

ATMOsphere Europe 2011



Integration of Natural Refrigerants in Coop Norway

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Agenda

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 - Coop Norway:
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 - **Values**
 - **Environmental work**
 - **Ecolabelled stores**
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- **CO₂ as in-store refrigerant**
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- **Conclusions**



BACKGROUND

Facts & Figures

Ecolabelling

Energy project



Euro Coop: key facts

- ✓ **European Association of Consumer Co-operatives**
- ✓ **Members' figures (17 countries):**
 - **Turnover: € 73 billion+**
 - **400,000+ employees**
 - **36,000+ points of sale**
 - **2,700+ regional societies**
 - **Consumer-members: > 29,000,000**
- ✓ **Representing the members to the EU on key policy issues**
- ✓ **Exchange of experiences and best practices**
- ✓ **Sustainability working group: Policy papers**
 - ✓ **Energy and Climate Change, Product sustainability policy, Development and Fair Trade**

Coop Norway in figures

- First consumer cooperatives in Norway established in 1860s

Today:

- 125 local cooperatives
- ca. 1000 stores
- 22 500 employees
- 1.25 million members
- Nearly 4000 member representatives
- 24 % market share



COOP'S VALUE COMPASS



Coop's Value Compass is a shared grounding for all of Coop's activities

Core value: Belief in our distinctiveness

- **Influence;** on members and employees
- **Compassion;** for human beings, animals and the environment
- **Honesty;** make consumers safe and confident
- **Innovation;** use of new technology in order to develop

Environmental work: Ecolabelled stores

- **The Nordic Swan → 60 stores labelled**
- **Coop Extra – first, and only ecolabelled chain in Norway**
- **Some requirements:**
 - **Low energy use**
 - **Low climate effects** (e.g. refrigerants)
 - **Lightning management**
 - **Efficient waste management**
 - **Eco- and organic assortment**
- **Consistent specification requirements when developing stores**



Energy project in Coop Norway

- **Comprehensive 5-year project, established in 2007, supported by ENOVA** (Norwegian public enterprise in charge of reaching an environmentally sound and rational energy use and production)
- **Target: 38 mill. kWh energy reduction - equals 10 % in 450 outlets and 6 distribution centres, through:**
 - ✓ Investing in more **energy efficient equipment** in new shops and through refurbishments
 - ✓ **Revised requirements** for lightning, cooling and ventilation
 - ✓ **Energy audits** in existing stores and executing revealed energy efficiency actions
 - ✓ **Energy monitoring**
 - ✓ Knowledge and **competence** building



CO₂

History

Status

Experiences and learnings



CO₂ as in-store refrigerant - history

- High and increasing taxes on syntethic refrigerants in Norway
- Project established in 1994: Coop, Suppliers, Research institute, Norwegian University of Science and Technology
- **Goal: find the "ultimate" solution, instead of substituting with marginally less harmful substances**
- First solution established in 2001, using CO₂ and NH₃

Status per October 2011 – Coop Norway

- **29 stores established with transcritical CO₂ – system**
- **All new stores and major refurbishments will be using transcritical CO₂**
- **Choosing natural refrigerants is a part of overall energy project, also including:**
 - Doors on all cabinets
 - New lightning concepts
 - Energy monitoring and surveillance.

Experiences and learnings

- **Energy use:**
 - **CO₂ – refrigerant: 15 -20% reduction compared to conventional technology**
 - **+ Doors on cabinets: 25-30% energy reduction compared to "open" solutions**
 - **Coolers; ca. 30%**
 - **Freezers; ca. 25%**
 - Opening hours, geography, turnover are affecting the results
- **Costs:**
 - **10 % reduced investments cost (€ 25.000 – 50.000/store)**
- **Other aspects:**
 - Doors provide more stable temperature in cabinets:
 - Important food-safety issue
 - Confidence for customers

Environmental impact CO₂

- **Conventional:**

- ✓ **CO₂ emissions equals 156 cars (equivalent)**

- (Skoda Octavia 2,0 TDI; 149 g CO₂ /km, yearly milage 15 000 km)**

- **CO₂ – refrigerant:**

- ✓ **CO₂ emission equals 0,1 cars**



x 156 cars

- **Not included 30% reduced energy use from more efficient technology**

Potential CO₂ reduction (Coop Norway)

Based on:

- Average leakage
 - Weighted GWP on existing refrigerants (75 % R507 a)
 - 900 stores
- **30.000 tonnes CO₂ reduction if transition to CO₂**
- **900 trucks around equator...**
- **Although a minor number of stores contributes to most of the leakage, the potential for reduction is huge!**

CONCLUSIONS

The way forward

- **Technical challenges:**

- Need to improve the interaction between cooling, heating and recovering heat. Potentials for improved utilization of recovered heat.
- When mounting doors on existing cabinets, need to adjust and optimise fans, thermostats, defrosting, etc.
- CO₂ on plug-in cabinets

- **Political challenges:**

- CO₂ (natural) refrigerant is probably THE most important environmental measure in retail business
- Need to get attention from stakeholders; authorities, customers

Conclusive remarks

- ✓ **Stores are complex**
- ✓ **Consistent and comprehensive approach to energy efficiency**
- ✓ **Need for maintenance and follow-up**
- ✓ **Focus on costs as well as environment**
- ✓ **New technology essential for reducing environmental impact!**
- ✓ **Cooperation with suppliers**
- ✓ **Need to change mindset of retailers – not just sell products – but do it energy efficiently...**



Thank you for your attention!

Litt grønnere

COOP

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