

IEA Technology Collaboration Programme on District Heating & Cooling

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What is the IEA District Heating & Cooling TCP?

- IEA-DHC was established in 1983
- Established as a cost-sharing TCP that carries out research projects in three-year 'annexes' which comprise 4 – 6 funded projects
- Also initiated task-sharing (own funded) in 2011
- Current members are: Austria, Canada, China, Denmark, Finland, France, Germany, Korea, Norway, Sweden, UK, USA.

Why do we need technical development of DHC?

- Getting policy and regulatory frameworks right is important

BUT WE ALSO NEED

- **INNOVATION** No technology can expect to flourish if it does not evolve and improve technically
- **INTEGRATION** DHC is no longer *just* an efficient way to provide heat and cool; it is increasingly a key element in a future integrated energy system
- **INTERNATIONAL** Sharing solutions for countries in different situations assists robust and flexible outcomes.

IEA-DHC mission statement

Through international collaboration to conduct highly effective Research and Development as well as Policy Analysis to increase the market penetration of DHC systems with low environmental impact.

Key to this is:

Improving efficiency, environment and economy

Current funded projects

- 1. Effects of Loads on Asset Management of the 4th Generation District Heating Networks
- 2. MEMPHIS - Methodology to evaluate and map the potential of waste heat from industry, service sector and sewage water by using internationally available open data
- 3. Integrated Cost-effective Large-scale Thermal Energy Storage for Smart District Heating and Cooling
- 4. Stepwise transition strategy and impact assessment for future district heating systems.

New Task Sharing (own funded) initiatives

Practical realisation of low temperature district heating systems

Under way. Next meeting 24 October 2018 in Nottingham. Contact: Kristina Lygnerud at kristina.lygnerud@hh.se

Hybrid Energy Networks – District heating and cooling networks in an integrated energy system.

In development. Next meeting 10/11 October in Berlin. Contact: Ralf-Roman.Schmidt@ait.ac.au

Strategic direction

- DHC is an enabling technology to accelerate renewable heat penetration, and it synergises well with future smart electricity grid
- Under the IEA umbrella links between technology groups are readily established. This is increasing because of...
- ... the widening sphere of interest arising from recognition of the importance of DHC technology in achieving environmental goals for future sustainable cities
- As a knowledge base, IEA-DHC projects gathered over 35 years are available at iea-dhc.org
- Much of this knowledge remains valid even as technology evolves.

Links with other IEA programmes

- IEA-DHC held joint workshop May 2016 with IEA research groups on Solar Thermal, Storage, Heat Pumps and Energy Efficiency.
- Joint workshop March 2018 to discuss ways to work together.
- Relevant work in other TCPs include:
 - Solar Thermal ‘Towards the Integration of Large SHC systems into DH.’
 - Smart Grids: cooperation in Hybrid Energy Networks .
 - Storage ‘Distributed Energy Storage for the Integration of Renewable Energies’.
 - Heat Pumps ‘Large Scale Heat Pumps in DHC Systems’
 - Energy Efficiency ‘LowEx Communities’

Other Co-operation

- **International symposium for District Heating & Cooling Now** under the wing of IEA-DHC; Hamburg, 9-12 September 2018; Nottingham 6-9 September 2020
- **Future Building Forum** October 2018; topic was Hot and Humid Climates
- **Mission Innovation** IEA-DHC has agreed in principle to support Mission Innovation #7 Heating and Cooling
- **Working Group on Cities and Communities** IEA-DHC representative attending workshops April & October 2018.

Future Annexes beyond 2020

- District energy networks are developed as large infrastructure projects; requires local and national strategic view for decades
- Fits well for countries with 2050 visions for low/ zero carbon futures
- Many themes need to be continued: migration towards lower temperature systems; integration of local energy sources, smart systems; synergy of infrastructures
- DHC networks are a key enabler for low and zero carbon technologies; hence increased co-operation between technology programmes in pursuit of effective integrated future energy systems.

Further information

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