IEA TECHNOLOGY COLLABORATION PROGRAMME ON HEAT PUMPING TECHNOLOGIES (HPT TCP)

Research, Development, Demonstration and Deployment of Heat Pumping Technology

Chair Stephan Renz

www.heatpumpingtechnologies.org
What is the HPT TCP?

A Technology Collaboration Programme (TCP) within the IEA since 1978

An international framework of cooperation and networking for different HP actors

A forum to exchange knowledge and experience

A contributor to technology improvements by RDD&D projects
The HPT TCP is

The foremost worldwide source of independent information and expertise on environmental and energy conservation benefits of heat pumping technologies
CURRENT 16 PARTICIPATING COUNTRIES

- Austria
- Belgium
- Canada
- Denmark
- Finland
- France
- Germany
- Italy
- Japan
- Netherlands
- Norway
- South Korea
- Sweden
- Switzerland
- United Kingdom
- United States

www.heatpumpingtechnologies.org
HOW DO WE WORK?

Executive Committee
Board of HPT TCP – decides Strategy and Annexes

National Teams
Representing national HP activities
Networking and creation of new ideas

Annexes
Elaborating projects. Collaboration among organisations of member countries

Heat Pump Centre
Operation and communication center
THE HEAT PUMP CENTRE

Information dissemination
- Publications (e.g. Annex reports)
- HPT Magazine (digital publishing)
- Annual Report
- Website www.heatpumpingtechnologies.org
- LinkedIn and Twitter @heatpumpingtech
- National, International Conferences

Programme Support
- ExCo, NTs and Annexes
- IEA Headquaters (ETP, WEO)
- Generation of new activities
- National Teams meetings

www.heatpumpingtechnologies.org
HOW IT WORKS

Creating new Annexes

Executive Committee

Heat Pump Centre

Ideas

Proposals

mandate

information/reports

management/control

Elaborating Knowledge in Annexes

Annex 50
Annex 49
Annex 48
Annex 47
Annex 46
Annex 45
Annex 44
Annex 43
Annex 42
Annex 41

Industry

Universities

IOC

ExCo-Members

NOC

IOC

ExCo-Members

NOC

Collaborating, Exchange Contribution to Conference

Publications

Industry & Market incl. Associations

Every 3 years

www.heatpumpingtechnologies.org
The issue
How can heat pumps be used best in smart grids to reduce energy consumption, CO₂-emissions and energy costs?

Work to do
Inventory of critical success factors for implementation of heat pumping technologies smart grids and smart cities.

Results & benefits
A scenario tool for smart grids in order to support decision makers to select the most competitive solution.
The issue
How can heat pumps in DHC systems be implemented in the best way?

Work to do
Mapping existing solutions, develop new ones, and study market and energy reduction potential and implementation barriers.

Results & benefits
Suggest how heat pumps can be implemented in both new and old district heating systems in the best way and describe the different types of integration.

Image source: RISE Research Institutes of Sweden
The issue
How can we overcome existing difficulties and barriers for the larger scale market deployment of industrial heat pumps?

Work to do
Analyze case studies with large saving potentials and develop a simplified model for integration of heat pumps into a process.

Results & benefits
Condensed information material for policy makers, associations, industries and training courses showing the potential of IHP.
The issue
Find criteria for further developments of current marketable heat pump systems to exploit specific performance opportunities in nZEB.

Work to do
Investigation of heat pump integration options for nZEBs and nZE neighbourhoods. Design and control for heat pumps in nZEB and the integration into energy systems.

Results & benefits
Groups of buildings open up opportunities for load balancing between different use patterns and energy needs.

The Annex 49 is a follow-on of the work in Annex 40 on heat pump concepts for nZEB, with an extended scope, e.g. regarding the balance of single buildings and groups of buildings/neighborhoods.
Population, household numbers and service sector activity will grow significantly faster in developing countries than in the OECD.

Residential buildings in OECD countries are very long-lived and have significant space heat loads.

In developing countries, cooling loads are much more important than heating.
TO REACH THE "WELL BELOW 2D" CHALLENGE

- Energy efficiency measures are necessary
- Fossil fuels must be replaced by renewable energy

Heat pumping technology can contribute to both!

www.heatpumpingtechnologies.org
HEAT PUMPING TECHNOLOGIES IN THE FUTURE

Heat pumping technology (HPT) = an enabling technology in future energy solutions

• HPT can significantly contribute to reduction of CO$_2$-emissions

• HPT is an excellent electricity sink in order to balance the grid to handle intermittent production

• Greening the grid makes HPT even greener!

HPT = efficient and renewable

www.heatpumpingtechnologies.org
HEAT PUMPS ARE ENERGY EFFICIENT AND RENEWABLE!

Building  Industry  City  Grid  Future

Rethink Energy, Act NOW

IEA HPT TCP wishes you a successful Conference. Thanks for attending

www.heatpumpingtechnologies.org
WELCOME TO CONTACT US

hpc@heatpumpcentre.org
www.heatpumpingtechnologies.org
Please take a few minutes to fill out our survey

Your answers are important!

Online or Paper

- The Survey link is also available from our website
- Paper survey available in booth 18 - Heat Pump Centre

https://www.surveymonkey.com/r/P6LRBKT