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Greece
www.aua.gr
www.renewables.aua.gr



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Sweden
www.lumicum.org



Centro De Investigaciones
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www.psa.es



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C. Bouzianas—D. Moschovitis
 & Co EE
Greece
www.hellasenergy.gr



Sistemas De Calor SL
Spain
www.sistemasdecalor.com



Deconinck NV
Belgium
www.deconinck.be

Duration and Funding

The project duration is 24 months (start: January 2013) and is receiving funding from the European Union's Seventh Framework Programme managed by REA—Research Executive Agency, <http://ec.europa.eu/research/rea> ([FP7/2007–2013] [FP7/2007–2011]) under grant agreement n° 315049 [CPV/RANKINE], FP7-SME-2012.



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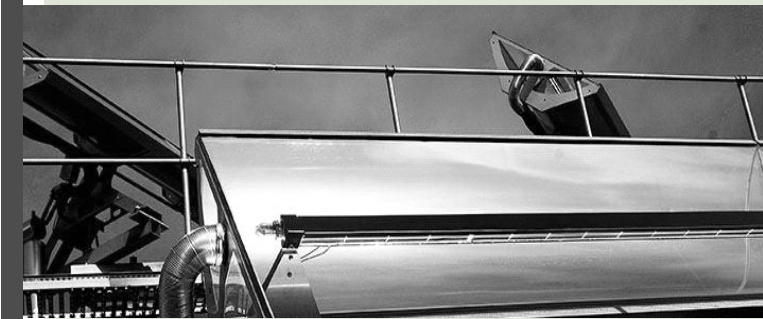
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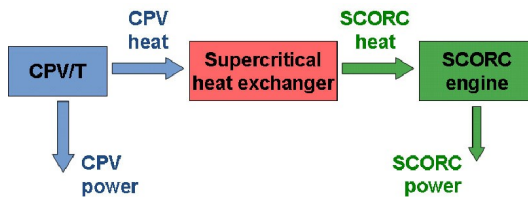


Source: www.absolicon.com/

**Improving the Performance of Concentrating
 PV by Exploiting the Excess Heat through a
 Low Temperature Supercritical Organic
 Rankine Cycle**

Concept

The proposed innovative concept deals with the conversion of the CPV/T heat to additional electricity through the Supercritical Organic Rankine Cycle (SCORC) process.



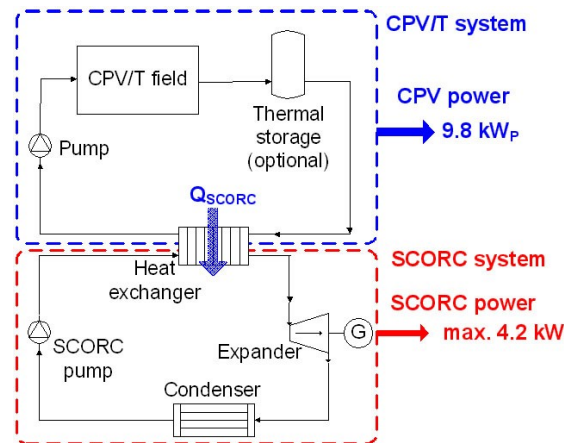
Integrated system concept

This integrated CPV/T-SCORC system minimizes the temperature effect on the PV cells performance and improves the annual energy productivity (in kWh/kWp). In comparison to a flat PV system a performance improvement between 15-40% is anticipated.

Objective

The objective of the project is to develop, construct and test a small-scale hybrid system with a capacity of 14 kWp, where CPV/T heat is effectively recovered by the SCORC process for electricity generation. A significant reduction of specific electricity cost is anticipated, making the current technology competitive in the PV market.

The participating SMEs are coming from Greece, Spain and Belgium.



Simplified integrated system design



Source: www.absolicon.com/

CPV/T: The CPV/T used is a solar collector that simultaneously generates heat and electricity as it combines a photovoltaic panel and a solar thermal collector in the same module. The solar cells are optimized for concentrated solar radiation and each cell has 10 times more electric production than the same surface of solar cells.

SCORC: A Supercritical Organic Rankine Cycle technology is used for the recovery of low-grade heat. The working fluid is a refrigerant, which can boil at temperature as low as 60°C, while the scale of such engines can be of few kW.