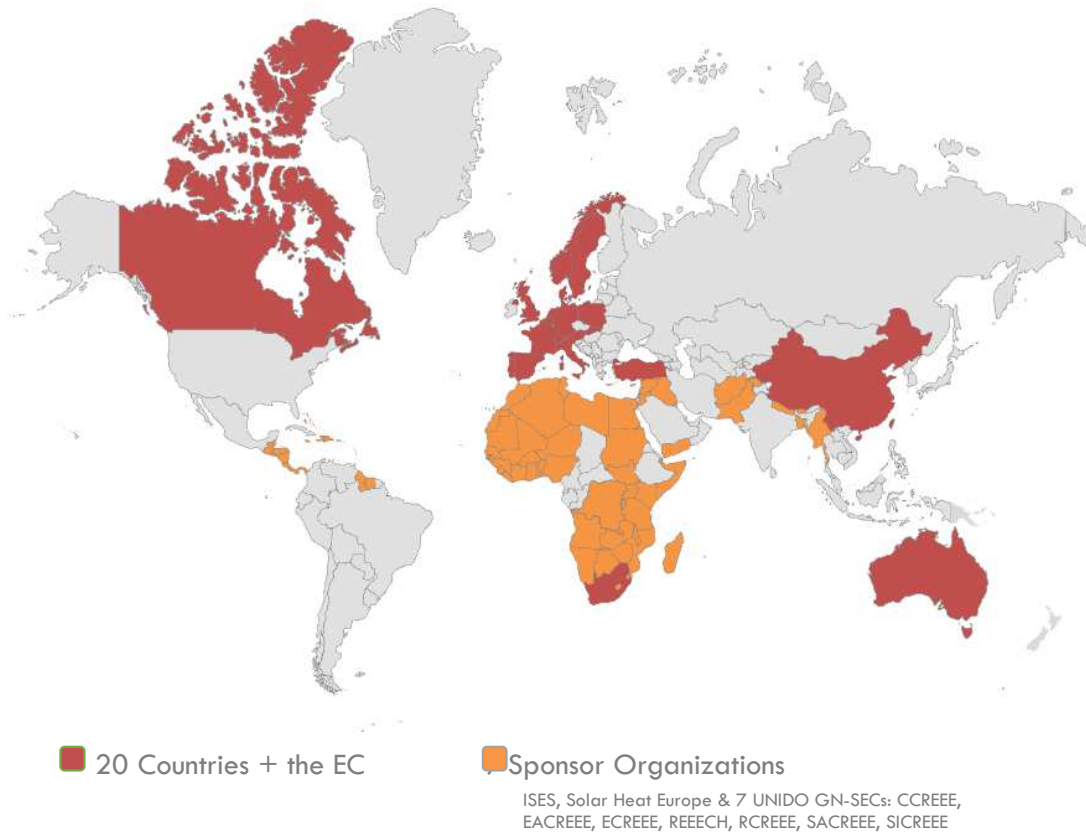


# What is the Solar Heating & Cooling (SHC) Programme?



- Project-focused **international R&D collaboration** since 1977
- **20 member countries, European Commission plus 9 international organizations**
- **200+ experts**
- **7 running Tasks**
  1. PVT Heating Systems
  2. Solar district heating
  3. High comfort integrated lighting
  4. Solar hot water for 2030
  5. Life cycle and cost assessment for heating and cooling technologies
  6. Solar photoreactors for the production of fuels and chemicals
  7. Compact Thermal Energy Storage Materials

## What is the SHC Solar Academy?

The Solar Academy is a **platform the SHC Programme uses to share and apply** our findings and experiences from our Tasks with as many people as possible.

Our Tasks produce not only valuable **scientific results**, but also:

- **training materials**
- **case studies, fact sheets and databases**
- **design, evaluation and assessment tools**



# What does the SHC Solar Academy offer?

**Webinars** – held quarterly and hosted by ISES

- Next webinar is June 24/26, 2025
- All webinars: 14.00 GMT and rebroadcast with live Q&A at 6:00 GMT

**Recording of previous Webinars**

👉 <https://www.iea-shc.org/solar-academy/webinars>

**Onsite Training** – solar heating and cooling training workshops by our experts. Available upon request by IEA SHC member countries/organizations.

- Past trainings: China, Cap Verde/ECREEE/West Africa, United Kingdom
- Next training: Solar drying and industrial cooling in SADC region at 18-22 August 2025



# Where to find more information

Visit our website – [www.iea-shc.org](http://www.iea-shc.org)

Download a free SHC publication – [www.iea-shc.org/publications](http://www.iea-shc.org/publications)

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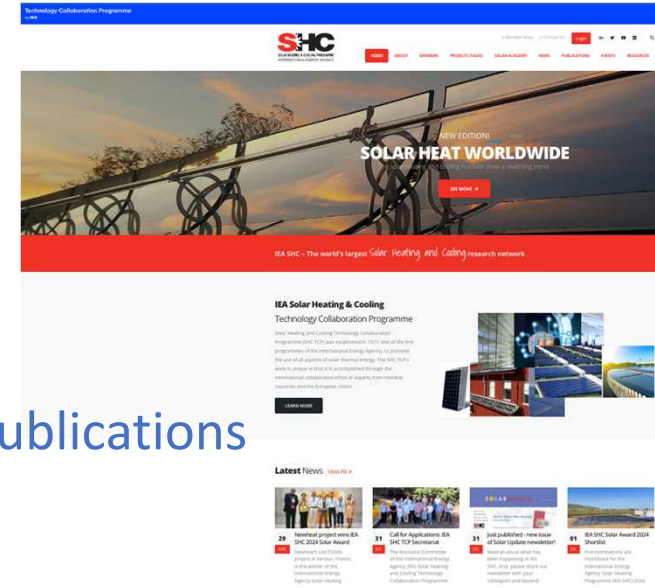


IEA Solar Heating and Cooling Programme (group 4230381)



@ieashc2365

Have questions? Want to be part of an SHC Task? – [secretariat@iea-shc.org](mailto:secretariat@iea-shc.org)



# Our flagship report

Werner Weiss, Monika Spörk-Dür

Global Market Development and Trends 2023  
Detailed Market Figures 2022

**SOLAR HEAT WORLDWIDE**  
Edition 2024

**SHC**  
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Past Issues

**In Brief**

Solar Heat Worldwide is published annually. Since 2005, countries, now 72, have provided data to create the most comprehensive assessment of solar heating and cooling markets worldwide.

# Our semiannual newsletter

**SOLARUPDATE**  
VOL. 28 - DECEMBER 2023

Newsletter of the  
International Energy  
Agency Solar Heating  
and Cooling Programme

**SHC**  
INTERNATIONAL ENERGY AGENCY  
Solar Heating and Cooling Programme

**Solar Energy Buildings Around the World**

**A Single-family houses in Freiburg, Germany, in continental climate.**  
Photo: Lukas Oppelt, TU Bergakademie Freiberg.

The analysis of 20 Solar Energy Buildings demonstration cases is wrapping up in **IEA SHC Task 66 on Solar Energy Buildings**. In this article, you will preview some of the high-solar fraction buildings in this collection.

The case studies include single- and multi-family homes and commercial buildings in different climate zones and inside and outside district heating areas. A) the buildings, except one in India, are connected to the electric grid. The selected buildings aim for high self-sufficiency in heating, cooling, and electricity. The degree of self-sufficiency is defined as renewable energy consumption divided by total energy consumption. The Solar Energy Building demonstration cases are distributed across Europe (13), Asia (6), and Australia (1). The European demonstration cases are in Austria (4), Germany (6), Poland (1), Portugal (1), and Denmark (1), and the Asian are in China (1) and India (5).

The technologies used in the IEA SHC Task 66 Solar Energy Building cases in Europe and Asia are shown in Figure 1.

It is noticeable that the variability of technologies is more significant in Europe than in Asia. On average, the 13 European cases use five different technologies to reach a high degree of self-sufficiency, while the Australian case uses six different technologies. In contrast, the Asian average is

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PORTUGAL  
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SLOVAKIA  
SOUTH AFRICA  
SPAIN  
SWEDEN  
SWITZERLAND  
UNITED KINGDOM

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Free to download

<https://www.iea-shc.org/solar-heat-worldwide>

# If after the webinar, you want to join this SHC Task

1. **Check** if your country is an IEA SHC member

[www.iea-shc.org/members](http://www.iea-shc.org/members)

[www.iea-shc.org/organization-members](http://www.iea-shc.org/organization-members)

2. **Learn** more about the Task on the SHC website

[www.iea-shc.org/tasks](http://www.iea-shc.org/tasks)

3. **Contact** the Task Manager to discuss your interest & expertise

[www.iea-shc.org/tasks](http://www.iea-shc.org/tasks)

# Compact Thermal Energy Storage materials characterization : Advances in Materials and Performance Insights from IEA SHC Task 67

## Wim van Helden

is working at the Austrian institute AEE INTEC since 2014 as a Senior Expert on Thermal Energy Storage. He has long experience in leading national and international research and demonstration projects, developing large scale Thermal Energy Storage and compact Thermal Energy Storage. He is Task Manager of Task 67 on *Compact Thermal Energy Storage Materials Within Component Within Systems*. Wim studied Technical Physics and did his PhD in Energy Technologies at the Eindhoven University of Technology in the Netherlands.



# Compact Thermal Energy Storage materials characterization techniques

## Dr Daniel Lager

has been working in the field of Thermophysics and Thermal Analysis since 2007 and is head of the associated accredited laboratory at the AIT Austrian Institute of Technology since 2019. He received a PhD degree from Vienna University of Technology in 2017 for his dissertation which focused on thermophysical characterisation of heat storage materials. Parallel to his work at AIT, he is an external lecturer at the University of Applied Sciences Burgenland, Austria.





# How to determine and categorise materials performance degradation

## Christoph Rathgeber

is Deputy Head of the Thermal Energy Storage Group at the Bavarian Institute for Applied Energy Research (ZAE Bayern) in Germany. His main field of research are phase change materials based on salt hydrates. As part of several working groups within IEA SHC, he has investigated experimental methods for the characterization of PCM under application conditions.

