeration expert, green consumer expert, EIA global environment campaigner.
- Topics:
Use of HFCs in different areas -transport, in-store, distribution centres; energy efficiency efforts; leakages; training; facing challenges and future plans to use naturals





Results (2008)

Rank	Retailer	Comments
1	M&S	Clear leaders-most amount of stores using naturals and training programme.
2	Tesco	Refrigeration engineer training programme put them in good stead. But largest contributor to HFC emissions, responsibility to take serious action.
3	Asda	Some innovative ideas on climate friendly refrigerants, testing different systems. Strong on energy efficiency targets.
4	Co-operative	Good use of climate-friendly refrigerants behind-the-scenes and good energy efficiency targets. Emissions from leakage actually increased between 2006 and 2007.
5	Sainsburys	Didn't do as well as they should. Focused on energy efficiency measures, lack of investment in climate-friendly refrigerants.
6	Morrisons	Refused to participate, EIA ranked them according to information available on their website.
7	Waitrose	Good use of naturals in DCs but vague response and failed to disclose direct HFC emissions.
8	Aldi	Failed to participate but a point for their work in Germany
9	Lidl	Failed to participate, have since given EIA information on their refrigeration policies
10	Iceland	Failed to participate, minus point for going back on greenfreeze commitment



EIA report-Results (2008)

Stores converted:

- 0.46% of total stores converted

Distribution centres:

- Mostly ammonia/glycol, ammonia/CO2

In store:

- Mostly centralised systems R404a

Transport

- Mostly R404a
- Small use of nitrogen refrigeration, Asda
- Eutectic plates for frozen goods, Lidl





Results: breaking a common misconception

~~CO₂ Energy usage > CO₂e refrigeration emissions~~

- Direct emissions of refrigerant 19-33% of carbon footprint
 - Direct:Indirect emissions ratio= 1.65
- ⇒ Climate impacts of refrigerant leakage over 1.5x greater than those associated with energy use





Issues raised by supermarkets

Issue: Skills shortage-lack of trained engineers

Solution: Training courses with support from government and supermarkets. Tesco and M&S already carrying out training

Issue: Need for a government intervention, creation of level playing field to incentivise alternatives/penalise HFCs

Solution: HFC phase out, using HFC taxation as interim and source of funds to assist training and R&D

Issue: A need for improved supply of components

Solution: Opportunities for green business





EIA's report conclusions: Time for action

Supermarkets must:

- Commit to stop installing HFC equipment in new builds and retrofits
- Provide a date by which they plan to phase out HFCs
- Support training courses for engineers

Governments must

- Give this issue the serious attention it warrants
- pass legislation for HFC phase out
- Invest in future engineers
- Support global action to reduce HFC usage





Action from supermarkets following survey

M&S: Will use CO₂ based systems in all new builds and major retrofits.
(HFC or HC used as primary refrigerant)

Morrisons: Plan to use CO₂ in all new builds and major retrofits

Waitrose: Committed to phasing out HFCs using HCs

Lidl: phasing out HFCs in frozen units

Winter 2009, EIA's 2nd supermarket refrigeration survey results to be announced

Further information sought on: Efficiency, F-gas compliance, overseas experience

100% participation

Some big developments.....

=>success in driving natural refrigerants faster to market





Growing political awareness

UK government response: F-gas review should consider non-essential use ban

MP Clive Efford

- EDM on HFCs calling for a level playing field
- Call to EIA supporters to engage their local MP
- Current signatures: 89 and growing
- 10 minute rule bill introducing legislation to phase HFCs out of supermarket sector

Next steps

- Meeting with Minister to call for government and legislative support





HFC-free refrigeration Benefits and Drawbacks

Benefits: **Energy savings**

CO₂ systems

- Aldi: Germany 6%, more expected
- Tesco: 15% savings, Tramore, Ireland
- Danfoss: Transcritical system, 4% savings compared to conventional R404a
- McDonalds: HFC free restaurant, 15% savings

HC 'plug and play'

- Unilever: 9% energy savings over HFC counterparts. 360,000+ units inc. Asia, S. America.





HFC-free refrigeration

Benefits and Drawbacks

Drawbacks: **Cost and Complexity**

- Cost: CO₂ systems, about 25% premium, will reduce as usage increases.



However: Energy savings may help compensate, long-term vision needed-getting ready for future action.

- Complex system: need for enhanced training and simplified design

Denmark: engineers prefer to work with naturals -more interesting, a need for servicing sector to change





It's working in the rest of northern Europe, why not UK?

Naturals expected to take over in 3-5 yrs, already more than 150 commercial units

- Legislation on HFC use (Austria, Denmark) and leakage (Netherlands, Sweden)
- GWP based HFC taxation → uptake of alternatives
- Denmark and Norway: taxation on R404a ~ 50-80 euro/kg
- Decreased use of F-gas by 40-50%

Sweden; planning to introduce HFC taxation

- Source of revenue ~ £8million revenue in 2010, £4million by 2020





EIA's role in shaping future action on HFCs

Supermarkets

- Shining a light
- Name and shame
- Promote good practice
- Call for government support

Global policy

- Call for synergy in climate and ozone treaties
- Educating climate negotiators
- Providing environmentally objective solutions and briefings





Your role

Equipment and refrigerant manufacturers:

- **Stay ahead of the game, fast pace**
- **A need for more developed AND developing country case studies**
- **Speak up! Better representation and lobbying**

Politicians/advisors:

- **A success story from Copenhagen**
- **Raise profile and awareness of the issue**





Recommendations

Montreal Protocol MOP, November, Egypt

- Agree to stop funding HFCs where alternatives exist
- Agree to take urgent action to phase out HFCs

UNFCCC COP/MOP, December, Copenhagen

- Global agreement to work with MP to phase out HFCs 2010
- Fast acting and truly effective HFC phase out.
More developing countries should come forward with proposals

Co-operation between ozone and climate treaties begins at home, domestic communication between ministries is needed





Summing up

- Change is happening, still some way to go
- Need for legislation
- Evolving market, new opps for clean tech
- Further HFC restrictions are coming:

G8 declaration (July 2009) *“We will work with our partners to ensure that HFC emissions reductions are achieved under the appropriate framework”*

Final thought:

Financial crisis, not necessarily a set back to green economy => Long term businesses must be sustainable

