



Lessons learned from phasing out HFCs in Denmark

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Introduction

The regulation

The effects

The Alternatives

The Lessons learned

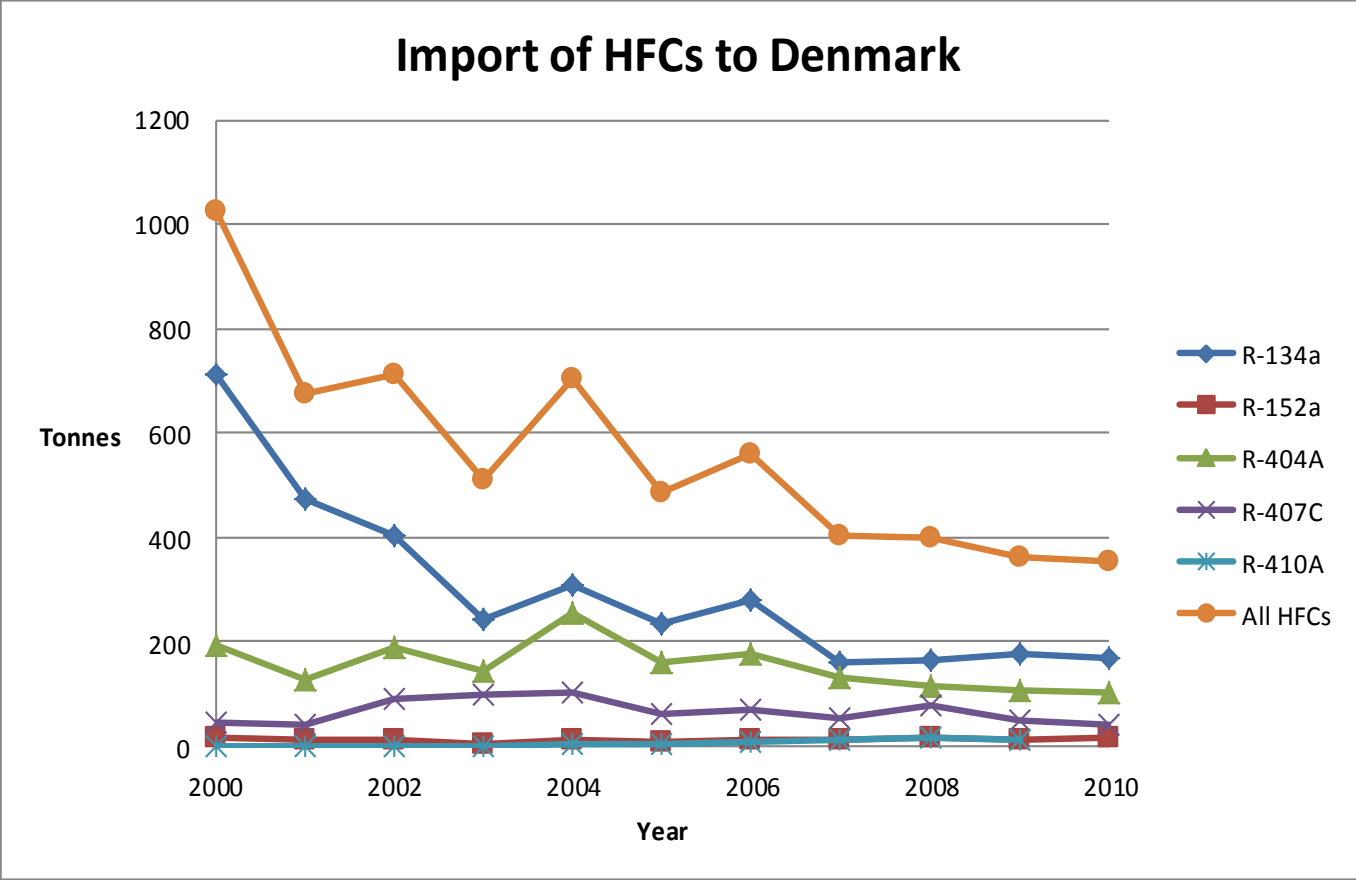


Statutory order no. 552

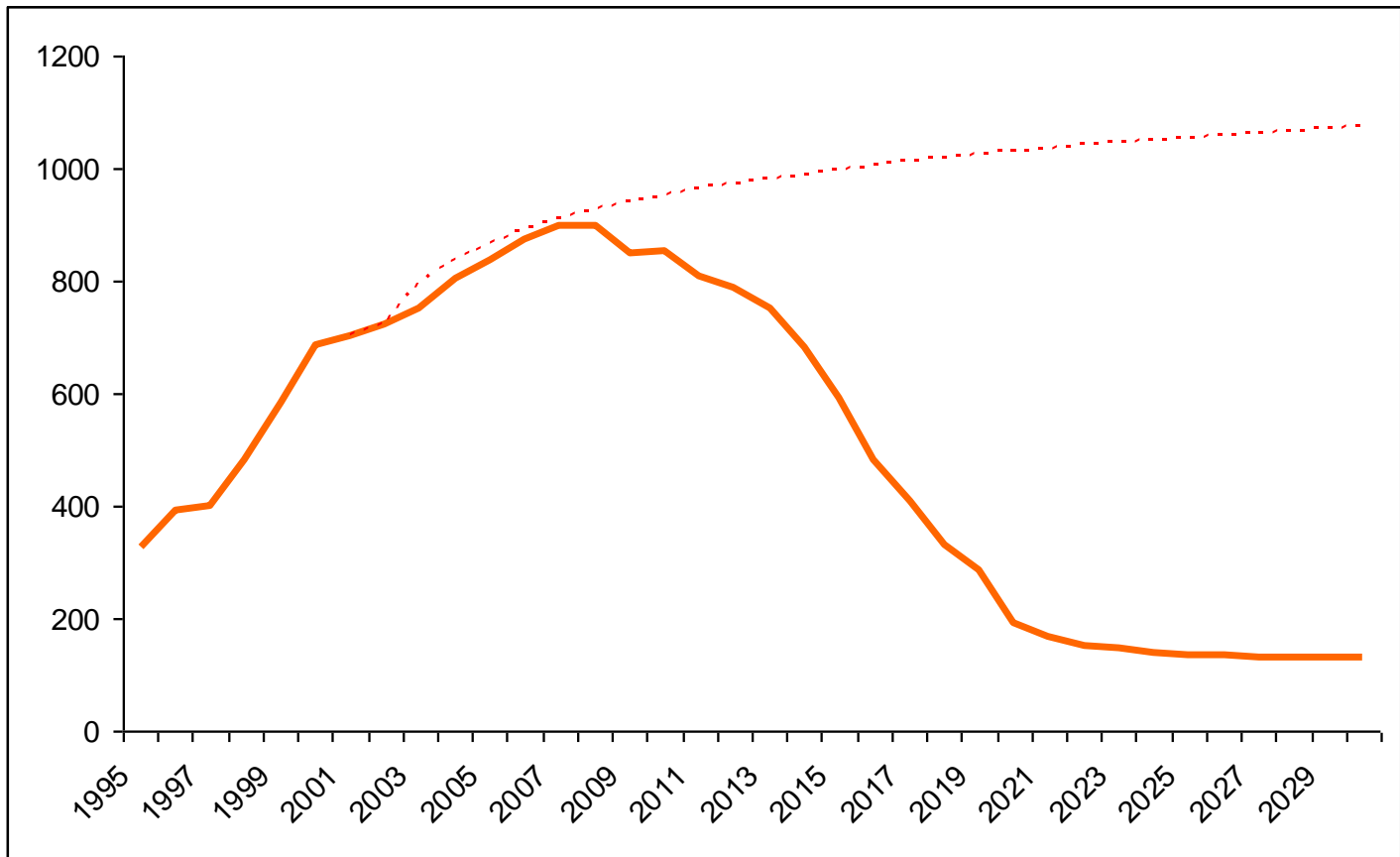
- All uses of *all* HFCs are banned (2007)
- Some permanent derogations: 150 g - 10 kg
- Servicing allowed
- DEPA can grant individual exemptions



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>





It can be done!



It is possible to dramatically reduce the consumption and emission of F-gases.

It was done without harming the industry or society.

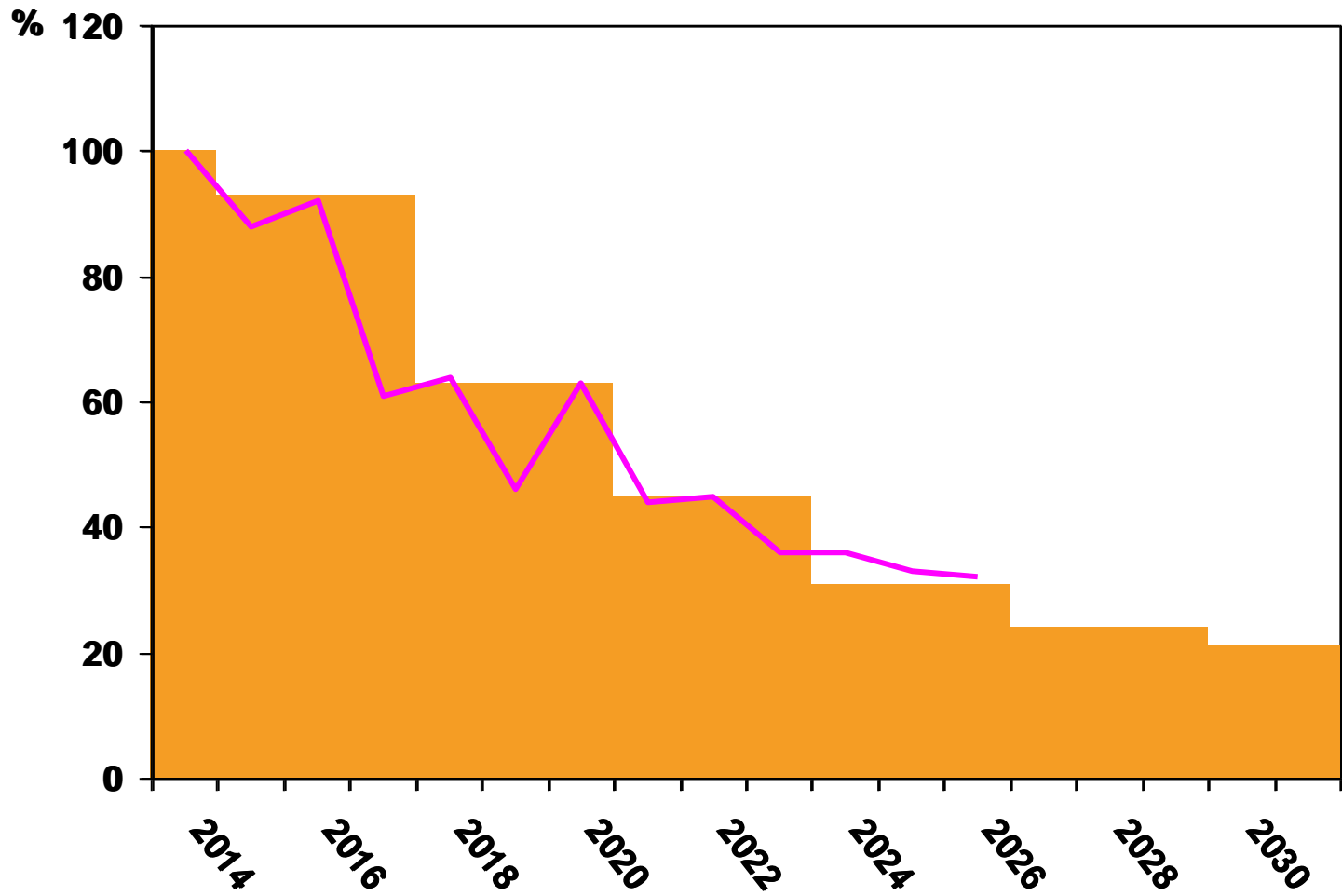
It has been carried out in good co-operation between:

- Industry (including the refrigeration community)
- Science
- Government

In most cases, alternative technologies are superior in energy efficiency.

Other countries can do the same!





EU versus Danish regulation



Danish Ministry of the Environment
Environmental Protection Agency

Lessons learned

- Policy makers: Keep cool
- Refrigeration Industry: Take responsibility
- End users: Look ahead
- Commission: thresholds like 100 kW or 2150 GWP to be avoided. Clear definitions



Conclusion

- No "one size fits all" solution
- It takes time
- It can be done everywhere





natural refrigerants
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Thank you for your attention

