Projects:

IEA SHC Task 55 - Integration of Large SHC Systems into District Heating and Cooling (DHC) Networks (II)

The aim of the project is - through exchange of international knowledge - to develop and promote solar district heating plants. Denmark is in front in this field and the project gives good opportunities for promotion of Danish know how and technology. The overall objective is to increase the use of solar thermal energy throughout the world.

Project description

The project activities and expected outcomes are:

- System description and design of low cost and high performance large-sized SDH and SDC systems as well as the design and evaluation of large scale seasonal storages and hybrid technologies.
- Further, technical analyses of findings will be presented within a report for city district planners, dealing with the integration of solar thermal and seasonal storages. Additionally, a specific report for planners will focus on system requirements for SDH and SDC, modular conception and construction as well as the minimization of piping and losses.
- Established business and financing models: Objectives here are reference calculation models of SDH and SDC as well as economical requirement definitions for new systems and markets.
- Guidelines to secure low operation and maintenance efforts for very large systems including automated operational surveillance.
- Advanced control systems for large-sized solar and hybrid systems.
- A comparison of measured collector performances in the field, and singular collector tests in the laboratory. Results will be the basis for a validated measurement method of solar collector fields and the validation of performance guarantee procedures.
- Data for the optimization of very large collector fields’ performances based on adjusted hydraulics and minimized system losses.
- Promotion and technology spread of large systems in new markets through the continuation of the existing database from the IEA SHC Task 45, 48 and 49.
- Country reports including case studies and feasibilities.

Department of Civil Engineering

Energy and Services

Period: 01/01/2019 → 31/12/2020
Number of participants: 7
Large solar heating plants, District heating and cooling, System integration, Solar collector field, Large heat storages, Performance analysis, Business models, System controls
Acronym: IEA Task 55
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Project