

2020 HIGHLIGHTS

Task 60 – PVT Systems

THE ISSUE

A solar PV/Thermal (PVT) collector produces both heat and electricity.

Developments in the solar industry have opened the door for PVT applications:

1. The strong and increasing interest in Building Integrated PV (BIPV) and Façade Integrated PV (FIPV) not only in office and industrial buildings, but also in residential buildings where electricity and heating and sometimes cooling is required.
2. The developments in heat pump technology create more possibilities to make use of the low exergy heat source of uncovered PVT collectors and reduce the energy cost for the user and the need for borehole storage.
3. The low cost of PV technology makes it attractive to combine with thermal.

The HVAC industry, however, is not fully aware of the possibilities and benefits of PVT solutions and SHC Task 60 helped to make the technology more visible. International standards devoted to PVT collectors are now progressing thanks to this Task, this in order to create more confidence in a new technology for solar energy planners and also customers.

OUR WORK

The aim of SHC Task 60 was to assess existing PVT solutions and develop new system solutions principles in which the PVT technology offers advantages over the classic “side by side installations” of solar thermal collectors and PV modules. Best practices were collected for these systems to help accelerate the market acceptance of PVT technologies.

Many parameters of a PVT installation must be assessed: heat production, electricity yield, global efficiency, qualitative indicators, user benefits, investment, energy and maintenance costs, and safety and reliability of operation. All those Key Performance Indicators have been defined and assessed by Task participants and evaluated for several typical PVT applications.

SHC Task 60 experts have:

- Provided a state-of-the-art of PVT technology worldwide.
- Gathered operating experiences with existing PVT systems.
- Improved the testing, modelling and adequate technical characterization of PVT collectors.
- Found standard and best practice PVT solutions.
- Explored potential cost reductions in PVT systems.

Increasing awareness of PVT solutions to all stakeholders was a key objective of this international collaboration.

Participating Countries

Australia

Austria

Canada

China

Denmark

France

Germany

Italy

Netherlands

South Africa

Spain

Sweden

Switzerland

United Kingdom

Task Period

2018 – 2020

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KEY RESULTS IN 2020

Publications

In 2020, SHC Task 60 published the following reports. The complete collection can be found on the Task website in the [Publications](#) section.



SHC Solar Academy Webinar

Webinars on PVT issues have been held over the course of the Task and are available online. The 2020 webinar was devoted to PVT principles, technology and applications

Click [here](#) to watch the 2020 PVT webinar.



Conclusion of SHC Task 60

PVT experts worked together in SHC Task 60 from 2018 - 2020 to describe state-of-the-art PVT collectors and their applications and evaluate existing solutions to provide heat and electricity to buildings.

It was found that the current PVT industry, made up of a few companies with 10 years' experience and start-ups, has quality products. Many interesting existing PVT system applications can deliver solar "energies" at a very high level of efficiency, thus maximizing the use of any roof devoted to solar energy collection.

PVT installations can have short payback times when heat is needed throughout the year and electricity can be self-consumed. Hotels are a good example. Reports published in SHC Task 60 include good examples of PVT installations in several market segments.

The PVT industry can contribute to the decarbonization of the heat energy sector. Solutions are available.