

IEA Technology Collaboration Programme on District Heating & Cooling

Introduction

Dr. Robin Wiltshire
Chair, IEA-DHC

What is the IEA District Heating & Cooling TCP?

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

Mission statement

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

Key to this is:

Improving efficiency and economy

IEA-DHC: what it does

- Cost-shared projects carried out in three-year 'annexes' which comprise 4 – 6 projects chosen by competitive bidding
- Task-shared projects emerged alongside the cost-share programme; participants identify their own funding
- Approximately 80% of projects are technically focused'; 20% policy focused
- Research topics cover all aspects of DHC technology focusing on reducing cost and improving performance: eg pipe materials, installation techniques, system optimisation, pro-active maintenance, thermal storage, integrating renewables
- Reports are produced for all projects and are available at the website: www.iea-dhc.org

Annex XI (2014 -7) Projects (Cost-shared)

- Transformation roadmap from high to low temperature district heating systems
 - Plan 4DE: Reducing greenhouse gas emissions and energy consumption by optimising urban form for district energy
 - Smart use as the missing link in district energy development
 - Structured for success: governance models and strategic decision making processes for deploying thermal grids.
- *All project reports available at iea-dhc.org*

Annex XII (2017-20) – successful proposals

- 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.

Future Annexes

- District energy networks are developed as large infrastructure programmes; requiring strategic view for decades so fits well for countries with 2050 visions for low/ zero carbon futures
- Themes likely to be continued: integration of local secondary and renewable energy sources, smart systems; synergy of infrastructures
- In-country consultation for the 2020-23 programme will be started soon.

Links with other TCPs

DHC-TCP organised joint workshop May 2016. Relevant tasks in other TCPs include:

- SHC Task 55 'Towards the Integration of Large SHC systems into DH.'
- ECES Task 28 'Distributed Energy Storage for the Integration of Renewable Energies'.
- HPT Task 47 'Large Scale Heat Pumps in DHC Systems'
- EBC Task 64 'LowEx Communities'.

Task share

- Task share ideas are invited from member countries at any time
- Task share ideas should first be submitted to the ExCo as an outline
- If approved, the Task Share enters the Development stage and the lead country organisation arranges a workshop
- Following the workshop a report is made to the ExCo; if approved then the Task Share enters the Preparation stage
- Final approval from ExCo.

Low Temperature District Heating for Future Energy Systems – DHC's first Task Share

- Amplifies the work of the Annex X 4GDH project and the Annex XI System Transformation project
- Fundamental link between low temperature systems, integration of renewables, thermal storage, heat demands of future buildings...
- Concluding LTDH Guide launched 2018
- Follow-up Task Share currently in planning: 'Practical realisation of low temperature DH systems'.

New Task Sharing Initiatives

Practical realisation of low temperature district heating systems

*Now approved by ExCo; kick-off meeting took place April 2018.
Contact: Kristina Lygnerud at kristina.lygnerud@hh.se*

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

ExCo support for proceeding to preparation phase; workshop held 25/26 April 2018. Contact: Ralf-Roman.Schmidt@ait.ac.au

Further information

For more about the IEA-DHC, contact:

Robin Wiltshire (Chair)

Robin.Wiltshire@bre.co.uk

Andrej Jentsch, AGFW (Operating Agent)

IEA-DHC@agfw.de