

IEA Solar Heating and Cooling Programme

Task 53: New generation solar cooling & heating Systems (PV or solar thermally driven systems)

Finding solutions to make the new generation of solar heating and cooling systems cost competitive.

OBJECTIVES

To analyze the interest of new generation (PV or solar thermally driven) solar cooling & heating concepts systems for buildings in all climates and select best solutions for highly reliable, durable, efficient and robust solar cooling and heating (ambient + DHW) systems

To support the development of a strong and sustainable market for solar PV or new innovative thermal cooling systems. It is focusing on solar driven systems for both cooling (ambient and food conservation) and heating (ambient and domestic hot water).

AREAS OF WORK

Subtask A: Components, Systems & Quality

Leader: **Tim Selke (AIT, Austria, tim.selke@ait.ac.at)**

Focusing on the knowledge of the commercially available equipment on the AC side compatible with PV electricity supply as well as solar thermal cooling equipment

This subtask will permit to easily classify the ST/PV cooling products/application (schematic square view method) so as to prepare a certification process. It will estimate the value of electricity and LCA of the main components and systems

Subtask B: Control, Simulation & Design

Leader: **Roberto Fedrizzi (EURAC, Italy, roberto.fedrizzi@eurac.edu)**

Investigating the different control possibilities of new generation cooling & heating systems for buildings in order to select the best strategies for given climates and countries and developing modeling tools to predict performances and size/design systems and to manage smart interactions with the electric grid.

Subtask C: Testing and Demonstration Projects

Leader: **Richard Thygesen (Mälardalen University, Sweden, richard.thygesen@mdh.se)**

Stimulating, monitoring and analyzing the performances of field test systems and demonstration projects for new generation solar cooling & heating systems.

Subtask D: Dissemination and Market Deployment

Leader: **Daniel Mugnier (TECSOL, France, daniel.mugnier@tecsol.fr)**

Disseminating results of work to technical stakeholders and policy makers and creating and promoting certification and standardization schemes.

Outcomes

- State of the art of new generation commercially available products
- Technical report on optimized control strategies for solar cooling & heating systems
- Design tool including a country- and climate-sensitive economic analysis
- Handbook on new generation solar cooling and heating systems
- International workshops
- Meetings with policy makers at the national level

Duration

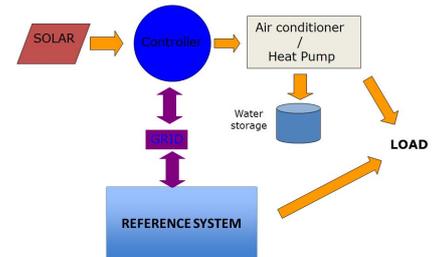
March 2013 – June 2017

Participating Countries

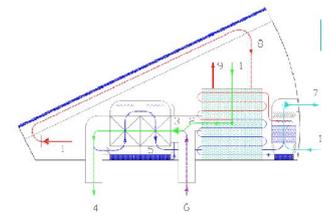
Australia	Netherlands
Austria	Spain
France	Sweden
Germany	Switzerland
Italy	

Operating Agent / Contact

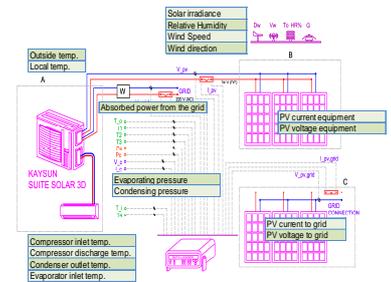
Daniel Mugnier - TECSOL SA. - 105 av Alfred Kastler - BP 90434 - 66 004
PERPIGNAN Cedex – FRANCE
E-mail : daniel.mugnier@tecsol.fr



Principle scheme for a PV cooling concept
(Source: TECSOL)



Concept for compact solar thermal air conditioner based on fixed & cooled adsorption beds
(Source: Solarinvent)



Testing principle for a PV split unit
(Source: Universidad Miguel Hernández de Elche)



Demonstration site for new generation SAC
(Source: TECSOL)

Task 53 

<http://task53.iea-shc.org/>

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