

Lessons learned from phasing out HFCs in Denmark

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Introduction

The Toolbox

impact on consumption and emissions

Lessons learned



The Tools



- Taxation
- Use Bans
- Support to Development of alternative technologies
- Containment?



Taxation

- 150 Dkr \approx 20 € per T CO₂ Equivalent
- R 134 A \approx 28 € per kg
- R152A \approx 2 € per kg
- Max at 80 € per kg
- Substances in bulk and contained in mixtures and products



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Statutory order no. 552

- Ban on importation, placing on the market and use of new products containing F-gasses from 2006
- Ban on importation, placing on the market and use of F-gasses from 2006
- Industrial uses allowed
- Other permanent derogations



Permanent derogations

- Products:
 - Cooling plants, heat pumps, air conditioning systems (comfort cooling) and dehumidifiers with charges between 0,15 kg and 10 kg
 - Mobile AC and refrigeration
- Uses of substances
 - Servicing of existing refrigeration equipment
- DEPA can grant individual exemptions



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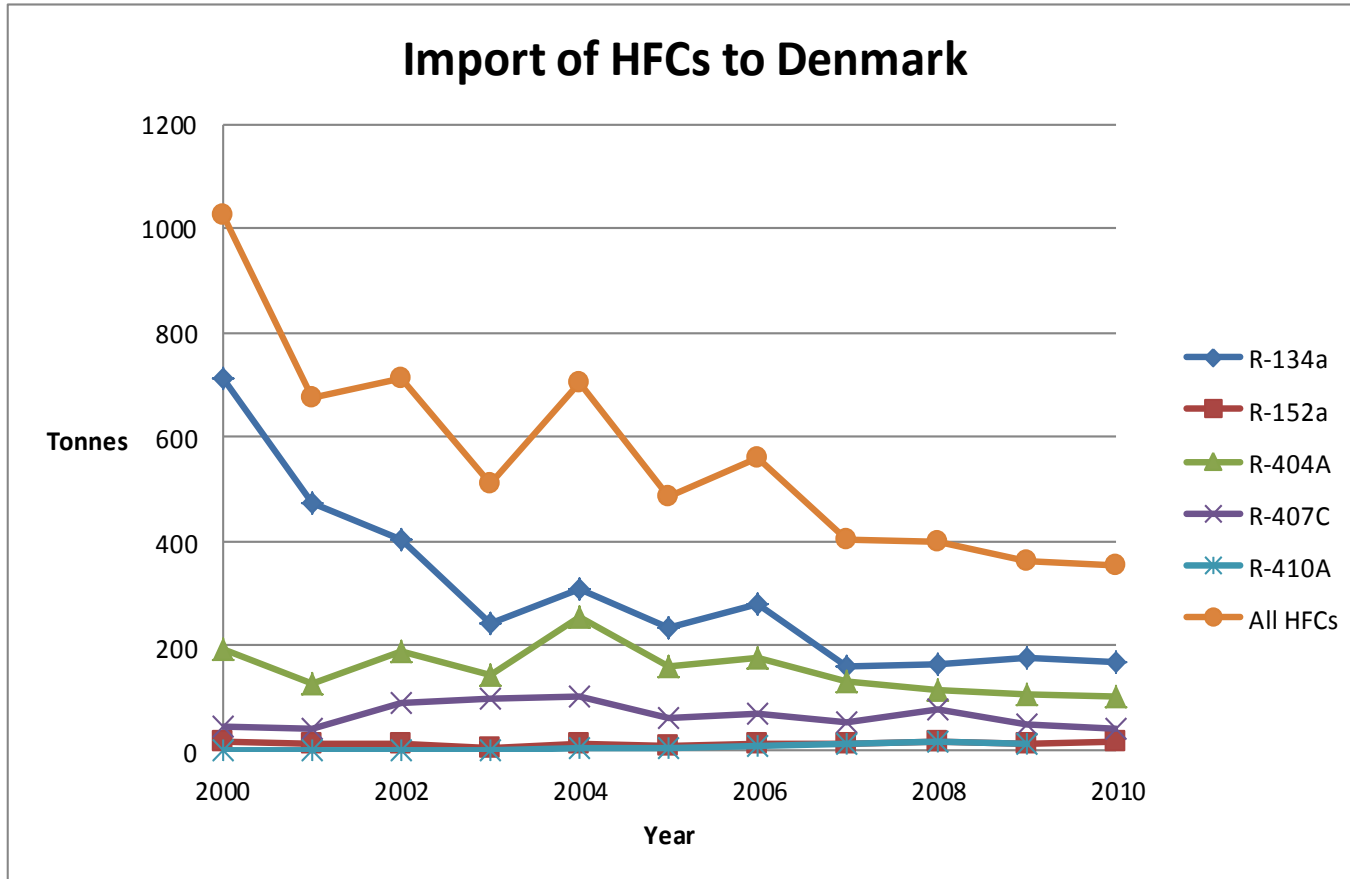
Supporting Alternatives



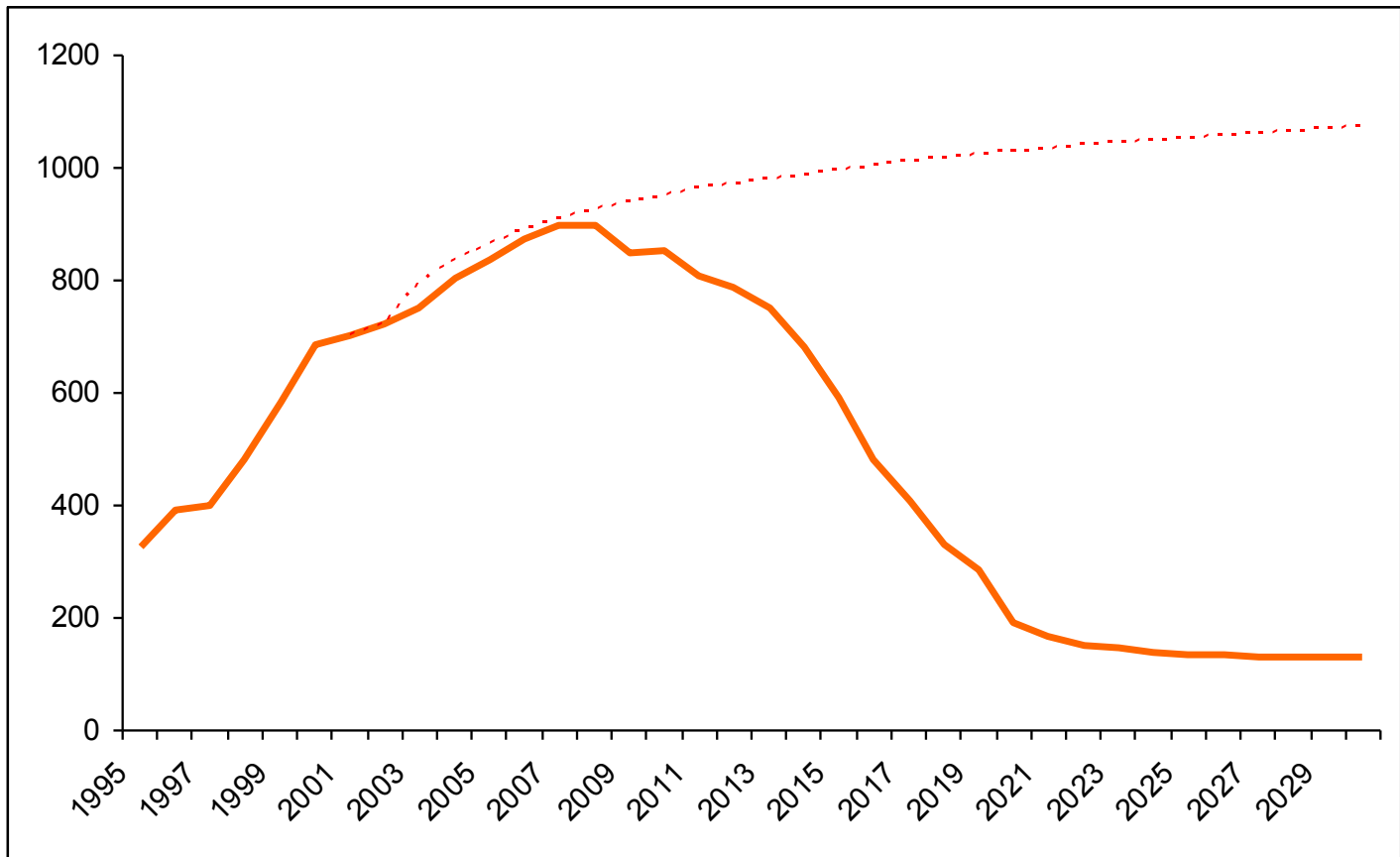
- Development of equipment - projects for 50 mio. Dkr
- HFC- free knowledge centre
- Increase in education capacity
- KMO (Refrigeration industry environmental agreement)



The trends #1: Consumption



The Trends # 2: Emissions



Main Alternatives

- Supermarkets: CO₂
- Commercial plug-in cabinets: Hydrocarbons/CO₂
- Industrial refrigeration: Ammonia
- Chillers: Hydrocarbons and Ammonia, (Water)
- Domestic refrigerators and freezers: Hydrocarbons
- For More information consult: <http://www2.mst.dk/Udgiv/publications/2012/06/978-87-92903-15-0.pdf>



Lessons learned



- No "one size fits all" solution
 - But many climate friendly solutions are available
- It takes time
 - But You should start right away
- Denmark has lead the way
 - And it can be done everywhere



Advices

- Policy makers: Keep cool
- Refrigeration Industry: Take responsibility
- End users: Look ahead



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Thank you for your attention

