

SHC Task 53 New Generation Solar Cooling & Heating Systems (PV or solar thermally driven systems)

THE ISSUE

A tremendous increase in the market for air-conditioning can be observed worldwide especially in developing countries. The results of the past IEA SHC Tasks and work on solar cooling in *SHC Task 38: Solar Air-Conditioning and Refrigeration* show the large potential of this technology for building air-conditioning, particularly in sunny regions. However, solar thermal cooling faces barriers to emerge as an economically competitive solution. Thus there is a strong need to stimulate the solar cooling sector for small and medium sized systems.

OUR WORK

This Task, building upon earlier IEA SHC work in this field, is working to find solutions to make solar driven heating and cooling systems cost competitive and to help build a strong and sustainable market for solar PV and new innovative thermal cooling systems. These objectives are being tackled through five activities:

1. Investigation of new small to medium size PV & solar thermal driven cooling and heating systems and development of best suited cooling and heating systems technology with a focus on reliability, adaptability and quality.
2. Proof of cost effectiveness of the above mentioned solar cooling and heating systems.
3. Investigation on life cycle performances on energy and environmental terms (LCA) of different options.
4. Assistance with the market deployment of new solar cooling and heating systems for buildings worldwide.
5. Increasing energy supply safety and influencing the virtuous demand side management behaviors.

The Task's scope is technologies for the production of cold/hot water or conditioned air by means of solar heat or solar electricity. That is the Task starts with the solar radiation reaching the collectors or the PV modules and ends with the chilled/hot water and/or conditioned air transferring to the application. It is focused on solar driven systems for both cooling (ambient and food conservation) and heating (ambient and domestic hot water).

Participating Countries

Australia
Austria
China
France
Italy
Spain
Sweden
Switzerland

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KEY RESULTS OF 2014

SHC Task 53 started in March 2014. The first results have been presented at numerous events, which can be found on the SHC Task 53 webpage.

Survey of Existing New Generation Solar Cooling systems

This activity is focused on building a state-of-the-art for new cooling and heating system configurations. To begin, experts collected information from the Task partners and distributed a survey to gather information on market available products.

The consolidated state-of-the-art will be available mid-2015 and then updated based on the progress occurring in the field thanks to R&D.



SHC Task 53 world map of commercially available new generation solar cooling systems (no claim for completeness).

Task Presentation & Links with IEA PVPS Programme

The IEA PVPS Programme's Task 1 organized two workshops in Israel during the EU PVSEC Conference 2014 to showcase the latest results of this Task, with an emphasis on the status of solar PV in the world and PV self consumption.

The first workshop addressed the question of solar energy implementation and developments in Israel. It confronted the visions of Israel's officials and academics regarding PV development, with input from international experts of IEA PVPS and IEA SHC.

The second workshop was organised by IEA SHC, IEA PVPS and EPIA. Daniel Mugnier, the Operating Agent of IEA SHC Task 53 presented the Task and discussed what is PV for solar cooling and heating.

This collaboration created strong links between the IEA SHC Task 53 and IEA PVPS Task 1 and Task 14.



Task 53 presentation during the EU PVSEC conference PVPS workshop.

SHC Task 53 is a 3-year collaborative project that will be completed in June 2017.