

Task 60

PVT Systems

Application of PVT collectors and hybrid solutions in energy systems

Areas of Work

- PVT systems in operation
- PVT collectors testing
- PVT systems simulation
- Global Performance assesment

Scope

What is PVT?

A PVT (PhotoVoltaic and Thermal) collector is a solar device able to provide both heat and electricity. A PVT system is an installation able to provide heating, cooling and electricity along the year to any consumer (building, process, network, grid) at a suitable temperature and voltage. The electricity can be internally consumed or delivered to a grid.

Optimizing a PVT systems means delivering the maximum of solar energy over a year at a minimum cost of kWh. This comprises both heat and electricity.

PVT collectors or PVT systems?

The development of new PVT collectors is a matter of the industrial sector and new collectors are on the market with industries willing to participate in our IEA activity. The proposed project will therefore concentrate on the application of PVT collectors. The aim is to assess existing solutions and to develop new system solutions principles in which the PVT technology really offers advantages over classical "side by side installations" of solar thermal collectors and PV modules.

Objectives

1. Provide an overview on the present (2018-2020) state-of-the-art of the PVT technology
2. Gather operating experience with the systems in which PVT collectors are integrated.
3. Improve the testing, modeling and adequate technical characterization of PVT collectors
4. Find best PVT solutions for all kind of applications

The optimization is not only a technical issue

Optimizing the production of heat and electricity whether to be consumed immediately or later, stored locally or injected into a network needs economic parameters, such as local electricity tariffs and their variations. This project will address this issue using specific methods and tools.

Duration

From 01.2018 to 12.2020.



A PV and T collector with a similar appearance an be one elegant solution to produce both heat and electricity (courtesy: supplier).



PVT combined in a single product easy to integrate in roofs or facades and even under concentration (courtesy: MB. Solarus, Dualsun)

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