

2016 HIGHLIGHTS

Task 55 – Towards The Integration of Large SHC Systems in DHC Networks

THE ISSUE

In recent years, megawatt-scale solar thermal district heating (SDH) systems have gained increasing attention globally. Several ambitious projects were successfully implemented in countries such as Austria, Germany, Italy, France, Spain, and Norway. Large-scale SDH systems and their large-sized seasonal storages have become attractive options for cost effective and low carbon heat supply. In the next step, large systems will become even bigger and likely grow from MEGA to almost GIGA-sized installations. These systems will be able to meet the increasing energy demand of city districts and of whole cities. Compared to conventional heat generation systems, the effective operation of a SDH network and its seasonal storage can guarantee a primary energy consumption reduction of >70% in thermal needs. However, the actual integration of large solar thermal systems into existing and new networks faces several challenges. Expertise on the integration of large solar thermal systems into district networks is limited so SHC Task 55 is working to develop technical and economic solutions to leverage large-scale solar thermal district heating and cooling systems worldwide.

OUR WORK

SHC Task 55 aims to provide a platform for practitioners and scientists to elaborate on the benefits and challenges of SDH and SDC systems. It elaborates on options and measures to realize sophisticated SDH and SDC systems by focusing on characteristics of solar thermal systems, technical and economic specifications of district heating networks that are relevant for the integration of solar thermal systems and hybrid technologies, analyses of system components and their integration, modular designs of large SDH/SDC systems, and economic requirements of large SDH/SDC systems in different market regions. Finally, SHC Task 55 is a collaborative project with the IEA Technology Collaboration Programme on District Heating and Cooling including Combined Heat and Power (IEA DHC).

Participating Countries

Austria

Canada

China

Denmark

Finland

France

Germany

Italy

Poland

Spain

Switzerland

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KEY RESULTS IN 2016

Task Kick-Off

Successful Task 55 Kick-off Meeting in Graz, Austria, October 19-21, 2016

Twenty-five experts from 18 different institutions and 8 different countries participated in the Kick-off Meeting in Graz, Austria. Eight participants were industry partners.

The meeting took place over a three-day period. On the first two days, the Operating Agent presented the Task's status and objectives, and the Subtask leaders presented and discussed their expectations as well as Task contributions. Partner institutions confirmed their input for the Task and the deliverables, and also presented first projects suitable to contribute to Task work. Finally, on the third day, the group of experts visited a large (ca. 7,700m²) scale solar thermal plant that feeds into a district heating network. The highlight of the technical tour was to see an in-situ collector field where performance tests from six different collector producers are currently on going. After the technical tour, Fraunhofer ISE organized a technical workshop on in-situ collector performance tests to elaborate on selected technical challenges to be addressed during SHC Task 55.

Industry Partners

Increasing number of participants with an industry background

SHC Task 55 follows a research partnering approach. It recognizes that a number of companies have a range of research questions, but a limited capacity to address them. Task 55 offers a solution by providing a network that connects research and industry backgrounds. The international exchange of expertise can save industry partners financial and human capital and can provide research institutions industry challenges for future research agendas. Thereby, all parties contribute to Task 55 outcomes in a collaborative manner. An increasing number of industry partners from countries, such as France, recognize these opportunities and have joined Task 55.



Cooperation With The IEA District Heating And Cooling Technology Collaboration Programme

The IEA Technology Collaboration Programme on District Heating and Cooling including Combined Heat and Power (IEA DHC) is officially cooperating with SHC Task 55 on a moderate level.