

# 2011 HIGHLIGHTS

## SHC Task 48 Quality Assurance and Support Measures for Solar Cooling

### THE ISSUE

The demand for air-conditioning is rapidly increasing, especially in developing countries. And the potential for solar cooling to meet this demand is immense. The results of past IEA SHC work in this field (most recently, SHC Task 38: Solar Air-Conditioning and Refrigeration) have demonstrated the technology's potential for building air-conditioning, particularly in sunny regions, and identified work needed to achieve economically competitive systems that provide solid long-term energy performance and reliability.

To meet these challenges, a new SHC Task entitled "Quality Assurance and Support Measures for Solar Cooling" started in October 2011.

### OUR WORK

Finding solutions to make solar thermally driven heating and cooling systems at the same time efficient, reliable and cost competitive is the goal of the new SHC Task 48: Quality Assurance and Support Measures for Solar Cooling.

These three major targets should be reached thanks to four levels of activities:

- 1) Development of tools and procedures to characterize the main components of Solar Air-Conditioning systems.
- 2) Creation of a practical and unified procedure, adapted to specific best technical configurations.
- 3) Development of three quality requirements targets—prescriptive and performance based.
- 4) Production of tools to promote Solar Thermally Driven Cooling and Heating systems.

### PARTICIPATING COUNTRIES

Australia  
Austria  
Canada  
Belgium  
France  
Germany  
Italy  
Singapore  
South Africa  
Spain  
USA

The scope of the work covers technologies for the production of cold water or conditioned air by means of solar heat, that is, starting with the solar radiation reaching the collector and ending with the chilled water and/or conditioned air transferred to the application. Although the distribution system, the building, and the interaction of both with the technical equipment are not the main topic of the Task this interaction will be considered where necessary..

**Task Date** 2011-2015  
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## KEY RESULTS OF 2011

**Task 48 has just started in October 2011 so the main results are mostly in the organization of the future work**

### **Structuration of Task 48 work** *Organisation of the work to be done within 2015.*

The Task is divided into four subtasks:

**Quality Procedure on Component Level.** This subtask concentrates on developing tools to show the level of quality of the most critical components of the solar cooling and heating system. These components are mainly the chiller, the heat rejection device, the pumps, and the solar collectors.

**Quality Procedure on System Level.** This subtask concentrates on developing tools to show the level of quality of the solar cooling and heating systems. To achieve this goal, a procedure will be developed to extend the quality characteristics from a component level to a system level. In a second step, an extension of the procedure from a single stationary state to a performance prediction over a year will be developed. Thus Subtask B is closely linked to subtask A and its results.

**Market Support Measures.** The work within this subtask will create a panel of measures to support the market. These measures will use the results of Subtasks A and B, and above all, explore the possibilities to identify, rate, and verify the quality and performance of solar cooling solutions. The resulting tools are intended to provide a framework that will enable policy makers to craft suitable interventions (for example, certificates, label and contracting, etc.)



#### TASK 48

#### Quality assurance and support measures for Solar Cooling



#### Task description and Work plan

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that will support solar cooling on a level playing field with other renewable energy technologies. Even if the completion of these tools is not quickly achieved, the subtask should be able to initiate all and maybe complete some of them.

Dissemination and Policy Advice. The work in this subtask covers horizontal activities related to Subtasks A, B, and C. The objectives of this subtask are the implementation of targeted promotion activities based on the collective work results, the production of dissemination material for external communication, the implementation of knowledge transfer measures towards the technical stakeholders, the development of instruments and their provision for policy makers, and the creation and promotion of certification and standardization schemes.

**The first reports from this work will be available the end of 2012.**