Addressing the cooling sector's challenges in the EU energy transition

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Keynote Speaker

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EUSEW
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Cooling is important

Many sectors:

➢ Food
➢ Health products
➢ Health equipment
➢ Air conditioning
➢ Liquefaction of gases $\rightarrow$ energy
➢ Heat pumps
➢ Preservation of seeds..., CO$_2$ capture...
➢ Information technology, data centres...
➢ Biotechnology
➢ Space industry
➢ Steel industry
➢ Leisure
...

Temperature is a key unit for materials and the life of species.
A few figures (IIR informatory note):

- 5 billion systems worldwide, including 2.6 billion air-conditioning units (1.1 billion residential; 1 billion mobile; 0.5 billion commercial), 2 billion domestic refrigerators and freezers (+0.12 billion commercial refrigeration...)
- 0.22 billion heat pumps
- Annual sales: 500 billion USD
- Already 20% of the overall electricity used worldwide
- 7.8% of global GHG emissions, 63% due to indirect emissions
Figures are constantly increasing and will continue to increase dramatically, particularly because of two sectors:

➢ **Food and health products**

  Food losses are huge due to a lack of a cold chain: about 20% of the global food supply

  Ex: India

  22% fruits and vegetables, 34% meat → cold chain / Europe 95%

  The number of heat-sensitive healthcare products increased by 45% from 2011 to 2017; one out of 2 medicines on the market is now heat-sensitive.
Air conditioning
AC-ownership rate:
4% in India
60% in China
10% in Europe
90% in the USA and Japan
100% in some Middle East countries

According to the IEA, global energy needs for space cooling would triple by 2050 (baseline scenario-business as usual).
Vital needs

Health is vital, and cooling is health, including air conditioning.

Ex: US

“The mortality impact of days with a mean temperature exceeding 27°C has declined by about 75% over the course of the 20th century”

Development is necessary
Population is dramatically increasing in the less developed countries (Africa, South Asia)
Ageing population is increasing all over the world.
Consequences

Demand for cooling will continue to increase dramatically and global warming will further accentuate this trend, including in Europe.

→ Need for more people
   Ex: In the US, employment of mechanics and installers in HVACR is projected to grow by 15% from 2016 to 2026 (average for all occupations: 7%)

→ Need to reduce the environmental impact
   The Kigali amendment, the F-gas regulation, the MAC directive...
   Use of renewable energy, energy efficiency.
Solutions exist

Certifications
Training
Development of alternative refrigerants
Development of solar energy
Integrated systems (buildings, districts....) but not enough focused on cooling
Energy efficiency margins: ex, the average efficiency of ACs sold today is less than half what is typically available and one third of best available technology.

But Need for information, particularly for SMEs
Promoting cooling in schools (to attract future technicians, engineers...) and in the direction of public authorities is essential
Initiatives

Refrigeration day
Congresses and conferences
Informatory notes, briefs, statements
Databases
Working groups
Research and innovations
...
THANK YOU

Questions

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World Café Introduction

Andrea Voigt
Director General of EPEE
World Café Discussions

Oliver Jung  
EHPA  
Table Host #1

Jonas Loholm Hamann  
GFCCC  
Table Host #2

Susanne Tull  
Danfoss  
Table Host #3
Coffee Break
Reflection & discussion with policy experts and business representatives

Oliver Jung
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Jonas Loholm Hamann
GFCCC

Susanne Tull
Danfoss

Irene di Padua
Solar Heat Europe/ESTIF

Julie Hanson
GCCA

Andrea Voigt
EPEE
Thank you!