

EDITOR

Evaluation of the Dispatchability of a Parabolic Trough Collector System with Concrete Storage

Project Duration: 01.2016 to 12.2018.

Initial report submitted: 05.2016

Summary

The objective of EDITOR is to carry out industrial research that demonstrates and verifies the dispatchability and performance of a solar power system designed for continuous operation. The system will consist of a mid-sized parabolic trough collector loop combined with a concrete thermal energy storage and is experimentally designed for industrial applications requiring heating or cooling on a 24 hour basis. The solar power plant will be installed in Cyprus, which has excellent solar resources. The planning phase of the project includes identifying a consumer, for example, the Cyprus University of Technology or a company that uses industrial process heat.

The current market for solar collectors designed for process heat applications is dominated by systems with maximum operating temperatures of around 250 °C. Whilst these collectors are able to generate process steam effectively, few of these have been equipped with any form of storage. Larger solar collectors designed for supplying energy to electrical generation plants have been equipped with complex molten salt storage systems and can operate at higher temperatures, but to do so often use thermal oils as heat transfer media that are classified as toxic and harmful.

EDITOR will not only test an innovative new concrete storage system, but will operate at temperatures of over 400 °C, which is made possible by the use of a new evacuated receiver tube and a new environmentally friendly silicone based thermal oil.

The three year project not only involves the technical activities of building, commissioning and running the solar power system but will also cover commercial considerations such as the feasibility of scale-up, the identification of future customers and communication regarding this important development with the potential market.

The EDITOR team is made up of 5 partners from three countries, all of whom bring the specific experience of the solar industry required to ensure that the project will be successful.

Project consortium

Coordinator and all contact details:

Full name of organisation	protarget AG
First and family name of coordinator:	John Mitchell
Full address:	Zeissstrasse 5, 50859, Cologne, Germany
E-mail:	mitchell@protarget-ag.com

Participating countries and financing:

Country	Number of organisations involved	Project costs in EUR	Public funding in EUR
Germany	3	722'041	578'310
Cyprus	1	100'000	100'000
Spain	1	124'761	62'380
<i>Total</i>	<i>5</i>	<i>946'802</i>	<i>740'690</i>

Funding agencies involved and contracts

Funding Agency	Contract N° and Title
Projekträger Jülich	0325845A - EDITOR
Projekträger ETN	W039
Projekträger Jülich	0325845B - EDITOR
Ministerio De Economia Y Competitividad	PCIN-2014-139
Research Promotion Foundation	Evaluation of the Dispatchability of Parabolic Trough Collector System with Concrete Storage